FINAL REPORT

EBRD ENERGY SECTOR ASSESSMENT 2010
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>3</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>5</td>
</tr>
<tr>
<td>I. Acknowledgements</td>
<td>6</td>
</tr>
<tr>
<td>II. Background and objectives</td>
<td>6</td>
</tr>
<tr>
<td>III. Assessment Model and Methodology</td>
<td>7</td>
</tr>
<tr>
<td>1. Benchmarks</td>
<td>8</td>
</tr>
<tr>
<td>2. Indicators</td>
<td>9</td>
</tr>
<tr>
<td>3. Country/regional groupings</td>
<td>10</td>
</tr>
<tr>
<td>IV. Renewable energy sources and energy efficiency</td>
<td>11</td>
</tr>
<tr>
<td>V. Data gathering</td>
<td>13</td>
</tr>
<tr>
<td>1. Source</td>
<td>13</td>
</tr>
<tr>
<td>2. Questionnaires and responses</td>
<td>13</td>
</tr>
<tr>
<td>VI. Explanation of assessment and results</td>
<td>14</td>
</tr>
<tr>
<td>1. Country profile</td>
<td>14</td>
</tr>
<tr>
<td>2. Spider graphs</td>
<td>15</td>
</tr>
<tr>
<td>3. Bar graphs</td>
<td>16</td>
</tr>
<tr>
<td>VII. Country profiles, separated by region</td>
<td>17</td>
</tr>
<tr>
<td>A. Group A Countries (EBRD Countries of Operations which are EU Member States)</td>
<td>18</td>
</tr>
<tr>
<td>BULGARIA COUNTRY PROFILE</td>
<td>19</td>
</tr>
<tr>
<td>1. Institutional structure</td>
<td>19</td>
</tr>
<tr>
<td>2. Electricity sector</td>
<td>20</td>
</tr>
<tr>
<td>a. Market framework</td>
<td>20</td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>21</td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>22</td>
</tr>
<tr>
<td>3. Gas sector</td>
<td>22</td>
</tr>
<tr>
<td>a. Market framework</td>
<td>22</td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>23</td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>23</td>
</tr>
<tr>
<td>4. Renewable energy sources/energy efficiency</td>
<td>24</td>
</tr>
<tr>
<td>5. Conclusion</td>
<td>25</td>
</tr>
<tr>
<td>CZECH REPUBLIC COUNTRY PROFILE</td>
<td>28</td>
</tr>
<tr>
<td>1. Institutional structure</td>
<td>28</td>
</tr>
<tr>
<td>2. Electricity sector</td>
<td>29</td>
</tr>
<tr>
<td>a. Market framework</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Gas sector</td>
</tr>
<tr>
<td>---</td>
<td>------------</td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Renewable energy sources/energy efficiency</td>
</tr>
<tr>
<td>5.</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>

**LITHUANIA COUNTRY PROFILE**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Institutional structure</td>
<td>61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Electricity sector</td>
<td></td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Gas sector</td>
<td></td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Renewable energy sources/energy efficiency</td>
<td></td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Conclusion</td>
<td></td>
<td>67</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**POLAND COUNTRY PROFILE**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Institutional structure</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Electricity sector</td>
<td></td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Gas sector</td>
<td></td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Renewable energy sources/energy efficiency</td>
<td></td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Conclusion</td>
<td></td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ROMANIA COUNTRY PROFILE**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Institutional structure</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Electricity sector</td>
<td></td>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Gas sector</td>
<td></td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Renewable energy sources/energy efficiency</td>
<td>83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Conclusion</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SLOVAK REPUBLIC COUNTRY PROFILE</strong></td>
<td>87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Institutional structure</td>
<td>87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Electricity sector</td>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Market framework</td>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gas sector</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Market framework</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Renewable energy sources/energy efficiency</td>
<td>91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Conclusion</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SLOVENIA COUNTRY PROFILE</strong></td>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Institutional structure</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Electricity sector</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Market framework</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gas sector</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Market framework</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Renewable energy sources/energy efficiency</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Conclusion</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. Group B: (EBRD Countries of Operations that are Contracting Parties or Observers to the Energy Community Treaty)</strong></td>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-a. Contracting Parties to the Treaty establishing the Energy Community</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ALBANIA COUNTRY PROFILE</strong></td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Institutional structure</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Electricity sector</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Market framework</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Network access and tariffs</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Operational environment</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gas sector</td>
<td>106</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TURKEY COUNTRY PROFILE
1. Institutional structure
2. Electricity sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
3. Gas sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
4. Renewable energy sources/energy efficiency
5. Conclusion

UKRAINE COUNTRY PROFILE
1. Institutional structure
2. Electricity sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
3. Gas sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
4. Renewable energy sources/energy efficiency
5. Conclusion

C. Group C Countries (Armenia, Azerbaijan, Belarus, Kazakhstan, the Kyrgyz Republic, Mongolia, Russia, Tajikistan, Turkmenistan and Uzbekistan)

ARMENIA COUNTRY PROFILE
1. Institutional structure
2. Electricity sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
3. Gas sector
<table>
<thead>
<tr>
<th>Country</th>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaïdjan</td>
<td>Institutional structure</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>Electricity sector</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>192</td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>192</td>
</tr>
<tr>
<td></td>
<td>Gas sector</td>
<td>193</td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>193</td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>193</td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>194</td>
</tr>
<tr>
<td></td>
<td>4. Renewable energy sources/energy efficiency</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td>5. Conclusion</td>
<td>196</td>
</tr>
<tr>
<td>Belarus</td>
<td>Institutional structure</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>Electricity sector</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Gas sector</td>
<td>201</td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>201</td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>201</td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>202</td>
</tr>
<tr>
<td></td>
<td>4. Renewable energy sources/energy efficiency</td>
<td>202</td>
</tr>
<tr>
<td></td>
<td>5. Conclusion</td>
<td>202</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Institutional structure</td>
<td>206</td>
</tr>
<tr>
<td></td>
<td>Electricity sector</td>
<td>207</td>
</tr>
<tr>
<td></td>
<td>a. Market framework</td>
<td>207</td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>208</td>
</tr>
<tr>
<td></td>
<td>c. Operational environment</td>
<td>209</td>
</tr>
<tr>
<td></td>
<td>Gas sector</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>a. Market environment</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>b. Network access and tariffs</td>
<td>211</td>
</tr>
</tbody>
</table>
3. Gas sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment

4. Renewable energy sources/energy efficiency

5. Conclusion

TURKMENISTAN COUNTRY PROFILE

1. Institutional structure
2. Electricity sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
3. Gas sector
   a. Market framework
   b. Network access and tariffs
   c. Operational environment
4. Renewable energy sources/energy efficiency
5. Conclusion

UZBEKISTAN COUNTRY PROFILE

1. Institutional structure
2. Electricity sector
   a. Market environment
   b. Network access and tariffs
   c. Operational environment
3. Gas sector
   a. Market environment
   b. Network access and tariffs
   c. Operational environment
4. Renewable energy sources/energy efficiency
5. Conclusion

VIII. Application of the Assessment Model Explained

1. Indicators
   a. Regulatory independence – 15 points
   b. Regulatory authority – 15 points
   c. Market framework – 14 points
d. Network Access – 12 points 264

e. Tariff structure – 12 points 264

f. Public service obligations – 10 points 264

g. Transparency and accountability – 12 points 265

h. Private sector participation – 10 points 265

2. Weightings explanation 266

IX. Assessment results across regions 267

1. Group A Countries (EBRD Countries of Operations which are EU Member States) 267
   a. Sector obligations/commitments for Group A countries 267
   b. Regional considerations for Group A countries – electricity 269
   c. Regional considerations for Group A countries – gas 270
   d. Chart for Group A countries 271
   e. Trends in Group A countries 272
   f. Conclusions for Group A countries 272

2. Group B countries (EBRD Countries of Operations that are Contracting Parties or Observers to the Energy Community Treaty) 273
   a. Sector obligations/commitments for Group B countries 273
   b. Regional considerations for Group B countries – electricity 273
   c. Regional considerations for Group B countries – gas 274
   d. Chart for Group B countries 276
   e. Trends in Group B countries 277
   f. Conclusions for Group B countries 278

3. Group C Countries (Armenia, Azerbaijan, Belarus, Kazakhstan, the Kyrgyz Republic, Mongolia, Russia, Tajikistan, Turkmenistan and Uzbekistan) 278
   a. Sector obligations/commitments for Group C countries 278
   b. Regional considerations for Group C countries – electricity 281
   c. Regional considerations for Group C countries – gas 284
   d. Chart for Group C countries 288
   e. Trends in Group C countries 289
   f. Conclusions for Group C countries 289

X. Renewable energy sources/energy efficiency 289

1. Overview 289

2. Group A countries 290

3. Group B countries 290

4. Group C countries 291

XI. Conclusions and recommendations 292

1. General conclusions 292

2. Implication for policy and recommendations 292

3. Summary 296
4. Commitment of EBRD to its countries of operations

ANNEX 1 – Assessment Model and Methodology
# ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP</td>
<td>Agency of Competition Protection (Kazakhstan)</td>
</tr>
<tr>
<td>ANMR</td>
<td>Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies</td>
</tr>
<tr>
<td>Bank</td>
<td>European Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>BiH</td>
<td>Bosnia and Herzegovina</td>
</tr>
<tr>
<td>Board</td>
<td>Slovak Board for Regulation</td>
</tr>
<tr>
<td>CAO</td>
<td>Coordinated Auction Office</td>
</tr>
<tr>
<td>CEER</td>
<td>Council of European Energy Regulators</td>
</tr>
<tr>
<td>CHP</td>
<td>Combined Heat and Power plants</td>
</tr>
<tr>
<td>CIS</td>
<td>Commonwealth of Independent States</td>
</tr>
<tr>
<td>Consultant</td>
<td>Pierce Atwood LLP and Mercados EMI</td>
</tr>
<tr>
<td>DAM</td>
<td>Day-ahead market</td>
</tr>
<tr>
<td>DSOs</td>
<td>Distribution System Operators</td>
</tr>
<tr>
<td>EBRD</td>
<td>European Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>EcT</td>
<td>Energy Community Treaty</td>
</tr>
<tr>
<td>EE</td>
<td>Energy Efficiency</td>
</tr>
<tr>
<td>ENP</td>
<td>European Neighbourhood Policy</td>
</tr>
<tr>
<td>ENTSO-E</td>
<td>European Network of Transmission System Operators</td>
</tr>
<tr>
<td>EPCG</td>
<td>Elektroprivreda Crne Gore (Montenegro)</td>
</tr>
<tr>
<td>ERGEG</td>
<td>European Regulators Group for Electricity and Gas</td>
</tr>
<tr>
<td>ESCO</td>
<td>Electric System Commerce Operator (Georgia)</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FAS</td>
<td>Federal Anti-Monopoly Service (Russia)</td>
</tr>
<tr>
<td>FBiH</td>
<td>Federation of Bosnia and Herzegovina</td>
</tr>
<tr>
<td>FIT</td>
<td>Feed in Tariffs</td>
</tr>
<tr>
<td>FTS</td>
<td>Federal Tariff Service (Russia)</td>
</tr>
<tr>
<td>Gascos</td>
<td>regional gas distribution companies</td>
</tr>
<tr>
<td>GHG</td>
<td>greenhouse gas</td>
</tr>
<tr>
<td>GSE</td>
<td>Georgian State Electrosystem</td>
</tr>
<tr>
<td>ISO BiH</td>
<td>Independent System Operator in Bosnia and Herzegovina</td>
</tr>
<tr>
<td>JI</td>
<td>Joint Implementation</td>
</tr>
<tr>
<td>LEIF</td>
<td>Lithuanian Environmental Investment Fund</td>
</tr>
<tr>
<td>LNG</td>
<td>liquefied natural gas</td>
</tr>
<tr>
<td>LPG</td>
<td>liquefied petroleum gas</td>
</tr>
<tr>
<td>LTT</td>
<td>Legal Transition Team</td>
</tr>
<tr>
<td>MED</td>
<td>Ministry of Economic Development (Russia)</td>
</tr>
<tr>
<td>MEDT</td>
<td>Ministry of Economic Development and Trade (Tajikistan)</td>
</tr>
<tr>
<td>MEMR</td>
<td>Ministry of Energy and Mineral Resources (Kazakhstan)</td>
</tr>
<tr>
<td>MENR</td>
<td>Ministry of Environment and Natural Resources (Azerbaijan)</td>
</tr>
<tr>
<td>MIPFR</td>
<td>Ministry of Industry, Power and Fuel Resources (Kyrgyz Republic)</td>
</tr>
<tr>
<td>MO</td>
<td>Market operator</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>OSSH</td>
<td>Electricity Distribution System Operator (Albania)</td>
</tr>
<tr>
<td>PPA</td>
<td>power purchase agreements</td>
</tr>
<tr>
<td>PSO</td>
<td>public service obligations</td>
</tr>
<tr>
<td>RA</td>
<td>Republic of Azerbaijan</td>
</tr>
<tr>
<td>RER</td>
<td>Renewable Energy Resource Certificate</td>
</tr>
<tr>
<td>RERS</td>
<td>RS Energy Regulatory Commission</td>
</tr>
<tr>
<td>RS</td>
<td>Republika Srpska</td>
</tr>
<tr>
<td>RWE</td>
<td>RWE Transgas (Czech)</td>
</tr>
<tr>
<td>SE</td>
<td>Slovenské Elektrárne a. s. (Slovenia)</td>
</tr>
<tr>
<td>SETSO</td>
<td>South Eastern Europe Transmission System Operators</td>
</tr>
<tr>
<td>Toe</td>
<td>Tons (or “tonnes”) of oil equivalent</td>
</tr>
<tr>
<td>TPA</td>
<td>Third Party Access</td>
</tr>
<tr>
<td>TPP</td>
<td>Thermal Power Plants</td>
</tr>
<tr>
<td>TSO</td>
<td>Transmission System Operator</td>
</tr>
<tr>
<td>UCTE</td>
<td>Union for the Coordination of Transmission of Electricity</td>
</tr>
<tr>
<td>UES</td>
<td>RAO Unified Energy System (Russia)</td>
</tr>
<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
</tr>
<tr>
<td>UNS</td>
<td>Unified National System (Russia)</td>
</tr>
<tr>
<td>URSO</td>
<td>Regulatory Office for Networks Industries (Slovakia)</td>
</tr>
</tbody>
</table>
Energy Sector Assessment 2010

Foreword

The energy sector is a crucial driver of economic growth for all modern economies and, therefore, a key component of the development and transition processes. Unfortunately energy infrastructure in developing and transition economies is often old and may have deteriorated significantly beyond intended lifespans. Private investment is essential to the refurbishment, renewal, upgrade and expansion of energy infrastructure and the attraction of such investment needs to be a priority objective of governments—a task made more difficult in the current economic climate.

For its part, the European Bank for Reconstruction and Development (EBRD) invests substantially in the energy sector, making the Bank one of the most active investors in the sector in the countries where the Bank operates, that is, the countries of eastern Europe and central Asia. In accordance with its mandate, the EBRD also seeks to have a catalytic effect by leveraging Bank investments to encourage other (private) investors to invest alongside. To attract such investors, however, it is clear that the legal and regulatory background must be adequate. Other considerations are the existence of social safety nets and affordability. Observable trends include greater regional integration and the emergence of renewable energy.

Experience suggests that an adequate legal and regulatory framework is a precondition for investment. Potential investors seek certainty and legal reforms should provide them with the confidence that laws will facilitate payment discipline and reduce theft of service. Similarly, investors need to be assured that the right institutional balance is struck, including: provision for independence of the regulator; sufficient financial resources; appropriately skilled staff; and transparent due process and accountability. With respect to tariff reform, there must be: a clear movement to cost recovery; avoidance of cross subsidies; and a commitment to energy efficiency. Affordability must be achieved as part of the reform effort, and the difficult task of balancing cost recovery with tariffs and social safety nets that protect genuinely vulnerable areas of society is an integral part of well designed reforms.

Regional integration has become a key facilitator of sector reform and is a trend that the EBRD believes to be very important for opening national energy markets and creating regional energy markets; enabling common energy strategies, regulation, trading and commercial codes; and, helping international financial institutions (IFIs), such as the EBRD, World Bank, the European Investment Bank (EIB), and others act in a coordinated manner. The benefits from such integration are potentially huge as decisions are made on a regional basis, enabling benefits of scale; reducing the need for additional capacity investment, particularly generation; increasing reliability in electricity supply; and lowering operating costs.

As non-renewable sources of energy become more costly and as the true impact of the continued use of those sources is better recognised, renewable energy sources are becoming increasingly important. This is particularly so in the context of European Union (EU) promotion of renewables; rising demands for increased action on emissions and climate change; and the desire to diversify fuels and increase security of supply. In addition to the legal and regulatory barriers to investment that exist for more “traditional” renewable sources, such as large scale hydro generation, there are additional barriers for renewables, such as high capital cost/capacity; the relative small size of most projects; high transaction costs (legal/financial/due diligence) as a
The proportion of project cost; and difficulties sourcing equity funds. Again an appropriate regulatory environment is important to foster the move to renewables, but regulators face a difficult task in striking the right balance in encouraging the development of renewables while keeping tariffs affordable.

The foregoing are among the numerous and varied challenges that many of the transition economies face both to implement and sustain regulatory reform programmes. However, help is at hand, with a considerable amount of knowledge and experience in the reform of energy markets having been amassed, most notably through the work of the IFIs, the European Union and international and regional energy organisations. In accordance with its mandate, the EBRD has been fully committed to playing its part in promoting energy market development; enhancing energy sustainability; supporting energy efficiency and renewable energy initiatives through its investment activities and technical cooperation programmes.

It is against this background that the EBRD Legal Transition Programme has expanded its activities to include a renewed focus on the legal, regulatory and institutional environment of the energy sector. As part of this commitment and as an anchor for this newly developed focus, the EBRD has conducted its first in-depth assessment of the energy sector in its countries of operations: the Energy Sector Assessment 2010. The Assessment, set out here in full, compares the performance of the energy market in each of the Bank’s countries of operations with internationally agreed models of regulation based on best practices adjusted to the regional context. Through this process, the Assessment measures the extensiveness and effectiveness of existing national regulatory frameworks, identifying inefficiencies and barriers to investment, while endeavouring to measure regulatory risks inherent in given investment opportunities.

The Assessment, however, does not undertake such comparisons in the abstract, but instead takes into account a broad array of particularities, including, among other things, the specific characteristics of national regulatory regimes. The Assessment has achieved this, for example, by working directly with each country’s Ministry and/or regulator of the energy sector on the data presented in the country profiles.

Overall, the results show that the majority of the EBRD countries of operations have made decent progress in reforming their energy sectors. However, further ongoing reform is required to introduce or strengthen independent regulation, ensure balanced energy tariffs, increase private sector participation and focus more on renewables.

The experience shared by some of the EBRD countries of operations suggests that regional agreements and treaties which establish clear benchmarks of sound regulatory practice, while taking due account of the regional specifics, aid the relevant reform processes and can effectively address energy security concerns. Indeed, national action, driven in isolation of a regional framework, is unlikely to bring about satisfactory reform progress. Accordingly, a core aspect of the Assessment is to highlight the benefits of regional integration in the energy sector through harmonised and transparent frameworks that would promote regional trade, increase energy security and, thus, achieve sustainable development of national economies. The EBRD remains committed to supporting policy dialogue among stakeholders; dialogue which the Bank hopes can deepen multilateral regional cooperation and agreement on effective energy sector reform. We offer this Assessment as a step in that direction.
Executive Summary

This 2010 Energy Sector Assessment offers a report and evaluation of the regulatory frameworks across all EBRD countries of operations. Its objective is to facilitate investment and development in the energy sector in these countries, offering much needed information for public and private sectors to assist with measuring regulatory and legal risk. In addition, through this Assessment, the EBRD looks to encourage continued reform and liberalisation in the electricity and gas sectors in which it invests.

The Assessment reveals that authorities in the EBRD countries of operations are increasingly taking steps to open up their electricity and gas sectors to competition and trade, while promoting renewable energy sources and implement measures to improve efficiency. The result is that sectors are transforming in response to concerns about supply and demand, energy security and environmental sustainability.

The Assessment reveals that the EBRD countries of operations that are members of the European Union have already embraced international best practices and the principles embodied in the EU legal framework, and are steadily implementing broad-based reform of their energy sectors. In the region of the Energy Community – the area bordering the European Union to the South East which has been brought together under the Treaty establishing the Energy Community – institutional reforms generally pre-date actual changes in market operation. Beyond the European Union and the Energy Community regions, policy and regulatory development is inconsistent; the energy sectors of these countries, and indeed the overall economic and political structures, vary greatly from state to state. As a general rule, regulation and policy in these countries are driven less by independent authority and open competition, and their energy sectors are more centralised than in the European Union and the Energy Community. Overall, however, regulatory risk is diminishing across the EBRD countries of operations and investment opportunities in this sector are increasing.
I. ACKNOWLEDGEMENTS

The European Bank for Reconstruction and Development (the EBRD or the Bank) would like to extend its gratitude to the regulators and ministries in the energy sectors of EBRD countries of operations that helped us gather information, reviewed and improved our assessment approach and content, and contributed to the overall value of this Report. The time and commitment offered by officials in the EBRD countries of operations reflect the dedication to reform evident in the majority of those countries, and augur increasing progress toward liberalised and transparent energy sector reform consistent with international best practices.

This Assessment was led for the EBRD by Paul Moffatt, Senior Counsel, LTT and Vesselina Haralampieva, Associate, LTT. In its conduct of the Assessment, collection and analysis of data, and compilation of reports, the EBRD was supported by consultant Pierce Atwood LLP, in conjunction with Mercados EMI. The authors would like to acknowledge the contribution of their colleagues from the Power and Energy Team, the Office of the Chief Economist (OCE), the Environmental and Social Department (ESD), the Energy Efficiency and Climate Change Team (E2C2) and the EBRD regional offices in its countries of operations. The authors would like to extend their special thanks to Milko Kovachev, Power and Energy Team, Grzegorz Peszko and Peter Sanfey, OCE and Robert Adamczyk, ESD.

II. BACKGROUND AND OBJECTIVES

The EBRD’s Legal Transition Team (LTT), under the auspices of its Legal Transition Programme of the EBRD, has focused part of its work on the development of detailed analytical assessments of the state of legal reform in a number of commercial and financial sectors in its countries of operations. These assessments benchmark the legal developments in each country against international best practices, providing a clear analysis of the existing legislative frameworks and identifying gaps and future reform needs. During 2009, LTT expanded its focus to include the electricity and gas sectors.

This report provides the detail of the EBRD’s first in-depth Assessment of the electricity and gas sectors in its countries of operation (the Assessment). The electricity and gas sectors in this context refer to the market for electricity and natural gas production and supply, including policy measures to promote electricity from renewable energy sources and associated efforts to institute energy efficiency measures. The focus is on electricity, natural gas, renewable energy and energy efficiency. The gas section is confined to key points that differ from the structure and operations presented for the electricity sector.

The participant countries in the EBRD’s 2010 Assessment are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic,1 Estonia, FYR Macedonia, Georgia, Hungary, Latvia, Lithuania, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, the Slovak Republic, Slovenia, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan.

The broad objectives of the Assessment are to encourage continued reform and liberalisation of the electricity and gas sectors, improve security of supply, promote the use of renewable energy and energy efficiency in the EBRD countries of operations, and assist the private and public sectors to measure regulatory and legal risk so as to facilitate energy-targeted investment and development throughout the region. The Assessment examines whether the legal and regulatory frameworks for electricity and gas in the Bank’s countries

---

1 As of 23 October 2007 the EBRD no longer makes new investments in the Czech Republic, however, the Bank continues to monitor its portfolio of projects in the country. Notwithstanding this, the Czech Republic has been included in this Assessment solely for comparison purposes.
of operations are sufficiently extensive to make possible and facilitate energy sector transition and reform objectives. It measures the state of play in the energy sector with regard to status, progress, level of approximation of the legal framework to best practices, future needs and the like. In doing so, the EBRD wishes to be in a position to assess the effectiveness of its technical cooperation efforts and to identify the needs for further cooperation and assistance that the Bank could provide in furtherance of its mandate.

The specific objectives of the 2010 energy sector Assessment are:

- To provide a reliable evaluation of the legal and regulatory framework of the electricity and natural gas sectors in the Bank’s countries of operations in order to encourage, support, influence and guide ongoing reforms and future legal reform efforts in those countries.
- To assist the EBRD in measuring legal and regulatory risk in its countries of operations and in specific investment activities.


III. ASSESSMENT MODEL AND METHODOLOGY

The Assessment was conducted through questionnaires and responses, together with supplementary research and analysis. While efforts have been made to verify the data collected with all participants, in a few instances the Assessment Team did not receive direct data from a few countries (although all had repeated opportunities to provide material). The cut off date for collecting all data for the Assessment was 31 December 2009.

The Assessment Model is applicable across the wide range of political, economic and infrastructure environments in the transition region. It uses a list of criteria and principles that have broad international recognition. The Model is also adaptable, however, to the differences in sub-regions wherever possible, and offers a quantitative analysis that accommodates partial or developing frameworks.

Internationally, we are unaware of a multilateral standard embodying generally accepted best practices exists in the energy sector (unlike, for example, the telecommunications sector). The EBRD has therefore encouraged public comment and consultation and high-level negotiation among stakeholders to elaborate and promote detailed, sound standards. This Assessment has looked to those best practices that have achieved a high degree of consensus over the years. These are drawn from international and regional agreements.

---

2 The World Trade Organisation Reference Paper on Basic Telecommunications Services defines a set of regulatory principles for the establishment of fair market conditions in the telecommunications sector, and by 2008 around 75 countries had formally accepted the Reference Paper.

3 One important example is the Energy Charter Treaty. Its fundamental aim is to strengthen the rule of law on energy issues by creating fair and transparent rules to be observed by all participating governments, thereby mitigating risks associated with energy-related investment and trade. Signed in 1994, the Treaty entered into force in 1998. Belarus and Russia have signed but not ratified it, while both Serbia and Montenegro are yet to sign.

4 These include, among other things, the following EU Directives and Regulations in the energy sector, which are accompanied by Interpretive Notes: Directive 2003/54/EC (Electricity Directive); Directive 2003/55/EC (Gas Directive); Regulation (EC) No. 1228/2003 and the Revised Guidelines on Congestion Management (CMG); Regulation (EC) No. 1775/2005 (access to the gas network); Council Directive 2004/67/EC (security of gas supply); Directive 2005/89/EC (security of electricity supply); Note of the Directorate-General for Energy and Transport of the European Commission on Unbundling; Note of the Directorate-General for Energy and Transport of the European
treatises and papers by IFIs, aid organisations, leading sector experts and regional regulatory groups. These general principles form the benchmarks by which to measure energy regulatory development. A summary of the applicable benchmarks and indicators is provided in this section; further elaboration of these, along with a more detailed explanation of the weightings system applied, is provided in section VIII.

1. Benchmarks

The benchmarks against which the country data is measured are:

- clear, coherent and targeted policy, supported by primary legislation that sets out the rights and obligations of different sector participants and supplemented by consistent secondary legislation (all publicly accessible)
- a solid institutional framework of regulation in the form of an energy regulator, ideally independent but at least sufficiently separated from industry and from policy-making
- a liberalised electricity market, or a framework that supports steady movement towards such a market, and a framework in the gas sector that supports a wholesale market
- non-discriminatory, third-party access to the existing network
- the effective separation of the network business from (commercial) generation and supply activities
- the elimination of cross-subsidies and promotion of cost-reflective tariffs
- a fair, equitable and transparent licensing procedure
- a dispute resolution and appeal process that is efficient and accessible
- a transparent framework that holds the regulatory authority accountable
- public service obligations that are carefully targeted to support vulnerable customers, rural or outlying customers, environmental protection and security of supply, while not impeding liberalisation.

(footnote cont’d)

Commission on Distribution; Note of the Directorate-General for Energy and Transport of the European Commission on Exemptions. Explanations for the rationale behind these rules provide helpful insight into the core principles underlying them, and can be found in Jones and Webster (2006), Albers et al (2005) and Bertoldi et al (2006).


2. Indicators

Eight indicators are distilled from the benchmarks, each assigned a points value, and the composite score from all indicators is used to assess each sector participant (to a maximum of 100). The most fundamental criteria (regulatory authority and independence) receive the greatest weightings.

- **Regulatory independence – maximum score 15 points**: this indicator assesses the institutional framework in order to measure a regulatory authority’s degree of freedom from industry, government and other interests.

- **Regulatory authority – maximum score 15 points**: the more independent the regulatory authority, and the more autonomy it has to decide the framework tariffs, the more likely is the development of a market economy that supports competition and cost-reflective prices.

- **Market framework – maximum score 14 points**: this indicator assesses the degree to which competition is possible, as well as the actual degree of competition in the market.

- **Network access – maximum score 12 points**: this assesses the network options available to new market entrants. Without access to a stable network that is able to handle increases in capacity, new producers cannot sell their product (within or beyond a country’s borders) and new customers may be restricted.

- **Tariff structure – maximum score 12 points**: a liberalised market requires that energy enterprises receive a fair price for the energy produced, distributed and supplied.

- **Public service obligations – maximum score 10 points**: it is widely accepted that some energy services (particularly transmission) are monopolies and therefore require regulation that includes public service and public protection components.

- **Transparency and accountability – maximum score 12 points**: without transparency and accountability, any regulatory and policy framework can be subject to abuse, misinterpretation or disregard.

- **Private sector participation – maximum score 10 points**: this indicator is mostly concerned with the viability of the existing legislative and regulatory framework for bringing in new investment.

Although the indicators are the same for electricity and gas, several subcomponents vary in order to accurately reflect the differences between the two sectors. These differences are small and, where applicable, are noted in the Assessment.
3. **Country/regional groupings**

The EBRD countries of operations are divided into three separate groupings:

- **Group A:** These are EBRD countries of operations which are EU Member States. They are measured against each other because each is subject to corresponding legal commitments. The EU countries covered are only the newer members (2005 and 2007 entrants) which are EBRD countries of operations. These countries are held equally to a set of rules and guidelines, themselves developed from international best practices and elaborated over time by CEER (Council of European Energy Regulators) and ERGEG (European Regulators Group for Electricity and Gas) in the form of guidelines and position papers.

- **Group B:** The Energy Community contracting parties, which grouping includes all the South East European countries, along with the observers to the Energy Community Treaty (EcT), which are Moldova, Georgia, Ukraine and Turkey. These are in one grouping to reflect the common rules under which each is bound and the common objectives to which each has committed, pursuant the EcT. Energy Community contracting parties and observers are also part of an international meeting forum, the Athens Electricity Forum and the Gas Forum, which bring together international IFIs, aid organisation and donor perspectives on regulatory, policy and market best practices in the energy sector and advise the Energy Community on steps to be taken to bring about greater reform.

- **Group C:** This Group includes Mongolia, Armenia, Azerbaijan, Belarus, Kazakhstan, the Kyrgyz Republic, Russia, Tajikistan, Turkmenistan, and Uzbekistan. Many of these countries are Russian speaking and all, except Mongolia, are members of the Commonwealth of Independent States (CIS).

---

9 These are: Bulgaria; Estonia; Hungary; Latvia; Lithuania; Poland; Romania; Slovak Republic and Slovenia. As noted, the Czech Republic is provided for comparison purposes.

10 These include mandatory rules on: (a) market opening (currently full opening on gas and electricity; all customers can choose and switch their supplier), (b) unbundling (in particular, separation between transmission/distribution and other activities; currently, legal separation), (c) access to the grid (regulated TPA, non-discriminatory and transparent rules, ideally cost-reflective), (d) an independent regulator, and (e) articulated regulatory with respect to tariff methodology and fixing.

11 There are seven “contracting parties.” These are Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and UNMIK. These are the signatories of the Treaty establishing the Energy Community and by signing have committed to adjust their laws to accommodate key provisions of the EU framework on energy, consistent with the timeframe set forth in the Treaty establishing the Energy Community. Observers by contrast have not made this commitment formally, though all have indicated a willingness to move in this direction in the future; for most, at a slower pace that recognises some of the additional limitations these countries face, such as for instance, limited infrastructure development, non-synchronous zones, and differences in the stages of market development.

12 On 1 May 2010 Moldova became the eight full fledged member of the Energy Community Treaty.

13 All have indicated a desire to become contracting parties to the Treaty establishing the Energy Community, and in the case of Turkey, also a member of the EU.
IV. RENEWABLE ENERGY SOURCES AND ENERGY EFFICIENCY

Measures to promote the development and use of renewable energy and energy efficiency deserve targeted attention, separate from the analysis and approach offered for conventional energy, because not only do they promote sustainable approaches to energy development, but they are characterised on a geo-political level by the need for environmental and supply security, and on an operational and regulatory level by unique characteristics such as grid access and cost. So, for example, the importance of energy efficiency and renewable energy has resulted in the development of specific targets regionally in the U.S. and EU, as well as in individual states and countries, along with changes in the governing legal frameworks and guiding principles to remove barriers to energy efficiency and renewable energy use. Initial support mechanisms are viewed as spurring technology development and reducing expensive up-front costs that often come with new renewable energy initiatives.

Increasing concern regarding climate change resulting from emissions, along with growing energy use around the world and concerns regarding energy security, means that any evaluation of electricity and gas sectors must include attention to whether the existing frameworks also promote renewable energy and energy efficiency. Energy efficient measures are directed at finding ways to reduce energy consumption and save energy, while the promotion of renewable energy is directed at reducing carbon emissions and, optimally, at the same time finding new, indigenous, sustainable ways to produce energy.

In consideration of the importance of renewable energy and energy efficiency as we proceed into the 21st century (in which new emerging markets are increasing global energy use and overall carbon emissions), the EBRD launched the Sustainable Energy Initiative in 2006, focused on enhancing energy efficiency in the industrial power and municipal infrastructure sectors, developing renewable energy, and supporting the development of the carbon credit market in its places of operation. In 2008, the EBRD adopted its latest Environmental and Social Policy, which articulates EBRD policies on sustainability, emphasising that EBRD’s mandate to foster transition to market-based economies and promote private entrepreneurship is inextricably linked to its commitment to sustainable development. So too, the European Commission has adopted new Directives and regulations to promote sustainable energy initiatives.

---

16 The new renewable energy sources Directive was published on 26 March 2009. The full text is available at: http://register.consilium.europa.eu/pdf/en/08/st03/st03736.en08.pdf. Importantly, it makes clear that the development of renewable energy sources is a core priority for the internal market in the EU. With this in mind, the renewable energy sources Directive creates various legal structures to encourage investment in renewable energy. For instance, while the existing EU energy acquis requires non-discriminatory access to the grid and thus prohibits priority access or reservation of capacity, the renewable energy sources Directive holds that renewable energy is an exception to the standard rule. Article 16 provides that Member States shall take steps to enhance their networks to accommodate the development of new renewable energy sources and ensure that when dispatching electricity generating installations, transmission system operators give priority to generating installations using renewable energy sources as permitted by the secure operation of the national electricity system and based on transparent and non-discriminatory criteria. A similar effort underpins energy efficiency measures. At the end of 2006, the EU pledged to cut its annual consumption of primary energy by 20% by 2020. To achieve this goal, the European Commission is working to mobilise public opinion, decision-makers, and market operators and to set minimum energy efficiency standards and rules on labeling for products, services and infrastructure.
The World Bank has developed a renewable energy toolkit that, *inter alia*, identifies the importance of overcoming barriers to renewable energy development, including in the legal and regulatory spheres. As these are consistent with EBRD’s sustainability policies and initiatives, the key common points are summarised here:

- The need for adequate legal frameworks in order to enable independent power producers to sell into common power grids/networks
- The importance of non-discriminatory pricing rules that avoid penalising smaller and/or intermittent renewable energy, such that these are de facto discouraged
- The significance of introducing streamlined licensing and/or permitting rules to avoid unnecessary cost or delay, and to reassess zoning restrictions that may place undue bureaucratic requirements on potential investors; similarly, interconnection requirements should be assessed and streamlined where possible to facilitate entry to the market by small entrants with limited resources

Over a decade ago, most countries joined an international treaty — the United Nations Framework Convention on Climate Change (UNFCCC) to develop international agreements on steps to reduce global warming (ratified by 192 countries). Following upon this, a majority of nations adopted the Kyoto Protocol. The major distinction between the Protocol and the Convention is that while the Convention encouraged industrialised countries to stabilise GHG emissions, the Protocol commits them (currently 37 countries) to do so. While the December 2009 conference in Copenhagen (the 15th Convention of the UNFCCC) did not result in mandatory obligations that would follow Kyoto (which requires a next phase of agreement post 2012), initiatives in promotion of renewable energy and energy efficiency continue to align internationally.

This Assessment includes consideration of how renewable energy incentives are incorporated into the individual regulatory and policy frameworks and how energy efficiency is integrated into the sector operation. Though the Assessment does not offer an in-depth review of the renewable energy and energy efficiency frameworks in each country, and cannot offer specific benchmarks or indicators for renewable energy and energy efficiency development, as these must be a subject for further study and evaluation, the Assessment provides an overview of the policy and legal frameworks, the regulatory involvement and international commitments to which each of its countries of operations are engaged. The goal is to contextualise energy sector reform within the growing priority of renewable energy and energy efficiency, understanding that this growth will offer changes to the energy sector market and operation in the years to come.

In the EBRD countries of operations which are EU Member States, the frameworks have been recently, or are in the process of being adjusted to incorporate renewable energy and energy efficiency incentive structures largely as part of national efforts to conform to EU requirements. In other countries of EBRD operations, renewable energy and energy efficiency development tend to be even more incipient, and at this moment in time, not yet sufficiently advanced to support standardised benchmarks or their supporting indicators.

---


18 See [http://unfccc.int/kyoto_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php). The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. 184 Parties of the Convention have ratified its Protocol to date. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh in 2001, and are called the “Marrakesh Accords.”
V. DATA GATHERING

1. Source

The information used in this Assessment is drawn from:

- The three questionnaires sent by the EBRD to the regulatory authorities and/or relevant ministries in the Bank’s countries of operations in June - July 2009.

- Local expertise and personal interviews with authorities and ministry officials or follow up correspondence with individual authorities and ministry officials conducted by local experts and consultants.

- Desk research from public documents and source materials, including primary legislation, regulations and other secondary legislation, policy statements and energy strategies, among others.

While the majority of regulators were approached comprehensively in some cases, regulators or relevant government officials failed or refused to respond; in these cases, the Assessment Team relied on public documents, source material and local expertise, including laws, regulations, policy statements and energy strategies, to fill in the required data.

2. Questionnaires and responses

The Assessment was conducted by use of questionnaires and responses, together with supplementary research and analysis. Three questionnaires were developed, one each for: (1) electricity; (2) gas; and (3) environmental energy issues related to promoting renewable energy and energy efficiency. Each questionnaire was designed to address the benchmarks and incorporated indicators, and is attached as part of Annex I to this Assessment. Because this Assessment focuses on energy regulation, the questionnaires were sent as a first step to the regulators only (or the key ministry in charge of energy, where no energy regulator exists). In a good number of countries, the regulatory authorities handle electricity and gas matters, but do not have specific authority over incentives related to renewable energy or energy efficiency; in many of these jurisdictions, upon the request of the regulator, the environmental questionnaire was then sent to the designated governmental institution. Efforts have been made to get approval from all participants for the data; in a few cases the Assessment Team did not receive direct data from the countries though all have had repeated opportunity to provide material. Many of the questionnaires were completed in full by participant regulatory authorities and governmental authorities.

Additional opportunity to comment by participant countries was provided in the form of review of country profiles developed as part of the Assessment. A draft of the country profile for each EBRD country of operations was sent to the national regulatory authority and ministry as appropriate, for review and comment prior to publication. To ensure maximum participation and involvement of the countries, the EBRD and its consultants followed up directly with the relevant contacts in each country of operations to encourage and discuss comment, and emphasise the value of direct feedback from the countries.
VI. EXPLANATION OF ASSESSMENT AND RESULTS

The analysis in this Assessment is based on international best practices, drawing in particular from best practices throughout Europe and North America, along with guidance from international financial institutions, other relevant organisations and authorities. Because this Assessment covers the EBRD countries of operations, which are at varying levels of economic and political development, the challenge is to weigh best practices against the specific conditions of the participants in the Assessment, taking into consideration the legal obligations imposed on certain EBRD countries of operations as opposed to others (e.g. as Member States of the European Union (EU) or as signatories to the Treaty establishing the Energy Community).

Overall, the Assessment expects Group A countries, all part of the EU, to perform at about a 90% level or above with respect to the various benchmarks and their indicators, as a consequence of the multitude of reform efforts and framework requirements to which these countries are bound. For Group B, Energy Community Treaty (EcT) contracting parties and observers, the Assessment expects performance levels of around 80% of the benchmarks, for the same reasons as articulated for Group A, but understanding that the requirements placed upon EcT members are more recent and reforms are still at the early to mid stages. For the EcT observers in Group B, the Assessment anticipates performance in the 75%+ range, acknowledging that reforms are not mandated for the observers, though each of the observers has indicated an interest to move in the direction of liberalisation and market reform embodied in the EcT. For Group C, expectations are lower, reflecting the absence of any binding treaty or regional commitments seen in Groups A or B, though a 60%+ performance would generally be expected in light of the many efforts toward reform that are being made among these countries. This figure is a threshold goal for all in Group C, with the understanding that the varied nature of the regulatory regimes in this grouping will determine largely diverse results, while those in Groups A and B are expected to be closer in line with each other. This section provides an overview of the structure of the country profiles, spider and bar graphs. Section VIII details weightings, benchmarks and indicators.

1. Country profile

This Assessment offers a country profile for each EBRD country of operations. The country profile follows the structure of the Assessment Model and is intended to summarise the status of the energy sectors in the countries. Each profile offers insight into the applicable national regulatory regime and highlights factors that have influenced regulatory development. In addition, the country profiles are meant to serve a proactive, forward looking purpose, specifically to aid decisions of technical assistance and investment in the sectors and tailor efforts to meet the conditions characteristic of each national environment.
2. Spider graphs

A spider diagram presents the main results of the Assessment, in accordance with the benchmarks and indicators identified in the Assessment Model. This type of diagram is useful because it provides a summary of the Assessment at a glance. The diagram displaying the results for the electricity sector in Kazakhstan is set below as an example. The extreme outer rim of the spider graphs represents full compliance with international best practices, with each spoke representing one of the eight indicators (namely: #1 regulatory independence; #2 regulatory authority; #3 market framework; #4 network access; #5 tariff structure; #6 public service obligation; #7 transparency; and #8 private sector investment). For each indicator, the diagram presents the scores as percentages of the maximum achievable score. The scores begin at zero at the centre of the chart and reach 1.00 at the outside, so that in the overall chart, the wider the web, the better the score in the Assessment. The results for individual countries are represented by the thick bold line in the diagram, as below. For example, Kazakhstan scores 0.4 for regulatory independence with 1.0 representing international best practice with respect to regulatory independence. The light shaded area represents the average score for the group as a whole. In the Kazakhstan example, below, the shaded area represents the average for Group C. Each participant country has two spider graphs, one for electricity and one for gas, except in the cases of countries with no or a minimal gas sector. The results are seen in comparison to the regional average of the group to which each country belongs.

Electricity spider graph – Kazakhstan
3. Bar graphs

The bar graphs, also known as histograms, show the total score assigned to each sector participant (to a maximum of 100) and its components. The bar graphs also allow immediate comparison between participants of a given group. The bar graph displaying the comparative results for the electricity sector in Group C countries is set below as an example. For graphical reasons, the eight aforementioned indicators have been coupled as follows: “institutional framework”, which is made up of indicators 1 and 2 and comprises 30% of the point-scoring potential; “market structure and access”, which is made up of indicators 3 and 4 and comprises 26%; “tariffs and public service obligations”, which is made up of indicators 5 and 6 and comprises 22%; and “transparency and private sector participation”, which is made up of indicators 7 and 8 and comprises 22%.

Electricity Sector - Comparative bar chart view of Group C countries
VII. COUNTRY PROFILES, SEPARATED BY REGION

This section offers individual country profiles of each EBRD country of operations, dividing the countries into the groups noted above. The structure of the country profiles is the following:

- Institutional Structure (including sections on regulatory autonomy and regulatory authority)

- Electricity Sector
  - Market framework (including sections on market participants, level of unbundling and level of market development)
  - Network Access and Tariffs (including sections on Third Party Access, tariff and pricing, and licensing)
  - Operational Environment (including security of supply, public service obligations and transparency)

- Gas Sector
  - Market framework (including sections on market participants, level of unbundling and level of market development)
  - Network Access and Tariffs (including sections on Third Party Access, tariff and pricing, and licensing)
  - Operational Environment (including security of supply, public service obligations and transparency)

- Renewable Energy and Energy Efficiency
  - Policy status
  - Regulatory role
  - Participation in international agreements and country’s commitments resulting from such agreements

- Conclusion
A. Group A Countries (EBRD Countries of Operations which are EU Member States)

The EBRD countries of operations which are EU Member States make up Group A, which as noted above includes Bulgaria; Czech Republic; Estonia; Hungary; Latvia; Lithuania; Poland; Romania; Slovak Republic and Slovenia. This Group is made up of the more recent EU Member States and each country has benefited from significant attention to energy sector reform as part of recent access negotiations with the EU. The pace and commitment to reforms in this Group as a consequence are ahead of Group B and C, though additional work remains to realise the reforms in full.

For the Group A countries, compliance with energy market liberalisation requirements and the EU *acquis communautaire* is mandatory and has been so for many years. The result is that certain core best practices, such as an independent regulatory authority, a transmission service operator and related market unbundling, non-discriminatory network access and a published, transparent tariff structure, are required; thus, compliance in these areas is, as expected, extremely high. Each country achieved a score of more than 90%, which is the minimum level of performance expectation for this Group, although room for improvement remains, particularly in the Baltic countries which lag behind the other Group A countries.

It is interesting to note that the energy regulatory regime’s strengths and weaknesses vary from country to country – there is no path of development uniformly followed by the new EU Member States. The institutional framework in Hungary, for example, appears relatively weak with respect to independence and autonomy, particularly in its pricing authority. In practice, however, the Hungarian Energy Office benefits from: a market structure and network access conditions that are consistent with best practices, have greater enforcement powers than most regulators, and are a very active and knowledgeable agency. Bulgaria, one of the newer entrants to the EU, suffers from some limitations with respect to tariffs and public service obligations, a weakness shared, to a somewhat lesser extent by Czech Republic, Poland, Slovak Republic and Slovenia.
BULGARIA COUNTRY PROFILE

Overview

Bulgaria has a population of approximately 7.64 million with a GDP of USD 49,900 million.\(^1\) The total primary energy supply in 2007 was 20.23 Mtoe (million tons of oil equivalent) of which 38.1% is coal/peat, 1.2% is hydro power; 3.6% is combustible renewable and waste (including biomass, biogas and waste), 14.6% is natural gas, 23.7% is oil, nuclear is 18.6% and geothermal/solar/wind is 0.2%. Net imports are around 10.57 Mtoe. CO\(_2\) emissions are 50.24 (measured as Mt of CO\(_2\)).\(^{\text{ii}}\) As a member of the European Union (EU), Bulgaria is obliged to comply with the EU energy *acquis*, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.\(^{\text{iii}}\)

1. Institutional structure

The Council of Ministers is responsible for developing Bulgaria’s Energy Strategy, upon proposal of the Minister of Economy and Energy, the primary policy-making body. Regulatory implementation is the responsibility of the State Energy and Water Regulatory Commission (SEWRC). SEWRC is an autonomous regulatory agency responsible for electricity, heat, natural gas, water and sewerage. Established in 1999 as an energy regulator, SEWRC gained regulatory authority in the water sector in 2005.

SEWRC consists of 13 board members, including a chairman and two deputy chairmen, one with experience in the energy sector and the other with experience in water supply and sewerage. The large number of board members is the result of the additional responsibility in the water sector; seven members are from the energy side, five from water. SEWRC has about 100 staff members and as such is one of the largest authorities in the region because of the many energy sub-sectors it regulates. The majority of SEWRC staff members are highly-qualified experts – lawyers, engineers and economists. The board members of SEWRC are nominated by the Council of Ministers and appointed by the Prime Minister. They can be dismissed only by decision of the Council of Ministers and resolution of the Prime Minister, and only for cause in accordance with the law. Several members have resigned before the completion of their terms. The normal term is five years, with possibility of one reappointment for another term.

SEWRC has a budget of about EUR 1.9 million. Its budget is part of the central budget, with the amount and the terms of payment approved by the Council of Ministers at the proposal of SEWRC. Budget revenues are raised primarily from fees collected from licensees, and also from fines and sanctions as permitted in the law.

The regulator is responsible for consumer complaint and dispute resolution, licence issuance and revocation or amendment, preparation of drafts of secondary legislation, including tariff methodologies and access rules, monitoring compliance with the conditions and rules of supply of electricity, heat energy and natural gas to consumers, including the standards for quality of service; and fixing tariffs. The Government does not have the authority to overrule or alter decisions of SEWRC.

SEWRC also has power to impose fines on licensees for violations of licence conditions, and may revoke licences as a last resort. It may report technical safety

\(^{19}\) Information for this case Assessment is drawn from the regulator’s 2009 National Report to the European Commission, primary legislation and regulations in the energy sector and CEER and ERGEG materials.
violations to the Ministry of Economy and Energy, and competition violations to
the Competition Authority, with which SEWRC coordinates. SEWRC may
recommend to the Competition authority that it institute proceedings pursuant to the
Law on Protection of Competition. Private sector participation is encouraged, with
clear systems in place to assist potential investors in navigating the policy and
regulatory framework with relative ease. SEWRC’s decisions can be appealed to the
Supreme Administrative Court, and its decisions stay in effect pending appeal.

2. Electricity sector

a. Market framework

The electricity sector is unbundled, with the process having been initiated in 2003
and completed prior to EU accession in 2007. On 1 July 2007, Bulgaria fully
liberalised the energy market in compliance with the Second Gas and Electricity
Directives. Market participants are an independent Transmission System
Operator (TSO), the transmission network owner (different from the TSO), four
electricity distribution companies (which own the distribution network) with
unbundled Distribution System Operators (DSO) according to approved by
SEWRC compliance programmes, traders and producers. There are about 45
electricity producers: those with coal as a primary energy source making up
51.6% of the electricity generated; hydro power producers (7.6%), and
cogeneration fuelled by natural gas (5.7%); the remainder of domestic production
is from nuclear and cogeneration and industrial plants fuelled by coal.

Privatisation of the electricity distribution companies was completed in 2004. In
addition, several big generating plants and many smaller plants have been
privatised, including hydroelectric plants and thermal power plants, such as the
28-year-old Maritza East 3 power plant, majority-owned by Italian energy group
ENEL, which has been renovated and made fully compliant with EU
environmental standards. SEWRC assisted in the privatisation of the electricity
distribution companies and larger generating stations. Relatedly, SEWRC has met
on numerous occasions with potential investors in the energy sector and has
played an important role in assisting investors in understanding the regulatory
climate.

Customers of all categories, including households, can change suppliers and there
are no barriers to switching supplier.

Bulgaria has a wholesale market upon which more than a quarter of the annual
demand is traded at freely negotiated prices. The market is organised by the TSO.
In line with the Energy Law, electricity trading in the country is carried out on
the basis of bilateral contracts between the trading participants: producers, traders
and consumers of electricity. The TSO carries out the operational management
and regulates the allocation of electricity loads of the electricity system, by
taking into account the accepted and confirmed applications for transfer capacity
of the trading participants on the basis of the Electricity Trading Rules and the
Auction Rules. At the same time, TSO balances the energy system by technical
and economical criteria, taking into consideration the received applications and
bids for the balancing market. At present, there is no electricity exchange
organised in the country. A cold reserve and ancillary services market is provided
for in the Energy Law, with applicable transactions concluded by the system
operator under rules established by SEWRC. On the retail market, consumers

repealed Directive 98/30/EC.
connected to high voltage networks are supplied by the public provider and traders, as well as by bilateral contracts with producers at freely negotiated prices.

b. Network access and tariffs

SEWRC issues Ordinances (methodologies) for prices in electricity, heat and natural gas. Ordinances set forth the methods of regulating prices and the rules for their formation, approval or modification; submission of information; submission of rate applications; and approval of prices. Access tariffs are approved by SEWRC *ex ante*. Regulated prices are set by SEWRC for the public supplier, the producer that sells electric power to the public supplier, suppliers that sell to residential customers and small companies, and tariffs for connection and access to networks.

A cost-plus (or rate of return on capital) model is applied. In addition, SEWRC can apply incentive-based regulation, where the regulatory period is from two to five years, and this includes a price cap and revenue cap approach. Upon entry into force of the Ordinance for regulation on electricity prices, the “rate of return on capital” method of regulation is applied to the prices of energy companies, except with respect to producers that qualify for feed-in tariffs, i.e., renewable energy producers. Efficiency incentives are included in tariffs in the form of efficiency improvement factors.

SEWRC has the right to require TSOs and DSOs to modify terms and conditions, tariffs, rules, mechanisms and methodologies to ensure they are proportionate and applied in a non-discriminatory manner. SEWRC monitors the licensed activities, approves tariffs, codes of transmission and distribution system operators, and the methodology for connection of customers.

The electricity price for industrial consumers connected to the high voltage electricity network is not subject to approval by SEWRC, as these customers buy electricity on the competitive market. SEWRC does, however, approve the network transmission tariff. The tariff for access to the network is paid to the system operator by all network users, and is regulated by SEWRC.

Third Party Access is guaranteed by law. SEWRC is responsible for monitoring of fair and non-discriminatory access to the transmission and distribution network as well as for setting forth the rules for access to the electricity transmission and natural gas transmission networks, and to the electricity distribution and natural gas distribution networks. SEWRC controls compliance of the performed licensed activities with the terms of the issued licences regarding Third Party Access to the transmission or distribution networks. In the event that the TSO or DSO refuses access to the network, the operator is required by law to give the reason for such refusal. Such reasons must be sufficient to provide guidance as to how an entity could obtain access going forward and the appropriate measures that must be taken to reinforce the relevant networks.

In 2007 and 2008, Auction Rules defining the conditions for access to the transmission system and for cross-border electricity exchanges were developed by the TSO, after review and agreement by SEWRC.

SEWRC is responsible for licensing of: generation (except for generation of electricity by a plant with total installed capacity of up to 5 MW); transmission; distribution (one licence per region with at least 150,000 consumers); trade; organisation of the electricity market; public supply; supply of electricity by end suppliers (one licence for the territory of a distribution region); management of the electricity system; distribution of electricity to the railway transport
distribution networks. The companies that are licensed for distribution may not be licensed for any other regulated activity. SEWRC has licensed one TSO, four DSOs and about 45 producers with installed capacity above 5 MW. In 2008, the regulator issued licences to 13 new companies for the activity of electricity trading bringing the total number of licensed traders to 56.

c. Operational environment

The Minister of Economy and Energy monitors the security of energy supply. The results of the monitoring and the guidelines of energy policy, as well as security measures taken, are published. SEWRC does not participate in the implementation of measures to cover peak demand (i.e., ensure security of supply). However, it may address the shortfalls of one or more suppliers through the licensing procedure (amendment, withdrawal or termination) and monitoring procedure (monitoring reports). Pursuant to the Energy Law, the Minister identifies the need for construction of new generating capacities on the basis of overall forecast energy balances. The TSO is responsible for preparing the transmission investment plans and the DSO – for preparing the distribution investment plans. SEWRC approves such plans.

As part of its responsibility to regulate supply and distribution of the regulated market, SEWRC is required to approve General Conditions of the contracts for the end-suppliers (of last resort), which sell electricity at regulated prices to household customers and small businesses.

SEWRC has a strong public consultation framework in place. It carries out a public consultation with interested parties when deciding on general administrative acts stipulated by the law (issuances of licence, tariff approvals, and similar proceedings) as well as on other issues of public importance for the development of the energy sector and the sector of water supply and sewerage services. Public consultations are held through open sessions and comments from interested parties, branch and non-governmental organisations are received. Comments to any rule or decisions are taken into consideration and published on SEWRC’s website, www.dker.bg, accompanied by SEWRC’s reasoning.

3. Gas sector

a. Market framework

The market for natural gas supply is fully liberalised, with all customers having been entitled to choose their own supplier for natural gas since 2007.

In 1993, Bulgargaz EAD was established as a 100 % state-owned company. In 2006, Bulgargaz-holding was unbundled and a gas TSO was established. In 2008, Bulgargaz became a part of the Bulgarian Energy Holding company (BE HED), a 100% state-owned company including companies responsible for generation, transmission, transit, distribution, and sale/supply. All these companies are licensed separately and are operationally independent.

Natural gas supply is carried out by Bulgargaz EAD, which is the public provider and supplies natural gas to 40 natural gas distribution networks. Bulgargaz EAD is the only Public Provider that carries out wholesale trade at prices regulated by SEWRC, with a market share of 96.98% of the total consumption in 2008. The remaining 3.02% share is held by the only natural gas trader, Dexia Bulgaria EOOD.
The gas transmission network is owned by Bulgartransgaz EAD, with transmission, transit and storage activities. The transmission network is connected to distribution companies and about 23 directly connected customers.

A “first come-first served” model is used for calculation of the available capacities. There is no functioning balancing (market or system for publishing capacities). Bulgartransgaz is responsible for publishing capacities on its website.

b. Network access and tariffs

In accordance with the Energy Law, SEWRC amended, the “Ordinance for Regulating the Prices of the Natural Gas,” in 2007. This Ordinance sets forth the methods of regulating the prices, setting rules for their formation, approval or modification, the rules for provision of information, for submission of rate applications and for approval of prices. As in the electricity sector, SEWRC is responsible for approval of access tariffs and for ensuring Third Party Access.

Regulated tariffs are set ex post after application of the regulated utilities based on principles set forth in the Ordinance, and cover: the public supplier, end suppliers that sell to households and small business customers and gas storage. The price regulation of gas-distribution companies takes into account the specific conditions for operation of gas-distribution companies in the country, namely, the lack of constructed networks for distribution of natural gas and a small number of connected consumers. SEWRC applies a price cap method of regulation designed to incentivise investment.

SEWRC is responsible for licensing the following activities: transmission, distribution, storage, public supply, transit transmission and supply to end customers. No licensing is required for trading natural gas. Bulgartransgaz EAD has been granted separate licences by SEWRC for the transmission of natural gas through the gas transmission system, natural gas transit transmission and natural gas storage activity. Bulgargaz EAD is licensed for the “public provision of natural gas.” By 2008, SEWRC had issued a total of 18 licences for natural gas distribution and supply operations; seven gas distribution companies also received licences for gas supply as end-supplier (of Last Resort). SEWRC has withdrawn at least four licences for non-compliance with the conditions specified in the issued licences.

c. Operational environment

More than 90% of natural gas in Bulgaria is supplied by the Russian company Gazprom. A small part of Bulgaria’s domestic consumption comes from the Galata field in the Black Sea, which is operated by UK based Melrose Resources. At present, natural gas is transported from Russia through Bulgaria to Turkey, Greece and FYR Macedonia. Strategic projects are underway to secure supply, including expansion of the gas transmission network and building new storage facilitates, and implementation of the gas pipeline Nabucco for gas from the Caspian region, Near East and North Africa.21 Construction is currently underway for a gas interconnection line from Bulgaria to the Turkey-Greek pipeline, a trans-Adriatic gas pipeline from Bulgaria via FYR Macedonia and Albania to Italy, along with plans for construction of a degasification terminal on the Bulgarian Black Sea coast.

21 The Nabucco project represents a new gas pipeline connecting the Caspian region, Middle East and Egypt via Turkey, Bulgaria, Romania, Hungary with Austria and further on with the Central and Western European gas markets. The first construction phase is targeted for 2011.
4. Renewable energy sources/energy efficiency

The Law on Energy Sector provides the general conditions for efficient use of energy and use of combined heat and power and renewable energy. The Minister for Economy and Energy is responsible for preparing and presenting, for adoption by the Council of Ministers, national long-term and short-term programmes for encouraging the use of renewable energy sources and national indicative objectives for prevention of climate changes, and also for preparing annual implementation reports indicating the level of compliance of undertaken measures with the obligations for prevention of climate changes, as well as measures taken to ensure reliability of the certificates of origin. The Minister is required to prepare an analysis of the national potential for high-efficiency cogeneration and every four years evaluates the progress made toward increasing the share of high-efficiency cogeneration into the gross electricity demand.

A Law on the Renewable and Alternative Sources of Energy and Biofuels entered into force in 2008 and is the primary legislation that addresses renewable energy in Bulgaria. The law promotes energy efficiency, renewable and combined heat and power. A Law on Energy Efficiency was adopted in 2004 and last amended in 2007.

The Law on the Renewable and Alternative Sources of Energy and Biofuels envisages favourable treatment for producers of energy from renewable energy including mandatory connection to the power grid; preferential prices for the purchase of the energy generated from renewable energy and alternative sources of energy (defined as hydrogen, waste products of technological processing and others), and simplified administrative regulation in relation to the construction of renewable energy facilities and the generation of energy from these sources.

Under the Law on the Renewable and Alternative Sources of Energy and Biofuels, SEWRC is empowered to: (1) set forth each year by 31 March preferential prices for selling energy from renewable energy, except for the energy produced by hydroelectric power stations with installed capacity over 10 MW; and (2) issue certificates of origin for energy from renewable energy and set forth applicable rules.

Every investment project for construction, reconstruction and rehabilitation, on the basis of which a building permit is granted, is assessed for its compliance with the energy efficiency requirements. Assessment shall be made under the provisions of the Law on Spatial Planning in compliance with the technical rules for energy consumption of the different types of sites. The technical rules are determined by an ordinance on the energy characteristics of the sites issued by the Minister of Economy and Energy and the Minister of Regional Development and Public Works, as well as with the requirements of the effective regulatory acts and technical specifications for engineering, construction and acceptance of construction sites.

In the current legal framework there is no differentiation in the licensing regime for renewable and other types of generation. The Law on the Renewable and Alternative Sources of Energy and Biofuels enables SEWRC to issue licences for the production of electricity and fuel originated from renewable sources based on the licensing requirement in the Law on Energy and Ordinances on Licensing. SEWRC determines preferential prices for sale of electric power produced from renewable energy and in a combined method by power stations with combined production of electric and heat power. The licensing procedure is clear, non-discriminatory and predictable. Within a period of three months upon application SEWRC must either issue a licence or refuse to issue with full justification on the reasons for refusal. A licence is always issued based on the application; however, in case of established necessity of new generation facilities, a licence is issued through a tendering procedure.
In addition, renewable energy production benefits from rules for priority access to the network and mandatory purchase obligations.

Bulgaria has ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change and has met and exceeded its Kyoto target of an 8% reduction in carbon dioxide. The legal framework for emission trading is set in the Environmental Protection Act and in a number of regulations, which implement the relevant European Union Directives 2003/87/EC and 2004/101/EC.

5. Conclusion

Bulgaria performs reasonably well overall and with respect to its grouping (Group A), slightly below average for electricity and above average for gas. Within its Group, Bulgaria has an electricity sector score of 0.91 relative to a Group A average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Bulgaria has a gas sector score of 0.874 relative to a Group A average of 0.864. The regulatory framework and oversight of retail supply tariffs, market activities and transmission access are well established; the regulatory authority is reasonably independent and meets indicia of autonomy and authority, though the relatively recent inclusion of the water sector under its mandate results in some stress on resources and a more cumbersome management and operational structure. With privatised distribution companies and several generation plants, and more than a quarter of the annual demand traded in a competitive wholesale market (largely through bilateral contracts), Bulgaria’s market is fully liberalised.

The state-owned Bulgargaz EAD controls almost all of the gas supply and its separate (but also state-owned) sister company Bulgartransgaz EAD controls gas transmission, so gas remains largely a monopoly function, which may deter new market entrants. Diversification of gas supply in particular is important for the country’s future security of supply.
Electricity spider graph – Bulgaria

Note: The diagram presents the electricity sector results of Bulgaria, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Bulgaria are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Note: The diagram presents the gas sector results of Bulgaria, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Bulgaria are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.
CZECH REPUBLIC COUNTRY PROFILE

Overview

The Czech Republic has a population of approximately 10.32 million, with a GDP of approximately USD 216,485 million. The total primary energy supply in 2007 was 45.76 Mtoe (million tons of oil equivalent), of which 0.4% is hydro power, 45.1% is coal/peat, 4.5% is combustible renewable and waste (including biomass, biogas and waste), 15.2% is natural gas, 20.3% is oil and geothermal/solar/wind is 0.1%. Net imports are around 11.52 Mtoe. CO₂ emissions are 122.14 (measured as Mt of CO₂). As a member of the European Union (EU), the Czech Republic is obliged to comply with the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.

1. Institutional structure

The Ministry of Industry and Trade (MIT) is charged with primary responsibility for the energy sector; regulatory implementation is the responsibility of the Czech Energy Regulatory Office (ERO), which was established on 1 January 2001 pursuant to the Act No. 458/2000 (the Energy Act). ERO is a legally autonomous body in charge of regulation for electricity, gas and district heating.

ERO is a single-person entity, headed by a Chairman who is appointed for a term of five years by the Government. The Government may dismiss the Chairman before the expiry of his/her five year term in the case of illness permanently preventing him from performing his assignments, gross breach of obligations, or on the basis of a court’s final judgment on commission of a crime, or if he/she himself resigns his/her chairmanship.

ERO has currently 100 staff members and is financed from a separate chapter in the national budget, which is yearly determined by the Ministry of Finance; for 2009 its budget amounts to 121,625,000 CZK.

Conflict of interest provisions preclude the Chairman and his key staff from being members of the Parliament or the Government, or serving on an executive government body; moreover, they cannot own shares or stakes or perform any work or hold any material interest in any energy undertaking to which the Energy Act applies.

The law expressly assigns to ERO the task of market regulation with a view to substituting market mechanisms in the areas of energy industries in which competition is not feasible and in which there exists danger of abuse of a dominant position. ERO participates in the drafting of relevant laws, supporting MIT with technical advice. It is authorised to issue regulations (primarily public notices and price decisions), through which it regulates, inter alia, the following: the quality of supply and services related to regulated activities, tariff methodologies, tariffs level and price control procedures. Further, ERO decides on the award, amendment, or revocation of licences.

Within its powers, ERO can propose that the State Energy Inspectorate check compliance with the obligations set out in the Energy Act and, as applicable, propose the imposition of penalties; it can also notify the Office for the Protection of

---

22 Information herein is drawn primarily from the Czech Energy Regulatory Office (ERO), from answers to questionnaires provided by this project, and from ERO’s 2008 Annual Report.

23 As of October 2009, CZK 121.625 million is equivalent to approximately USD 7.1 million, and EUR 4.8 million.
Competition (OPC) of cases of abuse dominant position. OPC is the only administrative authority responsible for assessing any potential breach of the Competition Act (No. 143/2001).

Appeals against ERO’s decisions can be lodged in second instance proceedings with its Chairman and, beyond that, with ordinary courts, or, in the case of licensing issues, with administrative courts. No other authority than a court of law may change the Office’s decisions.

2. Electricity sector

a. Market framework

The step-by-step opening of the Czech electricity market started in 2002. Since 1 January 2006, when household customers became eligible and acquired the right to choose their supplier, the market has been fully liberalised: one and a half years earlier than required by Directive 2003/54/EC. The market sectors in which competition is feasible are not subject to regulation; these include electricity generation, imports, and trade.

The electricity industry is dominated by three vertically integrated private run enterprises: ČEZ Group, E.ON Energie a.s., and Prašká Energetika a.s. These companies operate, and hold licences, both in distribution and supply, but through companies that have been legally unbundled.

As suppliers, the three groups have a joint market share of more than 95% of final customers’ total consumption, with a clear dominance of ČEZ. As for small household customers, their share is more than 99%. There are also about ten independent suppliers actively operating in the retail market. To date, they have been offering electricity, bought from smaller generators or imported from other countries, mainly to large industrial customers.

The generation sector is similarly concentrated, consisting of a single generator (ČEZ) that accounts for 73% of national production capacity, and a number of much smaller generators, none of which has a share more than 3% of the total.

It is noteworthy to mention that, per capita, the Czech Republic is consistently the largest net exporter of electricity in the world (only Norway can export more during a rainy year). In power generation coal is dominant and in 2008 accounted for roughly 65% of electricity output. The Czech Republic has two nuclear complexes, Temelín and Dukovany. ČEZ is the operator of both complexes and is planning to install two additional reactors at Temelín, which would increase nuclear capacity by 2100-3400 MW.

As for transmission, a nation-wide system operator, EPS, a.s. has been established as a separate state-owned company and is fully ownership unbundled. The Transmission System Operator (TSO) is also responsible for the development of the transmission system, and for providing the system services that ensure safe and reliable operation of it.

A recent development on the electricity market has been the establishment of the Prague Energy Exchange in 2007. Actual trading was started on 17 July 2007. Currently, monthly, quarterly and yearly products are traded (base load and peak load). In general, these financial products are traded without any need to supply electricity.
b. Network access and tariffs

Access rules and charges are applied *ex-ante* and details are published. Non-discriminatory access to the network is required in accordance with EU directives and implemented through the grid codes.

There are no bottlenecks in the Czech transmission system. As regards electricity exports/imports, the TSO offers all available cross-border line capacities using non-discriminatory market mechanisms, i.e., annual, monthly and daily explicit auctions are organised for all interconnections.

The TSO also procures all ancillary services (primary, secondary and tertiary control, fast start, and operating reserve) through market mechanisms, i.e. via long term and medium-term tendering processes.

Regulated prices are set for transmission, distribution and ancillary services. To calculate average charges for electricity transmission and distribution ERO uses an incentive-based revenue cap methodology,\(^24\) which has been applied throughout the second regulatory period (1 January 2005 to 31 December 2009). The methodology and the tariff structure are defined in two ERO’s Public Notices: Notice No. 404/2005, which lays down the financial information that regulated entities are required to provide and Notice No. 150/2007, which determines the procedures for price control. Somewhat simplified, the general formula applied is as follows: $PV = N + O + Z$ (where $PV$ represents allowed revenues, $N$ costs, $O$ depreciation, and $Z$ profit).\(^25\) Each year the allowed revenues are adjusted by an incentive factor.

Electricity generation and imports and commercial activities related to electricity supply to final customers are not controlled and are fully subject to market mechanisms. As a consequence the regulatory framework above-described, the electricity price to all end-users, including households, is made up of regulated and unregulated items.

c. Operational environment

Monitoring expected future demand, foreseeing the need for additional production capacity and ensuring security of supply are under the responsibility of MIT.

Planning offices of local jurisdictions authorise new generation capacity by granting permits. In the case of electricity generating plants having a total installed capacity of 30 MW or more, there is also the need to obtain an authorisation for the construction, which is issued by MIT. In general, the national budget does not provide support for investment in new generating capacity; however, certain subsidies can be obtained from governmental and non-governmental agencies and funds. For plants having an installed capacity of up to 1 MW the generator may benefit from tax exemptions for the first five years of operation.

---

\(^24\) This method consists in the regulator setting the cap on allowed revenues regulated companies may achieve irrespective of costs. By this separation of revenues from costs, regulated companies are motivated to reduce costs and improve efficiency.

\(^25\) Detailed information on the regulatory formula and its parameters can be found on the ERO’s website at [www.eru.cz](http://www.eru.cz), in “Report on the approach to setting the key parameters of the regulatory formula and prices for the second regulatory period” (also in English).
ERO participates in the monitoring of quality and level of maintenance of the networks through the reporting requirements it places on its licensees.

The Czech Republic has fully implemented the obligations of public service and consumer protection which are required by the Directives 2003/54/EC and 2003/55/EC. This was done primarily through the Act No. 670/2004, which amended the existing Energy Act.

In particular, the legislation provides for a supplier of last resort, obliged to supply electricity, at prices set by ERO, to households and small customers. The supplier of last resort is a holder of an electricity trading licence, and is selected by the Office for each defined area.26

ERO is charged with primary responsibility for quality of supply and services provided by electricity companies. The Energy Act stipulates that the TSO and the Distribution System Operators (DSOs) have the obligation to continuously supply customers with electricity at a high level of quality. Quality standards are currently laid down in ERO’s Public Notice No. 540/2005, “On the quality of electricity supplies and related services in the electricity industry”.

The Office’s price decisions are published in the Energy Regulation Gazette, as well as in the Collection of Laws and in its official website: www.eru.cz.

Annually, ERO publishes an Annual Report on the Operation of the Czech National Electricity Grid, though only in Czech. An executive summary of the report is also published in English. The annual report is submitted for approval by the Government and Parliament’s Chamber of Deputies through MIT. Monthly reports are also published on the Office’s website.

ERO’s hearings are not held in public and the law does not provide for public consultation, but in practice public consultation are often conducted when discussing activities that affect market structure and operations. ERO also collects and publishes performance indicators for licensees.

ERO may grant Third Party Access exemptions to new investments.

Foreign capital investment in energy companies is not restricted in any manner, except for transmission assets.

3. Gas sector

a. Market framework

On 1st January 2007 all final gas consumers became eligible customers.

The Czech Republic’s gas needs are almost exclusively met by imports, three-quarters of which are provided by Russia, with Norwegian producers supplying the balance.

There is a single importer, the private run RWE Transgas (RWE), which is at the same time the dominant wholesale supplier. RWE has also majority control over six of the eight regional distribution companies, legally unbundled since 1st January 2007. This results in RWE accounting for about 84% of gas sales in the Czech Republic.

26 The same rules apply to the gas sector.
In addition to that, RWE has complete control over its subsidiary RWE Transgas Net, s.r.o., which holds the exclusive gas transmission licence in the Czech Republic, and was legally unbundled in 2007.

At the wholesale level, starting from 1 September 2009 the coupling of the Czech and Slovak day-ahead electricity markets entered into force. This means that day-ahead bids and offers of registered traders of both countries could be traded together up to available cross-border capacity without obligation on the part of the trader to reserve cross-border capacity.

As of January 2009, besides RWE, a number of bundled small distribution companies, which operate their own local grids, are present on the Czech market. The Czech Republic has used the option to implement unbundling solely with respect to companies that have a large number of customers (“the 100,000 customers” rule).

Since market liberalisation, a number of new traders have entered the market and the regulator has issued 88 gas trading licences. However, the extent to which these traders are active in the gas market is unclear, since few of these are actually supplying and, so far, the switching supplier ratio has been very small.

b. Network access and tariffs

Non-discriminatory Third Party Access to the transmission and distribution systems is guaranteed by law. ERO is responsible for regulating such access and for settling disputes which may arise from access refusal.

Tariffs are regulated for gas transmission and distribution. Grid codes for the TSO and DSOs are in place.

This part of the market in the Czech Republic is relatively small and the charges for natural gas transmission are therefore unified for the whole Czech natural gas market, independently from distance, according to the so-called “postage stamp” principle.

Throughout the second regulatory period (from 2005 to 2009, inclusive) the revenue cap method has been used in setting tariffs.

The charges are exclusively capacity-based - i.e. they do not include an energy component related to the volumes of gas actually transported – and are set for one calendar year.

Similarly to transmission, distribution tariffs are determined on the basis of the revenue cap methodology. The charges are set out yearly and separately for the operator of each regional distribution system.

To make sure that the respective TSO or DSOs do not take a discriminatory approach, distribution and transmission charges are set as fixed prices. Thanks to the sufficient capacity in the transmission and distribution systems, the interruptible capacity charge is set at the same level as the charge for firm capacity, with discounts granted upon interruption.

---

27 Contrary to firm capacity, this type capacity is contractually subject, under given and pre-defined circumstances that may affect the transmission and distribution systems (i.e. technical or emergency reasons), to be interrupted. For this reason is normally sold at a lesser price than firm capacity.
c. Operational environment

MIT is responsible for overseeing the gas system and for awarding authorisations for new investments.

Under the Energy Act, all the operators of gas transmission, distribution and underground storage facilities have the obligation to prepare an annual report on the quality and level of maintenance of those facilities, alongside with emergency plans. The reports and the plans are submitted to the MIT for review and approval.

In line with Directive 2003/55/EC and the Energy Act, the so-called authorisation principle has been enforced in order to smooth the procedures for investment in new gas facilities. In 2008 the MIT awarded 30 authorisations, 29 of them for high-pressure gas pipelines and one for an underground gas storage facility.

4. Renewable energy sources/energy efficiency

In 2005 the Government of Czech Republic issued a National Programme for energy management and the use of renewable energy for the 2006–2009 periods. The document sets out the government's priorities and indicative targets for electricity produced from a large variety of renewable energy: small hydro power plants, biomass, biogas, solid municipal waste, wind power plants and photovoltaic systems.

The Czech Republic’s legislative framework in relation to renewable energy was significantly strengthened by Act No. 180/2005, “On support for the use of renewable resources”, which was followed by a number implementing regulations issued by ERO.

With respect to power generation, distribution and transmission companies are obliged, through a nominated trader, to buy electricity from renewable energy producers.

The new legislation has broadened the feed-in system for renewable energy and cogeneration, originally established in 2000, allowing the choice between a feed-in tariff and “green bonus”, i.e. an amount paid on top of the market price. The choice has to be made yearly.

Under ERO’s Price Decision No. 8 of 18 November 2008, feed in tariffs and bonuses are set for all sizes of renewable energy (only hydro plants with installed capacity higher 10 MW are excluded from support.). Feed-in tariffs are based on a return of investment time of 15 years and on technology specific costs and net present value calculations, including 7% rate of return (nominal, after tax).

Since 2006, premiums to the electricity price have been also granted to all categories of cogeneration plants in the form of a fixed tariff. The amount of the premium depends mainly on two factors: market natural gas and electricity prices.

The use of bio-fuels is being encouraged through the Air Protection Act (2002), which requires that a minimum amount of bio-fuel or other fuels produced from renewable energy is made available to the market. Between 2007 and 2012 this should amount to 4.2 million tons.

As for environmental protection, the Environmental Impact Assessment procedure was introduced into the Czech legislation by the Act 100/2001, “On assessment of environmental impacts”, which lays down the list of business activities that are
subject to environmental impact assessment and the criteria and procedures that have to be followed.

Emissions of dust, \( \text{SO}_2 \), \( \text{NO}_2 \) and greenhouse gases are taxed.

The Czech Republic signed the Kyoto Protocol on 23 November 1998 and subsequently ratified it on 15 November 2001, with a reduction commitment for 2012 of 8%. The Ministry of the Environment (MoE) is the national entity with overall responsibility for the national inventory system. The Czech Hydrometeorological Institute, established by the MoE, has been designated as the coordinating and managing organisation responsible for the compilation of the national greenhouse gas inventory.

5. Conclusion

The Czech Republic performs well overall and with respect to its grouping (Group A). Within its Group, Czech Republic has an electricity sector score of 0.946 relative to the Group average score of 0.93, and a natural gas sector score of 0.902 relative to the Group average of 0.864.

Although the institutional structure and the regulatory framework are well-designed and fully meet the benchmark, both electricity and the gas market are very concentrated.

The coupling of the electricity market with Slovakia, effective since September 2009, will significantly increase the cross-border trading and is likely to make both markets more attractive for industry players and investors.

In the gas market the private-run RWE is enjoying a near-monopoly position (84% of gas sales) and is controlling *de facto* the entire gas chain. This may deter new players to enter the market, which, with a total consumption above 9 bcm/y and its proximity to the largest continental gas market (Germany), offers potential interest for energy traders and investors.
Electricity spider graph – Czech Republic

Note: The diagram presents the electricity sector results of the Czech Republic, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for the Czech Republic are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Gas sector results of the Czech Republic, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for the Czech Republic are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

**Gas Sector - Comparative view of Group A countries**
ESTONIA COUNTRY PROFILE

Overview

Estonia has a GDP of USD 23,089 million and a population of approximately 1.34 million. The total primary energy supply in 2007 was 5.63 Mtoe (million tons of oil equivalent), of which 63.9% is coal/peat, 10.1% is combustible renewable and waste (including biomass and biogas), 0.1% is wind/geothermal/solar, 13.8% is natural gas and 12.1% is oil. Net imports are around 1.54 Mtoe (million tons of oil equivalent). CO2 emissions are 18.05 (measured as Mt of CO2). A member of the European Union (EU), Estonia is bound to adhere to the EU energy acquis.

1. Institutional structure

The energy regulator is the Estonian Competition Authority (ECA). In 1998, a predecessor agency, the Energy Market Inspectorate was established. On 1 January 2008, the Estonia Competition Board, the Energy Market Inspectorate and aspects of the National Communication Board were merged to create the Estonian Competition Authority. Some of the functions related to market regulation of the railway department were also transferred to the merged authority, such that the ECA now has four departments: general administration; competition division; railway and energy division; and telecommunications and post division.

The ECA is headed by a Director General nominated by the Minister on the recommendation of the Ministry of Economic Affairs and Communication. The division specifically assigned to energy regulation has a staff of 12, and is headed by a deputy to the Director General. The Director General’s term is indefinite and he can be dismissed by the Minister, again on the recommendation of the Chancellor, in accordance with the Public Service Act and Government of the Republic Act, which precludes dismissal on political grounds. The absence of rotation means that the regulator does not get the benefit of new, varied points of view as often as other regulators with boards with staggered terms. General public servant rules regarding conflicts of interest include prohibition on a public officer's participation in the management of a for-profit enterprise.

The ECA’s budget is not separate from the central budget. In accordance with the state budget (which is prepared in the spring each year), the ECA submits a budget application together with the statement of grounds to the Ministry of Economic Affairs and Communications. The final budget is firstly approved by the Government and afterwards by the Parliament. This may restrict significantly the ECA’s budgetary independence. Salaries are set according to the public service act and are competitive with the market. The budget for 2008 was 30.67 million kroons (EUR 1,960,000). From this amount, a portion is allocated to the energy division; in 2007 this amount was 3.953 million kroons.

The ECA’s Energy Regulatory Division issues licences; approves tariffs, conditions and terms for balancing agreements, the calculation methodology for connection costs and system operator development plans; establishes guidelines for unbundling and cost allocation; monitors competition and service quality; and hears disputes. Authority over new capacity and congestion management is shared by the ECA and Ministry. The ECA’s decisions cannot be altered by the Government. From an

---

28 Information herein is drawn primarily from the regulator, from its answers to questionnaires provided by this project and from the regulator’s Report on the Estonian Electricity and Gas Market, Tallinn 2008.
as of 2005, production, transmission, distribution and sales are separated by management, function and accounting, though in practice one large vertically integrated entity dominates the sector.

Eesti Energia AS, which is state-owned, owns 92% of installed capacity, provided 96.5% of Estonia’s electricity production in 2008, and covers most energy supply for the country and minimal electricity imports. Eesti Energia includes the two Narva power plants, which make up AS Narva Elektrijaamad and have a market share of 95%. Eesti Energia also owns 88% of the distribution network; the remaining 12% of the distribution network is owned by the private sector. The largest distribution system operator is a separate business, with its own headquarters, management board and accounts, under the ownership of Eesti Energia. Currently the only Transmission System Operator (TSO), Elering OÜ, is also (100%) owned by Eesti Energia. There are currently four independent suppliers.

In light of the condition in the Third Package of ownership unbundling of the TSO, plans are underway for unbundling of the Elering OÜ by 1 July 2010, though the TSO will stay under state ownership.

Starting in 2009, 35% of customers (615 large consumers) can choose their supplier, with full opening scheduled for 2013. The pace and degree of opening is established by governmental decision, which, in turn, is dictated by the degree of derogation from full market opening permitted to Estonia as a member of the EU. As a practical matter, there is no competitive electricity market because the market is dominated by the state-owned monopoly. In order to open the market, greater network links with the Nordic and/or Central European markets must be established. Construction and planning is underway for the development of these links.

b. Network access and tariffs

The ECA carries out price control for the electricity transmission network; electricity distribution networks; and electricity and heat cogeneration. The ECA is active in tariff review and decision-making, having issued 289 decisions on granting price approval or disapproval and another 58 decisions on connection fee methodologies and standard conditions in 2008 alone (these 2008 numbers include decisions relating to the gas sector). Estonia relies heavily on oil shale, thus production capacity using fossil fuels is high and the use of cheap fuel keeps energy prices (and use of renewable energy) relatively low. Household tariffs are below the EU average. A special clause in the Electricity Market Act allows a supplier to raise prices without the regulator’s approval when a rapid fuel price increase occurs.
The ECA regulates network prices and the weighted average price for non-eligible customers, posted *ex ante* on the ECA’s website. Network tariffs are differentiated by voltages, time of day and amperes. Various end-user packages are presented on the Eesti Energia website, (http://www.energia.ee/index.php?id=1623&L=1), with tariff methodologies posted on the ECA website (http://www.konkurentsiamet.ee/?lang=en).

With respect to performance-based incentives, the CPI-X approach is generally used, with X generally at 1.5% (the actual amount depends on consumer price index). Otherwise, regulated prices are based on a return on a regulated assets base, which can provide a reasonable profit with respect to generation, which has substantial infrastructure upon which to base a return, but not with respect to supply.

Non-eligible customers have the right to buy power at the regulated price. The Ministry prepares three-year development plans, submitted to the Government for approval, which includes the estimated generating capacity and transmission capacity necessary to ensure security of supply and diversity and effectiveness of energy sources and to satisfy estimated consumption and meet environmental requirements for the next ten years. Because lack of connections with its neighbours makes Estonia part of a Baltic energy island, security of supply plans include the development of new interconnections.

There is regulated Third Party Access (TPA) as well as regulation of power balancing. Access rules and charges are *ex ante* and published. This year, the TSO is to issue guidelines on the management and allocation of available transfer capacity. The ECA does not have the authority to exempt new investment from TPA rules.

The ECA issues licences for all sector activities (called activity licences) and includes conditions, which may be changed by the ECA as needed to maintain security of supply or ensure fulfilment of legal obligations. An activity licence is required for the following: generation of electricity above 100 kW; provision of network services through a distribution network; provision of network services through the transmission network; transmission of electricity through a direct current line crossing the state border; transmission of electricity through a direct line; selling of electricity; and the import of electricity, except the import of electricity by the system operator. The new amendment of the Energy Market Act eliminates any need for an import licence for EU countries.

### c. Operational environment

Estonia is almost wholly energy independent, supplying over 90% of its electricity needs with locally mined oil shale, and approximately 9% from wood, peat and biomass.

For circumstances that can jeopardise security of supply, endanger people’s lives and health or the integrity of the network, the system operator informs the Ministry and ECA, and proposes measures to be taken in response. Quality of supply and customer service requirements are established by the Minister and monitored by the ECA. At present, there are no congestions on Estonian

---

29 CPI-X is an incentive-based formula for price control, in which price changes are limited to the increase in a general price index, such as the Consumer Price Index, minus a factor (x) determined by the regulator to reflect anticipated efficiency gains or productivity growth which will lower the price of supply to the customer.
interconnections. Estonian peak load is 1500 MW and NTC for import is 900 MW. The new connection with Finland (Estlink 2) will add 650 MW.

The ECA’s annual report to the European Commission is sent to the Ministry and posted on the ECA’s website. Network operators must publish information concerning the effectiveness, quality and profitability of its network activities on its website or in at least one daily national newspaper and also communicate such information to ECA. There are no public hearing or consultation requirements in the ECA’s decision-making process, which would otherwise serve to incentivise investment. ECA approved prices and methodologies are published only in Estonian on its website.

3. Gas sector

a. Market framework

AS Eesti Gaas is a vertically integrated privately-owned gas company in charge of the supply and distribution of gas. It has been privatised, with its shareholders Gazprom (37.02%), Ruhrгаз (33.66%) and Fortum Oil and Gas OY (17.72%) and Itera Latvija (9.85%). It is the only importer of gas sold in the market, with all imports coming from Russia. In 2005, AS Eesti Gaas became a group with three other companies (performing the maintenance, development and renovation, and construction of gas pipelines, with one performing only administration and maintenance service to the owners).

As of 1 July 2007, all customers may choose their supplier. Other gas companies exist and are also privately owned. Retail competition exists: there are 26 small network operators, which buy from AS Eesti Gaas. Customers are largely household consumers.

b. Network access and tariffs

With respect to tariffs, in the gas sector as in the electricity sector as noted, connection and network service (transmission and distribution) charges and balancing fee methodology are regulated by the ECA; balancing and transit fees are not approved but are monitored and reviewed ex post. The ECA publishes the network connection methodology on its website. A cost of service approach is used.

Limits in transfer capacity are not anticipated until 2016. There is no grid code.

An activity licence is required for the following activities: import of gas from outside of the EU; sale of gas; provision of gas transmission service; and provision of gas distribution service. In issuing activity licences to distribution network operators, the ECA determines the service area for an undertaking on a map. The licence requires the network operators to develop the network in their service area in a manner that ensures gas supply to all already connected customers and to new customers.

c. Operational environment

Supervision over security of supply is exercised by the ECA, which prepares and publishes an annual report on the situation. EG Võrguteenus, the system operator importing gas, is responsible for planning and calculating the total transfer capacity to cover demand as well as security of the supply.
4. Renewable energy sources/energy efficiency

Primary responsibility for renewable energy and energy efficiency development rests with the Ministry of Environment. In accordance with the European Directive 2001/77/EC, by 2010 Estonia will have to cover 5.1% of its electricity needs from renewable sources. According to government objectives, by 2020, 10% of the country’s overall electricity consumption will have to come from wind.

As noted above, Estonia’s largest fuel source for power is oil shale, which is the largest contributor to Estonia’s CO₂ emissions. In 2006, the emissions were 55% below their 1990 level, with most reductions occurring between 1990 and 1999; emissions have been almost stable since that date. Energy efficiency is not yet fully compliant with all EU energy regulations (mainly due to the need for improvements to the power supply system). Estonia’s intention is to meet 5.1% of her electricity needs with renewable energy sources by 2010.

There are renewable energy and cogeneration tariffs. Until 2007, the cost of subsidising renewable energy was included in the tariffs of the transmission network operator. The operator was required to buy electricity produced from renewable energy at a fixed price, with an additional cost if the producer was connected to the distribution network. This was not transparent as the price for renewable energy was unknown to the customer. In May 2007, amendments to the Electricity Market Act, introduced a new support scheme for renewable energy (and cogeneration). Under the new scheme, producers have two options: to sell electricity at a fixed tariff in the framework of a purchase obligation or, to receive a subsidy and sell the electricity at a market price. The TSO is responsible for preparing a projection of the necessary subsidy amount. This support scheme creates a favourable climate for renewable energy (and cogeneration) but results in an increase in consumer prices. The ECA has projected a price rise of about 10.4%.

According to the Kyoto Protocol to the United Nations Framework Convention on Climate Change, to which Estonia was an early signatory, Estonia will need to reduce greenhouse gas emissions within 2008-2012 by 8% as compared with the 1990 emission level. The Act on Ratification of the Kyoto Protocol delegates to the Government of Estonia the right to conclude international agreements concerning transfer of emission reduction units, which it has done with Finland as one of the first such agreements among Baltic States.

5. Conclusion

Estonia performs reasonably well overall and with respect to its grouping (Group A), slightly below average for electricity and slightly above for gas. Moreover, within its Group, Estonia has an electricity sector score of 0.906 relative to the Group average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Estonia has a natural gas sector score of 0.871 relative to a Group A average of 0.864.

The legal framework for Estonia’s energy regulator nonetheless presents some regulatory risks for investors. The state-owned generation, transmission and distribution facilities are not yet fully unbundled, although they are separated and plans are in place for legal unbundling by mid-2010. Because of this, there is no competitive energy market yet, and this is unlikely to change until establishment of network links to Nordic and Central European markets are in place (currently under development).
The gas market is small and dominated by Russian supply, with a single company (AS Eesti Gaas, owned in part by Gazprom) the only importer. Customers may choose their suppliers and there are other privately owned gas companies; however, the 26 small network operators buy their gas from AS Eesti Gaas.

Electricity spider graph – Estonia

Note: The diagram presents the electricity sector results of Estonia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Estonia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Gas spider graph - Estonia

Note: The diagram presents the gas sector results of Estonia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Estonia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

Gas Sector - Comparative view of Group A countries
Overview

Hungary has a population of approximately 10.06 million, with a GDP of approximately USD 154,668 million. The total primary energy supply in 2007 was 26.73 ktoe (thousand tons of oil equivalent) of which 0.1% is hydro power, 11.9% is coal/peat, 5.0% is combustible renewable and waste (including biomass, biogas and waste), 40.6% is natural gas, 27.6% is oil and geothermal/solar/wind is 0.4%. Net imports are around 16.55 Mtoe (million tons of oil equivalent). CO₂ emissions are 53.93 (measured as Mt of CO₂). As a member of the European Union (EU), Hungary is obliged to comply with the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.

1. Institutional structure

The Ministry of Transportation, Telecommunication and Energy (Ministry) is charged with primary responsibility for the energy sector; regulatory implementation is the responsibility of the Hungarian Energy Office (HEO). The HEO is a legally autonomous body regulating electricity, gas and district heating, under the supervision of the Ministry. The president and vice-president of the HEO are appointed and dismissed by the Prime Minister upon the nomination of the Minister of Transportation, Telecommunication and Energy. Grounds for dismissal of HEO’s president and vice-president prior to the end of his or her term is limited to cause, including resignation, a conviction for a crime by a court, inability to act, conflict of interest or wilful action violating the interests of the HEO. Terms of the president and vice-president are for six years, with the possibility of reappointment to one term. The HEO also has four directors, with approximately 100 employees in total.

HEO salaries are set by the Act on the legal status of Civil Servants and the Act on Electric Energy with staff salaries on a par with that of equivalent civil servants. Its budget of 3.4 billion HUF, separate from the central budget, is generated from fees collected from regulated entities. The HEO budget must be approved by the Ministry of Finance. Despite having a separate budget, as part of this approval process, the HEO has experienced informal pressure to conform the HEO budget to governmental wishes, thus diluting the regulator’s financial autonomy.

Conflict of interest rules bar the HEO senior officers from holding managerial and related positions of authority in entities regulated by the HEO. Family members are not similarly barred, raising the potential for conflicts of interest and falling short of best practices.

The Government cannot overrule HEO decisions, which also stay in effect pending appeal except upon special request. While the HEO does not have the power to set either tariff rates or methodologies, the regulator plays an important role in pricing through the imposition of performance standards and through its licensing regime and through the issuance of guidelines to calculate electricity grid charges, wielding important authority in the implementation of the tariff regime within the final pricing issued by the Ministry. The HEO issues licences (for generation/production, transmission, distribution and supply/trade) and authorisations for new generation

30 Information herein is drawn primarily from the HEO, from answers to questionnaires provided by this project and from its 2008 Annual Report.
31 As of October 2009, 3.4 billion HUF’s is equivalent to approximately US$ 19,210,539, and EUR 12,838,982.
capacity. This licensing power includes the authority to establish licensing terms and conditions and to amend licences. The HEO exercises these powers by, among other things, imposing comprehensive licensing conditions on sector participants to provide the regulator with the information it needs to regulate the sector effectively, and by requiring licensees to comply with performance standards set by the HEO, including service quality standards. If a licensee fails to meet performance standards, the HEO can reduce the licensee’s tariffs for a pre-defined period; require direct compensation to affected customers; or impose a fine.

The HEO monitors market conditions, compiling information on market dominance and anti-competitive behaviour. It works in cooperation with the Hungarian Competition Authority (GVH), which actively addresses market abuses. For instance, on 29 April 2009, the GVH initiated proceedings against the Transmission System Operator (TSO), relating to its allocations of cross-border capacity at the Ukrainian border for the period May 2008 to January 2009.

The regulator also monitors congestion management and approves investment plans. It has dispute resolution authority, addressing consumer complaints of larger network users and working closely with the Hungarian Consumer Protection Authority to create a framework to address individual complaints of small retail users. The HEO is tasked with consumer protection, working in cooperation with non-governmental organisations representing consumer interests, as well as with the Hungarian Consumer Protection Authority and the Office of the Hungarian Parliamentary Commissioner for Civil Rights. The HEO operates the Energy Interest Representation Board with a view to ensure the continuity of the dialogue between customers and licensees.

2. Electricity sector

a. Market framework

Partial market opening began on 1 January 2003 and by the end of 2007 all customers were eligible, to choose their electricity supplier. The market participants are generators, the transmission system operator, distributors, distribution system operators, traders and retail suppliers.

The market is privatised except for one nuclear plant, one lignite plant and the TSO, which owns the transmission network assets. The TSO is Mavir Zrt. (Ltd.), a subsidiary of the state owned MVM Zrt. Holding. Unbundling complies with EU requirements, i.e., the TSO is fully (legally, accounting, and functionally, but not ownership) unbundled, as are the distribution system operators. Support functions, such as accounting, IT and finance, have been centralised in the holding company since 2007, though it does not engage in licensed activities. The HEO monitors the holding group MVM to ensure no cross-financing among subsidiaries takes place.

While the market is fully open from a legal and regulatory perspective, from a practical standpoint, despite ongoing progress, the former incumbent (MVM) does dominate the wholesale market. In 2008, for instance, the majority (approximately 70%) of the electricity required to satisfy the domestic demand reached the suppliers and the traders supplying the customers through the MVM group (which has medium term (6-8 years) power purchase agreements (PPA), i.e., bilateral contracts with domestic power plants and import contracts in particular). Historically, long-term PPAs have restricted competition in Hungary. On 4 June 2008, the European Commission issued a decree (2008/C 223) concluding that Hungarian power plants received illegal subsidies through such PPAs. As a consequence, most of the PPAs have been terminated, replaced
by shorter PPAs or more competitive arrangements. The market is moving from bilateral contracting to an organised market structure, and seeking liquidity and choice by reducing the length and number of PPAs.

Under the Electricity Act, if there is no application submitted to the HEO by 30 June 2008 to operate an organised electricity market, the HEO may oblige Mavir to organise the market. No application was filed, and the HEO issued a resolution on 4 July 2008 requiring the TSO to establish and operate the organised electricity market through an affiliate. After requesting an extension, the TSO submitted its application on 11 September 2008.

The retail market underwent considerable changes in 2008, as a consequence of narrowing the scope of consumers that qualify for public supply/universal service, with several medium and small customers required to enter the free market in 2008. The share of customers falling under the HEO regulated pricing decreased from 80% to 36% of total consumption. As a practical matter, the majority of consumers no longer qualifying for universal service remained in a contracted relationship with their former supplier. Residential consumers who do not wish to take advantage of the possibility of switching suppliers may stay with the universal service provider at an administrative price containing a maximum margin. Electricity residential customer switching is practically null at present, due to lack of offers from suppliers at rates lower than the universal supply (regulated) price.

b. Network access and tariffs

Regulated prices are set for transmission system operation (with one single tariff for different activities) and, distribution. For transmission, there is a transmission system operation charge and ancillary services charge; for distribution, there are classes by voltage level, time of day differentials, and separate charges for public lighting, and these are uniform across the country. Basically a CPI-X-type methodology, which incorporates performance-based incentives in price caps, is used. Rates for household consumers fall within the median level of pricing amongst EU Member States, with industrial customer pricing among the highest in the EU.

Access rules and charges are applied *ex-ante* and details are published. Non-discriminatory access to the network is required in accordance with EU directives and implemented through the grid code. The TSO holds auctions for cross-border capacity, which is constrained; the HEO may exempt new investment from allowing Third Party Access (TPA), which exemption is a means to encourage investment, and is permissible under EU rules and best practices as long as appropriately constrained to encourage needed investment. On 17 July 2008, transmission system operators within the Central Eastern European Region as defined in the Annex to Directive 1228/2003/EC, including the Hungarian TSO, established a Central Allocation Office to operate a coordinated market-based capacity allocation mechanism. Organisation is underway and steps taken thus far hold strong promise for fostering regional trade.

On 30 June 2008, the HEO issued a resolution (739/2008 amended by resolution 963/2008 in December 2008) identifying MVM Trade Zrt as an enterprise with significant market power in the Hungarian wholesale market, triggering the

---

32 CPI-X is an incentive-based formula for price control, in which price changes are limited to the increase in a general price index, such as the Consumer Price Index, minus a factor (x) determined by the regulator to reflect anticipated efficiency gains or productivity growth which will lower the price of supply to the customer.
HEO’s right to force the company to conduct a capacity auction and to regulate its prices in 2008 and 2009. There are three different price limits, two for sales to universal suppliers in 2008 and 2009 (16.05 HUF/kWh for 2008 and 15.60 HUF/kWh as average starting price for 2009) and one for MVM Trade’s total sales on the wholesale market in 2009.

As noted above, the HEO imposes a comprehensive licensing regime, imposing various licensing requirements, including initial criteria ensuring the financial and technical capacities, as well as ongoing obligations once the licence is issued. Notable of its comprehensive licensing activity, in 2008 the HEO issued 343 resolutions pertaining to licensing for the companies of the electricity industry. Among them, 42 were licences for small power plants and 117 were licence modifications.

A two-tiered licensing scheme is imposed for generation: small power plants, defined as having a capacity of 0.5 MW to 50 MW are reviewed under a simplified licensing process; power plants over 50 MW must undergo a more comprehensive approval process.

With respect to transmission, in 2006 Hungary switched from having an independent system operator to having a transmission system operator (Mavir), and this change required Mavir to be re-licensed, which the HEO issued on 1 January 2008 (Resolution 84/2208). Thereafter, Mavir’s actions as the transmission system operator generated complaints by generators operating under feed-in obligations. The HEO investigated Mavir’s activities and in July 2008 imposed obligations on Mavir to facilitate operations for these generators. Unbundling of distribution network and electricity trade activities has been completed via changes in the distribution companies’ licences as of 1 January 2008.

Licensing of trade activities has been simplified under the 2007 Electricity Act, with less information required to be submitted to the HEO, the elimination of requirements of an initial capital security, and operational financial guarantees more proportional to the licensee’s annual electricity sales. Consistent with requests from traders engaged in cross-border trade, financial performance guarantees are now governed by the system operators. Modifications in trade licences during the 2007-08 periods also included the development of different types of trading licences. In addition to a comprehensive trading licence that entitles the licensee to supply consumers directly, the HEO introduced a restricted trading licence that allows for wholesale trade only. The HEO also creates a simplified licence for the operator of a private electricity line to supply the customers connecting to that line, which exempts the operator from the obligation of preparing Business Conduct Rules. The requirement of obtaining a separate licence for cross-border trade was also eliminated. In the course of 2008, the HEO issued 32 electricity trading licences, including 10 restricted and one simplified trading licence.

The 2007 Electricity Act also required former public utility suppliers as defined in the Act (i.e., those entities previously serving captive consumers) to submit applications for an electricity trading licence in addition to a separate licence to provide universal service (i.e., last resort service for those who do not choose their own suppliers or cannot find a supplier on the market to serve them).

---

33 Feed-in obligations are preferences given under law to use certain types of generation, such as that from renewable resources.
With respect to market operation, MAVIR has applied to the HEO for a market operator licence and the licensing process is underway.

c. Operational environment

With respect to security of supply and public service obligations, universal suppliers, i.e., suppliers of last resort for smaller customers who cannot or will not choose their suppliers, are appointed by the HEO, which may also issue tenders for additional generating capacity of needed. There is no public service obligation to serve larger customers, who must purchase their power on the market. Security of supply is also advanced through requirements in the law for specified levels of fuel reserves to be maintained by licensees. Through regular inspections in 2008, the HEO concluded that these requirements had been met and in some places exceeded. With respect to cross-border exchanges, the HEO approves standards jointly elaborated by the TSO and the Grid Code Committee, which consists of representatives from sector participants.

In 2008, a new system of universal service replaced the former public utility system, resulting in less control over public service by the HEO and a narrower circle of affected customers, as noted above. Universal service providers are owned by three multinational companies, E.ON, RWE and EDF, which supply customers not only through their affiliates entitled to provide universal service, but also through their trading subsidiaries established with a view to perform free market activities. Thus, the market share of these three companies in the domestic retail market in 2008 was approximately 81% (despite being five years after the official market opening).

The HEO participates in the monitoring of quality of service and quality and level of maintenance of the networks through the reporting requirements it places on its licensees, and through fines for any failure to meet these requirements. For instance, in 2008, the HEO imposed a 50 million HUF fine for failure to meet quality of service standards.

HEO decisions are posted on its website, www.eh.gov.hu. Each year, the HEO presents a report to Parliament. The HEO’s hearings are not held in public and the law does not provide for public consultation, but in practice the HEO engages in public consultation when discussing activities that affect the market’s structures and operations. The HEO also collects and publishes performance indicators for licensees.

Foreign capital investment in energy companies is permitted and changes of ownership are regulated through licence conditions. The licence holder has an obligation to report any acquisition of 5% or more of its shares; above 25%, HEO approval is required. Incentives for new generating investments are primarily directed at encouraging renewable energy development.

3. Gas sector

a. Market framework

The market participants are producers, the transmission company, a storage company, traders, and distributors who provide retail supply. There is one transmission company-transmission system operator (MOL) and ten regional distribution companies, the larger five of which completed legal unbundling in 2007. All participants have been privatised. The public utility wholesaler activity is performed by the E.ON Földgáz Trade Zrt, which is a vertically
integrated subsidiary of E.ON Ruhrgas International GmbH, but is legally and operationally unbundled from the gas storage licensee E.ON Földgáz Storage Zrt.

All customers, including households, became eligible to choose their own suppliers on 1 July 2007, though as a practical matter, the natural gas market has been operating only since 1 January 2009. The market remains a hybrid in that consumers may still choose to remain on a regulated market, referred to as universal supply. The number of customers choosing to become eligible is slowly increasing, with registered eligible customers numbering 786 on 1 January 2008 and 3938 by the end of the year (1,423 non-residential and 2,515 residential), and amounting to 29.8% of the annual total natural gas consumption. Twenty-five traders have been licensed, although fewer trade in practice.

There is a new security storage facility under construction with 1.2 billion m³ working gas capacity, required by 1 January 2010. This natural gas security storage was prescribed by the Act 26 of 2006 and must have a daily withdrawal capacity of 20 million m³ for at least 45 days. The security storage primarily serves the secure supply of natural gas to household and communal customers.

b. **Network access and tariffs**

Transportation, distribution, storage and the end-user tariff for universal suppliers are regulated. Revenue caps reflecting performance incentives may be included.

Third Party Access is regulated, set by the Ministry upon the proposal of the HEO. Over 50% of cross-border capacity has been booked by long-term contracts. Each aspect of the delivery chain from transportation, distribution, storage, trade and retail supply is licensed. The concept of universal service was adopted in 2008; that is, a mechanism to supply small customers. Residential customers and other users having contracted capacities not exceeding 20 m³/hour are entitled to receive universal service, meaning service at a regulated price.

In 2008, the HEO passed 108 resolutions on operational licences in the gas sector, indicating again the high level of licensing activity. Four of these resolutions were on the approval of the establishment of direct pipelines, while another four permitted four new natural gas traders to operate on the competitive market, increasing the number of natural gas trade licensees increased to 25. Universal service and the one-stop-shop capacity sale, as described below, are new activities subject to license.

c. **Operational environment**

Enhancement of security of supply is being sought through a new “one stop shopping” cross-border regulatory environment which seeks to simplify and facilitate the development of international transmission pipeline capacities, by requiring traders to contract with only one company and not multiple companies en route. The demand of enhancing the security of supply makes it necessary to build a new transmission pipeline crossing several countries. To facilitate the management of the applications for the construction of international pipelines, the licensing regime of the new Gas Act enables traders to contract with one company irrespective of the number of countries they wish to transport through. Simultaneously with the appearance of new licence types, certain licence types will cease (for example, natural gas public utility wholesale licence, operational licence for natural gas public utility supply, operational licence for access to cross-border transmission pipelines).
The HEO participates in the monitoring of expected future demand and envisaged additional gas storage capacity, while gas production is monitored by the Mining Authority.

4. Renewable energy sources/ energy efficiency

In 2008, the government approved a Renewable Energy Strategy and Energy Efficiency Strategy for 2007-2020. The policy targets a 13% share of renewable energy in total primary energy supply by 2020. The strategy favours decentralised energy production, the co-generation of heat and power and the establishment of small power stations utilising renewable sources locally. A previously set target of 5% for renewable energy production was achieved, primarily through use of biomass. The main supporting policies for renewable energy are preferred feed-in obligations and tariffs (i.e., regulated prices to encourage the development of renewable energy production), investment subsidies from domestic and EU sources, and tax allowances for bio-fuels. A green certificate scheme was introduced with the 2001 Electricity Act, as amended in 2005.

With respect to energy efficiency, the HEO cooperates in the implementation of the Government’s strategy, taking part in the work of the inter-ministerial committee that evaluates the energy efficiency tenders, in the work of the committee that selects and evaluates projects in the Environment and Energy Operative Programme, and in the preparation of the invitations for tenders. Upon request, the HEO may also provide consultations on the tenders relating to the use of renewable energy.

No renewable energy-specific primary legislation exists. The feed-in tariffs are set by decree of the Ministry of Transport, Telecommunication and Energy. The HEO sets only the amount of the renewable energy covered by the regulated price and the period of purchase obligation. Generation of electricity based on renewable sources in 2008 exceeded 2200 GWh, a 30% increase compared to 2007. 80% of renewable electricity generation is biomass, approximately 9% is hydroelectric, and 9% is wind power. The share of electricity generated from renewable energy represents nearly 4.52% of the total electricity consumption of the country, exceeding Hungary’s commitment to the EU of 3.6% to be achieved by 2010.

A rapid increase in the installed capacity of wind power plants (112 MW in operation by the end of 2008, 330 MW by the middle of 2010, i.e. the total amount of capacity allowed) is accounted for by its high feed-in price. Feed-in prices for new (primarily small) greenfield biomass and biogas plants are not as attractive, but one plant sold approximately 50% of its generation from renewable energy outside the feed-in obligation. Because the interrupted nature of wind does not allow it to be used as a base resource, and excess amounts of wind power transfers can tax networks, the law now caps the maximum amount of wind allowed on the system to 330 MW.

The HEO participates as a professional authority in the determination of the total allowed annual sulphur dioxide and nitrogen oxide emission allowances of the power plants. It also helps with its expert opinion in the preparation of the National Allocation Plan and the determination of the allowances of the new entrants. The HEO gives only its stance in the aspect of the electricity generator licensees, the allocation itself is the responsibility of the National Inspectorate for Environment, Nature and Water. Over 200 Hungarian companies – power plants, oil refineries, 34

---

coking plants, iron metallurgy and steel production, cement-, lime-, glass- and construction material production, as well as paper mills – now participate in the EU’s emission trading system.

5. Conclusion

Hungary performs well overall and with respect to its grouping (Group A). Moreover, within its Group, Hungary has an electricity sector score of 0.943 relative to a Group average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). In the gas sector Hungary has a score of 0.899 relative to Group average of 0.864.

Hungary’s landlocked Central European location, maturing and privatised energy sector and responsive regulatory bodies provide a relatively welcoming context for investment, with further potential largely in the areas of transit development and renewable energy. Within the electricity sector, continued efforts to develop a competitive organised market, police anti-competitive activities and establish transparent mechanisms to address cross-border capacity issues demonstrate continuation of a longstanding dynamic toward progress and integration within the European community. Hungary’s gas sector development, constrained by its lack of domestic resources, continues apace with its neighbours and EU requirements, as does its development of the renewable energy sector. Its “one stop shopping” effort and efforts to simplify licensing requirements show a particularly positive understanding and responsiveness to investor needs.
Electricity spider graph – Hungary

Note: The diagram presents the electricity sector results of Hungary, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Hungary are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Gas spider graph - Hungary

Note: The diagram presents the gas sector results of Hungary, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Hungary are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

Gas Sector - Comparative view of Group A countries
LATVIA COUNTRY PROFILE

Overview

Latvia has a GDP of USD 33.783 million\textsuperscript{xii} and a population of approximately 2.23 million.\textsuperscript{xiii} The total primary energy supply in 2007 was 4.67 Mtoe (million tons of oil equivalent), of which 5.3\% is hydro power, 2.4\% is coal/peat, 26.6\% is combustible renewable and waste (including biomass, biogas and waste), 0.1\% is wind/geothermal/solar, 30.8\% is natural gas and 34.8\% is oil. Net imports are around 3.03 Mtoe. CO\(_2\) emissions are 8.3 (measured as Mt of CO\(_2\)). A member of the European Union (EU), Latvia has undertaken to implement the EU energy \textit{acquis}.\textsuperscript{xiv}

1. Institutional structure

The Ministry of Economy is the major policy making governmental body in the energy sector and the Cabinet of Ministers issues detailed regulations, while the energy regulator (which also regulates telecommunications, postal services, railways, water and waste) is the Public Utilities Commission (PUC). The PUC has five commissioners, including the Chair. The Parliament appoints the commissioners upon the recommendation of the Government for fixed five year terms. The Government uses a competition to select applicants. Under the Law on Regulators of Public Utilities, a commissioner shall not be removed except upon an application to resign, incapacity, or discovery of ineligibility under the Law.

The commissioners’ salaries are set by the Government; staff salaries are set by the commissioners within the PUC budget, which is a part of the Ministry’s budget. The PUC has 87 employees. Its budget, derived from fees on regulated entities, was approved on 4 December 2008 as 3,263,629 LVL, reduced in June 2009 to 2,559,933 LVL.\textsuperscript{36} The financial independence is therefore limited.

The general Law on Prevention of Conflict of Interest in Activities of Public Officials applies to commissioners; additionally, the Law on Regulators of Public Utilities precludes commissioners from being members of Parliament or a local government council or holding elected offices in the management of political organisations or parties. A commissioner may not, for three years after termination of office, own or work for a utility service provider with respect to which the commissioner has made a decision.

The PUC’s decisions cannot be altered by the Government. The PUC can initiate administrative violation procedures and as a result apply sanctions consisting of a warning or a fine for failure to comply with PUC decisions, licence requirements or information obligations.

The PUC sets tariff methodology and rates, issues licences, sets service quality standards, and supervises market competition and congestion management (although there is none). The Ministry issues authorisations of new generating capacity.

---

\textsuperscript{35} Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project, and from the regulator’s 2008 National Report to the European Commission, primary legislation and regulations in the energy sector and CEER and ERGEG materials.

\textsuperscript{36} This is the equivalent of approximately Euro 4,643,726 and 3,642,457 respectively (using an October 2009 exchange rate).
A competition authority exists and works in cooperation with the PUC. Whether the PUC or competition authority addresses an issue relating to anti-competitive behaviour depends on how directly the issue implicates an aspect of the Law on Regulators of Public Utilities (e.g., licence requirements) versus the Competition Law (abuse of dominant position). Merger and acquisition review falls within the competence of the competition authority.

Consumer complaints can be addressed either to the PUC or the Authority of Protection of Consumer Rights.

2. Electricity sector

a. Market framework

The Latvian electricity system forms part of the Baltic grid, with high interconnection capacity with the other Baltic States, but in isolation from other EU countries.

All customers can choose their suppliers, but only the large customers must purchase on the market. The dominant electricity company is the state-owned “Latvenergo”, which imports and generates electricity and controls more than 90% of installed generation capacity, with the balance shared among more than 200 small electricity producers. The Transmission System Operator (TSO) was created as a separate company on 8 June 2005, when PUC issued a licence to the state-owned company “Augstsprieguma t kls”, which began to function as an independent transmission system operator as of 1 September 2005. There are ten Distribution System Operators (DSOs), on 21 February 2007 the Commission issued a licence for a distribution system operator JSC “Sadales t kls” which started operation on 1 July 2007 by taking over all the functions of DSO from JSC Latvenergo.

Starting in 2007, two Estonian suppliers have obtained trading licences and have begun to compete with Latvenergo. Privatisation of Latvenergo is prohibited by law.

b. Network access and tariffs

The PUC regulates transmission and distribution service tariffs for all users, and end user tariffs for households and small enterprises with less than 50 employees or yearly turnover less than 7 million LVL (approximately 10 million EUR) who have not chosen their own suppliers.

After a regulated entity submits a tariff application to the PUC, that entity must publish a notice in the Official Magazine of Latvia so indicating, including in the notice the projected tariff growth rate, basis and the projected date when the proposed tariffs will come into force. If proposed tariffs are approved by the PUC, the PUC publishes the approved tariffs in the Official Magazine of Latvia, with tariffs coming into force no earlier than 30 days after publication.

The household rate is uniform, while there are time-of-day and other differentiations for larger customers. The full-service tariff for enterprises consists of electricity price (52%), transmission and distribution costs (37%), mandatory purchase component (10%) and trade costs (1%).

The grid code was approved by the regulatory authority on 16 January 2008. The PUC may not grant Third Party Access (TPA) exemptions for new
investment. Detailed trade and usage regulations are issued by the Cabinet of Ministers and outside the authority of the PUC.

The PUC licenses all sector activity by function, except that a regulatory authority licence is needed to introduce any new generation capacity over 1 MW (but not below).

c. Operational environment

Foreign investment is not restricted, and the Ministry issues permissions for new generation capacity irrespective of size, as long as appropriate documentation is provided. As noted above, the dominant vertically integrated electricity company cannot be privatised.

PUC decisions, published in the official newspaper of Latvia and on the PUC’s website, www.sprk.gov.lv, can be appealed to court. The PUC also files an annual report, including audit, with Parliament each year. While legislation does not provide for compulsory public hearings, the PUC carries out such hearings in practice.

Households and commercial entities with less than 50 employees or yearly turnover less than 7 million LVL have the right to universal service of electricity at the PUC’s regulated end user price. Larger companies must purchase their power on the market. Under the Electricity Market Law, the public trader, i.e., that entity having a distribution licence with the largest area of operation and the largest number of users, must serve all captive tariff customers within Latvia, as well as buy electricity produced by cogeneration process and from renewable energy resources.

The TSO approves its own investment plans, with PUC oversight via its tariff responsibilities and regulatory approval for new transmission network infrastructure.

The TSO submits an annual report to the PUC and Ministry regarding the supply/demand balance on the national market, and every year, the TSO and DSOs submit to the PUC information regarding quality of service standards. In its annual report, the TSO must inform the Ministry if a lack of power is expected and new generation capacity needed, at which point the Ministry can propose to arrange a tendering procedure. The Cabinet of Ministers decides upon whether to issue a tender and where a tender is issued, the PUC organises and monitors the tendering process.

3. Gas sector

a. Market framework

Latvia obtained a derogation from the EU for gas market opening (which would otherwise have been required under EU law) until 1 January 2010 and according to the Energy Law, its gas market will remain closed until that date.

There is one gas company, A/s Latvijas G ze, owned by E.ON Ruhrgas International AG (47.15%), AAS Gazprom (25%) and SIA "Itera-Latvija” (25%). A/s Latvijas G ze’s transportation, distribution and storage licences are valid until 10 February 2017, and its supply licence until 10 February 2012. Licences are issued by the PUC.
Natural gas is imported only from two external suppliers, AAS Gazprom and SIA Itera-Latvija. Latvia’s gas transportation system is connected with the transportation systems of Lithuania, Estonia and Russia; Estonia and Lithuania are only connected only to the Russian system.

b. Network access and tariffs

Supply tariffs are established by the PUC and calculated in accordance with its methodologies. Household tariffs were cut in July 2009 based on decreasing natural gas prices. Separate tariffs were established for storage and trade in 2007. Latvia’s tariffs, using a cost-of-service approach, are mid-level both for households and commercial users as compared to other EU countries.

The market is closed, with no guaranteed Third Party Access. Natural gas is supplied only by A/s Latvijas G že and regulated by the Gas Supply and Usage Regulations issued by the Cabinet of Ministers. Natural gas in Latvia is stored in the Incukalns Underground Gas Storage Facility, operated by A/s Latvijas G že.

c. Operational environment

The natural gas transportation and distribution networks are operated by AS Latvijas G že. The supply of natural gas to customers is regulated by the Gas Supply and Usage Regulations issued by the Cabinet of Ministers. Among other things the distribution system operator is obliged to connect and serve every customer within their respective territories.

4. Renewable energy sources/energy efficiency

Latvia is one of the most heavily import-dependent countries in the EU with respect to energy resources, but one of the highest in terms of its domestic energy produced through renewable resources (primarily hydro power). Latvia has committed itself to increase its share of renewable energy in electricity consumption to 49.3%, by, among other things, increasing wind power capacities to 5.37% in 2010.

The Energy Law defines renewable energy resources, and the Electricity Market Law requires that the percentage of electricity produced from renewable energy resources is gradually increased so that by 31 December 2010 it is not less than 49.3% of the total electricity consumption.

As noted above, the Electricity Market Law and Cabinet of Ministers’ regulation prescribe that the public electricity trader must buy power produced in cogeneration plants and from renewable sources, pursuant to feed-in tariffs. The Cabinet of Ministers just set the guaranteed tariffs for power from renewable sources in May 2009, categorised as follows:

- hydro power station with generation capacity less or equal than 5 MW
- wind power station with generation capacity less than 0.25 MW
- wind power station with generation capacity over 0.25 MW
- biogas power station
- biomass power station power station where biomass is used as a fuel together with fossil fuel
- solar power station
Entities producing electricity by using renewable energy resources receive permits from the Ministry, which confirm that the power has been produced by using renewable energy resources.

The legislative framework for emission trading is set forth in the Law on Pollution and the Regulations on Activities with Emission Allowances and the Organisation of Pools of Installations issued by the Cabinet of Ministers, which implement relevant provisions of Directive 2003/87/EC. Emission allowances are allocated by the Ministry of Environment, while the Latvian Environment, Geology and Meteorology Agency operate and maintain the issuing and the register of allowances.

Latvia signed the United Nations Framework Convention on Climate Change in Rio de Janeiro in 1992; Saeima (Parliament) of the Republic of Latvia ratified the Convention in 1995. Latvia will meet Kyoto’s targets, and is expected in 2010 to have an overall 40% decrease in emissions from 1990 levels (which form the baseline).

5. Conclusion

Latvia performs well overall but less well with respect to its grouping (Group A), slightly below the Group average for electricity, and well below the Group average for gas. Moreover, within its Group, Latvia has an electricity sector score of 0.921 relative to a Group average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Latvia has a natural gas sector score of 0.696 relative to a Group average of 0.864.

The dominance of state-owned Latvenergo limits private investment opportunities in the electricity sector, as does Latvia’s location within the Baltic island, with limited transmission connections to the west. Construction of additional linkages north and west is a priority need for all the countries in the Baltic region in order to develop their electricity markets within the large European community. Given the allowed derogation (from the EU) of the opening of its gas market, development of this market is in its nascent stages, with near-term potential constrained by the lack of diversity of resources. In the area of renewable energy, however, Latvia’s dependence upon imports has led to an aggressive attitude toward development of domestic renewable resources with potential investment opportunities.
Electricity spider graph – Latvia

Note: The diagram presents the electricity sector results of Latvia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Latvia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Gas spider graph - Latvia

Note: The diagram presents the gas sector results of Latvia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Latvia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

Gas Sector - Comparative view of Group A countries
LITHUANIA COUNTRY PROFILE

Overview

Lithuania has a GDP of USD 47.341 million\(^{xxv}\) and a population of approximately 3.38 million.\(^{xvi}\) In 2007, its total production of energy was 9.25 Mtoe (million tons of oil equivalent), of which 0.4% was hydro power, 2.8% was coal/peat, 8.2% was combustible renewable and waste, 2.4% was geothermal/solar/wind, 30.9% was natural gas, 27.6% was oil and 27.8% was nuclear. Net imports were 5.73 Mtoe. CO\(_2\) emissions were 14.44 (measured as Mt). A member of the European Union (EU), Lithuania is bound to adhere to the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and protection of the environment.\(^{xvii}\)

1. Institutional structure

The Ministry of Energy is the major policy making governmental body, and the entity responsible for regulatory implementation is the National Control Commission for Prices and Energy (NCCPE). NCCPE is a legal autonomous regulatory body that covers electricity, natural gas, heating and water supply. There are five members, including the Chair, with fixed five-year terms. Members are appointed and dismissed by Parliament on the recommendation of the President. They can be dismissed before expiration of their terms only due to election or appointment to another position, criminal conviction, incapacity, loss of nationality, an ethical violation, or commission of “a grave breach of the requirements of the position held.” NCCPE has a total of 54 employees.

Members and staff salaries are based on salaries for public officials and judges, and civil servants, respectively. NCCPE’s most recent budget of 4.675.000 Lt\(^{38}\) comes from the central budget and was less than requested, reflecting the limits in NCCPE’s financial independence from government.

Conflict of interest rules bar NCCPE members from holding management positions in entities regulated by the NCCPE; similar conflict rules apply to staff and family.

The Government cannot overrule NCCPE decisions; instead, its decisions are appealed to the court or to the Chief Administrative Disputes Commission. Decisions are not stayed pending appeal unless by order of the court. NCCPE may directly impose fines (on natural persons only, not on industry) and can reduce tariff revenues for failing to meet performance standards.

NCCPE sets tariff methodologies and rate caps; issues licences (for electricity market operator, electricity transmission, electricity distribution and supply (public and independent), and for natural gas transmission, distribution, storage, liquefaction and supply); supervises service quality pursuant to standards set by the Ministry; hears consumer complaints; supervises congestion management (although there appears to be none at present); approves investment plans in conjunction with Ministry policy; and, with the Competition Authority, oversees market competition. As of the 2007 amendments to the Law on Natural Gas, NCCPE was charged with launching tenders for gasification of new territories, drafting a new methodology for calculating new tariffs

---

\(^{xxv}\) Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project, and from the 2008 Annual Report on Electricity and Gas Markets in Lithuania prepared for the European Commission.

\(^{xvi}\) This is the equivalent of approximately EUR 1,352,505 (using an October 2009 exchange rate).
customer connection fees, establishing household customer connection fees, and drafting other secondary legislation.

As noted, Lithuania has a competition authority, the Competition Council, with authority to address market abuses and mergers, and with which NCCPE cooperates.

2. Electricity sector

a. Market framework

Since January 2007, all customers have been eligible to choose their suppliers. The market participants are the generators, the Transmission System Operator (TSO), the market operator, distributors, Distribution System Operators (DSOs), traders and retail suppliers (both public and independent) and customers. The Ministry and the market operator, a division within the TSO, are responsible for facilitating and organising electricity trade.

A wholesale pool market has existed since 2002, along with bilateral contracting. Only 14% of electricity consumption (six large industrial consumers) has switched from public suppliers to market prices from other suppliers, due to the low public supplier price. This lower price, in turn, is influenced by lower priced generation from the state-owned Ignalina nuclear plant, scheduled to close in 2010. (Plans are underway to build a new plant, but it will not be in operation until 2018-2020.) Ignalina produces approximately 70% of the power generated in Lithuania.

As of May 2008, the TSO (Lietvos Energija, AB) and two DSOs are contained within LEO LT, AB, which is owned 62% by the State and 38% by NDX Energy. The DSOs act as the primary public suppliers. Unbundling comports in most part with the EU Directives, in that activities are fully unbundled except the smaller distribution companies (serving 100,000 customers or less, of which there are five) need only functionally, not legally, unbundle. The transmission and distribution companies are legally unbundled, with the exceptions of the market operator’s department and two hydro power plants (Kaunas HPP and Kruonis PSP), which operate as balancing components of the electricity transmission system, and public supplier units, which are individual distribution company departments.

Efforts are underway to create a Baltic Electricity Market following the Nord Pool model, which, due to its small size, would be linked with the Scandinavian market. Given the looming decommissioning and dismantling of Unit 1 of the Ignalina power plant (a nuclear plant deemed unsafe as it, like Chernobyl, lacks the reactor containment found in Western nuclear facilities), one of the primary objectives of the transmission company is the integration of the Lithuanian energy system into the Western European electricity market as well as the development of regional co-operation. Expansion of the transmission grid is planned in the near future by interconnection with the Polish electricity networks.

b. Network access and tariffs

Aside from network prices, prices are unregulated, except as to generation and supply serving more than 25% of the market. NCCPE uses a 50/50 revenue/price cap approach for network services, with a binary tariff at all voltage levels introduced in 2007 to disaggregate network tariffs from supply to harmonise the network prices for eligible and public supply customers. The caps are set for a
three-year period with annual adjustments based on consumer price index fluctuation, an efficiency factor, allowed unpredicted changes, the impact of electricity volume and corrections based on the revenue requirements of the regulated entity if justified by that entity. Tariffs are not uniform throughout the country, but divided into two regions. Household prices are lower than the EU average, but rose in 2008 due to rising gas prices.

Access rules and charges are applied *ex-ante* and details are published. Non-discriminatory Third Party Access (TPA) to the network is required in accordance with EU directives and implemented through a grid code. NCCPE approves connection charges and may exempt new investment from allowing TPA, which exemption is a means to encourage investment, and is permissible under EU rules and best practices as long as appropriately constrained to encourage needed investment. The Lithuanian electricity system as well as the Baltic energy system does not experience any congestion because of sufficient transmission capacity of electricity networks. Intersystem electricity flows, interconnection capacities, generation, consumption, export/import, the influence of transmission network outages on transmission capacities between neighbouring countries can be followed on-line on the website of the Lithuanian transmission system operator (www.le.lt).

The regulator licenses sector participants. It does not, however, issue production permits or authorisations for new generating capacity, which are handled and issued entirely by the Ministry. In 2007, bankruptcy proceedings were initiated against one local distribution network operator (Ekranas AB). The right to manage the electricity distribution grids of Ekranas AB was then granted under an agreement to Prekybos Namai Giro UAB, thereby ensuring the continuity of the licensed activity and electricity. The Law on Electricity provides for two types of electricity supply licence: a public electricity supplier and an independent electricity supplier. The number of licensed traders or suppliers has not increased appreciably recently, with a total of 18 independent supply licences and six public supply licences issued in 2007, and eight undertakings actually engaged in independent supply.

c. **Operational environment**

With respect to security of supply and public service obligations, as noted, the two DSOs perform public supply, and few customers have chosen to leave public supply because of its relatively low pricing. With the looming closure of the Ignalina facility, security of supply is a concern, resulting in promotion of greater physical connections to the west and north, and pursuit of domestic production from renewable energy and, potentially, a new nuclear plant.

NCCPE monitors quality of service pursuant to a 2005 order approved by the Ministry, and the benchmarked baseline conditions are now used to adjust price caps for transmission and distribution services. Since 2004, NCCPE annually inspects major electricity companies, and analyses and evaluates how they register data on reliability of electricity supply and service quality. If violations are discovered during inspections, the companies must eliminate them within the NCCPE-specified time; failure to perform can be reflected in the price cap formula. The number and length of interruptions on the transmission grid is comparatively low when compared with other European countries and is similar to other European countries on the distribution level.

In 2007, NCCPE considered about 300 various types of residential complaints and requests, most of which were rejected. There have been no complaints about access to the network.
NCCPE files an annual report, available on its website (www.regula.lt). Decisions are published and also available on the website, and NCCPE must present a report annually to Parliament.

Foreign capital investment in energy companies is permitted and changes of ownership are regulated through licence conditions. Incentives for new generating investments are primarily directed at encouraging renewable energy development.

3. Gas sector

a. Market framework

Market participants are primarily the transmission company and distributor-suppliers. The market has been fully open since 1 July 2007, but there is no wholesale natural gas market as a practical matter because natural gas comes largely from Russian Gazprom AAB, pursuant to long-term purchase agreements. In 2008, there were five retail gas suppliers, but Lithuanian customers were supplied by two main companies: Lietuvos Dujos AB and Dujotekana UAB, with Lietuvos Dujos AB being the main natural gas supplier to household customers. Switching is hampered by quota limitations imposed by Gazprom. A large chemical manufacturer (Achema AB) and a combined heat and power plant (Kauno Termofikacijos Elektrin UAB) buy directly off the transmission line for their own needs.

Lietuvos Dujos AB, which has undergone accounting separation but not yet legal unbundling, engages in natural gas import, transmission, distribution and supply to gas consumers of Lithuania and owns the majority of the natural gas supply infrastructure in Lithuania. It is owned 38.9% by EON Ruhrgas International AG, 37.1% by OAO Gazprom, 17.7% by the State property fund and 6.3% by small shareholders.

b. Network access and tariffs

There is only one supplier, Gazprom AAB, and as of 1 January 2008, Lithuanian customers began paying prices equivalent to other western countries. In the spring of 2007, the Law on Natural Gas was amended to have NCCPE regulate natural gas supply prices for all customers, including eligible customers. According to that Law, transmission, distribution, storage, supply and liquefaction prices are all regulated, although as a practical matter there is no storage or liquefaction.

Tariffs are published and calculated in accordance with published price cap methodologies with separate tariffs established for storage and trade in 2007. A five-year regulatory period is used, with annual price adjustments based on inflation, operational efficiency coefficients, changes in gas consumption volumes and other factors external to the provider. Both household and commercial tariffs are low as compared to other EU countries.

There is no grid code. The key requirements for the natural gas transmission system balancing are set forth in published rules set by the transmission or distribution system operators, upon agreement with NCCPE which, per the 2002 Law on Natural Gas and the Rules for Natural Gas Transmission, Distribution, Storage and Supply, must be objective, transparent and non-discriminatory. These balancing rules are mandatory for customers and system users, except for
household customers. Lithuania applies a daily (24-hour) transmission system balancing interval.

c. Operational environment

With respect to public service obligations, the Government or its delegate may impose such obligations pursuant to the Law on Energy. Article 16.3 of the Law on Natural Gas provides that supply of last resort may be provided to household customers and users with an energy generation capacity of less than 5 MW and having no fuel reserve stocks. Under Article 10 of the Law, the Government of Lithuania approved Licensing Rules on Natural Gas Transmission, Distribution, Storage, Liquefying and Supply, in which the scope of supply of last resort is narrower than in the Law, providing only for household customers. These Licensing Rules prescribe that NCCPE shall require a company with a supply licence to act as the supplier of last resort; Lietuvos Dujos AB is that supplier.

Gas reserves are being increased to ensure security of supply, although dependence on Russia in the gas sector is enlarged further by the fact that Lithuania does not have depots for natural gas, and cannot import gas by sea, as it does not have liquefied natural gas (LNG) terminals, and demand for natural gas will increase in 2010. Lietuvos Dujos AB is charged with implementing measures to address gas shortage problems due to the fault of an external supplier.

There are as of yet no quality of service standards, although the Ministry is in the process of drafting them, and Lietuvos Dujos AB provides NCCPE with annual data regarding interruptions and other quality factors.

4. Renewable energy sources/energy efficiency

In 2007, Parliament approved a revised National Energy Strategy (NES), which is the main strategic document of the energy sector. The NES sets out key energy policy planning provisions and foresees that in 2010 more than 7% of the electric power consumed will be generated using renewable energy resources. The principal source of generation from renewable sources is hydro power.

Pursuant to an Order of the Minister of Economy, the following are covered by public service obligations: generation from renewable energy; Combined Heat and Power plants supplying heat to urban district heating systems and plants supplying reserves; nuclear operational security; waste storage; and disposal and connection of electricity generating facilities using wind, biomass, solar or hydro-power to transmission or distribution electricity networks. Fulfilment of these obligations is regulated by the Rules for Imposing Public Service Obligations approved by the Ministry of Economy.

As part of its overall tariff authority, NCCPE has approved feed-in tariffs, consistent with national law and the Energy Strategy; there is no separate renewable energy legislation (though biofuel is addressed in separate legislation). In 2008, NCCPE approved new purchase prices for green electricity, applicable from 1 January 2009 and guaranteed until the end of 2020. Lietuvos Energija AB as TSO is responsible for the issuance of guarantees of origin of electricity generated from renewable energy and for the administration of the database. The TSO and DSOs must buy all produced green energy, with acquisition costs folded into the end-user prices. When the auction price is higher than the feed-in tariff, “green” energy producers are not entitled to the higher price.
Electricity producers are granted a number of tradable pollution permits. When their emissions exceed the level of permits, they must buy additional permits on the market. If the producer is a regulated entity, the cost of additional permits is included in the tariff. The price of electricity produced in Ignalina includes only the cost for short term storage of nuclear waste. Decommissioning and long term waste storage is not included in the electricity price, but will be covered by the Ignalina International Decommissioning Support Fund and from EU allocations.

Lithuania has taken some important steps with regard to international and regional environmental agreements for the energy sector. Parliament ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 23 February 1995 and the Kyoto Protocol to the United Nations Framework Convention on Climate Change on 19 November 2002. The EU and Lithuania have undertaken to mitigate greenhouse gas (GHG) emissions in the period 2008-2012 to, on average, 8% below the level in the base year, which is 1990 for CO₂, methane and nitrous oxide, and 1990 or 1995 for industrial GHG. The national strategy for implementation of UNFCCC up to 2012 was adopted on 23 January 2008 under Decision No. 94 of the Government of Republic of Lithuania. In a positive step toward addressing climate change, the Law on Financial Instruments for Climate Change Management was passed on 7 July 2009, which addresses, among other things, trading in allowances and Kyoto units as well as implementation of the Joint Implementation Projects and the Clean Development Mechanism under the Kyoto Protocol.

In order to ensure the effective implementation of GHG mitigation targets and measures defined in the UNFCCC, the Kyoto Protocol and in related EU legal acts, and considering the changes in the structure of ministries and other organisations, the composition of the National Climate Change Committee was updated by the Order No. D1-221 of the Minister of Environment of 27 April 2009 and the meeting of this Committee was organised on 23 June 2009. Measures for implementation of UNFCCC and Kyoto protocol commitments are set forth in the Law on environmental protection (1992, amended in 2005); the Law on ambient air protection (1999); the Law on environmental monitoring (1997, amended in 2006); the Law on environmental pollution taxes (1999, amended in 2008); the Law on waste management (1998, amended in 2005); the Law on energy (2002, amended in 2007); the Law on electricity (2000, amended in 2004); the Law on district heating; the Law on biogases, biofuels and bio-oils (2000, amended in 2004); the Law on transport activities background (1991, amended in 2006); the Law on agriculture and rural development (2002); the Law on forests (1994, amended 2007); and the Law on drinking water supply and waste water disposal (2006).

The Ministry of Environment is responsible for the transposition to the national legislation and for the implementation of the requirements of EU Directive 2003/87/EB, specifying the EU emission trading scheme, and other EU legislation concerning the climate change. The Law on Financial Instruments for Climate Change Management addresses obligations of Kyoto and the EU greenhouse gas emission allowance trading scheme. The regional environment protection departments under the Ministry of Environment and the State Environment Protection Inspectorate control the implementation of the requirements set forth in the Procedures for the Issuance and Trading in EU GHG allowances. The Climate Change Division (established in January 2008) of the Environment Quality Department of the Ministry of Environment prepares and provides to the Commission reports on the implementation of EU Directive 2003/87/EB annually. The Ministry of Environment in cooperation with the Ministry of Economy approves the National allocation plan. The Public Entity Lithuanian Environmental Investment Fund (LEIF) performs the function of the GHG register administrator, with the Ministry of Environment as supervising institution of the GHG registry. LEIF is also involved in the process of the endorsement of the Joint Implementation (JI) projects under Article 6 of Kyoto Protocol. The National Accreditation Bureau
under the Ministry of Environment is assigned to give the accreditations to the GHG quantity verification entities. To date there are 16 JI projects being implemented in Lithuania. Information about JI projects is provided on the website of LEIF (http://www.laaif.lt/index.php?404893940).

5. Conclusion

Lithuania performs reasonably well overall and slightly above the average within its grouping for electricity and below average within its grouping for gas (Group A). Moreover, within its Group, Lithuania has an electricity sector score of 0.933 relative to a Group average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Lithuania has a natural gas sector score of 0.849 relative to a Group average of 0.864.

Within the electricity sector, Lithuania’s regulatory framework is relatively advanced; as a practical matter development of competition has been constrained by the availability of low priced power from the state-owned nuclear plant, Ignalina, and will now be dominated by the shutdown of that plant and the need to find alternative resources, providing further impetus to expand network connections to other countries, to facilitate imports, near-term development of new combined-cycle plants using imported natural gas and, in the longer term, potential construction of new nuclear generation.

The gas sector is dominated by Gazprom, with the lack of alternative resources and, until 2008, below market pricing, stunting market development. There remains no grid code and dramatic market changes are not envisaged on the near-term horizon.
Note: The diagram presents the electricity sector results of Lithuania, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Lithuania are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Note: The diagram presents the gas sector results of Lithuania, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Lithuania are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.
Overview

Poland has a population of approximately 38.12 million, with a GDP of approximately USD 211.60 billion. The total primary energy supply in 2007 was 97.11 Mtoe, of which 0.2% is hydro power, 57.0% is coal/peat, 5.4% is combustible renewable and waste (including biomass, biogas and waste), 12.7% is natural gas, 24.6% is oil and geothermal/solar/wind is 0.1%. Net imports are around 25.30 Mtoe. CO₂ emissions are 304.69 (measured as Mt of CO₂). As a member of the European Union (EU), the Poland is obliged to comply with the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.

1. Institutional structure

The Ministry of Economy (ME) is charged with primary responsibility for the energy sector; regulatory implementation is the responsibility of the Polish Energy Regulatory Office (ERO), which was established pursuant to the Act No. 89 of 10th April 1997 (the Energy Law).

ERO is an autonomous legal body, led by a President who performs his functions as a single-person entity. Currently, ERO consists of seven organisational units (departments and bureaus), and nine regional branch offices covering the whole territory of Poland. ERO has 282 staff members, who are selected from civil servants. The President is appointed for a term of five years and may be dismissed by the Prime Minister, upon proposal of the Minister of Economy.

Conflict of interest provisions preclude the President and his key staff from being members of the Parliament or the Government, or serving on an executive government body; moreover, they cannot own shares or stakes or perform any work or hold any material interest in any energy undertaking to which the Energy Law applies.

ERO’s budget constitutes a separate chapter of the state budget. Its amount is approved by the Parliament, upon proposal of the Ministry of Finance. The budget scope is not related to the fees paid by regulatory entities. ERO’s decisions are not subject to approval or supervision by the Government and may only be appealed in court.

ERO is responsible for the electricity, gas and district heating sectors. According to the Energy Law, ERO’s regulatory tasks have to be performed balancing the interests of energy consumers and energy companies. With that in mind, its main competences include: granting or withdrawing licences, setting tariff methodologies and approving tariffs, approving grid codes, enforcing Third Party Access (TPA) to transmission and distribution networks, settling disputes related to public service obligations of the regulated entities, monitoring the national energy market.

ERO has also extensive control powers over licensed entities: it can require information about performed activities or investment projects, check account books, ledgers or any other relevant document, and impose fines.

The law requires ERO to fully cooperate with the national Office of Competition and Consumer Protection (OCCP), which was originally established in 1990 as the

39 Information herein is drawn primarily from the ERO and from its 2008 and 2009 Annual Reports.
Antimonopoly Office, and defines their respective areas of responsibility in order to avoid potential overlaps; in practice the cooperation is smooth.

2. Electricity sector

a. Market framework

The market has been fully liberalised since 1 July 2007, allowing about 14.1 million household customers, with an overall consumption of approximately 30 TWh,\(^{40}\) to freely choose their electricity suppliers.

In Poland there is a single transmission system operator for the entire national territory, the state-owned Polskie Sieci Elektroenergetyczne - Operator SA. Since 1 January 2008 it has also been the owner of transmission assets, previously leased from Polska Grupa Energetyczna SA (PGE), the principal heir of the former energy monopolist.

In the distribution sector there are 20 Distribution System Operators (DSOs), 14 of which are regional legally separated companies (formerly part of entities that carried out both distribution and supply), the remaining being small local operators with less than 100,000 customers. The regional DSOs are all controlled by vertically integrated electricity groups, two of which are foreign entities (i.e. RWE and Vattenfall).

The generation segment has a medium level of concentration, with the three largest groups owning around 45% of capacity. PGE is still the largely dominant player in generation and wholesale supply.

On the wholesale market, bilateral contracts (short and medium term) cover more than 90% of the trade. A small number of transactions are concluded on the Energy Stock Exchange and on virtual energy trade platforms.

On 1 April 2008 long-term power purchase agreements, to which around 35% of generation capacity was previously tied, were terminated.

b. Network access and tariffs

Access rules and charges are applied ex-ante and details are published. Non-discriminatory access to the network is required in accordance with EU directives and implemented through the grid codes. Disputes that may arise in relation to access denial are settled by ERO.

The cross-border physical electricity exchange is large. In 2008 yearly net physical import value increased around three times compared to the values of the previous years. The typical flow direction is from the German electricity system towards the Czech Republic and Slovakia; cross-border capacity allocation is carried out by the Polish Transmission Service Operator (TSO) in cooperation with TSOs of the neighbouring countries.

Regulated prices are set for transmission, distribution and ancillary services; whereas, retail supply prices are subject only to approval by ERO. A new regulatory period for transmission and distribution tariffs started on 1 January 2008. The previous methodology, based on price cap, has been retained.

\(^{40}\) Polish electricity consumption is almost entirely covered by domestic production.
Transmission tariffs are set according to the principle of the cost of service and fixed, in the form of a formula, for five years.

Distribution tariffs are specific for each DSO and also set as a formula. They are calculated through the application of a benchmarking analysis among the country’s DSOs, aimed at assessing a fair level of operating costs, network losses and investment outlays, and kept in force for three years. Both transmission and distribution formulas include an incentive component.

Information for setting the tariffs is annually gathered through reporting database sheets completed by the regulated entities, whose reliability and correctness is assessed by means of econometric tools.

Since 1 January 2008, supply prices for industrial consumers have been completely deregulated; whereas ERO has maintained the right to approve supply prices for households, in order to protect this category against unjustified increases.

c. Operational environment

Monitoring expected future demand, foreseeing the need for additional production capacity and ensuring security of supply are under the responsibility of ME.

Poland has fully implemented the obligations of public service and consumer protection required by the Directives 2003/54/EC and 2003/55/EC. The implementation took place with an amendment to the Energy Law on 4th March 2005 (Journal of Laws of 2006 No. 62, item 552) and in a number of related regulations.

In particular, the legislation provides for a supplier of last resort. After 1 July 2007 all customers have the right to choose their supplier; household consumers who do not exercise such a right are automatically assigned a supplier of last resort. The supplier of last resort is a holder of an electricity trading licence, and is selected by ERO for each defined area.

ERO is charged with primary responsibility for quality of supply and services provided by electricity companies.

With respect to vulnerable customers, a special team was established within ERO’s structure in 2008 (Decision No. 31/2007). The team has proposed a funding scheme to support vulnerable customers and a list of amendments to the existing legislation.

ERO is obliged to submit an annual report on its activities and the state of the national energy market to ME and has to present occasional reports on specific subjects whenever requested.

ERO’s decisions are published in its official Bulletin and also posted, in Polish, at its website, www.ure.gov.pl.

ERO’s hearings are not held in public and the law does not provide for public consultation, but in practice ERO engages in public consultation when discussing activities that affect market structure and operations. ERO also collects and publishes performance indicators for licensees.

ERO may grant TPA exemptions to new investments.
Foreign capital investment in energy companies is not restricted in any manner, except with respect to transmission assets.

3. Gas sector

a. Market framework

From a formal point of view, since 1 July 2007 the market has been fully liberalised; however the incumbent, Polskie Górnictwo Naftowe i Gazownictwo SA (PGNiG), still has a monopoly position in import, production, distribution and supply.

Poland produces about 30% of its own gas and relies on imports for the remainder of its needs. Imports come predominantly from Russia, but also from Germany, Norway and Central Asian countries.

In 2003, within the holding structure of PGNiG, six bundled distribution undertakings were legally separated and transformed in DSOs; their trading and retail supply commercial lines were subsequently integrated into PGNiG. As of January 2009, the vast majority of household consumers are still supplied by PGNiG; the situation is the same on the wholesale market where it enjoys a market share of about 98%.

Besides PGNiG, there are only small distribution companies, with less than 100,000 customers, which typically purchase gas from the incumbent and sell it to end-users through their own local distribution networks.

Since July 2005, the single transmission system operator nationwide is OGP Gaz-System S.A. (Gaz-System), which is an entity with unbundled ownership, entirely controlled by the State Treasury. In September 2006, Gaz-System was transformed into a joint-stock company and entered into a long-term operational lease agreement with PGNiG in respect of transmission assets. Gaz-System, which currently owns about 20% of the assets, will gradually take over the entire ownership.

b. Network access and tariffs

Non-discriminatory Third Party Access to the transmission system and distribution system is guaranteed by law. ERO is responsible for regulating it and settling disputes concerning access refusal.

Transmission and distribution grid codes are in force.

The national transmission and distribution systems suffer from a deficit of capacity due to insufficient investment. As a result, several areas are affected by network congestion, and in recent years there have been a significant number of connection denials, threatening security of supply in periods of peak demand.

Regulated tariffs are in place for gas transmission, distribution, ancillary services and retail supply.

In accordance with Article 47 of the Energy Law, the tariff methodology in force for transmission and distribution guarantees full coverage of justified technical and organisational costs, in addition to a fair return on investment.

In particular, the transmission tariff is based on the “postage stamp” principle, i.e. no dependence on distance, and consists of two components: the traditional
capacity related component and a volume/energy related component, which is intended to promote higher capacity utilisation rates, attributing part of the volume risk to the TSO.

c. Operational environment

ME is responsible for overseeing the gas system and for awarding authorisations for new investments in gas facilities.

In accordance with the Act on natural gas inventory and security of supply, approved by the Government on 29 November 2006, all trading companies and importers are obliged to maintain adequate stock of gas within the territory of Poland, as well as to prepare appropriate emergency plans and procedures. The amount of stocks is yearly reviewed by ERO on the basis of forecasts for the following year.

In order to stimulate investment in new gas facilities, the national legislation allows ERO to grant, in addition to TPA exemptions which apply also to the electricity sector, a number of economic incentives and to co-finance projects through the use of dedicated European funds.

4. Renewable energy sources/energy efficiency

Being part of the EU, Poland must comply with the renewable energy targets set in the EU Green Energy policy of March 2007 by the European Heads of State or Governments, the Directive 2007/71/EC on the promotion of electricity produced from renewable energy in the electricity market, and the Directive 2003/30/EC on the promotion of the use of bio-fuels or other renewable fuels for transport.

The targets are respectively set as follows: 15% share of renewable energy on the final consumption of energy in 2020, with at least a 10% share of the transport sector; 7.5% share of renewable energy on gross electricity consumption by 2010; bio-fuels consumption of 5.75% of petrol and diesel use for transport by 2010.


In particular, as a result of the amendments of March 2005 and April 2007, the Energy Law stipulates the obligation for companies which sell electricity to end-users to purchase electricity produced from renewable sources. This obligation is complemented by a quota system combined with a green certificate trading system. Energy suppliers are obliged to provide a minimum share of renewable energy (4.8% in 2007 and 7.5% in 2010). Failure to comply with this legislation leads to the enforcement of a penalty imposed by ERO. There is lack of legal and financial consequences for distribution companies, which do not fulfill their obligation, as the level of penalty has not been stipulated. In such cases the ERO has to sue those companies.

41 The suppliers have to obtain and present for redemption to ERO a specified number of certificates of origin of energy.
generated from renewable energy or to pay a substitution charge of 248.46 PLN/MWh (EUR 61.6). The certificates can be traded either on bilateral basis or on the Warsaw Commodity Exchange. A penalty of 130% of the substitution fee is applied in case of failure to comply.

In 2007, the requirement of a licence for renewable energy generation was extended to all plants regardless of the power installed (previously was required only for plants of more than 50 MW), and higher rates of green energy purchase obligation were introduced resulting: for the 2010 – 2014 period the required renewable energy share will be10.4% (previously only 9%).

Renewable energy produced electricity also benefits from an excise tax exemption, which was introduced in 2002; it currently amounts to 0.02 PLN/kWh, being refunded after the submission of the certificate of origin.

The predominance of coal in Poland's energy production and consumption mix results in a great deal of carbon emissions and environmental pollution. Since 1989, the Government has restructured the coal industry in an effort to make it more efficient, applying improved pollution prevention policies and technologies. Taxes are applied to emissions of CO₂, SO₂ and NOₓ.

Poland signed the Kyoto Protocol to the United Nations Framework Convention on Climate Change on 15 July 1998 and ratified it on 13 December 2002, with a 6.2% reduction commitment for 2012. The commitment has already been largely met, be likely result in a big surplus of allowances that it could sell off to other countries.

5. Conclusion

Poland performs reasonably well overall and with respect to its grouping (Group A). Moreover, within its Group, Poland has an electricity sector score of 0.934 relative to a Group average score of 0.93. Poland has a natural gas sector score of 0.874 relative to the Group A average of 0.864.

Poland is performing at expected levels. As of 1 July 2007 Poland’s electricity and gas markets are fully liberalised. The Polish electricity market is respectively the 6th and the 7th EU largest in generation and consumption (2008). The state-controlled PGE is still the largely dominant player in generation and wholesale supply, whereas the distribution sector appears to be more diversified. PGE made its debut on the Warsaw Stock Exchange on 6 November 2009, as a result of an Initial Public Offering (IPO) of 15% of its shares. More IPOs are expected.

Although formally open, the gas market is still extremely concentrated, with the incumbent, PGNiG S.A., having a de facto monopoly position in import, production, distribution and supply.

42 Exchange rate in October 2009: 1 Polish Zloty (PLN) = EUR 0.2165.
43 Poland is committed to reducing by 6% its greenhouse gases emission calculated at 1988 figures by 2012, while according to available data this emission is 30% below the admissible level (European Commission, DG TREN, 2009).
Electricity spider graph – Poland

Note: The diagram presents the electricity sector results of Poland, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Poland are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Gas spider graph - Poland

Note: The diagram presents the gas sector results of Poland, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Poland are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

Gas Sector - Comparative view of Group A countries
Overview

Romania has a population of approximately 21.55 million with a GDP of about USD 200,071 million. The total primary energy supply in 2007 was 38.91 Mtoe (million tons of oil equivalent) of which 3.5% is hydro power; 8.9% is combustible renewable and waste (including biomass and biogas), 24.9% is coal/peat, 33.2% is natural gas, 24.4% is oil, 0.1% is geothermal/solar/wind and 5.1% is nuclear. Net imports are around 12.09 Mtoe. CO₂ emissions are 91.93 (measured as Mt of CO₂).

Romania is a member of the European Union (EU) and as such is bound to comply with the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.

1. Institutional structure

The Ministry of Economy and Commerce (Ministry) and Government of Romania are responsible for policy setting in the energy sector. The Ministry proposes the national energy strategy and the energy policy to the Government for approval; the Ministry also draws up programmes and action plans to implement the Government’s policy for the electricity sector, including programmes for energy efficiency and for promotion of renewable energy. The Romanian Energy Regulatory Authority (ANRE) is responsible for regulation of the electricity, gas and district heating sectors (in 2007, the separate gas regulatory authority, ANRGN, was merged with ANRE, and ANRGN’s powers were transferred to ANRE). ANRE is defined under national legislation as an independent public legal person of national interest under the coordination of the Prime Minister. ANRE develops its activity according to its own operation and organisation rules, with the latter approved through Government decision.

ANRE is managed by a Regulatory Committee consisting of the President, three Vice-Presidents and seven committee members. All have a five year mandate. The Minister nominates the President and Vice President, and appointment is made by the Prime Minister. The seven committee members are selected from ANRE staff upon the proposal of ANRE’s President and are appointed by decision of the Prime Minister. Dismissal authority tracks appointment authority, with dismissal for cause only. Over the years, several committee members have resigned before the expiration of their terms.

ANRE is a reasonably large authority with around 100 staff members and a sizable budget, separate from the state budget. It is entirely financed from fees obtained for licences, authorisations and other regulatory activities levied upon the regulated companies, as well as from some funds provided by international organisations, as per the legal provisions on public finances. Salaries for committee members are on par with senior level electricity industry officials; salaries for staff are on par with equivalent state sector energy positions.

ANRE has the power to issue licences, set tariffs and resolve customer complaints. It may penalise regulated entities through the issuance of public letters, comparative reports, suspension and modification of licences (including withholding revenues), tariff revision and revocation. It has lesser authority with respect to drafting secondary legislation. Though it adopts the tariff methodology, it does not adopt licensing and authorisation rules, or regulations regarding users’ connection to public
electricity networks, all of which are drafted by ANRE but approved by the Government. ANRE establishes the main rules for congestion management and the Transmission System Operator (TSO) administrates the Balancing Market, handling congestion management, according to the Commercial Code.

ANRE’s decisions can be appealed to the Bucharest Court of Appeals, and its decisions stay in effect pending appeal.

Romania has an active competition authority, known as the Competition Council. ANRE has a cooperative agreement with the Competition Council, and is required to notify the Ministry and the Competition Council of any market dominance abuses. ANRE has set up its own monitoring and control procedures in order to assess compliance of undertakings with the existing pricing and tariff system.

The electricity law empowers ANRE to set up the procedure or the resolution of pre-contractual disputes and to settle possible disputes occurring among sector companies upon the conclusion of contracts, including supply contracts. Pre-contractual disputes include issues such as access to the grid, the access tariff, provisions in contracts and starting conditions. Once a contractual relationship between companies is underway, a party to the contract may file a complaint with ANRE, which first seeks to address the complaint through negotiation and advice (with an average of 80% of complaints resolved in this manner), and only when such approach is exhausted, utilises judicial process with hearings resulting with a ruling from ANRE.

2. Electricity sector

a. Market framework

In 2007, by Governmental decision 638/2007, the market was opened fully for both electricity and natural gas. On the competition retail market, suppliers sell electricity through bilateral contracts at negotiated prices or through standard offers. In 2007, about 51% of the electricity sold by generators was traded on the regulated market and 49% on the competitive market.

Romania’s market framework has long been one of the most reflective of best practices in the region. In sum, it has one TSO (Transelectrica SA), which also serves as the Balancing Market Operator; one Market Operator (OPCOM), which also functions as the Operator of Green Certificates Market, Bilateral Contracts Market and Settlement Administrator; eight electricity distribution operators that also supply end-users, and 22 distribution operators with less than 100,000 customers. The market has numerous independent generators and suppliers. The TSO has been unbundled since 1998. The eight distribution and supply entities became fully operational in 2003, and five of them have been privatised (Energy Electrica Banat, Enel Electrica Dobrogea, E.ON Moldova, CEZ-Electrica Oltenia, and Electrica Muntenia Sud).

A new electricity law and national energy strategy, both adopted in 2007, have increased market transparency, liquidity and monitoring. Also in 2007, rules for a capacity market were established and in 2008 the Government established the mechanism of direct debit and guarantee for electricity transactions on the day-ahead market.

The wholesale market model is based on bilateral contracts with a day-ahead market and a balancing market. This market encompasses the following types of prices: regulated prices corresponding to regulated contracts (for the supply quota for customers who choose not to exercise their eligibility right and for grid losses); negotiated prices corresponding to negotiated contracts (covering the
remainder of the contracts); and market prices corresponding to the centralised market. There are also contracts for the import and export of electricity, transactions through spot market bids and other sector services transactions. In 2007, Romania integrated its electricity market into the regional market through bilateral export/import contracts entered into by generators and suppliers with external partners. Imports approximated 1.3 TWh and exports about 3.4 TWh (all commercial exchanges, not transit).

The TSO is responsible for and administers the Balancing and System Services central markets and is the Balancing Market Operator, i.e., addressing differences between the offer and the demand occurring in real time (while market participants take financial responsibility for the generated imbalances). The settlement administrator is a distinct department organised within OPCOM and is responsible for settlements of the central markets and for the settlements of the imbalances.

b. Network access and tariffs

Tariffs are approved *ex ante* based on a Methodology and Order for tariffs for specific categories that are regulated. There are regulated tariffs for: transmission, system and distribution services of electricity; supply of electricity to captive customers and to the supplier of last resort; the purchase of ancillary services; network connection; centralised market operations; generating and metering activities. Cross-subsidisation between regulated activities as well as between regulated and deregulated activities of an undertaking is prohibited.

Methodologies for incentive-based regulation of distribution and transmission tariffs have been in effect since 2005. The existing transmission tariff methodology was approved by ANRE in 2007 and is based on a revenue-cap. Transmission tariffs differ by nodes, i.e., the tariff amounts depend on the impact of the injection or extraction of electricity into or from the nodes of the transmission. ANRE applies a performance standard for the electricity transmission service and the tariff structure includes a corrective factor for compliance (or failure to comply) with quality of service standards. Distribution tariffs are calculated according to a price-cap methodology, with distribution tariffs differentiated by three voltage levels (high, medium and low) and separately assigned for distribution tariffs for each operator.

In 2008, two new categories of tariffs were introduced, uniform regulated tariffs at national level for electricity delivered by the default suppliers and/or supplier of last resort to household customers, and differentiated regulated tariffs for electricity delivered by the default suppliers and/or by the supplier of last resort to captive customers other than households and the tariff for reactive power.

ANRE has the power by law to eliminate cross-subsidies between industrial and residential customers. A social tariff has been introduced for low-income customers.

Third Party Access is regulated and ANRE’s office is responsible for monitoring fair and non-discriminatory access of third parties to the transmission and distribution network. With regard to implementation of Third Party Access rules, the TSO is responsible on the transmission side, and the Distribution System Operator on the distribution side. All parties seeking access to the transmission and distribution networks must follow the same set of technical terms and conditions, as well as pay the same tariff. Non-discrimination is also enforced through penalties envisaged in the Electricity Law that may be imposed by ANRE, and through tariff approval. Refusal of access is allowed only in cases
stipulated in the Law on gas and relevant secondary legislation, and must be justified. The grid code was approved by ANRE in 2004.

ANRE drafts and the Government approves the regulations that set forth licence and authorisation procedures, deadlines and conditions consisting of criteria, power levels, certification, approvals, guarantees and the like, differentiated by category of capacities and by activities subject to authorisation. The validity period of the licences is eight years for the electricity supply licences and 25 years for all other types of licences.

All market participants need to be licensed by ANRE to operate. Eighty companies are licensed by ANRE to produce electricity generation. Seven of these each delivered more than 5% of the net electricity production in the system and the total market quota of the first three largest generators is approximately 55.7%. ANRE has licensed about 117 suppliers, and seven of these were the main providers of default supply to customers that choose not to exercise their eligibility right (four are state-owned undertakings, while three are majority privatised). In addition, ANRE licenses one TSO, one market operator, and 30 distribution operators.

c. Operational environment

ANRE monitors security of supply, while the Government is responsible for approving the long term and annual balance based on a proposal received by the transmission (distribution) system operator in consultation with ANRE. ANRE approves operational and planning standards including any schemes for the calculation of total transfer capacity that are issued by the TSO. If authorisation does not produce sufficient capacity, the Government will decide on the need to issue a tender and will set the criteria for such tender.

The TSO is responsible for transmission planning and proposes the transmission assets investment, which must be endorsed by ANRE and approved by the Government. The system operators in general provide information as to appropriate measures that need to be taken to reinforce the relevant network.

The Electricity Law requires that ANRE, on the basis of its own regulation, designate the supplier of last resort for a period of one to five years (starting 1 July 2007) and list the suppliers of last resort on its website and in Romania’s Official Gazette. ANRE has now met this obligation and set a supplier of last resort tariff. By law, the supplier of last resort can be the same entity that supplies electricity to the majority of the household customers within the area assigned through the licence to a distribution system operator.

The Electricity Law entitles vulnerable customers to receive state/local budget compensations in order to pay for their minimally required consumption. The categories of vulnerable customers, the aggregate of their minimal consumption, and the customer protection mechanisms are set through Governmental decision.

3. Gas sector

a. Market framework

Internal production of gas is around 70%, with imports (all from Russia) around 30%. The share of natural gas in power is around 23%. As noted, the gas market was opened for all customers in 2007 and all customers are free to choose a natural gas supplier from those licensed by the regulatory authority.
The Romanian gas market is made up of the competitive market (trading of gas between suppliers and between suppliers and customers making use of their eligibility) and the regulated market (based on framework contracts, including contracts for market contractual balancing, transmission, distribution, storage and transit with the exception of one dedicated pipeline). In the regulated market, prices are set by ANRE.

Transmission, storage and distribution were unbundled (accounting, legal and functional) in 2006. The current gas market is made up of: one state-owned TSO (SNTGN Transgas S.A. Medias), which operates the transportation system; seven producers (Petrom, Romgaz, Amromco, Toreador, Wintershall Medias, Aurelian Oil & Gas and Carpathian Energy); three underground storage operators (Romgaz, Amgaz and Depomures); 36 companies for gas distribution and supply to captive customers (the largest are Distrigaz Sud and E.ON Gaz Romania) and 86 suppliers on the wholesale market.

b. Network access and tariffs

Regulated tariffs are fixed by ANRE for: supply to final customers, including public service obligations, management of commercial contracts and contractual balance of the internal market, gas transmission, gas storage, distribution, and transit (except transit through dedicated main lines); transit by dedicated lines is submitted to the regime established by international agreements according to which they were constructed.

ANRE has the power to ensure that charges applied by the network operator reflect the real costs. The law holds that rules on the system of prices and tariffs for regulated activities shall stimulate the efficient use of natural gas, ensure the quality of services, promote competition on the natural gas market and protection of customers’ interests, eliminate cross-subsidies and/or unreasonable differentiations between the categories of final customers or by the type of use of natural gas, prevent speculations and speculative behaviour on the natural gas market, and encourage the passing of the demand from the peak of consumption to low consumption periods.

ANRE issues Third Party Access (TPA) regulations for storage, transportation and distribution systems, as well as technical codes and technical norms in the gas sector. Tariffs for TPA have two components, a connection tariff and access agreements. The formula for the connection tariff is set forth in the regulation on access to the gas transmission and distribution systems and is paid only once, at connection. At present, there is no possibility to access the existing transit lines, as these are dedicated lines that are fully booked as a result of international agreements. With respect to the transmission system, the rule for capacity reserve is first come, first served. ANRE is also charged with granting exemptions to TPA rules, and has recently reviewed an application for an exemption in relation to the Nabucco project. In assessing whether an exemption should be granted; ANRE applies Article 22 of the Directive 2003/55/EC.

In the gas sector, ANRE issues dispatch, transmission, storage, supply, distribution and gas transit licences, as well as authorisations for setting up natural gas distribution and storage systems. It has the right to withdraw or terminate licences and apply fines for any abuse of licensed conditions. It also has responsibility in

45 The Nabucco project represents a new gas pipeline connecting the Caspian region, Middle East and Egypt via Turkey, Bulgaria, Romania, Hungary with Austria and further on with the Central and Western European gas markets. The first construction phase is targeted for 2011.
approving any merger or separation of gas utilities because of possible influence on tariffs. Around 36 companies own distribution licences on natural gas in Romania.

c. **Operational environment**

The Electricity Law and Gas Law requires that ANRE, on the basis of its own regulation, shall set forth in licence terms and conditions, the objectives for each licensed operator with respect to ensuring the security and continuity in natural gas supply, as well as the conditions and the procedure for nominating the supplier of last resort. Certain steps are being taken to allow new connections, including Nabucco, to increase the security of supply and reduce dependency on the single import source (Russia).

ANRE is responsible for approval of long term planning of distribution and transmission companies and it monitors its fulfilment through approval of tariffs, monitoring procedures and licensing procedures. A minimum set of public service obligations is set forth in the gas law, with obligations specific to each licensee set forth in the licences.

4. **Renewable energy sources/energy efficiency**

In 2003, Romania transposed into domestic legislation the Directive 2001/77/EC on the promotion of electricity produced from renewable energy in the internal electricity market. It also adopted an action plan called “The Energy Strategy of Romania for the period 2007-2020.” In Romania, the renewable energy target to be achieved is 11% of gross energy in 2010. The target was set at 33% of gross electricity consumption in 2010 and Romania has made good progress toward this goal.

In 2009, ANRE issued Guidelines for the Production of Electricity from Renewable Energy, which offers information to potential new power producers to assist investment in renewable energy in Romania. The Guidelines explain: the rationale for investing in renewable energy and state supporting policies; necessary steps that an investor must take to begin production or trade in renewable energy in Romania, the documentation required by new participants in the market, and the roles of various market participants with respect to renewable energy, including how to obtain and sell green certificates.

Romania has adopted a mandatory quota system combined with the trade system with minimum and maximum price limits legally set up for the green certificates, rather than feed-in tariffs. As a consequence, the main supporting policies for renewable energy in Romania are tradable green certificates (a quota system has been in place since 2004) for wind, solar, biomass or hydro power generated in plants with less than 10 MW capacity; and mandatory dispatching and priority trade of electricity produced from renewable energy since 2004. 2005 was the initial year for the green certificates market as well as the centralised market for bilateral contracts. The renewable energy sources and the support schemes are set through Government decision, upon the proposal of the competent ministry.

- The validity of quota obligation has been extended from 2.74% in 2007 to 16.8% by 2020.
- For the period 2008-2014 the trading value of green certificates ranges between a minimum value of 27 Euro/certificate and a maximum value of 55 Euro/certificate. According to GD 1892/2004 the minimum value was 24 Euro/certificate and the maximum value was 42 Euro/certificate.
In order to obtain a green certificate, generators producing energy from renewable energy which have qualified for priority production have to apply, on a yearly basis, for registration with the TSO. Each month, the renewable energy generators receive one green certificate for each MWh of supplied electricity from the TSO. The green certificates provide details about the renewable energy producer and necessary information for connection to the grid. ANRE approves the fee that TSO collects for issuing green certificates to generators. The green certificates can be traded only once unless exceptions apply.

ANRE is responsible for certifying guarantees of origin.

To ensure that environmental regulations are met, an environmental impact assessment study is required from any applicant during the authorisation and/or licensing procedure by ANRE.

Romania has ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change and was the first Annex I country to do so. Under Kyoto, it has a target of 8% in reduction of greenhouse gas emissions, with the base year being 1989.

5. Conclusion

Romania performs well overall and with respect to its grouping (Group A), just slightly above the Group average for electricity and well above it for gas. Moreover, within its Group, Romania has an electricity sector score of 0.931 relative to a Group average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Romania has a natural gas sector score of 0.914 relative to a Group A average of 0.864.

Within the electricity sector and particularly in its region (as a former signatory to the Treaty establishing the Energy Community and now as an EU Member on the border of the EU and the Energy Community), Romania has been a leader in the region in development of its regulatory framework, with almost half of its electricity now sold on the competitive market. Much of the sector has been privatised, with numerous participants, and the day-ahead and balancing markets are functioning properly. Its tariffs, grid code, and market rules reflect regional best practices both on paper and in practice.

The same holds true in the gas market. It is also relatively well governed and developing, with Romania’s production of 70% of its domestic needs providing a diversity of resources facilitating market development and diversification. Transmission, storage and distribution have been unbundled for three years and the grid code has not only been in place for a relatively long period of time compared to its neighbours, but has been altered over time to respond to operational experience.
Electricity spider graph – Romania

Note: The diagram presents the electricity sector results of Romania, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Romania are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Note: The diagram presents the gas sector results of Romania, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Romania are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.
Overview

The Slovak Republic has a population of approximately 5.40 million, with a GDP of approximately USD 94,957 million. The total primary energy supply in 2007 was 17.85 Mtoe (million tones of oil equivalent), of which 2.2% is hydro power, 22.6% is coal/peat, 3.6% is combustible renewable and waste (including biomass, biogas and waste), 28.7% is natural gas, 20.0% is oil, 0.1% is geothermal/solar/wind and 22.9% is nuclear. Net imports are around 12.34 Mtoe, CO2 emissions are 36.80 (measured as Mt of CO2). As a member of the European Union (EU), the Slovak Republic is obliged to comply with the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.

1. Institutional structure

The Ministry of Economy (ME) is charged with primary responsibility for the energy sector; the Slovak Board for Regulation (the Board) is responsible for regulation strategy and management in network industries, whereas regulatory implementation is the responsibility of the Regulatory Office for Networks Industries (URSO, according to the Slovak acronym). The Board and URSO were established in 2001 by the Act no. 276/2001 “On the Regulation of Network Industries”, amended various times over the years.

The Board is an independent collective state body, made up of six members and headed by a Chairman. The President of the Slovak Republic appoints the Board members: three members are proposed by the Slovakian Council of Ministers and the other three – by the Government of the Slovak Republic. The term of office for a Board member is six years; every two years, one third of the members are replaced.

Membership in the Board is incompatible with the position of Chairman and Deputy Chairman of URSO, member of the Government, member of the Parliament, office or employment in regulated business entities, or to have professional relations with them. The Board is entirely financed from the state budget.

The Board oversees and provides strategic direction to URSO.

URSO is an autonomous legal entity. It is a single-person entity, represented by the Head of the Office, who is appointed and dismissed by the Government upon proposal of the Board. URSO has 94 staff members (January 2009).

URSO is entirely financed from the state budget as a chapter of ME’s budget. Its budget is approved by the Government (through the Ministry of Finance). For the year 2009, URSO’s budget amounts to about EUR 3,400,000. Staff members’ salaries are set according to Act no. 312/2001 “On State Service”.

URSO is responsible for ensuring transparent, non-discriminatory and efficient economic competition in network industries, determining and approving tariff methodologies and tariffs. It extends its jurisdiction over electricity, natural gas, district heating and water sectors. It is also able to impose fines for infractions, and may issue orders, suspend or revoke licences.

---

46 Information herein is drawn primarily from the Slovak Regulatory Office for Networks Industries’ answers to questionnaires provided by this project and from its 2008 Annual Report.
URSO’s decisions are appealed to a Body of Appeal, made up within the Board. In turn, decisions of the Body of Appeal can be appealed to a county administrative court, and further to the Slovak Supreme Administrative Court.

Although there are no special provisions concerning the relationship between URSO and the Antimonopoly Office, in practice the cooperation appears smooth.

2. Electricity sector

a. Market framework

The Slovak Republic energy sector has been functionally and in certain cases also legally unbundled.

The generation sector is heavily dominated by the new Slovenské Elektrárne a. s. (SE), a company resulting from the split in 2001 of the vertically integrated monopolist of the same name. SE is now 66% controlled by Italy’s ENEL SpA. SE accounts for more than 80% of installed capacity (including two nuclear power, two thermal power and several hydro power stations) and generated electricity, and also acts as a reseller of power purchased from other sources.47 Residual capacity is owned by Tepláre Košice a.s., Martinska teplarenska, a.s., Zilinska teplarenska, Teplaren Žvolen, a.s. Bratislavska teplarenska, a.s. (the combined heat and power (CHP) companies resulting from SE restructuring) and smaller power plants using renewables for power generation.

The state-owned Slovenská elektrizná prenosová sústava, a.s. (SEPS a.s.) is the only transmission company and the nation-wide transmission system operator (TSO). It is responsible for transmission planning and investment, upon their approval by ME.

The current structure of the wholesale electricity market was established by the Government Order No. 317/2007, which sets up the basic functioning rules. It is not managed or operated by any particular entity or institution. The majority of trades are carried out as bilateral contracts. Prices on the wholesale market are primarily influenced by European Energy Exchange (EEX) in Leipzig.

On 1 September 2009, the market coupling agreement of the Czech Republic has entered into force, and SEPS has been authorised to organise the spot electricity marketplace.

In the distribution sector, there are three big regional companies, which act as Distribution System Operators (DSOs) and have been functionally unbundled as of 1 July 2007 (supply unbundled from distribution). In each DSO, the state is a 51% shareholder; however the management control in each DSO is exercised by the owners of the remaining 49% shares. These companies cover approximately 62% of electricity distribution and 57% of electricity supply in Slovakia. The rest of the retail market is supplied by about 130 small distribution companies with less than 100 thousand customers, which are not obliged to be unbundled.

In 2009 the market developed by entry of new suppliers.

47The Slovak total installed generation capacity is around 7GWe, more than sufficient to satisfy domestic consumption. In the last five years, its annual net electricity export to neighbouring countries has been around 3 billion KWh on average.
b. Network access and tariffs

Since 1 July 2007 the electricity market in the Slovak Republic has been fully liberalised. The conditions for electricity market rules concerning connection and access to the transmission and distribution systems, as well as distribution and supply rules, ancillary services and congestion management are laid down in the aforementioned Government Order No. 317/2007. Ensuring non-discriminatory access to the network is the responsibility of URSO. The legislation defines the reasons for which a TSO or a DSO may refuse access to the transmission system (which are practically limited to insufficient system capacity). Disputes related to access denial are dealt with by URSO.

URSO sets methodologies for calculation of connection and access fees. Electricity producers do not pay access fees, as long as they generate electricity.

Tariffs for regulated activities are approved *ex ante*, according to a pre-defined methodology, and published. Categories of regulated tariffs are as follows: generation from renewable energy sources (RES), CHP and domestic coal (fixed price), connection, transmission, distribution, ancillary services, retail supply (small businesses and households).

A complete transmission grid code was firstly adopted in 2005 and has been amended a couple of times since. Apart from rules on connection and access to the system, it governs cross-border electricity trade and ancillary services.

The operational rules for the three biggest distribution companies were approved by URSO in 2006 and have been amended several times as well.

c. Operational environment

Monitoring expected future demand, foreseeing the need for additional production capacity and ensuring security of supply are the responsibility of ME. Construction of new energy facilities has to be approved by ME, which issues an authorisation certificate; electricity generation facilities with installed capacity of less than 1 MW are exempt from the authorisation.

Foreign investment in the energy sector is not restricted in any manner.

URSO is responsible for setting quality of service standards, which are currently determined by URSO’s Ordinance No. 315/2008. At present there are no compensation mechanisms for consumers in case of breach of the standards, but they are envisaged in the near future.

The Energy Law includes provisions for a supplier of last resort, whose implementation is entrusted to URSO. URSO may grant Third Party Access (TPA) exemptions.

URSO submits annually a report to the National Council of SR. URSO’s decisions, which are available only in Slovak, are regularly posted on its official website, www.urso.gov.sk, as well as in its Official Journal.

While drafting secondary legislation under its responsibility, URSO usually carried out public consultations.
3. **Gas sector**

a. **Market framework**

On 1 July 2007, the Slovak gas market became open and all gas customers became eligible. Despite its full formal liberalisation, the market is still dominated by the former monopolist Slovenský Plynárenský Priemysel, a.s. (SPP) and supplier switching so far has been only a theoretical possibility. SPP is owned by the State (51%) and by Ruhrgas and Gaz de France through their company Slovak Gas Holding BV (49%).

On 1 July 2006, SPP a.s. completed functional unbundling of transmission and distribution activities in accordance with the Energy Act based on European Directive No. 2003/55/EC. Two fully owned subsidiaries, Eustream a.s. (former SPP - Preprava) and SPP - Distribúcia, a.s. resulted from the unbundling process. These companies are respectively the sole transmission operator and the largest distribution operator in the country. Both daughter companies have unbundled their accounting in compliance with Slovak legislation. Around 40 separate local distribution companies, whose number of customers does not exceed 100,000, also operate.

SPP is the dominant gas supplier in the territory of the Slovak Republic and covers all market segments - from household customers, through small and medium undertakings, to large industrial consumers.

At present a wholesale gas market does not exist in the Slovak Republic.

Domestic production by NAFTA Gbelyy, the Slovak Republic’s gas storage and exploration company, is negligible. Majority of gas demand is met through imports from the Russian Federation, on the basis of a long-term agreement between SPP and Russia’s Gazexport. RWE, VMG, Shell and OMW cover 5% of the demand.

b. **Network access and tariffs**

The legislation ensures transparent and non-discriminatory Third Party Access (TPA) to the gas network, entrusting URSO to determine procedures and conditions and to deal with access disputes. A gas network operator may refuse access only in case of insufficient capacity or serious and documented economic detriment.

Tariffs are set or approved *ex ante* and published pursuant to a pre-defined methodology. Categories of regulated tariffs are as follows: access (regulated TPA), transmission, distribution, ancillary services, storage (from 2010) and retail supply (cap price for household customers).

For gas transmission tariffs an entry-exit model has been adopted. Tariffs comprise one component for daily transport capacity and one related to the amount actually transported. Distribution tariffs, which do not contain cross subsidies between particular groups of customers, vary to an extent depending on the specific allowed costs of the local distribution companies.
As for retail supply, after full market opening, URSO guarantees protection to household customers by defining a maximum price which includes the costs of gas and those related to transport and storage.

Complete grid codes for gas transmission and distribution were firstly adopted in 2005.

c. Operational environment

The ME is responsible for the long term gas supply and demand balance, the monitoring of additional production and storage capacity, and security of supply; detailed guidelines on these issues can be found in the Energy Policy document.48

The participation of URSO is limited to technical consultancy support, if requested.

URSO supervises the measures adopted by the TSO to prevent congestion on the national gas transportation system and participates in the monitoring of quality and level of maintenance of the networks.

In order to harmonise its regulation on the quality of services with the European best practice, on 1 September 2008, URSO issued regulation that sets up the quality standards for regulated gas services and the obligations for service suppliers.

The Energy Law provides for a supplier of the last resort. Within its geographical area of responsibility, the supplier of last resort is obliged to supply, for a period up to 3 months, consumers that have suffered a service interruption due to the loss of licence or the incapability of supplying of their contractual provider. Selection criteria for suppliers of last resort and their list are published by URSO in its official journal.

4. Renewable energy sources/energy efficiency

The Slovak Republic has recently expanded its efforts in the area of RES and efficient energy use.

The Ministry of Economy is charged with primary strategy responsibility for renewable energy sources (RES) and energy saving policy; regulatory implementation is the responsibility of URSO, which is also entrusted to issue secondary legislation. The recently established Slovak Innovation and Energy Agency (SIEA) manage the share of the EU structural funds49 allocated to RES and energy efficiency projects.

Regarding combined heat and power, energy efficiency and RES, the most decisive legislative framework is primarily defined by the following acts (as currently amended):


---

48 The document is available in English at http://www.economy.gov.sk.
49 EU structural funds are the largest EU-funds for financing of development projects in the EU Member States, mainly for the regions with below-average income.
- Act No. 17/2006 "On Regular Control of Boilers, Heat Systems and Air-conditioning systems"
- Act No. 476/2008 “On Efficient Energy Use”
- Act No. 309/2009 on promotion of renewable sources of energy and high efficiency CHP

The national target for RES is set to account for 14% of the total power production by 2020.

To build and operate RES electricity plants with total installed capacity up to 1 MW a licence is not required, being those activities subject to a notification duty. If the plant capacity exceeds 1 MW, the producer has to follow the standard procedure and submit a licence request to URSO.

Currently three programmes supporting energy efficiency and RES are in place:
- “Program for the promotion of biomass and solar energy use in the household sector”, which was launched in early 2009 and is financed by the ME and managed by the SIEA
- “Program for the improvement of energy efficiency in buildings”, financed from Ekofond, a non-investment fund established in 2007 by the national gas company SPP to sustain energy saving and environmental projects
- “Program for the promotion of micro-cogeneration”, also financed Ekofond

As for environmental protection, the Annex 8 of the Act No. 24/2006, “On Assessments of Environmental Impact”, lays down the list of business activities that are to subject to environmental impact assessment and the criteria and procedures that have to be followed.

Emissions of dust, SO₂, NO₂ and greenhouse gas are taxed in the form of consumption tax on electricity, coal, natural gas and oil products. In particular, to this respect, electricity is subject to a production fee of 0.02 Sk/kWh from 1 July 2008 to 31 December 2009, which will be increased to 0.04 Sk/kWh starting from 1 January 2010.

The Slovak Republic signed the Kyoto Protocol on 26 February 1998 and subsequently ratified it on 31 May 2002, with a reduction commitment for 2012 of 8%. Having entered the European emissions trading scheme, at the end of 2008 the Government sold 15 million tons of CO₂ emissions rights to a foreign company.

5. Conclusion

The Slovak Republic performs reasonably well overall, on average for electricity and slightly above the average for gas within its grouping (Group A). Moreover, it has an electricity sector score of 0.927 relative to a Group average score of 0.93. The Slovak Republic has a natural gas sector score of 0.883 relative to a Group A average of 0.864. With respect to institutional structure and regulatory framework, the Slovak Republic fully meets the Assessment benchmark for electricity.

Although the electricity and gas markets have been fully liberalised since 1 July 2007, the two markets are still characterised by a good deal of concentration (particularly the gas market, dominated by the former monopolist SPP) and a low level of competition.
In the electricity sector, the market coupling with the Czech Republic, effective since September 2009, will significantly increase the cross-border trading and is likely to make both markets more attractive for industry players and investors.

Electricity spider graph – Slovak Republic

Note: The diagram presents the electricity sector results of Slovak Republic, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Slovak Republic are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Note: The diagram presents the gas sector results of Slovak Republic, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Slovak Republic are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

**Gas Sector - Comparative view of Group A countries**
OVERVIEW

Overview

Slovenia has a GDP of USD 54,613 million and a population of approximately 2.02 million. The total primary energy supply in 2007 was 7.33 Mtoe (million tons of oil equivalent), of which 3.8% is hydro power, 21.9% is coal/peat, 20.3% is nuclear, 35.0% is oil, and 12.5% is natural gas and 6.5% is a combustible renewable and waste. Net imports are around 3.88 Mtoe. CO₂ emissions from fuel combustion are 15.92 (measured as Mt of CO₂). As a member of the European Union (EU), Slovenia is obliged to comply with the EU energy acquis, which includes the improvement of sector competitiveness, security of energy supplies and the protection of the environment.

1. Institutional structure

The Government and the Ministry of Economy (Ministry) are the policy-makers for the energy sector. The Energy Agency (Agency) is the implementing regulatory agency. The Agency is an autonomous body, with a staff of 46 to cover the electricity, gas and heating sectors. The Agency’s structure differs from that of many other regulatory authorities in the region. It is run by a Director who is tasked with managing the Agency, but also has a separate Council, called the Energy Agency Council, that is made up of five members appointed by the Government. The Council has its own chairperson and four other members and the Council’s mandate is to supervise the Agency’s Director. The Council members are nominated by the Government upon the proposal of the Minister, and the Director is nominated by Government upon the proposal of the Council. Both the Director and Council members are appointed for a five-year term with the possibility of reappointment, but the Government can release a Council member before the end of his or her term for cause. The governing body of the Energy Agency is the Director under supervision of the five-member Council, which gives guidelines to the Energy Agency and adopts the Agency’s general acts. The Energy Agency has three sectors of responsibility: electricity, natural gas and district heating, and common services.

The Director and staff of the Agency are paid as civil servants; Council members are paid only for attendance fees at meetings. The Agency’s budget (EUR 2.4 million in 2009), funded by regulatory fees, is separate from the central budget but approved by the Government.

The Agency issues the methodology for network tariffs and sets the network prices, subject to governmental approval. It issues and revokes licences for energy activities, but is not responsible for the authorisation of new capacity, which duty lies entirely with the Ministry. The Energy Agency decides on disputes between and among the network users, interested parties, system operators or market operators on specific matters such as Third Party Access, network charges and supply conditions. Agency decisions on these matters are appealed to the Ministry, which can reject the decision, but cannot amend or substitute its own decision. The Agency also decides on appeals of network operator decisions regarding connection to the network which have been through a resolution process run by the system operator. In these cases, the Agency decision in non-appealable, though an administrative dispute with the Agency can be appealed to the Administrative Court of the Republic of Slovenia.
There is a separate Competition Protection Office which consults with the relevant energy regulators on issues relating to Competition. Only the Competition Protection Office, not the Agency, has the authority to assess mergers and similar activities and take measures in relation to the same. A new Slovenian Competition Act passed in April 2008 increases the Competition Protection Office’s sanctioning power and broadens its competences.

2. Electricity sector

a. Market framework

The electricity market has been fully open and unbundled into generation, transmission and distribution since 1 July 2007, meaning that all customers may choose their suppliers, although much remains under full state ownership (the Transmission System Operator (TSO) and Distribution System Operator (DSO)) or majority state ownership (generation and supply). Slovenia has one of the largest percentages of state ownership in the sector within the EU-27, at approximately 80%. Private sector participation has increased recently, with an increasing number of suppliers.

The market is made up of: the TSO, founded by the Energy Law in 1999; the DSO, established by an Act amending the Energy Act in 2006; separate distribution companies (separation from the DSO having taken place in 2007); a market operator (Borzen PLC); eight companies operating in large facilities with a capacity of over 10 MW are active in the electricity-production market; and 14 suppliers.

Most of the major players in electricity production are connected under the parent company of Holding Slovenske Elektrarne (HSE). All the significant power plants with the notable exception of NEK, Sava river hydro plants and three smaller thermal power plants, TE-TOL, TEB and TET, are owned in majority by the HSE. HSE also has the majority of ownership in the lignite mine in Velenje. NEK is owned in equal shares by Slovenian and Croatian legal successors of the founders of the power plant. On the Slovenian side, the Slovenian half of electricity produced in NEK is owned by the company Genenergija, 100% owned by the state.

The transmission network of Slovenia (and TSO) is operated by Elektro Slovenia d.o.o. (ELES), whose main responsibility is to ensure the best possible and transparent use of the existing transmission grid management, operational reliability and security (defined in the Energy Act). The transmission system also makes it possible to buy, sell and transit electricity across borders. There are three voltage levels in the transmission grid – 400 kV, 220 kV and 110 kV – as well as corresponding transformer substations. The nuclear power plant in Slovenia is owned 50-50 by Slovenia and Croatia. There is discussion of constructing a new plant for security of supply and reduction of greenhouse gases.

Wholesale competition and retail competition exist. Two market forms are active: an organised spot exchange and a bilateral contracts market. The market operator, Borzen PLC, organised the exchange from 2002 until the end of 2008, with the volume of spot traded energy decreasing constantly over that period. From 2009, BSP, a regional energy exchange, is now also in operation. A challenge Slovenia faces is enhancing competition in a net import market with limited cross-border capacity.
b. Network access and tariffs

Regulated network tariffs are set \textit{ex ante} following a consultation process by the Energy Agency. Network charges are set for transmission and distribution levels separately, based on the utilisation and customer categories. Network tariffs for each customer category are uniform across the country. Network tariff categories are: voltage level, connection to substations, utilisation, seasonality, night/day use; household and public lighting. Regulated full service tariffs for end customers do not exist.

The network tariff methodologies are incentive-based price cap, and include performance-based components. Additional quality-based incentives are planned (from 2011).

The household price of electricity in Slovenia is not significantly lower than the average price in the EU-27.

Generators are not charged for accessing the network; customers pay 100\% of network charges. There have been no cases of refusal of access except as a result of cross border congestion. Mechanisms for the calculation of total transfer capacity are proposed by the TSO. According to EU Regulation 1228/2003, these mechanisms should be subject to approval of the regulatory authority; in practice this has not yet occurred.

The Agency issues separate licences for each type of activity in the chain from production (above 1 MW) to retail sale, with conditions set by the Government consistent with EU Directives. The requirement for a licence to trade has been eliminated. The Agency issues numerous licences and publishes a register of all licence holders (http://www.agen-rs.si/porocila/novellicence.aspx).

c. Operational environment

The Energy Act and General conditions for the supply and consumption of electricity from the transmission and distribution networks define the cases and conditions for a supplier of last resort. The responsible party for such supply is the DSO, which must supply a customer if its supplier cannot do so, for example in cases of bankruptcy. Household customers and small companies that meet maximum employee and budget requirements may also obtain supply from this source.

Supply to vulnerable customers, defined as persons whose life or health would be endangered without electricity and who cannot afford electricity or gas, is provided by the DSO under specific conditions set by the law, with the costs covered from network charges. Vulnerable customers may not be cut off from supply. Customers seeking this service must apply for the supply to vulnerable customers and prove that they fulfil the conditions with certificates issued by the social security authority.

In accordance with the Energy Act, the Energy Agency issues an annual report on the energy sector and submits it to government. The report is published on the website (www.agen-rs.si), and includes details on the allocations of cross-border capacities, a mechanism to eliminate congestion, the time needed by the system operator for connections and repairs, details regarding access to the network and details on the connection of new electricity generators.
3. **Gas sector**

   a. **Market framework**

   The Slovenian market for natural gas has been fully opened since July 2007. All customers, including households, have the option to switch gas supplier, but the distribution of natural gas will still be provided by the current system operator. Slovenia depends almost entirely on imported gas; in 2007, 50% came from Russia, 30% Algeria and 19% from Austria.

   There is one TSO (Geoplin plinovodi d.o.o), legally unbundled from its parent, the transmission company, Geoplin d.o.o, which owns and operates the 970 km of pipeline within Slovenia, which is part of the European gas network. Slovenia is geographically advantaged by its pipeline system with neighbouring Italy, Austria and Croatia. The state is the largest shareholder in Geoplin. The mandatory national public service of the gas transmission-system operation is carried out by one provider, the TSO, while the optional local public service of gas distribution system operation is carried out by 17 providers active in 68 local communities.

   After 1 July 2007 all the gas suppliers and gas customers participated in the retail market (all could choose their supplier). The retail market consists of customers connected to the (high voltage) transmission network and the customers connected to the distribution networks. In comparison with 2006, the market shares of the retail suppliers did not change in 2007. Geoplin, d.o.o., has a 76.1% share of the Slovenian retail market, while the suppliers to the customers on the distribution networks have a total of 23.9% of the market.

   There are four wholesale market participants; 18 companies compete in the retail market, serving 68 municipalities. Because all the distribution companies provide service to less than 100,000 customers (the EU-mandated limit for required legal unbundling), they are only account unbundled.

   b. **Network access and tariffs**

   Because the market is fully unbundled, there are no end-user regulated tariffs. There is regulated Third Party Access; a price cap methodology is used for the network tariffs. The Agency may impose performance-based components. The Agency licenses all activities on the gas market separately, as in electricity.

   c. **Operational environment**

   There is no supplier of last resort; the market remains dominated by Geoplin, although some competition began in 2008 with a new supplier in the market.

4. **Renewable energy sources/energy efficiency**

   The primary governmental body responsible for this area is the Ministry of Environment and Spatial Planning. The Energy Agency’s role includes issuing guarantees of origin and tradable Renewable Energy Certificates (RECs). The most recent 2008 amendments to the Energy Act focused on renewable energy and energy efficiency promotion, including provisions improving the process for support of renewable energy facilities and creating the framework for new regulations for guarantees of origin and procedures for support of qualified producers, meaning those producers who receive state support in various incentive forms for renewable energy production. Under this framework, a unit of the electricity market operator, Borzen, is tasked with carrying out the support scheme, including making contracts for the
provision of support with the producers, buying electricity from the qualifying producers at a guaranteed purchase price, and paying out support for authorised operations. In addition, on 29 January 2009, the Government adopted (1) the Ordinance on Issuing Declarations for Production Facilities and Guarantees of the Origin of Electricity and (2) the Decision Setting the Contribution for the Provision of Support to the Electricity Produced in High-Efficiency Cogeneration and from renewable energy. This was the first step in setting up the new support system. These schemes were on hold until November 2009 as under review by the European Commission to ensure no improper state aid attaches to the support schemes.

A large scale wind farm has been under consideration in Slovenia. The first bio-gas plant in Slovenia opened in July 2006. The plant produces around 10.2 GWh of electricity per year through the harvest of by-products from 11 production companies.

The main support system for renewable energy is feed-in tariffs, with preferential dispatch. Slovenia was expected to launch a sophisticated system of feed-in tariffs on 12 July 2009, though this has been delayed to give time to assess its future impact on the energy market. The anticipated framework sets forth the feed-in tariffs in law, differentiated by technology, size and capacity.

There are neither emission taxes nor instruments for incorporating the environmental costs into the price of energy yet, but the Energy Act enables introduction of energy efficiency measures and collecting additional funds for this purpose, the cost of which the supplier would then add to the end-bill. Slovenia adopted energy efficiency regulations for buildings in September 2008, along with a regulation to promotion of the efficient use of energy, consistent with the National Action Plan for Energy Efficiency from 2008 to 2016, issued by the Ministry of the Environment and Spatial Planning pursuant to European Directive 2006/32/ES.

Slovenia ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 2002 and committed itself to a reduction by 2012 of greenhouse gas emissions of 8% from the base year of 1986. Slovenia’s energy intensity is much higher than the EU average. The Government supports the EU’s emission trading system in which Slovenia participates.

5. Conclusion

Slovenia performs well overall and with respect to its grouping (Group A). Moreover, within its Group, Slovenia has an electricity sector score of 0.946 relative to a Group average score of 0.93 (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Slovenia has a natural gas sector score of 0.907 relative to its Group average of 0.864.

While the electricity sector remains primarily (80%) state-owned, and market potential remains currently tempered by limited cross-border capacity and reliance on imports, private participation in the market is slowly increasing, an EU-compliant regulatory framework is in place, and a switch to a new regional energy exchange could facilitate cross-border trade.

The Slovenian market for natural gas is similarly fully open and compliant with EU unbundling requirements, and state-dominated, with other participants emerging. While dependent almost entirely on imported gas, that dependence is split, with only half from Russia, and Slovenia’s location and well developed pipeline connections with Italy, Austria and Croatia provide options and opportunities for further market development.
Electricity spider graph – Slovenia

Note: The diagram presents the electricity sector results of Slovenia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Slovenia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group A countries.

Electricity Sector - Comparative view of Group A countries
Note: The diagram presents the gas sector results of Slovenia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Slovenia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group A countries.

Gas Sector - Comparative view of Group A countries
B. Group B (EBRD Countries of Operations that are Contracting Parties or Observers to the Energy Community Treaty)

This group, referred to in this Assessment as Group B, is made up of contracting parties and observers to the Treaty establishing the Energy Community. The contracting parties are: Albania, Bosnia and Herzegovina, FYR Macedonia, Montenegro, Serbia and UNMIK. The observers to the Energy Community Treaty (EcT) are Moldova, Georgia, Ukraine and Turkey. As noted, these are in one grouping to reflect the common rules under which each is heading as part of the EcT process, though a different expectation as to level of reform and liberalisation in particular attaches because, while the contracting parties have committed to undertaking certain steps in line with the EU framework, the observers have expressed interest but made no similar commitment.

The Treaty establishing the Energy Community draws on the principles embodied in the EU energy acquis, which justifies the 80% score that the Assessment has set as a minimum performance bar for members. Observers, which are not bound but are, voluntarily moving towards implementation of the Treaty obligations, show more diversity, with Turkey scoring on a par with the contracting parties and Georgia and Moldova falling short. Taking into account the fact that the observers are not yet members of the binding EcT, the Assessment expects them to meet the 75%+ target, with rapid progress towards the 80%+ mark in the next year or two. Ukraine alone falls below the 70% mark, largely due to the low independence of its regulatory authority and the limited openness of the market. However, a reform to set up a liquid wholesale market based on bilateral contracts and balancing services to help open the market is underway (the Ukrainian government has estimated completion for 2014).

For contracting parties and even more so for observers of the Treaty establishing the Energy Community training as to regulatory development and best practices is relatively recent, with many regulatory agencies and accompanying frameworks formed (or significantly reformed) in the last five to 10 years. Moreover, most members of the Energy Community are smaller economies, with limited national market potential, and are primarily concerned about security of supply and the impact of new players on their economies. Thus, many of these economies protect public energy companies, creating some barriers for new entrants in the overall context of progress towards liberalisation. The situation with observers varies widely. Georgia, Turkey and Ukraine are noteworthy for their relatively larger size and energy strategic positions. Moldova by contrast is small and has limited indigenous supply. The findings reflect this difference and also the varied obligations within the group.

51 UNMIK, which stands for The United Nations Interim Administration Mission in Kosovo, is a signatory to the Treaty establishing the Energy Community and as such the territory of Kosovo has undertaken to adhere to the Energy Community legal framework. The total primary electricity supply in 2007 was 372.63 ktoe (thousand tons of oil equivalent), of which 2.0% is hydro power and 98% is coal; CO₂ emissions from coal combustion are 6.34 per annum (measured as Mt of CO₂). Though Kosovo is not addressed separately in this Report, we noted that Kosovo has an energy policy and energy law framework, as well as an independent regulatory authority, the Energy Regulatory Office (ERO), which is responsible for economic regulation in the electricity, district heating and natural gas sector. Though Kosovo has no natural gas supply domestically and no infrastructure to facilitate gas transport, it has made legislative advances in gas, with the Kosovo Assembly adopting the Law on Natural Gas on 11 December 2009. Kosovo’s electricity sector is dominated by the Kosovo Energy Corporation J.S.C. (KEK), a vertically integrated public utility company with responsibility for generation, mining, operation of the electricity distribution system and the supply of electricity. Still, there is a degree of (but not full) functional unbundling within KEK, with each of the four core functions operated by a separate division, and preparations for privatisation, which will include legal unbundling of KEK’s distribution and supply functions, are underway and scheduled to be completed by the end of 2010.

52 Participation of Moldova and Ukraine (and countries to their east) in the energy markets to their west is challenged by infrastructure limitations. Western Moldova borders Romania but Moldova’s network is not synchronous with the European network.
ALBANIA COUNTRY PROFILE

Overview

Albania has a GDP of USD 12,295 million and a population of 3.18 million. In 2007, its total production of energy was 2.17 Mtoe (million tons of oil equivalent), of which 12.4% was hydro power, 1.3% was coal/peat, 11.1% was combustible renewable and waste, 0.1% was geothermal/solar/wind, 0.7% was natural gas and 74.4% was oil. Net imports were 1.26 Mtoe. CO₂ emissions were 4.02 (Mt). Albania is a signatory to the Treaty establishing the Energy Community and as such has undertaken to implement the Energy Community acquis.

1. Institutional structure

The Government and Ministry of Industry and Energy (the Ministry) are responsible for policy-setting in the energy sector and the Energy Regulatory Authority (ERE) is responsible for regulatory implementation. ERE was first established in 1995; in 2003, new primary legislation for the power sector (Law on Power Sector) was adopted, and recently updated in 2008. In June 2008, ERE’s regulatory authority was extended to the gas sector and a new gas law was enacted, though as a practical matter Albania has a minimal gas supply and a negligible gas market.

ERE has five Commissioners who serve for five year terms, with a right to reappointment for one term. The chairman also serves as the executive administrator of ERE. In addition to the Commissioners, ERE employs 32 technical and non-technical staff members.

The Commissioners are appointed (and dismissed) by the Parliament by proposal of a selection team, composed of two Parliament representatives, the Chairmen of the Permanent Commissions of Production Activities, Trade and Environment, and Economy and Finance respectively, as well as the Ministry. Grounds for dismissal primarily consist of concrete and limited conditions, but also include a potentially broad unprofessional conduct provision.

ERE has an independent budget, which comes from licensing fees and regulatory fees it sets. No later than the end of the first quarter of each year, ERE submits to the Parliament an annual report on the electric energy sector, gas sector situation, and ERE’s activities, including its financial activities. This report is made public.

ERE has authority in the following areas: licensing, setting tariffs, drafting and approving secondary legislation, including tariff methodology and licensing rules, and dispute resolution. No government entities can overrule or alter regulatory decisions directly, though the Government may ask ERE to reconsider a decision (with the final decision still belonging to ERE). If the licence holder does not rectify deficiencies identified by ERE, ERE may impose fines or, if the deficiencies are repeated, may withdraw the licence.

---

53 Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project and from the Energy Community Regulatory Board, National Report Albania, Version 1.3, 1 September 2008.
All ERE decisions can be appealed in the Court within 30 days of publication in the Official Journal. If a court decides that ERE’s decision shall be cancelled, the Board either reviews its decision or appeals the Court decision according to provisions of the Code of Civil Procedure. Conflict of interest provisions exist for members of the Board and staff during employment, restricting both outside employment and political activities.

The Albanian Competition Authority is tasked with addressing market abuse and has a cooperative agreement with ERE. Operating for over five years now, the Albanian Competition Authority began a general investigation of the electricity, hydrocarbons and gas markets at the end of 2007, to determine the level of competition in the energy market, increase market efficiency and introduce greater consumer choice. After consultation with interested parties, including the Ministry, ERE, industry and the TSO, the Albanian Competition Authority issued recommendations directed at opening the markets for greater competition, and launched in 2008 an in-depth investigation of the hydrocarbons market that revealed undertakings had engaged in coordinated pricing practices.

2. Electricity sector

a. Market framework

The market is partially open. As of 2009, all non-household consumers have the right to choose their supplier. By the year 2012, all household and non-household consumers will be eligible. It is the responsibility of ERE to establish and publish the level of annual consumption as well as other requirements for obtaining the status of eligible customer. After receiving the status, the eligible customer has the right to sign electricity supply contracts with any local or foreign qualified supplier licensed by ERE.

Market participants are: one Transmission System Operator (TSO), one Distribution System Operator (DSO), generators, the Wholesale and Retail public supplier and qualified suppliers. In terms of its domestic energy, the electricity system depends on more than 98% hydro power, with 90% coming from the Drin River Cascade. Albania’s one thermal power plant, Fier, is not operational because it is old and applies inefficient technology. The construction of Vlora Thermo Power Plant with capacity 97 MW will be commissioned within 2009 and it will become operational by 2010. The Albanian Power Corporation (KESH) imports the remainder of the country’s electricity needs.

The Albanian Market Model is characterised by bilateral contracts for electricity between and among market participants. There is no retail market at present. Until 2004, KESH operated as a vertically integrated company carrying out the activities of generation, transmission, distribution, supply, import, and export of the electricity. Based on the Transition Market Model approved by the Government in decision No. 539, dated 12 August 2004, the TSO was required to unbundle financially, functionally and legally. The TSO was established on 1 August 2004 as a legal and financially independent entity. It is registered as a joint stock company with 100% of shares owned by the state. In 2006, pursuant to governmental decree, the distribution division was unbundled from KESH; in 2007 the KESH Supervisory Board approved the creation of the electricity distribution system operator (OSSH), which was registered as a separate entity in the Tirana district court. The privatisation of the distribution company, including the distribution system operator and retail public supplier functions, closed in mid-2009, with CEZ investing EUR 102 million for a majority interest. The operational and planning standards, including schemes for the calculation of
105
total transfer capacity, are the responsibility of the market operator, pursuant to the Market Rules.

b. Network access and tariffs

ERE is responsible for setting tariffs for all regulated activities in the sector. ERE develops and approves the tariff methodologies and approves, modifies or disapproves the tariffs and terms and conditions of electric power services. Regulated tariffs are set ex ante and, according to the ERE Rules of Practice and Procedures, approved by Board decision in 2009, the tariffs are published before and after the tariff setting process.

ERE approves tariffs for: public generation including small hydro power generation, wholesale activity, transmission, distribution services at 35 kV and 20/10/6 kV, 0.4 kV and retail supply of electricity for tariff consumers. These tariffs are set at an average tariff (not differentiated in energy and capacity components); the tariffs are uniform all over the country. The distribution service tariffs are differentiated by voltage level, the end user prices for the consumers at medium and high voltage levels are differentiated by peak and off peak hours, not yet applicable by DSO due to lack of proper meters. No seasonal tariffs or special tariff is applied for industry. For households, a two block tariff is applied. The end-user tariff components are: pass-through costs of electricity generation (including the renewable), transmission service, distribution service (including losses, bad debts to be included in 2010 tariffs) and retail supply fee. All the power services include the regulatory fee.

The tariffs for access to the network are set by ERE based on the cost of service and pursuant to transparent methodologies as well as on a transparent procedure.

ERE issues licences for the following: distribution system operator; retail public supplier; wholesale public supplier; for generation of electricity; trading of electricity; transmission of electricity; and qualified supplier for eligible customers. It publishes a licensing register


Third Party Access is regulated. Grid codes have been adopted. Generators are not paying use of system charges. The Albanian TSO (which also serves as the market operator) is responsible for ensuring non-discrimination between system users or classes of system users, particularly in favour of its related undertakings; providing system users with the information they need for efficient access to the system. Access tariffs are set by ERE and as such are not negotiated by parties. There is no significant advantage between incumbent suppliers over new entrants. With regard to the authority to give an exemption to the normal rules of Third Party Access for new investment, ERE adopts regulations in order to facilitate access to the grid by power plants with a total capacity no greater than 5 MW.

c. Operational environment

According to the strategy for privatisation of the energy sector and the market model, the TSO and one generation company must remain under state ownership, while the remainder of the sector is open for investment, and foreign capital is unrestricted. With respect to electricity, use of publicly owned resources is governed by a separate concession act.

Albania is one of several net importer countries in the region. In 2007, partly as a result of widespread drought and the domestic reliance on hydro power, and the
For security of supply, the Ministry may launch a tender for new capacity for generation in accordance with the Law on Concessions, to be overseen by the procurement authority. Any construction of new generation capacities shall be made with the approval of the Council of Ministers unless a concession contract is approved by the Government. The TSO is responsible for the demand and load assessment, supervising demand and load forecast validity. To assure adequacy of supply, the licensees carrying out the activities of public generation, transmission, distribution and public supply shall submit to the ERE for approval their investment plan for the next three years and, by 31 October of each year, the updated investment plan for the coming year. The investment plan offers analysis of planned expansions in the relevant regulatory period. The Transmission Code and Distribution Code specify the criteria and procedures to be applied.

Albania participates in the process of establishing a coordinated office for allocation of the interconnection capacities (Coordinated Auction Office – CAO) for the South East Europe region. In February 2009, the TSO signed the Memorandum for understanding on the implementation of common procedures for congestion management methods and the establishment of a coordinated auction office among transmission/independent system operators in South East Europe.

With respect to vulnerable customers, ERE is required to follow the state policy on subsidies allocated for vulnerable consumers, though ERE may suggest tariff-based measures, such as block tariffs to address social needs. The number of subsidised consumers is at 270,000 as a result of the recent addition of state employees to the targeted groups. Vulnerable consumers can obtain the subsidy only if they pay their bill. Problems of identifying the targeted groups remain.

ERE uses public consultation processes prior to adopting secondary legislation, and as part of its tariff review and licence granting or modification processes. It sends responses its gathers from consultations to interested parties and also publishes its decisions on its website, http://www.ere.gov.al. Public participation procedures and rules are addressed in the ERE’s Rules of Practice and Procedures.

### 3. Gas sector

Though commercial production and consumption of natural gas in Albania started in 1960, gas production peaked in the 1980s and the gas system is now largely out of use due to low levels of gas availability. Though plans are underway to extend various supply routes to supply Albania, at present Albania does not import natural gas due to limited available gas infrastructure. The Government seeks to resume gas usage and is taking steps in this direction. In 2008, a new gas law was adopted that creates conditions for investment in the gas sector and anticipates a liberalised gas sector. Specifically, the law requires that any undertaking licensed in the natural gas sector carrying out more than one of the activities related to production, transmission, distribution, supply, and operation of liquefied natural gas (LNG) facilities and storage facilities, shall keep separate accounts for each activity, and prepare consolidated balance sheets in accordance with required accounting practices. The law gives the
TSO authority for proposing transmission asset investment planning, subject to regulatory approval.

In accordance with the new Natural Gas Law, ERE has already amended its Rules of Practices and Procedures and is working for the preparation and development of secondary legislation including the Licensing Procedures, model licenses, market model and other regulatory acts for the natural gas sector.

Although, the tariff methodology for gas are not yet developed, the law on gas does require that gas tariffs and tariff methodologies are non-discriminatory, transparent, take into account the need for system integrity and reflect efficiently incurred costs, including appropriate return on investments. The new law regulates third-party access and sets forth mechanisms for disputes as to access. Dispute resolution and other institutional authorities parallel those found in the electricity sector. All relevant codes and secondary legislation in the gas sector have yet to be adopted.

Under the law, all consumers of natural gas in a specified geographic service territory within Albania are entitled to access to the reliable, safe, quality and uninterrupted dispatch and supply of gas. Wholesale traders and the natural gas transmission operator are responsible for ensuring security of supply, with service standards reflected in the transmission grid code. The law assigns ERE the responsibility to appoint a supplier of last resort other than the DSO for customers connected to the natural gas network. ERE is required to participate in the monitoring of medium and long term supply/demand balance according to bilateral agreements that are subject to the ERE approval, in order to protect the contracting parties against the risk of the market clearing price variation. The mechanism for monitoring is not developed yet.

4. Renewable energy sources/energy efficiency

The National Strategy of Energy and Law on Heat Conservation of Buildings address renewable energy and energy efficiency in Albania. Article 39 of the Law on Power sector imposes an obligation on producers and importers to use renewable resources or inject energy produced by renewables into the national power system in quantity of around 2% of the total production. In support of this objective, the government has focused on providing a price support system for small hydro power plants in particular. Primary responsibility regarding energy efficiency and other environmental interests is vested in the Government. No renewable energy-specific primary legislation is in place as of yet, but the Government has made renewable energy development a priority and is in process the drafting of a law on renewable energy.

The Ministry is responsible for developing renewable energy policy. Construction of a new power plant for renewables can be performed by obtaining concession rights or by authorisation. Both procedures are carried out by the Ministry and the final decision is issued by the Council of Ministers. Albania also has a Renewable Energy department within the National Agency for Natural Resources, with responsibility for promoting investment, consulting and suggesting policies, proposing energy efficiency measures and implementing plans to comply with annual energy balance on national and regional level.

In 2007 ERE approved a new tariff methodology for small hydro power plants (existing and new). By the end of December 2009 there were 53 hydro power plants (HPP’s), seven wind parks with the capacity 1700 MW, and one plant fuelled with biomass. There is a bilateral Ministerial Agreement for the mutual recognition of green certificates and certificates of origin issues by ERE Albania and GSE Italy.
Several important renewable energy investment projects are underway, including an agreement by EVN of Austria and Statkraft of Norway to construct three hydro power plants in the Devoll River, with installed capacities of 173 MW, 138 MW and 28 MW; development by Verbund of Austria of a 48.2 MW hydro power plant in the north; and new wind parks.

In 2005, Albania ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

5. Conclusion

Albania performs reasonably well overall and with respect to its grouping (Group B). Moreover, within its Group, Albania has an electricity sector score of 0.866 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment).

Within the electricity sector, Albania has a regulatory framework in place that is relatively compliant with Energy Community requirements, with partial market opening. Major challenges include the country’s singular dependence on, aside from imports, hydro power generation, resulting in volatile supply both seasonally and from year to year, and its large population of vulnerable customers. Potential development of three power projects in biomass, coal and wind could address some volatility issues and improve security of supply. There is as yet no retail market, but the sector is slowly unbundling and the 2009 privatisation of the distribution company, including the distribution system operator and retail public supplier functions, with CEZ obtaining the majority interest could provide an impetus for modernisation and transparency.

Within the gas sector, limited transmission infrastructure precludes gas import. The regulatory framework for the sector, however, including mechanisms for promoting investment in infrastructure, is in the process of development, with primary legislation in place.
Electricity spider graph – Albania

Note: The diagram presents the electricity sector results of Albania, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Albania are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
BOSNIA AND HERZEGOVINA COUNTRY PROFILE

Overview

Bosnia and Herzegovina (BiH) has a GDP of USD 18.452 million and a population of 3.77 million. The total primary energy supply in 2007 was 5.60 Mtoe (million tons of oil equivalent), of which 6.1% is hydro power, 62.1% is coal/peat, 3.2% is combustible renewable and waste (including biomass, biogas and waste), 6.1% is natural gas and 22.5% is oil. Net imports are around 1.65 Mtoe (million tons of oil equivalent). CO2 emissions from fuel combustion are 17.99 (measured as Mt of CO2). A signatory of the Energy Community Treaty, BiH has committed to implementing the Energy Community acquis. BiH also has adopted a Stabilisation and Association Agreement (the first step before applying for membership) with the European Union (EU) in June 2008.

1. Institutional structure

As a consequence of BiH’s unique political structure, the country has multiple energy regulatory bodies, making their work complicated and less efficient. The 1995 Dayton Agreement established a national government, as well as a second tier of two Entity governments – the Federation of Bosnia and Herzegovina (FBiH) and the Republika Srpska (RS). The regulatory structure follows this political structure, meaning that one regulator exists at the national level, and one at each Entity level.

On the national level, the ministry with primary responsibility over the energy sector is the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MOFTER). Regulatory implementation is the responsibility of the State Electricity Regulatory Commission (SERC), which has jurisdiction over the electricity transmission, transmission system operation and international trade. SERC has three commissioners appointed to five-year terms (two from the FBiH, one from the RS, rotating annually as chairman) and a staff of 15. Commissioners are appointed by the National Parliament. Transition of SERC commissioners following expiry of term has been an issue. While the four-year term of the RS commissioner on SERC expired in 2007 and the term of one of the FBiH commissioners expired in 2008, they were not replaced in a timely manner and so continued to serve. In April 2008, the Parliament asked the Council of Ministers to expedite appointment procedures to enable SERC to operate in its full capacity. Prior to the end of a term of service, dismissal of commissioners is only based upon cause. Standard conflict of interest rules apply.

SERC’s budget (currently EUR 1,190,000) is financed out of regulatory fees, with no requirement of parliamentary approval. All SERC decisions can be appealed to the Court of Bosnia and Herzegovina, and remain in effect pending appeal. Through 2008 only a few appeals have been filed, in them, SERC’s decisions have been upheld by the Court. Notably, the time an appeal takes is a lengthy two years.

On the Entity level, the two corresponding ministries are the Ministry of Energy, Mining and Industry of Federation of Bosnia and Herzegovina (FMEMI); and the Ministry of Industry, Energy and Mining of the Republika Srpska (MIEMRS). The

54 Information herein is drawn primarily from the regulatory bodies, from answers to questionnaires provided by this project, and from the Energy Community Regulatory Board National Report, Version 4, 4 September 2008.

55 The procedure for appointment of the Members of the Commission starts in the respective entity governments. After the Government’s proposals are confirmed by the National Assembly of the Republika Srpska, i.e. the Parliament of the Federation of BH, the nomination shall be submitted to the Council of Ministers of Bosnia and Herzegovina, which shall propose the appointment to the Parliamentary Assembly of Bosnia and Herzegovina (National Parliament).
FBiH Electricity Regulatory Commission (FERK) and the RS Energy Regulatory Commission (RERS) implement regulation of generation, distribution and supply of electricity within their respective Entities. FERK has three commissioners; RERS has five, each approved by their respective Entity Parliaments. FERK has a staff of 31, RERS 27. Like SERC, FERK and RERS are funded outside central budgets. In September 2009 the international community’s High Representative in BiH\(^5\) amended state and entity laws on electricity to provide the necessary legal framework for electricity supply to Brcko District of BiH and extended SERC jurisdiction to the matters of electricity generation, distribution and supply of customers in the District.

With respect to gas, a regulatory agency for gas has not yet been established on the national level or within the FBiH. Within the RS, RERS has had jurisdiction over the gas sector since the end of 2007.

There is a separate Council on Competition which consults with the relevant energy regulators on issues relating to competition, although the Council only has the power to provide opinions and recommendations on aspects of competition, either ex officio or at the request of the state authorities, undertakings or associations.

2. **Electricity sector**

   a. **Market framework**

   Market participants are an Independent System Operator in Bosnia and Herzegovina (ISO BiH), a single company for transmission, three separate vertically integrated utilities engaged in generation, distribution and supply, each of which are Entity owned, traders and eligible customers.

   The ISO BiH began operation in July 2005. The single transmission company, Elektroprenos Bosne I Hercegovine, began operations in February 2006. The ISO and transmission company have been legally unbundled. The three separate vertically integrated utilities, Elektroprivreda BIH Sarajevo, Elektroprivreda HZHB Mostar and Elektroprivreda RS Trebinje, engage in generation, distribution and supply in their regions, while distribution and supply in the Brcko District are carried out by of a separate entity (Komunalno Brcko) and owned by the local government. Accounting unbundling is required under law, with SERC adopting a chart of accounts for the ISO in December 2008 and an expectation of the adoption of a chart of accounts for the transmission company in 2009. Further unbundling is needed.

   The law provides for phased market opening, with opening as of 1 January 2008 for all non-household customers (57.5% of the market) and after 1 January 2015 for all customers. Aluminij Stock Company Mostar, whose consumption constitutes 20% of total BiH consumption, was the first customer that used the right to purchase electricity in the market as an eligible customer. Other customers did not use their eligibility option to purchase energy in the market, with wholesale market prices at practically the level of end-user tariffs. While competition is thus allowed as a matter of law, the overall market structure is still not sufficiently unbundled, and the legal framework not comprehensively developed to support competitive supply. SERC enacted new connection rules in October 2008 and simplified its licensing for international trade, but supply remains Entity-centric within the RS and FBiH; lack of metering and billing support also hinders development of a competitive market framework.

---

\(^{5}\) Office of the High Representative (OHR) is an ad hoc international institution responsible for overseeing implementation of civilian aspects of the Dayton Accord.
b. Network access and tariffs

SERC’s tariff methodology was adopted in June 2005, with amendments in February 2007 and January 2009 with the transparent proceedings including public hearings. The methodology applied is based on cost of service, without incentive components.

Development of ancillary service tariffs and providing system services remain burdened by the logistics of the BiH power system, including the incomplete nature of the restructuring process and differing interpretations of the legal rights of participants in the power sector.

There is a grid code in which operation rules for the transmission system are well defined. Temporary rules of allocation of cross-border transmission capacity are being used until the adoption of auction rules anticipated in 2009. The ISO is responsible for security of transmission system operation including security reserve.

SERC licenses and monitors the licensed activities within its authority – the ISO, transmission and international trade – while the Entity regulators license and monitor generation, distribution, trade and supply within their regions. The generation licence holders are Elektroprivreda BiH Sarajevo; Elektroprivreda HZHB Mostar; the five generation subsidiaries of Elektroprivreda RS Trebinje, which are licensed separately; and 20 licensed distributed generators. Twelve companies are licensed for international trade (including the three large utilities – Elektroprivreda BiH Sarajevo, Elektroprivreda HZHB Mostar, and Elektroprivreda RS Trebinje). In addition, the aluminium company (Aluminij JSC Mostar) and B.S.I Jajce are licensed to import electricity for their own needs. Licensees for tariffed supply are Elektrprivreda BiH Sarajevo and Elektroprivreda HZHB Mostar in the Federation of BiH and five subsidiaries of Elektroprivreda RS Trebinje, in the Republika Srpska. The three large utilities are also licensed to for competitive supply of eligible customers; along with 11 other licensed traders.

c. Operational environment

For the first time in several decades, in 2008 the sector as a whole operated profitably, with 14,000 GWh generated (8900 GWh thermal, 4800 GWh large hydro, 200 GWh small hydro and industrial power plant), with domestic consumption of 12,240 GWh and net export of 1640 GWh. BiH is one of the few exporters of power in the region.

With respect to cross-border exchange, inter-connection capacities are contracted by the ISO with the neighbouring countries on yearly basis and maintained monthly. The ISO is obliged to prepare 10-year indicative development plans, including the need for new generation capacity. The Transmission Company is required to provide a long-term plan for development of transmission network.

Only the three large utilities have been partly privatised (approximately 10% in FBiH and 20% in the RS).
Establishment and elaboration of public service obligations, standards of service and security of supply are complicated by the political structure and environment, and make development of any State-wide policy problematic. Despite the lack of progress at the State level, the adoption in the RS of a new Energy Law and amendments to the Law on Electricity improved the legal framework of this entity in areas such as public service obligations, energy policy and energy development planning.

3. Gas sector

As noted, the gas market is in its nascent stages. Market participants include the transmission owners, distribution and supply. Bosnia and Herzegovina has no domestic production and imports all gas needs from Russia via Ukraine, Hungary and Serbia. Gas consumption is limited (about 363 Mcm in 2006), and concentrated in two large industrial plants (about 55% of sales). There is no storage. Only about 10-15% of the population is reached by natural gas. The transmission infrastructure consists of a single 192 Km, 406 mm pipeline from the Serbian border (Šepak) to Zvornik, Sarajevo and Zenica, with a nominal capacity of 1 Bcm/year. Its ownership is split between three different companies: BH-Gas Sarajevo, Gaspromet Pale and Sarajevo-gas Lukavica. It is operated by Gaspromet Pale in the RS and by BH-Gas in FBiH, with BH-Gas, owned by FBiH, the sole wholesale supplier and biggest gas carrier within BiH, operating 68% of the transmission pipelines. Four gas distributors, two in each Entity, serving different municipalities, are responsible for the distribution and retail sale of gas: Sarajevogas Sarajevo (serving 93.8% of distribution customers), Zvornik Stan Zvornik (2.2%), Sarajevo-gas Istocno Sarajevo (1.4%) and Visokogas Visoko (2.6%). Part of the RS transmission company (Gaspromet) has been privatised.

End user prices are currently regulated by the Ministry and by local authorities, as integrated supply tariffs. Distribution margins for the largest company (Sarajevogas Sarajevo) have not changed for the last five years and may now be lower than costs. No access tariffs are available.

Future development depends upon a harmonised legal framework and coordinated development plans. To date, there is no single plan for development of the gas transmission network in BiH. Import capacity is underutilised, also due to consumption seasonality and lack of storage.

Development of Bosnia and Herzegovina’s legal and regulatory gas framework is in its nascent stages, with only the RS establishing a regulator and little gas legislation in place. The RS law anticipates that RERS will define a threshold for the status of eligible customer, and that after 1 January 2008 such status was to be given to all non-household customers, but the regulatory framework to implement market opening has not yet been established. Third Party Access is negotiated and there is no capacity allocation mechanism.

4. Renewable energy sources/energy efficiency

The Ministry of Foreign Trade and Economic Relation acts as the responsible institution on the State level in the area of renewable energy and energy efficiency. As in electricity and gas, the complicated Entity structure impedes development of State-wide policies and implementation of State-wide programmes, and BiH currently lags behind its neighbours in this area. There is no national law on combined heat and power, energy efficiency and renewable energy, only legislation on the Entity level. Draft versions of Entity legislation contemplate feed in tariffs. The public utilities in both Entities are obliged to off-take all electricity produced from renewable energy, but only plants less than 5 MW are deemed renewable. Generation facilities using
renewable sources pay only 50% of the fixed part of connection fee; facilities using hydro power obtain this benefit if their granted capacity does not exceed 10 MW.

BiH ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 2007. A Designated National Authority for a clean development mechanism has yet to be established or identified.

5. Conclusion

Bosnia and Herzegovina performs satisfactorily overall and with respect to its grouping (Group B), slightly above the average for Energy Community contracting parties and observers, but below the average for fellow Energy Community contracting parties. Moreover, within its Group, Bosnia and Herzegovina has an electricity sector score of 0.849 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers.

Bosnia and Herzegovina’s primary challenge is its unique political structure, which complicates and slows development of the regulatory framework and operations thereunder. Within the electricity sector, phased market opening is underway, but while competition is allowed as a matter of law, only the very largest customer has chosen eligibility, the legal framework is not yet comprehensively developed sufficient to support competitive supply, and a lack of metering and billing support present further obstacles to the development of a competitive market framework. Nonetheless, in 2008 the sector as a whole operated profitably for the first time in decades, and BiH is one of the few exporters of power in the region.

The gas market is in its nascent stages, with development of the regulatory framework underway, but only the RS establishing a regulator and little gas legislation as yet in place. With BiH lacking any domestic production and all exports coming from Russia via Ukraine, Hungary and Serbia, development of a wholesale market will be a challenge. Current consumption is concentrated in two large industrial plants, only about 10-15% of the population is reached by natural gas and there is no gas storage. Future development will depend an ability for the entities to work together to establish a harmonised legal framework and coordinate their development plans.
Electricity spider graph – Bosnia and Herzegovina

Note: The diagram presents the electricity sector results of Bosnia and Herzegovina, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Bosnia and Herzegovina are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
CROATIA COUNTRY PROFILE

Overview

Croatia has a GDP of USD 69,332 million and a population of approximately 4.44 million. The total primary energy supply in 2007 was 9.32 Mtoe (million tons of oil equivalent), of which 4.2% is hydro power, 7.9% is coal/peat, 3.7% is combustible renewable and waste (including biomass, biogas and waste), 30.8% is natural gas, 53.3% is oil and geothermal/solar/wind is 0.1%. Net imports are around 5.34 Mtoe. CO2 emissions are 22.03 (measured as Mt of CO2). An Energy Community Treaty (EcT) signatory, Croatia applied for membership in the European Union (EU) in 2003, the European Council granted it EU candidate status in 2004, and accession negotiations have been ongoing since 2005. Accordingly, Croatia has accepted an obligation to harmonise its legislation, including its energy legislation, with the EU legal framework and is well on its way.

1. Institutional structure

The Ministry of Economy, Labour and Entrepreneurship (MELE) is assigned primary responsibility over the energy sector. The implementing regulatory body is the Croatian Energy Regulatory Agency (HERA), which in 2007 replaced the previous body (the Croatian Energy Regulatory Council), established in 2002. HERA is an autonomous legal entity, led by a Steering Committee. Currently, there are four Committee members (out of five positions) and 44 staff members. Staff membership has grown over the last few years, reflecting a positive development for HERA’s ability to regulate the sector effectively.

Members are proposed by the Government and appointed by the Parliament, for fixed five-year terms. Dismissal is by Parliament upon the proposal of the Government. Grounds for dismissal primarily consist of concrete and limited conditions, but also include “serious breach” of duty set forth in the law. Because dismissal for cause is a critical element of protecting regulatory autonomy, further clarification concerning what constitutes a “serious breach” of duty would be beneficial. In the past, the dismissal provisions have been evaded simply by enacting a new law, creating a new regulatory body, and by doing so, replacing some Steering Committee Members.

Conflict of interest provisions are fairly standard for the region and represent good practices, though additional provisions preventing outside employment in the energy sector for staff and regulators would further minimise potential for conflict. Existing conflict of interest provisions preclude Steering Committee Members from being members of Parliament or local self-government, or serving on an executive government body or on a political party central body. Members and their families cannot own or hold shares or stakes in any energy undertaking exceeding 0.5% of the capital stock, or be members of the management board or supervisory board of any other body in an energy undertaking, and cannot hold any material interest in the area of energy activities or perform any other work in any energy undertaking to which the Energy Act applies “which may lead to the conflict of interests.” Terminated members cannot perform any work in energy undertakings to which the Energy Act applies for one year following the date of discharge except if they were terminated for inability to perform their duties. While the Chairman cannot have outside employment during his term, other Committee Members and staff can.

---

57 Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project and the Energy Community Regulators Board, National Report for Electricity and Gas, 5 September 2008, Version 4.
Salaries of Steering Committee Members are set by Governmental Decision; staff salaries are set by internal act, and are higher than comparable civil servants’, which helps to attract qualified personnel to the regulator. HERA is financed by fees imposed on sector participants, with its budget proposed by HERA but approved by the Government. While the former is critical to protect regulatory independence, the latter presents some risk of Governmental intrusion. Laws which set parameters for budgeting within a range of a fee imposed on sector participants is one approach some jurisdictions use to provide regulatory autonomy in this area.

HERA has authority over licence issuance, but only partial authority with respect to construction of new generating facilities. The regulator adopts tariff methodology upon the opinion of MELE but cannot set actual tariff amounts, which are set by the Government. HERA performs an advisory role (usually to MELE) over tariff, pricing and fee related matters, such as proposed amount of tariff elements and levels of compensation for operation of the energy market. While HERA decisions are generally appealed to the administrative Court, the law provides that applicants may first appeal denials and revocations of licences to MELE, which can cancel HERA decisions. HERA does not have the authority to impose fines for violations of licence conditions or sector regulations, though it may suspect or revoke licences.

In 2006, the Croatian Competition Agency and HERA entered into a cooperation agreement. Cooperation appears to be implemented in a positive manner, with exchange of expert opinions between the agencies in order to further competition in the sector.

2. Electricity sector

   a. Market framework

Market participants are the TSO, DSO and generation, transmission, distribution and supply (in one company, unbundled), and customers. The electricity market has been fully open to all customers as of 2008, though as a practical matter, the former vertically integrated utility, Hrvatska Elektrprivreda (HEP), remains the only supplier of electricity in the country and is the primary importer of electricity (with electricity imports around 36%, as a consequence steady increases over the past several years due to increased consumption and heavy droughts).

HEP has been unbundled and the Transmission System Operator (TSO) and Distribution System Operator (DSO) are legally, accounting and functionally separated. HEP remains state-owned and still retains through a holding company formation majority control over generation, transmission, distribution, trade and retail supply. The Croatian Energy Market Operator (HROTE) was established in 2005 by HEP and transferred to the state in 2007. HEP produces the majority of domestic production through its' subsidiary HEP-Proizvodnja d.o.o. and a joint-venture company with RWE - TE Plomin d.o.o. HEP is also a co-owner of Krško Nuclear Power Plant in Slovenia (50% ownership), and energy produced in NPP Krško is used for supplying Croatian customers. New production that is not connected to HEP is primarily new renewable production, and is still in the developing stages.

The wholesale market model is based on bilateral contracts (between eligible customers and supplier for supply; and between supplier/trader and producer for sale). The market is split into the provision of electricity as a public service to tariff customers and the free market. In 2008, several amendments to the
electricity legislation brought important changes to the sector. The Electricity Market Act of 1 July 2008 made all customers eligible, i.e., free to choose their electricity supplier. The amendments also require that HEP Operator distribucijskog sustava d.o.o. (hereinafter: HEP ODS) act as the energy operator performing all tasks of a distribution system operator, including those of a public supplier. Eligible household customers who do not wish to exercise the right of an eligible customer or do not succeed in finding a supplier have a right to electricity supply from the suppliers of tariff customers (the public supplier). A small customer must choose a supplier before 30 June 2009 and conclude a contract on supply with said supplier; also in that period the small customer has a right to electricity supply from a tariff customer supplier. By the end of 2008, all customers using high voltage, a majority of customers using medium voltage and a part of small customers concluded a contract on supply with a supplier of eligible customers based on market criteria, which makes up to 33% of the total electricity delivered to customers. Amendment to the Methodology on providing balancing energy services in the electric power system sets forth the unit price of electricity balancing for eligible customers who have not found its suppliers in the prescribed period. In July 2009, the Agency adopted one more amendment to said Methodology by which this price is more precisely defined.

Croatia entered the inter-TSO compensation mechanism in 2008 (somewhat later than some of its neighbours), eliminating transit fees. In December 2008, the Agency approved the new Rules on Allocation and Use of Cross-Border Transfer Capacity to increase harmonisation with the Regulation (EC) No. 1228/2003 and the corresponding guidelines for congestion management. This is a positive step toward increased regional trade.

b. Network access and tariffs

Regulated pricing includes generation for households, transmission, distribution and retail/supply for households (pursuant to a new tariff system, adopted in 2006, for the unbundled sector). Currently a cost-of-service approach is being used without incentive components. Addition of incentive requirements would benefit industry performance and is reflective of best practices. A Government Decision on implementation of measures for mitigating electricity price increases for households (OG 75/08) was in force from 2 July 2008 to 30 June 2009, when tariffs were increased 20%. Thus, steps are being taken to make tariffs more cost-reflective, while understanding transitional needs of households so that higher costs are integrated in a gradual manner. Daily High-Low tariffs are in place for tariff customers, as well as tariffs for transmission and distribution (applicable for eligible customers). Different tariff models exist for customers depending on different combinations of high-low tariffs and reactive power measurements. There is a tariff system involving demand side management, but it is not widespread; overall efforts towards efficiency would benefit from additional use of demand side management.

58 Amendments to the primary legislation are: The Act on Amendments to the Energy Act (Official Gazette “Narodne novine”, No. 152/08) and the Act on Amendments to the Electricity Market Act (Official Gazette “Narodne novine”, No. 152/08). Key amendments to the secondary legislation include: Amendment to Methodology on providing balancing energy services in the electric power system (Official Gazette “Narodne novine”; No. 90/08) and new Rules on Allocation and Use of Cross-Border Transfer Capacity.
Though HERA enacts the methodology for calculating tariffs, the Government defines the amounts of tariff items based on a proposal from the MELE. HERA provides its opinion but does not set the tariffs. HERA is able to make the initial proposal for a change in tariffs, or the licensee may do so, but again, HERA is not able to set the tariffs.

The TSO provides Third Party Access (TPA) to the network on a regulated basis. HERA may grant TPA exemptions limited for new investment consistent with best practices.

Licensing requirements are consistent with the general practice within the EU Member States, requiring licences at each stage of the chain from generation to supply, i.e., separate licences for the TSO, DSO, market operator, generation and supply. HERA has issued nine licences for electricity generation, again, new entrants are companies developing power plants based on renewable energy and do not have a large share of the market yet; HERA also issued four licences for electricity suppliers, with three issued to subsidiaries of HEP. HERA issues the licence, and may temporary or permanently revokes the licence for carrying out energy activities. More importantly, HERA also has the authority to order, in the case of an energy undertaking whose licence was cancelled or who stopped performing an energy activity, the transfer of plants, facilities, appliances, networks or systems to another energy undertaking to operate them, provided that the licence was not cancelled on the ground of safety failures on such plants, facilities, networks or systems.

In the case of authorisations of new generating capacity, MELE provides approval for construction of generating facilities (for production of electricity), while HERA gives its opinion to MELE on the procedures and criteria for approval and construction, organises and carries out tendering procedures, and gives proposals to the Government on the calling for tenders and on selecting the most advantageous tender for such facilities of 50 MW and above.

c. Operational environment

HEP Supply is the public service supplier for tariff customers. Generation for tariff customers is also a public service, carried out by HEP.

Foreign investment is not restricted, and though HEP is currently state-owned, its privatisation is permitted and under consideration. As noted, MELE authorises new generation capacity; HERA decides whether to call and organise tenders for new generation capacity under 50 MW and the Government addresses tenders above 50 MW.

HERA has appointed a council for the regulatory affairs and a council for customer protection, which meet on an ad hoc basis, but at least two times a year. These councils make recommendations and opinions which are not binding on HERA, but can be publicly disclosed at HERA’s discretion. The structure is a positive one, though it could be used to greater effect through increased meetings, transparent reporting, and an active role in a consultation process to assist the ongoing transformation of the sector.

Each year, HERA presents a report to Parliament, and it is posted on its website. Its decisions are also posted, though only in Croatian, which presents

59 http://www.hera.hr/english/html/annual_reports.html
some limitations for regional trade. By law, HERA must hold evidentiary hearings for its decisions, but they are not public.

3. Gas sector

a. Market framework

The gas sector is unbundled and the market open by law as of August 2008, meaning that all customers are deemed eligible and can freely choose a supplier and negotiate a price, though in practice, as with electricity, one entity dominates the market. Croatia has one natural gas producer, INA, which is mother company of the Prirodni Plin which is the wholesale and retail supplier, and also gas importer; one TSO, Plinacro, which was ownership unbundled in 2002 and is 100% state owned; 38 distribution system operators, 13 of which are legally unbundled and 25 to which the 100,000 or fewer customer exemption applies; and 39 suppliers, one of which is also a wholesale supplier. The DSOs are either privately or municipally owned. Gas storage was ownership unbundled in 2008.

b. Network access and tariffs

Tariffs are regulated for gas distribution, gas transmission, gas storage and gas supply of tariff customers. Currently a cost-of-service approach is being used without incentive components. There are two possibilities for setting rates: (1) the system operator calculates and proposes the amount of tariff items to MELE and, based on the opinion obtained from HERA, MELE proposes the amount of tariff items to the Government of the Republic of Croatia which approves it; or (2) HERA calculates and proposes the amount of tariff items to MELE and, based on opinion obtained from the system operator, MELE proposes the amount of tariff items to the Government which finally approves it.

The Government, subject to the proposal of the Minister and after obtaining HERA’s opinion, sets connection fees and fees for increase in connected load.

In 2007, a revised Gas Market Act was adopted. Open access is guaranteed by law. Access is controlled by the TSO or relevant DSO and supervised by HERA and MELE. Distribution networks in new territories are awarded through a concession-granting procedure. New network rules for the gas transmission system and the first network rules for the gas distribution system were passed in April 2009, regulating technical conditions for the operation, management and development of the transmission/distribution system; connection to other parts of the gas system; connection to the transmission/distribution system; and measurement rules in gas transmission/distribution. HERA resolves access complaints, subject to judicial review.

c. Operational environment

MELE is responsible for monitoring and forecasting supply and demand on the gas market, planning the construction and development of additional capacity, and proposing and taking measures in the case of a crisis situation. The TSO is responsible for proposing a five-year transmission system development plan and the Minister approves the plan after MELE obtains an opinion from HERA. This allows the regulator to remain an active participant in the planning process, which becomes increasingly important with the recent opening of the gas market and efforts to expand the regional gas market in South East Europe. This will become of increasing importance as the gas infrastructure is developed further (Croatia is in the process of working toward interconnection with Hungary).
Those entities supplying gas to tariff customers as of 31 July 2008 hold the public service obligation of gas supply for a period of five years. After that period, the public service provider shall be selected by tender.

Pursuant to the General Conditions of Natural Gas Supply, the TSO and DSOs are obligated to establish a system of gathering data on the reliability of gas delivery by 31 December 2010 and to propose to MELE the standard reliability of gas delivery by 31 December 2011. The Minister shall, after obtaining an opinion from HERA, establish the criteria for standard reliability of gas delivery and for determining charges for any deviations from standard reliability of gas delivery by 1 July 2012.

4. Renewable energy sources/energy efficiency

In the last couple of years, Croatia has expanded its efforts in this area, and is taking positive and active steps to promote sustainable energy. The Energy Act defines combined heat and power, renewable energy and energy efficiency as crucial elements of Croatian energy policy.

With respect to energy efficiency in particular, Croatia has developed a National Energy Efficiency Programme that runs from 2008 to 2016, though government adoption of the plan has lagged. It has adopted an Act on Efficient End-Use of Energy, with enforcement beginning this year (2009), and secondary legislation to be adopted by the end of 2009. Emissions are taxed, but there is no market-oriented scheme that would supplement energy efficiency projects. In 2008, a new Act was passed on energy efficiency in end-use; a master plan for energy efficiency was created, though secondary legislation remains to be developed. An Environmental Impact Assessment is now required for energy related facilities. The evaluation of renewable energy potential is a requirement set by preliminary approval given by MELE, defined by the Rulebook on Usage of Renewable Energy Sources and Cogeneration. A growing (but still limited) renewable energy production is outside of HEP and tied to a feed-in system, by which the market operator purchases the production and apportions (on a mandatory basis) the energy to suppliers, so that new renewable energy producers are guaranteed purchase.

The Government defines incentives for generation from renewable sources and cogeneration, and enacts the tariff system for this generation subject to the proposal of the Minister, and after obtaining the opinion from HERA. Electricity production from renewable energy and combined heat and power production is incentivised through a feed-in scheme, and the Ordinance on the Minimal Share of Incentivised Electric Energy Production Produced from Renewable Energy Sources and Cogeneration (Official Gazette, No. 33/07) defines a goal for incentivised production. The scheme includes all renewable energy (except hydro over 10 MW), micro cogeneration and high-efficiency cogeneration. Energy produced in eligible power plants is taken by the Market Operator (www.hrote.hr) and distributed evenly among electricity suppliers. The suppliers collect payments from customers for the energy produced in eligible generators and a levy on all delivered kWh.

The current feed-in system, commenced in July 2007, is very attractive, and, as a result, over 200 projects using different renewable energy and cogeneration technologies have been registered as newly developed in the last two years, with over 4.5 GW of planned capacity. For the most part, HERA plays an advisory, secondary role to MELE with respect to renewable energy.

Croatia ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 2007, though with low emissions as a baseline, Croatia has had difficulty meeting its agreed-upon targets. The Ministry of Environmental Protection, Physical Planning and Construction and the Croatian Environmental Agency are tasked with facilitating Croatia’s Kyoto requirements.

5. Conclusion

Croatia performs reasonably well overall and with respect to its grouping (Group B). Moreover, within its Group, Croatia has an electricity sector score of 0.878 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Croatia has a natural gas sector score of 0.839 relative to an Energy Community average of 0.711 for Energy Community contracting parties and observers with a gas sector.\(^1\)

Croatia’s desire to join the EU has provided an impetus for it to ensure that its regulatory frameworks in both the electricity and gas sectors meet EU requirements. The areas of renewable energy and energy efficiency regulation have in particular have seen recent rapid progress as to enactment of EU-compliant legislation and regulations. In practice, within the electricity sector, state-owned HEP remains dominant and through its holding company retains majority control over generation, transmission, distribution, trade and retail supply. One company, INA, dominates the gas sector as well, but the regulatory structures for permitting third-party access are in place, and Croatia is exploring further development of its transmission infrastructure with Hungary.

\(^1\) Because many of the countries in this grouping have no gas sector, from a statistical point of view, the average must be taken across the full group of Energy Community contracting parties and observers, as dividing the group would result in too small a sample.
Electricity spider graph – Croatia

Note: The diagram presents the electricity sector results of Croatia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Croatia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
Gas spider graph - Croatia

Note: The diagram presents the gas sector results of Croatia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Croatia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group B countries.

Gas Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
Overview

FYR Macedonia has a GDP of USD 9,521 million and a population of approximately 2.04 million. The total primary energy supply in 2007 was 3.02 Mtoe (million tons of oil equivalent) of which 51.5% is coal/peat, 3.1% is hydro power; 5.1% is combustible renewable and waste (including biomass, biogas and waste), 3.0% is natural gas, 36.9% is oil and 0.4% is geothermal/solar/wind. Net imports are around 1.47 Mtoe. CO2 emissions are 9.12 (measured as Mt of CO₂).

FYR Macedonia is a signatory to the Treaty establishing the Energy Community and as such has undertaken to adhere to the Energy Community acquis.

1. Institutional structure

The Government of FYR Macedonia, the Ministry of Economy (Ministry) and the Energy Agency (a governmental body that supports the Ministry) are responsible for energy policy, while the independent regulator, the Energy Regulatory Commission (ERC), is responsible for regulatory implementation of electricity, natural gas, oil and oil derivatives, blends of liquid fuels from fossil origin that are used for transport, biofuels, district heating and geothermal energy. The Government, upon proposals from the Ministry, is tasked with adoption of the energy strategy and energy primary legislation. In June 2009, the Ministry presented a draft text of the Strategy for Development of Energy for 2008-2020. A public consultation and comment process is underway; as of January 2010, comments to the Report of the Strategic Evaluation of the Assessment for the Environment for the Energy Development Strategy were being solicited, marking the final stage in adoption of the Strategy.

The ERC, which began operation on 1 January 2004, has five board members and 12 staff members. The board members are proposed by the Government and appointed by the Parliament, for fixed five-year terms, subject to one reappointment. Additionally, as to board members, employment or acquiring shares in the licensing companies after termination of the mandate is restricted for a one-year, compensated period. Additionally, as to board members, employment after termination is restricted for a one-year, compensated period.

The ERC is financed from sources of funds, procured by the charge on the total income of companies performing energy activities on the national market, and by licence fees. Salaries are set in accordance with the ERC's internal rulebook, with the ERC submitting to Parliament by October its proposed financial plan for the upcoming year, which sets forth all ERC revenues and expenditures, including the salaries of the members of the ERC and the employees. For 2008, the approved budget was approximately 44.8 million MKD (EUR 740,000).

The ERC has the authority to fix tariffs, issue tariff methodologies, set connection costs, issue licensing rules, issue and modify licences and address complaints from energy companies (though not from households, as suppliers are obliged to set up internal complaint procedures, approved by the ERC, to address these). It also has broad powers to investigate, inspect and require production of information.

Monetary penalties are set forth in Article 153 of the Energy Law, and the ERC may recommend that penalties are imposed on entities that have violated licence obligations, but the ERC has no power to impose fines directly. The ERC does have

---

62 Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project, and from the Energy Community Regulatory Board National Report, Version 5, 9 September 2008.
authority to address infractions through its licensing powers. For instance, if an inspection report identifies non-compliance with licence conditions, the ERC issues a resolution for the licence holder to correct deficiencies within a defined time period. If the licence holder does not rectify the deficiencies, the ERC informs the authorised state bodies and inspectorates, which in turn can implement additional penalties. The ERC may suspend or revoke the licence for non-compliance.

FYR Macedonia has a Commission on Competition Protection (CCP). By law the ERC has general authority to promote competition, though in practice it performs only limited market monitoring for abusive behaviour, and this role primarily belongs to the Commission. In January 2007, the ERC signed a Memorandum of Understanding with CCP to increase cooperation between the two bodies, primarily relating to exchange of information and expert opinion.

2. Electricity sector

a. Market framework

FYR Macedonia has unbundled its electricity sector, including a separate Transmission System Operator (TSO) and a separate Distribution System Operator (DSO), and privatised distribution in 2005. It has a regulated market and a wholesale market for eligible customers, with a phased market opening plan of 42% by 1 January 2008, staggered thereafter until it reaches full liberalisation in 2015. The Government, not the ERC, identifies by decree which customers may be eligible and when; however, in June 2009, the Ministry of Economy requested an opinion from the ERC regarding the second phase of market opening.

Sector participants include:

- One state-owned public service generator (ELEM). ELEM owns most of the generation in FYR Macedonia and provides 96% of domestic electricity production, which, in turn, supplies 65% of total supply with the remainder from imports.

- The transmission system operator (MEPSO) is also the market operator. MEPSO owns the transmission infrastructure and is responsible for maintenance, planning, expansion and construction of the transmission network, the management of the electricity system and the organisation and management of the electricity market. (www.mepso.com.mk)

- The national DSO, which owns the distribution system assets and is 90% owned by EVN (Austria) and 10% state owned. As the supplier for the retail tariff consumers, EVN Macedonia buys power and electricity from ELEM, traders and distributed generators, as well as necessary transmission and distribution capacity and regulated services for the needs of the tariff consumers of electricity connected to the distribution network at regulated prices. (www.evn.com.mk)

- As of the end of 2008, there are 18 licensed traders, six of which are active.

Consistent with the phased market opening plan, the electricity market is partially open, but impediments to development exist, exacerbated by recent amendments to the Energy Law, defining eligible customers as those connected to the transmission network (nine large companies), as opposed to all non-household customers in a non-discriminatory manner. Revision of the law is underway to address the eligibility issues and promote Third Party Access. In accordance with the Law Amending the Energy Law (Official Gazette of the FYR
Macedonia, No. 106/08), the ERC has no responsibilities regarding the eligible customers of electricity.

Aside from lagging as to the percentage of customers deemed eligible, market development is hindered by EVN Macedonia's inability to purchase power on the market under Article 82(2) of the Energy Law from anyone other than ELEM unless the ERC approves and market prices are more favourable than the regulated price. Pursuant to the 2008 amendments, the wholesale supply function as a practical matter has been transferred from MEPSO to ELEM. This, along with ELEM's dominant position in generation, presents market competition concerns.

In September 2009 the Government issued an Action Plan for compliance of the national legislation with the EU legislation on electricity and natural gas. New amendments of the Energy Law and other bylaws are under preparation in order to increase ERC's competences, market competition and security of supply.

b. Network access and tariffs

Under the Energy Law and Rulebook issued by the ERC, the ERC regulates the prices for generation of electricity, transmission of electricity (including ancillary services), distribution and retail supply of electricity for tariff consumers. Regulated tariffs are set \textit{ex ante} and published in the Official Gazette of the FYR Macedonia and the ERC's website.

Tariffs are uniform throughout the country, using a revenue cap approach for all regulated activities. To date, no measures have been taken to address affordability constraints and the needs of vulnerable populations. In September 2009 the Government issued Social Action Plans on taking measures for decreasing energy poverty. A programme for covering part of the costs for the consumed electricity and the utilities costs for the users of social protection is envisaged.

A Reasoned Opinion issued by the Secretariat of the Energy Community in July 2009 posits, among other things that the ERC's treatment of commercial losses in distribution tariffs breached principles of cost reflectivity.\textsuperscript{63} The 14 October 2009 staff working version of the European Commission’s 2009 Progress Report for Macedonia states that “[c]ertain electricity and gas tariffs do not reflect costs and vary significantly between different categories of customer, while collection rates are insufficient to secure the viability of the system.”\textsuperscript{64} The ERC reports that its current Rulebook on the manner and conditions for regulating electricity prices (Official Gazette of RM, 167/08) reflects and covers the reasonable costs of the electricity regulated companies and provides reasonable profit for the companies, noting that the allowed percentage of technical losses in distribution network is set at 11%, and the allowed percentage of technical losses in transmission network set at 3%. The ERC states that only the technical and not the commercial losses are recognised because consumers who receive their electricity through legal means and pay their bills should not subsidise those who do not; non-payment is appropriately recognised consistent with practices in the EU, in conjunction with court decisions for non-payment.

\textsuperscript{63} See \url{http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Dispute_Settlement/Case_ECS_2_08}

\textsuperscript{64} \url{https://webgate.ec.europa.eu/olacrf/20091014Elarg/MK_Rapport_to_press_13_10.pdf}
Upon ex ante approval by the ERC, ELEM enters into contracts with regulated prices, approved and published by the ERC, with the transmission system operator for ancillary services including technical losses; with the retail electricity supplier for tariff consumers for delivery of power necessary to cover the entire demand of the tariff consumers to the extent the retail electricity supplier chooses not to procure supply on the market; and with the distribution system operator for delivery of electricity necessary to cover technical losses, up to an ERC-approved quantity.

Grid codes have been adopted, with a new transmission code to be in place by the end of 2009. Third Party Access is regulated, and generators are not paying use-of-system charges. While the 2008 amendments to the Energy Law increased the DSO's meter ownership and access, and the distribution grid code provides a right to disconnect, safety issues exist in enforcing these measures, with police support in some instances lacking.

The ERC has issued 28 licences for performing energy activities in the electricity, and 18 of these are licensed for trade with electricity. With respect to generation, AD Elem is licensed for generation and provides 65.03% of the total electricity purchase. AD Elem has two thermal power plants (TPP) and seven hydro power plants (HPP). The remaining domestic production is from TPP Negotino, which holds one licence (1.4% of the demand) and from small HPPs (1.13% of the demand). The remainder of demand 32.44% in 2008 is from imports. MEPSO holds separate licences for transmission of electricity, TSO activity (as AD MEPSO), and market operation activity (as JSC MEPSO). EVN AD holds separate licences for its different activities: distribution of electricity and operation of the distribution system, generation of electricity (four small HPPs) and retail supply of electricity for tariff customers. From 2006, when the distribution was privatised in FYR Macedonia, EVN AD became 90% owned by EVN (Austria) and 10% state owned.

c. Operational environment

FYR Macedonia suffers from limited energy resources and meets 32% of demand with imports. Demand as well as import prices are increasing while domestic supply is not, making security of supply of particular importance. Assurance of adequate supply is addressed annually by an energy balance set by the Government, with the opinion of the ERC. Authorisation of new capacity lies with the Ministry, not with the ERC. The market operator submits to the Ministry and the ERC, once a year, five- and ten-year forecasts, and plans for demand and supply.

With respect to quality of service, the ERC sets conditions, while the Minister enacts technical regulations and has issued a Rulebook on the manner of performing control of the quality of the electricity in the distribution network (Official Gazette of the FYR Macedonia, No. 67/2009). Service standards are also included in the grid codes.

Current legislation does not provide for a supplier of last resort, although in practice, this function is being performed by the regulated retail supplier, EVN Macedonia.

With respect to vulnerable customers, on 18 October 2007, FYR Macedonia signed the Memorandum of Understanding of Social Issues in the Context of the Energy Community, undertaking obligations which refer to the application of concrete measures for decreasing energy poverty. In accordance with the

ERC sessions are held in public, except in cases when confidential information and business secrets are involved. ERC decisions are published in the Official Gazette of the FYR Macedonia and on the ERC website. Decisions are binding, subject to appeal, and not stayed while appeal is pending. As a first step, appeal proceeds to Commission for resolution of appeals in the energy sector (Appellate Commission) administrated by the Ministry of economy, with three members and their deputes, appointed and dismissed by the Parliament of the FYR Macedonia, upon proposal of the Commission for election within the Parliament of the FYR Macedonia. Decisions of the appellate commission may then be appealed to the Supreme Court. Several ERC pricing decisions have been appealed to the Appellate Commission. As an example, a heating price decision issued by the ERC was affirmed by the appellate commission and subsequently affirmed by the Court. Each year, the ERC submits to Parliament and the Government a detailed report on its operations and appears before Parliament to propose its financial plan.

3. Gas sector

a. Market framework

A modern gas law was passed in 2006, with a timetable for market opening similar to that in the electricity sector (in phases with full opening by 2015). From the beginning of 2008, the market of natural gas is open for tariff consumers that are connected to the transmission system (industry and district heating company). For tariff consumers that are connected to the distribution system, that market will be fully open from the beginning of 2015.

Participants in the natural gas market are: the transmission system, the TSO, the natural gas distributor, the DSO, retail supplier for tariff customers connected to the natural gas distribution system, and gas traders and supplier for tariff customers directly connected to the natural gas transmission system.

FYR Macedonia imports all gas from Gazexport, a subsidiary of Gazprom, and contracts for Russian gas at the Bulgarian-Macedonian border. Development of the market is limited and in its early stages. There is only one eligible customer (a district heating company). A regulated market opened for customers connected at the transmission level (about 30 industrial consumers and district heating companies) in 2008. Currently, no households are connected at the distribution level. There is no gas storage.

b. Network access and tariffs

Prices are regulated by the ERC and uniform throughout the country, pursuant to a tariff formula set forth in the ERC's Rulebook. According to Article 19 from the Rulebook on the method and conditions for regulating prices for transmission, distribution and supply with natural gas, regulated tariffs set ex ante are published in the Official Gazette of the FYR Macedonia. The ERC publishes the prices also on its official website. There is no difference among types of tariffs.

The Rulebook on the method and conditions for regulating prices for transmission, distribution and supply with natural gas, the tariff system for transmission of natural gas, and the tariff system for selling natural gas to tariff customers provides methodologies based on incentive price regulation using the price cap method.
The regulated maximum prices of the companies providing transmission and distribution services are designed to cover the costs for transmission/distribution and the costs for operation of the system and to ensure regulated return on assets. The distribution company may also recover the costs for supply to tariff customers. The regulated maximum price of the company performing the supply to tariff customers directly connected to the natural gas transportation system should cover the costs related to concluding contracts for purchase of natural gas, contracts for access and transmission of natural gas, agreements for access and transmission of natural gas, contracts for supply of tariff customers with natural gas, as well as reading, recording and invoicing of the delivered quantity of natural gas.

The legislation requires full non-discriminatory access to gas transportation and distribution networks. Third-party access is regulated and includes mechanisms for disputes as to access, but given the size and nature of the market, no such disputes have yet arisen. The law permits customers to switch suppliers, but as a practical matter there is only one supplier and hence no competition. The grid code was adopted in March 2009. At the distribution level, the ERC issued its first licence in 2008 for a municipally owned distributor for tariff consumers, and issued another licence in March 2009 for a Government-owned company, DTIRZ, to act as a distributor, distribution system operator and supplier for tariff consumers connected to the distribution system within Skopje.

Pursuant to the Energy Law and the Network code on transport of natural gas (Official Gazette of the FYR Macedonia, No. 45/09) in Article 6, the transmission network and operator assume the obligation to provide for transparent and non-discriminatory conditions related to access to the system for the performers of the activity of distribution of natural gas, to the traders with natural gas, to the natural gas suppliers and the eligible consumers (hereinafter referred to as access users). The right to access to the system is acquired by signing an access contract upon the request of the system user.

All parties seeking access to the transportation and distribution networks must follow the same set of technical terms and conditions, as well as pay the same tariff. If the access requirement is refused, the transmission licensee must inform the applicant thereof in writing and provide a detailed description of the reasons for refusal. But in practice, with 800,000,000 m$^3$/year capacity of the transportation of natural gas and consumption of 120,000,000 m$^3$/year (in 2008), there have been no examples of system operator refusals to give access to their system. The ERC does not have authority to grant an exemption to Third Party Access rules for new investment.

The ERC has issued approximately seven licences for performing energy activities, of which five companies are licensed for trading but only one is active. There is one licensed transmission company-transmission system operator for tariff consumers connected to the transmission system, owned 50-50 by the Government and an oil trader, and one privately owned company licensed to supply the tariff customers connected to the transmission system.
c. Operational environment

Under the Energy Law, all consumers of natural gas, thermal and geothermal energy in a specified geographic service territory within FYR Macedonia are entitled to access to the reliable, safe, quality and uninterrupted dispatch and supply of gas. Wholesale traders and the natural gas transmission operator are responsible for ensuring security of supply, with service standards reflected in the transmission grid code. The ERC must maintain records on submitted reports, as well as on inspections and supervisions of licence holders’ operations. Reports of inspections are submitted to licence holders and published on the ERC’s website.

4. Renewable energy sources/energy efficiency

Primary responsibility regarding energy efficiency and other environmental interests in FYR Macedonia is vested in the Ministry of Economy and the Energy Agency, which supports that Ministry.

The Energy Law contains provisions directed at the promotion of renewable energy. Under the Energy Law, the Minister prescribes the types of facilities that use renewable energy for generation of electricity, the method for measuring the potential for the renewable energy, the process for issuance of an approval to measure the potential of the renewable energy source, the method for maintenance of a register of facilities that use renewable energy for generation of electricity, and other activities related to the utilisation of electricity. The Government prescribes the target percentage of electricity produced by authorised generators utilising renewable energy and from highly efficient combined facilities (cogeneration), as well as the method and dynamics for achieving the target percentage of electricity produced from renewable energy and cogeneration facilities in the total electricity consumption.

The Energy Agency is responsible for approvals for measuring the potential of the renewable energy source, issues acts establishing the status of a preferred generator, and maintains a registry of facilities that use renewable energy and highly efficient combined facilities for generation.

The ERC is charged with establishing feed-in tariffs for the electricity sold by preferential producers of electricity and producers of electricity from high-efficiency cogeneration facilities. The market operator must buy all the electricity so generated, charging the regulated price. The ERC may require the TSO to prioritise dispatch from renewable energy facilities. In 2007 and 2008, the ERC adopted a series of Rulebooks on the method and procedure for establishing and approving the use of feed-in tariffs for purchase of electricity produced from various renewable energy sources. As a practical matter, large-scale exploitation of renewable energy has not yet occurred.

The Ministry of Environment is charged with implementation of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, which FYR Macedonia ratified in 2004.

5. Conclusion

FYR Macedonia performs reasonably well overall and with respect to its grouping (Group B). Within its Group, FYR Macedonia has an electricity sector score of 0.866 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and implementation of best practices as
identified in the benchmarks and indicators of this Assessment). The gas sector is too limited for rating.

In the electricity sector, FYR Macedonia has enacted a set of laws and regulations with an aim toward EU-compliance and has privatised its distribution company. FYR Macedonia is now within a second-stage phase of addressing the growing pains of its relationship with that privatised distributor and is in the process of updating its legal and regulatory framework not only to ensure compliance with EU/Energy Community requirements, but to address issues made apparent through application of the existing laws and regulations. One challenge is addressing non-technical losses in areas with ethnic tensions.

In the gas sector, FYR Macedonia faces the usual challenges of not just creating a competition-friendly, accessible market regulatory framework on paper, but security in diversity and security of supply in practice as a small country with no domestic gas resources and dependency on one supplier, Gazprom.

**Electricity spider graph – FYR Macedonia**

Note: The diagram presents the electricity sector results of FYR Macedonia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for FYR Macedonia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.
Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
Overview

Montenegro has a GDP of USD 4,521 million\(^{66}\) and a population of approximately 0.61 million.\(^{67}\) The total primary energy supply in 2005 was 1.0 Mtoe (million tons of oil equivalent), 40% of which was imported; carbon intensity as measured in kg CO\(_2\)/GDP is 0.66. Montenegro is a signatory to the Treaty establishing the Energy Community, and thus bound to adhere to the Energy Community Treaty (EcT) *acquis*.\(^{68}\)

1. Institutional structure

The Ministry of Economy (Ministry) is the policy-making body for the energy sector. It prepares and proposes the national energy policy and the annual and long-term energy balance to the Government for approval. The Ministry promotes research and use of new energy-related technologies, private sector participation in the energy sector of Montenegro, the privatisation of state-owned energy undertakings, and the use of renewable energy. The Energy Regulatory Agency (Agency) is responsible for implementation of the policy through economic regulation in the energy sector in the areas of electricity, oil, gas and petroleum. The Agency was established in 2004 as an autonomous legal entity, based on the Energy Law, which was approved in June 2003.

The Board of the Agency consists of three board members, with four year terms and possibility of reappointment to one additional term. The chairmanship rotates between the board members, with each chairing for one year at a time. The Board appoints the Director and Deputy Director of the Agency. Currently, there are 19 employees, 17 of which have specialised qualifications. Members of the Board are originally selected by a Selection Commission (the Commission) established by the Government. The Commission proposes the board members to the Government, but the Government is not obliged to comply with the recommendation. The Government proposes to the Parliament, which appoints the board members (and is also responsible for their removal, for cause). Conflict of interest provisions that restrict outside employment or compensation from an energy undertaking exist for board members and for staff during employment and for a period of not less than one year after the expiration of such person’s term or his/her dismissal.

\(^{65}\) Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project and from the Energy Community Regulatory Board, National Report Montenegro, Version 1.1, 2 September 2008.


\(^{67}\) Population and all energy sector figures in the Sector Overview are drawn from the Energy Community website at: http://www.energycommunity.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Profiles/Montenegro/Energy%20Sector%20Data.

\(^{68}\) The Treaty establishing the Energy Community went into effect in 2005, and Title II of this Treaty extends parts of the European Union (EU) *acquis communautaire* to the territories of the Treaty’s contracting parties, of which Montenegro is one. Specifically, the Contracting Parties have committed to: transpose (EU Electricity) Directive 2003/54 and Regulation 1228/2003 into national legislation by 1 July 2007; to open the electricity market to non-household customers by January 2008 and full opening by 2015, to transpose (electricity security of supply) Directive 2005/89 by the end of 2009; (EU Gas) Directive 2003/55; to open the gas market to non-household customers by January 2008 and full opening by 2015; to transpose (access to gas networks) Directive 2004/67/EC and (security of gas supply) Regulation 1775/2005 by end of December 2009. For environment and competition, the contracting parties to the Treaty are required to take various steps and plan for bringing legislation in line with the EU, though requirements on the contracting parties in these areas as a general matter are less expansive. Specific requirements are available at http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/EU_Legislation.
The Agency is largely autonomous in its exercise of authority, which includes the power to issue tariff methodologies, fix tariffs upon the proposal of energy sector undertakings, set connection costs, issue licensing rules and licences, hear and resolve customer complaints, and approve the grid code and market rules upon submittal by the market operator. Its decisions can be appealed to a court and stay in effect pending appeal, unless the court deems that doing so would result in irreparable harm or danger to security of the energy supply. The Agency is not able to impose fines for violations by licensees, but it may advise the court to impose penalties. It may also modify or revoke licences, and revise tariffs to address violations. The Government is responsible for most issues concerning renewable energy, though the Agency does have limited roles in this area, and approves the Charter of the Agency. Responsibility for application of competition law resides with the Ministry of Economy. Broadly speaking, the Agency has the authority to monitor the market; in practice, Montenegro has little market activity and competition is negligible at present.

2. Electricity sector

a. Market framework

The market is partially open, but impediments to development exist. In theory, the market is open because by law all customers have the right to purchase electricity from any supplier. In practice, the percentage of electricity purchased on the free market is around 15% and from imports. A Market Opening Plan is in place, and this Plan suggests a staggered opening consistent with market conditions.

Montenegro’s sector is currently dominated by a vertically integrated monopoly, the holding company Elektroprivreda Crne Gore (EPCG), which carries out generation, transmission, distribution and supply activities. In accordance with the Law on Energy, the Agency is the body responsible for issuing the decision on market opening.

Montenegro has partially unbundled its electricity sector: the transmission company is completely unbundled and is established as a separate legal entity, though a part of the EPCG holding company. Generation, distribution and supply businesses are accounting and functionally unbundled within EPCG, and each is a separate licensed activity, though one auditing procedure is applied to the company as a whole.

Montenegro has a regulated market. The wholesale market is officially established, but is not yet functional.

Sector participants in Montenegro are:

- EPCG, a majority state-owned public service generator that also performs distribution and supply functions. The latter has been functionally unbundled within the vertically integrated utility. The process of privatisation in 2001 left 71% in Government ownership. In May 2009, the Italian company A2A purchased a 15.17% stake in ECG for EUR 122.7 million. Building on this, in September 2009, A2A entered into an agreement with the government of Montenegro, giving A2A a minority stake in the company, after having won a tender to buy an 18.3% stake in the company and committing to buy another 10% of shares from minority stakeholders. The three EPCG power plants connected to the transmission network are HPP Perucca, HPP Piva and TPP Pljevlja. The distribution system operator is a separate unit of EPCG.
The transmission system operator, TSO-EPCP, is fully unbundled from the vertically integrated utility (http://www.tso-epcg.com). It owns the transmission infrastructure and is responsible for maintenance, planning, expansion and construction of the transmission network, the management of the electricity system and the organisation and management of the electricity market. With respect to cross-border exchanges, the TSO has the power to approve operational and planning standards including schemes for the calculation of total transfer capacity.

b. Network access and tariffs

Regulated tariffs are set ex ante and published on the Agency’s websites. Under the Energy Law, the Agency regulates and licenses as separate activities: generation of electricity, transmission of electricity (including ancillary services), distribution and retail supply of electricity for tariff consumers. The regulated tariffs are approved by the Agency and published. The tariff methodology is published as well. In the first phase, the Agency approves the regulatory revenue, based on which the undertakings submit the tariffs for approval. The tariff approved by the Agency is an end-user tariff, which combines cost elements from generation, transmission, distribution and supply, taking care to avoid cross-subsidisation and to guard against corruption by clearly allocating the amounts to each within the tariff structure. Customer classes are divided based on voltage level, and for low voltage there are several groups depending on the characteristics of the customer. The tariffs are designed to reflect actual costs, including operational costs, depreciation and return on assets. Still, cross-subsidisation does exist between the households and commercial low voltage consumers.

Third Party Access is regulated, though access tariffs are not yet approved. Grid codes were adopted in 2005, and contain the regulations on planning, connecting, operational issues and measurements.

The Agency issues licences by function and has the authority to modify and revoke licences for violations, but as noted, as a practical matter, each function is provided by one entity, which has separate licences for each activity but no competition from other undertakings; thus licence revocation is not a real option for the regulator as would threaten security of supply and secure operation of the electric system overall.

As a small country with limited domestic energy resources, Montenegro must look to regional market development, and has taken an active position in the Energy Community. In 2009, Montenegro signed a Memorandum on common procedures for congestion management and coordinate auction with other South East European system operators.

c. Operational environment

Foreign capital investment in energy assets is not restricted. The current legislation requires the Ministry to provide information to the public that will facilitate project development including, but not limited to, the permitting and authorisation process, interconnection rules, available sites for such projects and site specific information relating to wind, solar, river flows, and the like. Use of publicly owned resources is governed by a separate concession law. If necessity dictates, the Ministry may launch a tender for new capacity for generation in accordance with the law on public procurement.
Generation for tariff consumers, transmission, distribution and retail supply are public services. Current legislation provides for a supplier of last resort for the cases in which a customer is no longer supplied by his standard/contracted supplier. As a practical matter, supply is performed only by the regulated retail supplier.

Assurance of adequate supply is addressed annually by an energy balance set by the Government, after an opinion of the Agency.

With respect to quality of service, the Agency participates in the monitoring of quality and level of maintenance of the networks through the monitoring procedure, approval of development and investment plans, tariffs etc. The Agency ensures the quality of supply through the rules that are approved by the Agency and standards set for the utility. Conditions for security of supply are also included in licences issued to the regulated utilities. Service standards are included in the grid codes, which are approved by the Agency.

With respect to vulnerable customers, this obligation is vested in the Government, and not handled by the regulator.

The Agency issues annual report, which is published on its website, www.regagen.co.me, and submitted to the Parliament for approval. All its decisions and secondary legislation are published on its website. Proceedings are open to the public, except in extraordinary circumstances where confidential information or trade secrets are involved. Public consultations are required when the Agency is preparing secondary legislation.

3. Gas sector

There is minimal natural gas resources and infrastructure Montenegro, with only small amounts of liquefied petroleum gas (LPG). Existing (LPG) oil and gas companies (with only one exception) in Montenegro are private companies; the only previously state-owned company Jugopetrol was privatised and sold to Hellenic Petroleum.

Montenegro’s Energy Strategy (through 2025) includes strategic goals for the gas sector, such as developing the gas infrastructure, namely a gas pipeline connected to South East European neighbours, and a liquefied natural gas (LNG) terminal, along with offshore exploration. A law on gas has been drafted and pending before parliament awaiting adoption for some time, and most recently provisions of the law were combined into a new draft Energy Law, currently under consideration.

4. Renewable energy sources/energy efficiency

In 2005, the Energy Policy and Energy Efficiency Strategy were adopted; in 2006, the Strategy for Small Hydro Power Plants Development was adopted. The Government has taken further steps to address the need for renewable energy in the 2007 Assessment of Renewable Energy Resources (wind, solar, biomass), 2007 National Energy Development Strategy until 2025 (in December 2007) and 2008 Spatial Plan of Montenegro until 2020 (adopted by the Parliament of Montenegro in March 2008). This is not yet translated into primary legislation, however. No national law is specific to renewable energy, energy efficiency and combined heat and power. The 2003 Energy Law addresses some renewable energy issues and is the only existing primary legislation in this area, though again, a new draft of this law is pending and is expected to include enhanced renewable energy provisions.

Primary responsibility regarding energy efficiency and other environmental interests is vested in the Ministry of Economy. Based on the Energy Law, the Government,
through the Ministry, issues energy efficiency policies and encourages the conservation of energy resources, encourages and advises on energy efficiency and the rational use of energy, develops and promotes incentives for the efficient use of energy and renewable resources and manages funds contributed for the purpose of energy conservation and energy efficiency.

With respect to the construction of renewable energy power plants, including small hydro power (which received specific mention as of particular interest), after obtaining a concession, investors are required to submit an application for authorisation and for a licence from the regulator. In November 2007, the Government issued the public invitation for awarding a concession for exploration of 43 water streams and construction of small hydro power plants.

The Agency is required by law to establish simplified procedures and requirements for authorisation and licence applications for new production from renewable energy. The Agency is also required to define licence terms and conditions that are suitable for such projects, particularly those that provide service to customers who are not connected to the grid. As of August 2009, secondary legislation in support of renewable energy had not yet been issued. The current legal framework does not differentiate licensing requirements for conventional energy and renewable energy. At the moment the secondary legislation necessary for these tasks to be fulfilled is not issued as yet. Under the current legal framework there is no differentiation in the licensing regime for renewable and other types of generation, except that renewable energy producers below 500 kW are excluded from the licensing requirement.

The Agency establishes tariffs for the electricity sold by preferred producers. There is no support scheme for renewable energy, except the possibility of the Government granting incentives, but this has yet to be applied. Renewable sources do have priority with respect to dispatching and the price of energy from renewable energy is higher than the price from conventional plants.

In March 2007, Montenegro ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change, though no steps have been taken by the Government as yet to implement it.

5. Conclusion

Montenegro performs about average with respect to its grouping (Group B). It has an electricity sector score of 0.853 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Montenegro’s gas sector is too limited for rating.

Montenegro’s small size makes integration into regional markets key to its development.

The electricity sector is currently dominated by one partially privatised, vertically integrated monopoly, the holding company EPCG. While EPCG is unbundled, and the market is opening to eligibility, with a wholesale market officially establish, in accordance with Energy Community requirements, but as a practical matter, the market is not functional, and the potential for competition and market development lies with Montenegro’s ability to integrate within larger regional and sub-regional frameworks.

The gas sector is non-existent, with legislation pending to meet the Energy Community requirements, and the adoption of a strategy to develop gas
infrastructure, such as an LNG terminal, but the regulatory framework has not yet been enacted and no projects to build infrastructure begun.

**Electricity spider graph – Montenegro**

Note: The diagram presents the electricity sector results of Montenegro, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Montenegro are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

**Electricity Sector - Comparative view of Group B countries (contracting parties and observers)**

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
**Overview**

Serbia has a GDP of USD 50,061 million and a population of approximately 7.39 million. The total primary energy supply in 2007 was 15.81 Mtoe (million tons of oil equivalent) of which 49.8% is coal/peat, 5.5% is hydro power; 5.1% is combustible renewable and waste (including biomass and biogas), 12.4% is natural gas, 27.0% is oil and 0.3% is geothermal/solar/wind. Net imports are around 6.05 Mtoe. CO₂ emissions are 49.71 (measured as Mt of CO₂).

Serbia is a signatory to the Treaty establishing the Energy Community and as such has undertaken to implement the Energy Community acquis.

1. Institutional structure

The Ministry of Mining and Energy (MoME) is the policy maker in the energy sector, while the Energy Agency of the Republic of Serbia (AERS) is the implementing regulatory authority with jurisdiction in electricity, gas, oil and combined heat and power. AERS also shares some implementing powers with the MoME. AERS came into operation in 2006, and is an independent public institution.

AERS has five commissioners and 28 employees, who are paid wages in excess of equivalent civil servant levels. The commissioners are appointed (and dismissed) by the National Assembly at the proposal of the Government. Prior to the end of a term of service, dismissal is only based on cause. Conflict of interest rules apply, restricting the AERS commissioners and their direct families from being members of the management of energy entities during their tenure.

Total revenues and expenditures for AERS, including the funding for salary expenses (both for members and staff) are defined in AERS’ Annual Financial. The total of AERS’ budget for 2009 is approximately EUR 1,550,000, with income from licence fees estimated at EUR 600,000, and revenues from network charges of approximately EUR 950,000. For the first two years of its operation, AERS was funded by the European Agency for Reconstruction.

In terms of authority, though AERS is clearly authorised to regulate the sector, the MoME and Government also have regulatory roles. AERS, among others, sets pricing methodologies, proposes tariff systems, approves market rules and network codes, defines the method and detailed criteria for calculating connection charges, issues licences and resolves customer complaints. The Government adopts secondary legislation and gives final approval on prices. The MoME also defines the conditions for licence issuance and revocation. The issuing, revocation or suspending of a licence by AERS is reviewable by the MoME, although to date, of the six AERS licensing decisions appealed to the MoME, all have been upheld. Licensing decisions appealed to the MoME are suspended pending appeal unless certain requirements in the Energy Law are met. The next stage of appeal is the Supreme Court, in which one of the six appeal decisions of the MoME is currently pending. AERS cannot impose financial penalties itself, though it does advise the inspection authority on imposing penalties; AERS can penalise licensees through licence revocation or suspension and proposals for tariff revision. AERS decisions regarding lack of Third Party Access (TPA) and connections are appealable directly to the Court and can be suspended by the Court pending appeal, but to date of the 20 decisions appealed to the Court only one was suspended.

---

69 Information herein is drawn primarily from the regulator, from answers to questionnaires provided by this project, and from the Energy Community Regulatory Board, Version, 9 September 2008.
The Law on the Protection of Competition came into force in Serbia in 2006. Pursuant to the law, the Commission for the Protection of Competition (Commission) was established as an independent authority on 12 April 2006. In principal, this Commission and AERS have an agreement on information exchange, which will be formalised through a Memorandum of Understanding between them (currently understood to be under preparation); though as yet this agreement has not been used. The regulator has the power to provide opinions and recommendations on aspects of competition, either ex officio or at the request of state authorities, undertakings or associations, but has no authority to take actions to address the abuse.

2. Electricity sector

a. Market framework

All customers in Serbia except households may choose their own supplier, with a potential market opening of 47%. Full market opening is scheduled in 2015. Due to low regulated tariffs, however, the market is only opened in theory, as no customer have applied for eligible customer status to date. The market participants are producers, distributors, traders and one independent transmission system and market operator.

The former vertically integrated monopoly, JP Elektroprivreda Srbije (EPS), was divided into two entities in 2005: JE EPS and JP Elektromre a Srbije (EMS). Both entities are still wholly owned by the State. EMS is the independent transmission system and market operator; it maintains the grid, operates the system, including management of cross-border trades of electricity and capacity allocation on the interconnection lines, and operates the market. EPS includes as subsidiaries five legally unbundled generators (HPP erdap llc, HPP Drinsko-Limske llc, TPP Nikola Tesla llc, TPP Kostolac llc, CHP Panonske llc.) - there is no private generation - and five legally unbundled distribution companies (Elektrovojvodina llc, Elektrodistribucija Beograd llc, Elektrosrbija llc, ED Jugoistok llc., ED Centar llc), each with the duty of public supply within its territory. Currently, Serbian legislation requires accounting unbundling across the sector and functional/organisational unbundling of the transmission system operator. Distribution and generation are legally unbundled, but the law does not oblige companies to legally unbundle distribution and supply activities.

The EPS parent company performs wholesale trade for captive customers (at regulated prices) and wholesale trade for the open market. Besides EPS, as of May 2009, 41 companies have been issued licences for electricity trade (including wholesale, retail, import and export) on the electricity market.

A direct bilateral wholesale market exists — in 2008, 5% of total wholesale trade was traded in the competitive segment of the market.

b. Network access and tariffs

Generation for tariff customers, transmission, distribution, tariff end-user and ancillary service prices are all regulated. There is no separate distribution tariff because DSOs have not unbundled their accounts between distribution and supply. Tariffs are uniform across the country. AERS has adopted a cost-plus approach in its methodologies. A mechanism based on a revenue cap has been developed and benchmarking data (for distribution companies) are being collected. The implementation of the new pricing mechanism is pending on several preconditions, including attainment of cost reflective prices and accounting unbundling in the distribution companies, which is not yet achieved.
In 2001, a three-tier block tariff system on energy prices for household consumers was introduced in order to provide incentives for efficient use. The lowest consumption level was set at 600 kWh/month and 70% of the households fell in this tariff block. In 2006, the consumption level for the low consumption block was lowered to 350 kWh/month. The resulting average electricity price for final customers in 2007 was EUR 45/MWh (3699 RSD/MWh), amongst the lowest in Europe. The Government, in its capacity as the body approving tariff prices, has explained upon several occasions its refusal to increase prices for social reasons.

TPA is regulated, with no generation use-of-system charges. The transmission grid code was adopted in the second quarter of 2008 and requires non-discriminatory TPA. Because no customers have yet chosen to be eligible, open access is in practice used only by EPS and traders for transit.

The commercial rules relating to cross-border capacity allocation will be elaborated in the Market Rules, currently being drafted. In the meantime, temporary rules set by EMS apply. According to the temporary rules, capacity rights allocations on interconnection lines are carried out through yearly, monthly and weekly explicit pay-as-bid auctions organised by EMS for their part of interconnection capacity. Capacity rights bought at auction can be freely traded among capacity rights allocation participants on a secondary basis under the precondition that EMS is informed at least five days before the day the capacity right is to be used.

MoME adopted a Rulebook in 2005 that sets for the types of licences that AERS issues and the terms of issuing and revoking licences. AERS licences the following activities: electricity generation, heat generation in CHP, electricity transmission, transmission system operation, electricity market operation, electricity trade for tariff customers, electricity distribution, electricity distribution system operation, electricity retail for tariff customers and electricity trade within the electricity market.

c. Operational environment

Electricity exchange (including transit) with neighbouring systems, most notably Hungary, Romania, Bulgaria, Croatia, Bosnia and Herzegovina, Montenegro, Albania and FYR Macedonia is significant. Serbia’s domestic production is sufficient to meet most domestic demand, though it is estimated that, without new facilities, Serbia will need to start importing electricity as early as 2012. JE EPS recently opened tenders for a strategic partner for the construction of new production facilities to keep the country self-sufficient in electricity.

The Government, based on the MoME’s proposal, decides whether to launch a tender procedure for new capacity. The tender itself is carried out by either the MoME or local authorities.

There is no designated supplier of last resort; virtually all customers currently remain tariff customers. While AERS has no authority over service quality standards, as of 1 January 2009, it has required network companies to register interruptions and submit regular reports containing indicators on continuity of supply and commercial quality. Performance indicators of electricity distribution companies are collected as an auxiliary instrument in regular price reviews and preparation for incentive-based pricing.

70 [http://www.aers.rs/FILES/Eng/PravilnikOLicencamaCeo.pdf](http://www.aers.rs/FILES/Eng/PravilnikOLicencamaCeo.pdf)
Welfare centres determine eligibility criteria for assistance with energy sector tariffs. Discounts for electricity consumption of certain customer groups are being provided by the EPS (in amount of approximately USD 3.8 million per year). Based on these criteria, EPS defines groups of vulnerable customers and discounts for electricity consumption for each group. About 105,000 customers are eligible for the support for payment of electricity bills, on with the precondition of a record of regular monthly payment. Only 30,000 – 35,000 customers are actually using this support.

AERS files an annual report, including a financial audit report, by law to be approved by the National Assembly, although as a matter of practice, the Assembly’s Board for Industry has approved the reports but not the Assembly itself due to scheduling issues. Those AERS’ decisions which have the character of secondary legislation (e.g., tariff methodologies) are published in the public newspaper of the Republic of Serbia and the AERS website. Adjudicatory decisions are not published.

3. Gas sector

a. Market framework

All customers in Serbia except households may choose their own supplier, with a current potential market opening of 88%. Due to low regulated tariffs, however, only one customer has requested and obtained eligible customer status. Full market opening is scheduled for 2015. AERS determines the minimum yearly consumption of natural gas necessary to obtain the eligibility status.

In 2005, the former public enterprise, the Public Enterprise Oil Industry of Serbia, was separated into two independent gas companies. NIS AD, owned 51% by Gazprom, and 49% by the State, performs natural gas exploration and production (as well as oil and derivatives exploration, production, refining and trade). A small portion of demand (approximately 8% in 2007) was met by domestic production, through NIS AD’s subsidiary Naftagas. The remainder comes from Russian imports, on the basis of long-term contracts.

The other spin-off, JP Srbijagas, is wholly owned by the state. It is the TSO and also engages in distribution, storage, trade and supply for tariff customers. In 2007, a division of Srbijagas served most of the market, with the remaining amount served by approximately 30 municipal or local private companies. Beside JP Srbijagas, another transport company, Yugorosgaz, a joint venture of Srbijagas (25%), Centrex (25%) and Gazprom (50%), owns 67.5 km high pressure pipelines in the southern part of Serbia, serving the remaining 1% of natural gas transport in Serbia not served by Srbijagas. More than 30 DSOs are privately owned or owned by municipalities. PE Srbijagas is the state owned distribution company and performs wholesale trade for captive customers at regulated prices and wholesale trade for the open market. While there is account unbundling, Serbian legislation currently does not require legal unbundling between distribution and supply.

The majority (92%) of Serbia’s gas supply comes from Russia, via Ukraine, through connection with Hungary.

b. Network access and tariffs

Tariffs are published and calculated in accordance with published cost-of-service methodologies. Both household and commercial tariffs are low as compared to other EU countries. Transportation charges are uniform throughout the country.
AERS’ methodologies are “cost-plus” based. The implementation of AERS price regulation began in October 2008, at which time the Government adopted cost reflective tariffs for Srbijagas. However, the Government did not allow increases in 2009 due to the economic crisis. A mechanism based on revenue cap has been developed and benchmarking data collection for distribution companies started. Implementation of the new pricing mechanism is pending on several preconditions, including attainment of cost reflective prices and collection of a relevant data set for benchmarking.

Third Party Access is regulated. The right of access is further elaborated in the grid code, which is expected to be adopted at the end of 2009.

The AERS licences the following activities in the gas sector: natural gas transport; natural gas transport system operation; natural gas distribution; natural gas distribution system operation; natural gas retail for tariff customers; natural gas trade for tariff customers; and natural gas trade in the free market. One of its early tasks has been to license companies operating in the oil and gas sector.

c. Operational environment

Adequate network investments are pursued through the obligation of the transportation licence to issue mid-term (five year) development plans. Development planning will be further elaborated in the grid code.

4. Renewable energy sources/energy efficiency

Renewable energy are identified as a special priority of the energy sector under Serbia’s Energy Strategy, published in 2005, covering the time period to 2015. In January 2007, the Government enacted an Implementation Programme for the Strategy for the period 2007-2012. Amendments to the Energy Law are expected during the first half of 2010 regarding renewable energy promotion, and the Ministry of Mining and Energy has prepared a feed-in tariff system which is anticipated to be adopted by the Government by the end of 2009. Under Article 84 of the Energy Law, the Government sets eligibility criteria for privileged power producers (defined as producers using renewable energy and waste in small plants of up to 10MW capacity, or using combined heat and power, subject to meeting energy efficiency criteria). Under the law, privileged power producers are entitled to subsidies, tax relief, customs exemptions and other relief in line with laws and other regulations on taxes, customs and other duties. The MoME is in charge of establishing all secondary legislation that defines criteria for obtaining status of privileged power producers. In 2008, two new departments were established in the MoME to address environmental concerns, the Department of Renewable Energy Sources and the Department for Sustainable Development of Energy and Mining Sectors. The Ministry of Environmental Protection and Spatial Planning (MEPSP) deals with environmental issues, initiates primary legislation in this domain and is generally responsible for the environmental protection.
AERS has no jurisdiction in relation to incentives for renewable energy.

A separate Energy Efficiency Agency is tasked with improving conditions and measures for energy and energy sources rational use and saving, as well as increasing efficiency of energy use within all sectors of energy consumption.

Serbia has ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change as a non-Annex I Country and is in the process of preparing its National GHG Inventory. Lignite combustion generates 90% of the energy related SO2 and NOx emissions, 65% of CO2 emissions, and 67,000 tons of particulate emissions.

5. Conclusion

Serbia performs about average relative to its grouping (Group B). It has an electricity sector score of 0.848 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Serbia has a natural gas sector score of 0.754 relative to an Energy Community average of 0.711 for Energy Community contracting parties and observers with a gas sector.71

In the electricity sector, the regulatory framework and unbundling required to meet Energy Community mandates (except for distribution and supply unbundling) is primarily in place, while in operation, the market is dominated by the restructured but still state-owned formerly integrated monopoly. Competition is impeded as a practical matter by low regulated tariffs and Serbia is largely self-sufficient in terms of domestic supply, with plans to remain so. Serbia’s location and its historical identify as the centre of electricity infrastructure within former Yugoslavia allow it carry on a significant amount of trade with multiple neighbours.

The situation in the gas sector is somewhat similar in that the transition to an Energy Community-compliant regulatory framework and unbundling is underway, with little competition in practice. The market is dominated by entities with largely owned by the state or Gazprom, and 92% of Serbia’s gas comes from Russia.

71 Because many of the countries in this grouping have no gas sector, from a statistical point of view, the average must be taken across the full group of Energy Community contracting parties and observers, as dividing the group would result in too small a sample.
Electricity spider graph – Serbia

Note: The diagram presents the electricity sector results of Serbia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Serbia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty.
The results for Serbia do not include Kosovo.
Gas spider graph- Serbia

Note: The diagram presents the gas sector results of Serbia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Serbia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group B countries.

Gas Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
B-b. Observers to the Treaty establishing the Energy Community

GEORGIA COUNTRY PROFILE

Overview

Georgia has a GDP of USD 12,615 million\textsuperscript{lvii} and a population of approximately 4.40 million.\textsuperscript{lviii} The total primary energy supply in 2007 was 3.34 Mtoe (million tons of oil equivalent), of which 17.4% is hydro power, 0.6% is coal/peat, 11.7% is combustible renewable and waste (including biomass and biogas), 41.4% is natural gas, 28.3% is oil and 0.5% is geothermal/solar/wind. Net imports are around 2.32 Mtoe. \textsuperscript{lix} CO\textsubscript{2} emissions are 5.12 (measured as Mt of CO\textsubscript{2}).\textsuperscript{lxx} Georgia is currently an Observer to the Treaty establishing the Energy Community.\textsuperscript{lxxi} The Ministry of Energy (Ministry) has advised that Georgia is interested in membership to the Energy Community, though no formal application has been made as of the end of 2009.

1. Institutional structure

The Ministry of Energy has primary responsibility over policy in the energy sector. Specifically, the Ministry of Energy is in charge of drafting the national energy policy and submitting it to the Parliament for approval, and for developing and implementing short-, medium- and long-term strategies and priorities for the power sector of the country. The relevant regulatory body is the Georgian National Energy and Water Supply Regulatory Commission (GNEWRC). GNEWRC is an autonomous legal entity led by a Chairman and four other Commissioners, who are appointed and dismissed by the President of Georgia. The Commissioners are appointed for six-year terms. Commissioners cannot be removed from office before the end of their term, except for cause. The staff is around 100 members, with recent and ongoing additions to cover responsibilities in the water sector (drinking water supply and waste water cleaning), added by law at the end of 2007. The salary for Commissioners is on par with that of Ministers; salaries for staff members are about 30% less than salaries of civil servants.

The regulator’s budget is funded from regulatory fees. At present, the Government has the authorisation to control GNEWRC’s budget. While GNEWRC has control over its budget, an appointment and dismissal structure consistent with best practices, and other indicia of sound regulatory independence, it has faced some challenges to its authority over the years. Most recently, its offices were moved from the capital Tbilisi, to Kutaisi, some 200+ kilometres west.

GNEWRC grants licences for activities in the power sector, establishes licensing terms and rules, and grants, modifies and revokes licences in compliance with the Law on Licences and Permits. It also establishes tariffs for generation (excluding existing hydro power plants under 13 MW and new power plants in operation since 2008), transmission, dispatch, distribution and retail tariffs, resolves disputes within its competence, controls observance of licence terms, and issues certificates in the energy sector. GNEWRC is responsible for drafting and approving the tariff methodology and licensing rules. In the electricity market, licences are mandatory for the generation, excluding hydro power plants under 13 MW, transmission, dispatch and distribution activities, and in the natural gas market, for the gas transportation and distribution.

\textsuperscript{72} Information herein is drawn primarily from the GNEWRC, from answers to questionnaires provided by this project and EBRD-funded energy sector reports.
Natural gas supply activities and electricity import/export activities are deregulated, thus no licence is required for these activities.

Any decision of GNEWRC can be appealed, and appeals are made to the Constitutional or Supreme Court of Georgia. Tariff decisions or licence withdrawals that affect the public are appealed to the Constitutional Court. Tariff decisions or licence withdrawals that affect the public are appealed also to the Common Court (in the City Court of Kutaisi).

GNEWRC decisions stay in effect pending decision on appeal. Many appeals have been raised over the last decade. One notable set of appeals in 2004 was in response to GNEWRC’s decision to revoke 23 distribution licences. Four appeals were brought and the court found in favour of two, asking GNEWRC to reconsider its decision (the two other cases are still pending before the court, revealing the slowness of the process). The appellate court also found a tariff decision unfair for failure to address social needs. The fact that the court system functions sufficiently to address appeals of regulatory decision-making is positive, but care must be taken to avoid courts from interfering in areas clearly within the scope of GNEWRC authority thus exceeding the scope of appellate review.

Market rules fall under the responsibility of the Ministry of Energy, which adopts the rules. GNEWRC has full authority to request any data including completely deregulated export/import and transit activities. The Ministry of Energy has identified step-by-step deregulation of the energy sector as one of the priorities of energy policy.

2. Electricity sector

a. Market framework

Market participants are producers (mainly hydro power and thermal power plants), distribution companies, the Electric System Commerce Operator (ESCO), the transmission companies and the dispatch licensee. There is no separate Transmission System Operator (TSO) or distribution system operator. Instead, traditional TSO functions are split between the ESCO and the Dispatch Centre. The ESCO, a state-owned enterprise, is responsible for balancing, including emergency export/import and exports of surplus power not sold through bilateral contracts. Though it does not have a licence from the regulator, the fee it charges for its services is regulated by the GNEWRC. The Georgian State Electrosystem (GSE), which holds a transmission and a dispatch licence, collects dispatch and transmission tariffs set by the GNEWRC for provided services.

Electricity in Georgia is mainly produced by hydro power plants, though for peak periods and in the winter, electricity also is produced by thermal power plants (TPP). Only existing plants in excess of 13 MW continue to be price-regulated by GNEWRC. New generating plants and existing generating plants under 13 MW are no longer subject to tariff regulation by GNEWRC – instead, prices are established through bilateral contracts and whatever is consumed but not traded through bilateral contracts is traded by ESCO as defined by Market Rules.

There are two high voltage transmission companies in Georgia. GSE owns and operates 330, 220 and 110 kV lines (along with some 35 kV lines) and high voltage substations, including the 500 kV substation, and also holds the licence for the Dispatch Centre. JSC Sakrusenergo, which is owned 50% by the state and 50% by RAO UES, operates 500 kV line, which transports electricity from the generation centres to the to the main load centres in the East.
Three distribution companies supply customers at voltage levels between 110 kV down to 0.4 kV. Except for Enghuri and Vardnili HPPs, all generating stations in Georgia have been privatised, as have the distribution companies. Two HPPs are under Management Contracts with the private investor.

The current electricity market design in Georgia is a bilateral contracts market with multiple buyers and sellers at the wholesale level, combined with an independent regulator which establishes tariffs for end-users and for monopoly services like transmission and distribution. New generating plants and existing generating plants under 13 MW are no longer subject to tariff regulation by GNEWRC and thus are deemed to be eligible customers; all other customers are deemed captive and subject to tariff regulation.

b. Network access and tariffs

GNEWRC sets separate tariffs for activities listed above based on cost-of-service principles. The current tariff methodology was issued by the GNEWRC in 1998 and has not been amended since then. The existing tariff methodology is based on a cost-plus, “postage stamp” model, with transmission and dispatch companies receiving a specific tariff per kWh supplied to the consumers, regardless of distance. Tariffs for network service are set in accordance with the voltage levels. Block/consumer tariffs are set by the consumed electricity volumes. The regulator cannot reduce the tariffs of its licensees on its own initiative except subject to limited conditions, though the regulator can request data on its own initiative and gather information regarding appropriateness of the tariff. If a licensee requests a tariff increase, the regulator is empowered to change the proposed tariff as long as certain conditions are met, such as protection of consumers from monopoly prices and sufficient return for the investor to support rehabilitation and development of the sector through attracting investments. The existing tariff and revision obligations are set on a case-by-case basis. Some tariffs remain in effect for specified periods, normally indicated in the tariff resolution. Others are provided in the tariff resolution and are in effect until revision. For example, a Memorandum between the Government and Telasi grants a special distribution tariff to the licensee, which gives Telasi tariff protection through 2015, subject to minor adjustment.

The law allows for priority access for domestic production. There is no overarching grid code; but separate technical and access rules cover access to the high voltage grid and the distribution network, and as of 2006, market rules are adopted by the Ministry. The Market Rules have undergone several revisions, with new draft rules under review in mid-2009 and ongoing discussion regarding further amendment to support increased levels of export and import that may result from ongoing expansion of the infrastructure.

c. Operational environment

At present the transmission line is not at full capacity. Georgia relies on hydro power, with excess capacity in the summer months and a deficit in the winter months. Due to current infrastructure limitations, Georgia has minimal opportunity for export its excess capacity to markets with an energy deficit. Historically, Georgia has received the majority of its imported electricity from Russia. The Government of Georgia has made investment in new hydro power development a priority, with the aims of ensuring security of supply for the winter months and supporting its economy through export in the summer months. The EBRD together with EIB and KFW is supporting a loan to the Government for the building of a high voltage line to Turkey to encourage Georgia’s potential to become a large exporter to Turkey and to Western Europe through Turkey. Georgia already has created two websites designed to convey
information regarding its legal framework and investment environment (www.minenergy.gov.ge; www.georgiahydroinvest.com). Both of these sites are a good platform for conveying additional information to potential investors.

As noted, as of 2006, the Ministry has authority to issue market rules; it also has authority to issue connection rules and technical standards, which include metering rules at the wholesale level. GNERWC has no role in network maintenance and issuing standards for connection and repairs, which are monitored by the Ministry. Quality of service standards are generally set forth in licenses issued by the regulator. Efforts are currently underway to ensure that the regulatory framework in Georgia is amended to incorporate a transparent and non-discriminatory framework in support export and import of electricity.

3. Gas sector

a. Market framework

The Georgia gas sector is made up of the state-owned Georgian Gas and Oil Corporation with daughter company Georgian Transportation Company (the transportation licensee); the privatised distribution company, KazTransGaz Tbilisi, owned by the Kazakhstani Company KazTransGaz and regional gas companies mostly owned by Azerbaijani state company SOCAR and the company Itera. At present, a special Manager was appointed for “KazTransGaz Tbilisi” in accordance with the Georgian law on licences and authorisations. The transportation licensee is responsible for meeting suppliers’ instructions for natural gas supply, cut-off or re-supply, and compliance with safety standards. According to the Parliament’s Resolution adopted in June 2006, the following are the priorities of the Georgian state policy in the gas and energy sector: (a) rehabilitation of gas units, (b) release of such units from debts and their privatisation, (c) diversification of gas supply, and (d) formation of a transparent and liberal energy market.

By 2008, Georgia’s natural gas sector, with the exception of the main pipeline system, was largely privatised. Currently, Georgia has four suppliers and three routes. About 70% of the country demand (regulated part of the sector - consumption by households and thermal generation) for natural gas is supplied under the long-term contract with SOCAR. The remaining 30% is commercial consumption and deregulated. Correspondingly, consumers under this segment are free to choose any supplier and negotiate gas price.

Relations among natural gas suppliers, transportation and distribution licensees and direct customers are controlled by natural gas market regulations. Parties involved in natural gas sale and purchase or transportation procedures conclude bilateral or multilateral agreements.

In September 2007, the gas sector was partly reformed through revision to the Law on Electricity and Natural Gas. The law authorises the Ministry of Energy to take a decision on deregulation or partial deregulation of the gas market, which it did by Order No. 69 (25/29/2007). Specifically, natural gas supply activities and natural gas wholesale suppliers were deregulated; in addition, delivery activities for retail consumers within the boundaries of Tbilisi administrative territory were partially deregulated. Gas tariffs remained unchanged for the distribution companies that are responsible for supplying gas to the consumers living in their distribution area. The marginal tariffs were set for natural gas supply and consumption for retail consumers falling under the deregulated gas sector and the distribution and transportation tariffs remained fixed.
b. Network access and tariffs

A similar tariff framework, as identified for electricity, applies for gas. New supply routes and suppliers were introduced, security of supply has increased significantly, and gas supply has been deregulated. In the natural gas market the licences are mandatory for the gas transportation and distribution.

Natural gas supply and transportation system connection procedures are overseen by market rules, issued by the Ministry. The 2005 amendments to the Law on Electricity and Natural Gas have stripped some rulemaking powers from the regulatory authority and transferred these to the Ministry of Energy in the gas sector as well as the electricity sector. The amended law gives the Ministry of Energy the authority to approve the natural gas balance and the natural gas market rules.

The rules require that a third party seeking access to the transportation system submit to the transportation licensee a special request for connection to the transportation system. The transportation licensee may decline the request only in case if the connection to a licensee's or direct customer’s natural gas transportation system may have a negative impact on the whole transportation system. Connected facilities become operational upon covering all the costs of works carried out for connection to the system.

c. Operational environment

In the gas and oil sector, Georgia already benefits from its important transit role. Four pipelines - BTC and SCS within one ROW transporting petroleum and natural gas from the Caspian fields of Azerbaijan through Georgia to Turkey, commenced operations in 2005 and 2006, WREP Baku-Supsa pipeline transporting oil to Black Sea in operation since 1997 and North-South gas pipeline serving transit to Armenia. Georgia receives a portion of the transported fuel as a transit fee. Georgia has a strong strategic role to play as a transit country, though geopolitics continues to threaten its transit potential.

The Ministry, not GNERWC has monitoring authority over technical rules and gas balance.

4. Renewable energy sources/energy efficiency

Though Georgia has wind and solar potential, hydro power offers the greatest present and future renewable energy source for the country. Georgia’s renewable energy potential and ability to exploit this potential via the new transmission lines to Turkey and current advanced stages of planning for new hydro power projects, such as the Oni, Mktvari and Namakhvani hydro power plants (HPPs), make Georgia well placed to benefit from the new aggressive renewable energy initiatives of the EU.

At present, Georgia has no primary legislation dedicated to renewable energy, though aspects relevant to renewables exist in the energy legislation, as hydro power has long been the most important electricity source in the country. In fact, Georgia has one of the largest undeveloped hydro power potentials in the world at about 32 TWh per year. Georgia’s potential hydro power production is roughly 7.27 MWh per capita, which is considerably higher than that of the world’s biggest hydro power producers, Norway and Canada.

A recent amendment to the Law of Georgia on Electricity and Natural Gas creates a possibility for the Electricity System Commercial Operator to buy hydro power.
produced by new HPPs at the long-term fixed tariff during winter three months. The activities of all newly constructed HPPs are also deregulated, such that they fall outside of GNERWC’s regulation on prices and licensing. There is ongoing debate as to whether this will spur or hinder investment. As with renewable energy, no primary legislation addresses energy efficiency, though a draft was circulated in 2007.

Georgia has ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change. Georgia has several Clean Development Mechanism projects registered under the Ministry of Environment. The CDM is efficient tool to promote Certified Emissions Reduction (CER) trading and benefit from introduction of law carbon emission technologies.

5. Conclusion

Georgia performs below average with respect to its grouping (Group B), with an electricity sector score of 0.749 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and implementation of best practices as identified in the benchmarks and indicators of this Assessment). Georgia has a natural gas sector score of 0.669 relative to an Energy Community average of 0.711 for Energy Community contracting parties and observers with a gas sector. From an institutional perspective, the regulator’s autonomy could be enhanced by control over its budget. Transfer of its headquarters from the capital presents challenges for coordination with the Ministry of Energy; but overall, the regulatory structure is appropriate and responsive to the needs of electricity and gas sectors with significant infusion of private investment and diversity of participants.

Within the electricity sector, Georgia has existing hydro power capacity and potential for further development, along with excess transmission capacity. It is implementing a strategy to facilitate sale of its excess capacity in the summer and increase its hydro facility capacity overall. The construction a high voltage line to Turkey will encourage Georgia’s potential for export to Turkey and Western Europe through Turkey. These efforts to step up investment and export are triggering, in turn, the need to further develop its market rules, a step currently underway.

In the gas sector, Georgia currently provides transit services with multiple pipelines bringing natural gas across Georgia from Azerbaijan to Turkey and Armenia. Ownership within the sector is diversifying, and with the exception of the main pipeline system, has been largely privatised, with the commercial portion of the market (30%) deregulated and market rules and licensing in place.

Absent political obstacles, and continued efforts to develop its regulatory framework consistent with best practices, as reflected by, e.g., its observer status in the Energy Community, Georgia has the potential to develop its hydro power export and transit services with the participation of private investment.

---

73 Because many of the countries in this grouping have no gas sector, from a statistical point of view, the average must be taken across the full group of Energy Community contracting parties and observers, as dividing the group would result in too small a sample.
Electricity spider graph – Georgia

Note: The diagram presents the electricity sector results of Georgia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Georgia are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty
The results for Serbia do not include Kosovo.
Gas spider graph - Georgia

Note: The diagram presents the gas sector results of Georgia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Georgia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group B countries.

Gas Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty.
The results for Serbia do not include Kosovo.
MOLDOVA COUNTRY PROFILE

Overview

Moldova has a population of approximately 3.79 million with a GDP of around USD 6,048 million. The total primary energy supply in 2007 was 3.34 Mtoe (million tons of oil equivalent) of which 1.9% is coal/peat, 0.1% is hydro power; 2.5% is combustible renewable and waste (including biomass, biogas and waste), 74.9% is natural gas and 20.6% is oil. Net imports are around 3.29 Mtoe. CO₂ emissions are 7.50 Mt of CO₂.

Moldova has been an observer to the Energy Community since 17 November 2006; in April 2009, the Ministerial Council of the Energy Community agreed that Moldova would become a contracting party to the Treaty establishing the Energy Community following notification by Moldova of the completion of its internal approval procedures for the Treaty establishing the Energy Community. On 1 May 2010 Moldova became a member of the Energy Community Treaty.

1. Institutional structure

The Ministry of Economy is the policy maker for the energy sector. Moldova’s National Energy Regulatory Agency (ANRE), has been in place since 1997, and as such is one of the oldest authorities in the region. It is an independent public administration authority, not subordinated to the government, in charge of regulating electricity, gas, petroleum, and district heating (partly).

ANRE is governed by a board comprising three members and employs approximately 30 staff members. The Government appoints the board members and designates one as Director General. During 2003-2006, ANRE suffered a limited ability to function because the government failed to appoint a third regulator. The board member’s length of term is six years, with a two term limitation. Only the Government may remove the regulators, and only for cause. ANRE has experienced some turnover over the years. The current board appears to operate in a stable environment.

ANRE’s budget is separate from the central budget, with annual regulatory fees applied to regulated companies. The annual budget is approved by the Government after initial review by the Ministry of Finance regarding budget amounts and structure. Some minor problems have arisen during the approval process relating to budget levels.

With respect to authorities, ANRE has the power to issue secondary legislation on tariffs, licences, and dispute resolution, and can set tariffs and issue licences. ANRE is also able to impose fines for infractions, and may issue orders, suspend or revoke licences, and revise the tariff. In practice, it has found small violations by its licensees and has not imposed sanctions. ANRE decisions can be appealed to the administrative court and usually stay in effect pending appeal, though the court does have the power to suspend implementation of an ANRE decision until it reaches a decision on the appeal. By law, there is no overlap in authority and the Ministry has no direct authority over ANRE.

In 2007, the National Agency for the Protection of Competition was established.

2. Electricity sector

a. Market framework

The market structure is as follows: transmission and dispatch in one government-owned entity; five separate distribution companies; four separate generation capacities; and 17 suppliers.

The power sector was unbundled in 1997 (and implemented by the Government), prior to the establishment of ANRE. Legal, functional and accounting unbundling resulted in a separate state-owned enterprise that serves as the TSO (Transmission System Operator), provides transmission services, and is restricted from engaging in any supply activity. The TSO, Moldelectrica, is a state-owned company managing the assets of the power transmission system and the dispatch centre. Moldelectrica holds two licences issued by ANRE — a licence for electricity transmission services and another for central dispatch services. Within the TSO, there is limited accounting and functional unbundling between transmission and dispatch services. There are three distribution companies, one of which is privatised and owned and managed by Spanish energy group, Union Fenosa.

In Moldova, the generation market is not regulated, except with regard to three Combined Heat and Power plants (CHP) and one hydro plant (the Power Market Rules limit regulated electricity generation sources to CHP-1, CHP-2, CHP-North and the Costesti hydro plant, which means that any other CHP or hydro plant will not be regulated by ANRE).

Full market opening occurred, at least on paper, in March 2005. The wholesale power market is based on a number of bilateral contracts among distribution companies, customers, generators and other power suppliers (traders). Moldova does not have a spot market.

b. Network access and tariffs

ANRE drafts and adopts the tariff methodologies and has the power to fix tariffs (balancing services do not yet apply), after review of the licensee’s proposal. ANRE has adopted an end-user methodology that establishes a single electricity tariff entitled “tariff for electricity supply to end customers,” which is calculated on an annual basis and covers the actual costs related to (i) energy acquisition and (ii) expenses for transmission, distribution and supply services. ANRE has set a price for transmission and dispatch service, though an average end-user tariff model is adopted. ANRE has the authority to reduce a future tariff for non-compliance with the electric supply service performance standards, which fall under the rule-making authority of ANRE.

Non-discriminatory Third Party Access is guaranteed by law. For access to the transmission network, both the methodology and the tariff have been approved by ANRE and adopted in 2005; there is no tariff for access to the distribution network. Any customer or generator may connect its electricity installations to the transmission grid and pay its transmission operator only for those costs incurred to connect to that network.

Twenty-two licences (all issued by ANRE) are currently in effect: one for transmission, to Moldelectrica, which has responsibility for operation and grid ownership and maintenance of the network; three for distribution and three for supply at regulated prices and eight for supply at unregulated tariffs; one for
dispatch; and six for generation. In addition, suppliers must be licensed by ANRE according to Art. 15(d) of the Electricity Act, under which ANRE is entitled to issue a licence for supply of electricity at regulated and non-regulated tariffs.

Though ANRE has the power to issue licensing rules and issue, revoke and modify licences (it licenses by function), it does not have the power to issue rules for new capacity. The Government has full responsibility for tendering of new generation capacity and, per Governmental Resolution in 2004, the development of new power plants may be done through a tendering process of direct negotiations.

c. Operational environment

For Moldova, security of supply presents an ongoing problem, with repeated supply crises in the winter months. It is a net energy importer and has weak energy infrastructure. It does not operate synchronously with Romania or, by extension, with the South European System. As a consequence, it is critical that security of supply is closely monitored. The Ministry of Economy is responsible for energy security and strategy for long term supply. ANRE also monitors short and medium term supply and demand, and has the authority to require the licensees for transmission and dispatch activity to perform studies regarding future development of the power system.

ANRE has the authority to require the transmission operator to first serve domestic customers and then export. The electricity law indicates that local production is favoured and the Government determines the export-import.

ANRE has set a social tariff for state distribution companies for low income customers. To qualify for the social tariff, the threshold electricity demand must be lower than 50 kWh; as a result, few customers have applied for the social tariff and such tariff was cancelled after July 2008.

All draft regulations and rules are submitted to interested participants for comment and input; and also made public via media and website. Any decisions are also posted on the website, www.anre.md, though the basis for the decisions is not. The basis for decisions is available in the ANRE offices upon request. ANRE submits an Annual Report to Parliament and Government.
3. Gas sector

a. Market framework

The gas sector structure is as follows: MoldovaGaz, a corporate entity owned 50% by Gazprom +1 “golden” share, 35.3% by the Government of Moldova, and 13.4% by Transnistria75 and 1.3% individual shareholders, owns the entire transmission and most of the distribution network in Moldova. MoldovaGaz acts as the supplier for most customers, with a small amount served by small distributors. All gas is imported; with virtually all gas imports from Russia.

The Gas Market Rules, adopted by ANRE in 2005, designate MoldovaGaz the system operator, mandate bilateral contracts, identify the rights and obligations of the dispatch centre, and specify that ANRE is the body empowered to resolve disputes that arise from application of the market rules. The Market Rules include no unbundling of MoldovaGaz, nor do they include provisions on Third Party Access or storage.

b. Network access and tariffs

ANRE approves tariffs for natural gas supply, electricity and thermal energy production, and electricity and thermal energy supply. ANRE has adjusted tariffs in response to the volatility of gas import prices. In 2008, as a result of the price increase for natural gas supply by Russia’s Gazprom and for electricity imported from Ukraine, ANRE approved new tariffs for natural gas supply, for electricity and thermal energy production and supply during a public session, resulting in increases of around 27%. This effort is part of an ongoing effort by ANRE to reduce the amount of cross-subsidisation in the tariff structure.

While the existing Gas Law provides that every licensee or customer has the right to access the gas transmission and distribution networks without discrimination, the law does not specifically provide for regulated Third Party Access. As in the electricity sector, the Government establishes the general conditions for import-export of gas, but does not expressly define the scope of these general conditions. The Gas Law does provide, however, that customers are entitled to conclude individual contracts for gas supply with any supplier including the suppliers outside the borders of Moldova, leaving some question as to the scope of possible government imposed conditions.

In 2008, ANRE issued one licence for transmission; 25 for distribution; 26 for supply at regulated tariffs; and one for supply at non-regulated tariffs.

c. Operational environment

While the market is technically open, the gas sector, like the electricity sector, faces limitations on sources of supply. Competition on the supply level is possible only in the context of additional sources of supply. Even in the event that the Government could contract gas supplies from other sources, such as Central Asia, Gazprom has proven reluctant to give access to its network to these countries (or requires a high transit price, leading to the same result).

75 Transnistria is a break-away part of Moldova that has declared independence but is not accepted as independent internally or internationally; it does operate with a separate government, customs borders and currency.
Traditionally, MoldovaGaz buys its gas from Gazprom, although there have been some instances where gas has been purchased from other countries, most notably Ukraine. The country is crossed (only for 100 km) by a Gazprom upstream pipeline that goes to Bulgaria and Turkey. The pipeline crosses Transnistria which coupled with the fact that Transnistria’s gas debt to Gazprom is growing, raises security of supply concerns for the rest of Moldova and neighbouring countries further down the pipeline. Some smaller pipelines inside Moldova are connected to the Gazprom pipeline, the rest are connected to the main pipelines crossing Ukraine.

4. Renewable energy sources/energy efficiency

The August 2007 Energy Strategy includes an Indicative Action Plan that addresses environmental policy and is an important step by the Ministry of Industry and Infrastructure. In particular, Moldova’s Energy Strategy sets forth renewable targets of 6% by 2010 and 20% by 2020. The Strategy covers the sector and is not specific to renewable energy though it includes key provisions that address renewable energy, which offers a summary of specific objectives in general terms.

In late 2007, Moldova adopted a Renewable Energy Law, which creates a framework for the promotion of renewable electricity, biofuel and energy efficiency. It offers various support mechanisms for renewable energy, including a preferential tariff methodology and mandatory purchase obligations. It also envisions a fund to support energy efficiency and renewable initiatives, as well as provides for financial incentives, such as favourable taxing regimes, to promote renewable energy. Furthermore, the Renewable Energy Law sets forth a feed-in tariff scheme for electricity generated from renewable energy, proof of renewable energy generated electricity status via Guarantee of Origin Certificates issued by the TSO, and non-discriminatory access to the transmission and distribution network.

Neither the legal nor the policy framework gives concrete indication of priority types of renewable energy and fuel, though the Strategy and the draft National Programme for Developing Renewable Energy Sources appear to place a general priority on the development of biomass energy. At present, a draft National Programme for Development of Renewable Energy Sources is discussed in the Parliament that could bring more clarity to the renewable energy regime in Moldova.

At present, no tendering mechanisms have been developed for renewable energy and no specific incentive programmes are in place from the Government (apart from the ones mentioned above), although the regulator has proceeded to fulfil its duties by adopting a methodology on renewable energy and biofuel (not separated by type), and draft supply contracts for renewable energy and biofuel. The law requires ANRE (and ANRE has adhered to the requirements of the law in drafting the methodologies) to adopt a tariff setting structure by the regulator, parallel to that used for conventional energy, with the possibility of setting a higher rate of return to attract investors. It is therefore a preferential base for the tariff, but not strictly a feed-in tariff. No feasibility studies of sector potential or impact of the rate design have been conducted, making the long-term impact unclear.


5. Conclusion

Moldova performs slightly below average with respect to its grouping (Group B), with an electricity sector score of 0.816 relative to an Energy Community average of 0.860 for Energy Community contracting parties only and 0.827 for Energy Community contracting parties and observers (with 1.0 reflecting full adoption and
implementation of best practices as identified in the benchmarks and indicators of this Assessment). Moldova has a natural gas sector score of 0.619 relative to an Energy Community average of 0.711 for Energy Community contracting parties and observers with a gas sector.\(^76\) In the electricity sector, Moldova has developed its regulatory framework, restructured its markets with disaggregation of its former vertical monopoly, and achieved partial privatisation, and appears positioned to continue its path toward best practices with transition from observer to Energy Community member. The challenges it faces include resource limitations and a historical predicate that resulted in few infrastructure and technical links towards the west, including a lack of synchronisation with its neighbour, Romania, leaving it vulnerable to things, recent price increases imposed on electricity imported from Ukraine.

The gas sector structure is dominated by MoldovaGaz, a corporate entity owned 50% plus one “golden share” by Gazprom, with all gas is imported. The regulatory framework for the gas sector is less developed than the electricity sector, with no provision for third party access or storage. The challenges faced in this sector include security of supply, the price increases imposed by Gazprom, and Gazprom’s reluctance to permit access to the existing pipelines from other suppliers.

**Electricity spider graph – Moldova**

\[
\text{Moldova (O)}
\]

Note: The diagram presents the electricity sector results of Moldova, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Moldova are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

\(^{76}\) Because many of the countries in this grouping have no gas sector, from a statistical point of view, the average must be taken across the full group of Energy Community contracting parties and observers, as dividing the group would result in too small a sample.
Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.

Gas spider graph - Moldova

Note: The diagram presents the gas sector results of Moldova, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Moldova are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group B countries.
Gas Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
Overview

Turkey has a population of approximately 73.90 million, with a GDP around USD 794,228 million. The total primary energy supply in 2007 was 100.01 Mtoe (million tons of oil equivalent), of which 3.1% is hydro power, 29.3% is coal/peat, 5.0% is combustible renewable and waste (including biomass, biogas and waste), 30.4% is natural gas, 30.7% is oil and 1.5% is geothermal/solar/wind. Net imports are around 75.79 Mtoe. CO₂ emissions are 265.00 (measured as Mt of CO₂). Turkey joined the European Economic Commission as an associate member in 1992 and signed the European Union (EU) Customs Union agreement in 1995. Turkey is an observer party to the Energy Community Treaty (EcT).

1. Institutional structure

The Ministry of Energy and Natural Resources (MENR) is charged with primary responsibility over the energy sector; regulatory implementation is the responsibility of the Turkish Energy Market Regulatory Authority (EMRA), which was established in 2001 pursuant to Electricity Market Law No. 4628, last substantially amended in 2008.

The EMRA is an autonomous legal entity responsible for regulating and monitoring electricity, natural gas, petroleum and liquid petroleum gas (LPG) markets. It is a multimember body made up of nine commissioners including one chairman and one deputy chairman, with 399 staff members (95% of them having higher education).

Board members are selected and appointed by the Council of Ministers among candidates that have at least completed a four-year academic programme in relevant subjects. Moreover, at least ten years of experience in public or private sector, as well as having excelled themselves in their professions, are required. The term of office for the chairman and members of the Board is six years and Board members may be re-elected.

The members of the Board cannot be dismissed from the office before the expiry of their terms of office, except for: gross violation of job requirements set forth in Electricity Law, criminal sentence connected to the duties assigned to them, lost of eligibility to be a civil servant, incapacity for a period exceeding three months due to illness or any other physical impediment. The members of the Board cannot accept any duty in public or private institutions during their membership. Within two years from the termination of their terms of office, members of the Board cannot be employed by, or hold shares in, any entity regulated by the EMRA. Besides, they cannot have any direct or indirect relation which might yield an income from any such legal entity or its affiliates, and cannot deal with trading of electricity, natural gas, petroleum and LPG.

The EMRA is mostly financed through: fees collected from licence applications, renewals, modifications, licence copies and annual licence fees; 10% of the administrative fines imposed to regulated entities and power transmission surcharges which are equal to one percent of the transmission tariff at most. The yearly budget is approved by the Parliament and the total budget for year 2009 is TRY 94.44 million.

Infomation herein is drawn primarily from EMRA’s answers to questionnaires provided by this project and from its 2008 Annual Report.

As of October 2009, TRY 94.44 million is equivalent to approximately US$ 63.136 million, or EUR 43.420 million.
The EMRA sets up tariffs methodology and approves tariff levels, issues licences, establishes quality services standards and deals with matters such as congestion management and consumer complaints.

The EMRA regularly cooperates with the Turkish Competition Authority in matters related to the energy sector.

EMRA’s decisions may be appealed to the State Council.

2. Electricity sector

a. Market framework

As of November 2008, the Energy Community Secretariat reported full compliance with EU Directive 2003/54/EC, except as to cross-border trade.

In 1984, the law on “Authorising the Institutions Other than Turkish Electricity Authority with Power Generation, Transmission, Distribution and Trade” (Law 3096) abolished the legal monopoly of the Turkish Electricity Authority (TEK), by allowing private companies to engage in power businesses. TEK was incorporated and divided into two organisations – generation, transmission and wholesale supply (TEAS) and distribution (TEDAS) – in order to prepare it for privatisation. In February 2001, the new Electricity Market Law (Law 4628) mandated TEAS to be legally split into three companies: TEIAS, EUAS and TETAS covering transmission, generation and wholesale trading respectively (in addition, the energy regulatory authority was established).

As for 2009, EUAS, TEAS’ electricity generation successor which is still state-controlled, retains a market share of about 56% on capacity basis. TEIAS, which is completely state-owned, is responsible for transmission and for non-discriminatory dispatch of all power plants. As the sole TSO of the country, TEIAS is not allowed to carry out any other activity apart from transmission. TETAS, TEAS’ trading successor, buys and sells electricity at the wholesale level, still enjoying a dominant position.

Since 2004 a fairly liquid wholesale market, based on bilateral contracts and a balancing pool, has been operative; TEIAS is the market operator. A day-ahead market started as of 1 December 2009.

Currently, only consumers with consumption over 480 MWh and those directly connected to the transmission network – corresponding to about 49% of the overall market – are eligible. According to the latest strategy announced by the government, full market opening is expected by 2016. The regulator is authorised to progressively lower the eligibility limit.

In the distribution sector, starting from year 2008, regional divisions of TEDAS have been progressively privatised and currently the private sector’s share in distribution is around 25%.

Distribution companies may carry out retail and generation activities subject to account unbundling. The Electricity Market Law foresees that legal unbundling should be implemented by the end of 2012.

79 Until the end of 2012 (transition period) the MENR will have the final word on tariffs levels.
b. Network access and tariffs

By law TEIAS and regional distribution companies have to guarantee non-discriminatory access to transmission and distribution networks. The EMRA is responsible for setting methodology and approving access tariffs (regulated Third Party Access, TPA). Use of system charges are paid by both generators and consumers (through their suppliers).

In order to establish the market model envisaged in Law No. 4628, a grid code was adopted in January 2003. The Code sets out the rules of network access and the technical and commercial procedures for ensuring efficient operation of the transmission system as well as system stability and quality of service.

As for network investment, TEIAS and distribution licensees have to assign connection priority to generation facilities that make use of domestic natural resources and renewable resources. Capacity allocation is carried out on a yearly basis.

Tariffs are set up _ex ante_ according to a pre-defined methodology and published in the Official Gazette before every tariff period. Categories of regulated tariffs are as follows: connection, transmission, distribution, average wholesale price, wholesale price for TETAS, retail supply, retail supply services and ancillary services.

Access to the networks may be refused only for insufficient system capacity or justified operational reasons. The EMRA deals with disputes arising from access denial.

c. Operational environment

MENR is responsible for monitoring and taking necessary measures regarding security of supply. Regulator takes part in monitoring security of supply through granting licences, monitoring investments and reporting.

MENR authorises the completion and start up of new generation capacity. If peak demand is not met by the installed capacity (with adequate reserve margin), a centrally organised auction is to be employed upon decision of the Council of Ministers. The preparation of the necessary legislation is under way.

EMRA sets quality of service standards. As for losses and damages that may affect consumers due to a lack of quality and/or interruptions in power supply, compensation provisions are included in the transmission and distribution licences or in the supply contracts.

Regional distribution companies have the role of supplier of last resort.

Each year, the EMRA presents a report to Parliament, posted on its web site: [www.epdk.org.tr](http://www.epdk.org.tr). Its decisions are also posted in the same website in Turkish. By law, the EMRA must hold evidentiary consultations of relevant organisations, companies and institutions for its decisions.

As for foreign capital investment, the Electricity Market Law prevents foreign legal entities from acquiring a controlling share in power generation, transmission and distribution assets.

The EMRA may grant TPA exemptions.
3. Gas sector

a. Market framework

The introduction of the Natural Gas Market Law in May 2001 (Gas Law) has replaced all previous legal frameworks. The objective of the Gas Law is to establish a financially viable, stable and transparent natural gas market through liberalisation in order to supply natural gas of good quality to the consumers in a reliable, competitive, low-cost and environment-friendly manner. Its aim is to ensure the independent regulation and supervision of the natural gas market. For those purposes, the Gas Law has introduced several restrictions, such as:

- no company can be a shareholder in another company operating in the same activity
- cross participation of companies operating in different aspects of the gas chain is strictly limited
- BOTA cannot enter into any new gas import contracts except LNG, until its import decreases to 20% of the annual gas consumption, and is required to decrease its share through gas contract release until it reaches the 20% threshold

The Natural Gas Market Law also introduced several new general measures including:

- a new independent regulator responsible for all licensing activities and for supervising prices in the gas sector
- unbundling of importation, transmission, storage and distribution of natural gas, and privatisation of BOTA (excluding the future transmission company)
- privatisation of local distribution operations
- gradual market liberalisation from 2003.

Separation of BOTA’s accounts regarding transmission, storage, sales and import activities was required within one year after one-year preparation period following from the passing of the new law. After 2009, BOTA is required to be legally unbundled and be restructured into trade, transmission and storage companies. This target now seems unrealistic.

Currently, BOTA is the only transmission company and it still enjoys a dominant position throughout the entire gas chain (excluding distribution). However, apart from BOTA, several companies are active in the wholesale and Liquefied Natural Gas import sectors. Moreover, in accordance with the Gas Law, the EMRA has conducted tenders for city gas distribution: as of March 2009 the distribution tender process has been completed for 55 distribution zones and for 53 of them the EMRA has already issued distribution licences.

b. Network access and tariffs

As mentioned above, the opening of the gas market is ongoing and the EMRA is to yearly determine eligibility thresholds. According to EMRA’s decision of 17 October, the eligibility threshold within the distribution regions, which is fixed at 15 million cm/year set by the tender documents, will be decreased five years after the issuance of the licence to 1 million cm/year. In addition to the aforementioned threshold, other criteria are used to allow consumers to choose
their supplier; in particular, user unions, electricity generation companies and cogeneration facilities are eligible.

As for Third Party Access (TPA) to the transmission network, which according to the law has to be non-discriminatory, rules and procedures are set out in the grid code of BOTA, which was approved by the EMRA on September 2004.

Capacity allocation in the transmission network is made on a yearly basis. Pro-rata is applied if demanded capacity exceeds maximum available capacity.

Transmission and distribution companies have the obligation to connect any user upon demand, according to the criteria set by the EMRA, which is also responsible for settling disputes arising from refusal of TPA and related issues.

Categories of gas regulated tariffs are as follows: transmission, distribution, connection, storage and retail supply. In particular, an entry-exit model has been adopted for transmission tariff.

c. Operational environment

Thanks to its geographical location, Turkey plays an important role as a gas corridor from Central Asia to the European continent. Thus, several strategic gas pipelines currently in construction are planned to cross the Turkey’s territory: Nabucco project that would transport gas from the Caspian Sea to Bulgaria, Romania, Hungary and Austria, the Turkey-Greece-Italy interconnection, which would bring gas to Europe from the Caspian sea, Iran and the Middle East, and the South Europe Gas Ring Project, which would carry gas from the Caspian Sea, Middle East and Southern Mediterranean countries to Europe. The EMRA participates in the monitoring of medium and long-term supply/demand balance on the national market as well as part in the monitoring of quality and level of maintenance of the networks. In particular, transmission network investment programmes are subject to the examination and approval of the EMRA.

Quality of service standards are set out in transmission and distribution licences.

The Gas Law does not comprise a specific provision for the supplier of last resort; however in market practice distribution companies take on that duty. In case of licence cancellation affecting a distribution company, the EMRA takes all the measures necessary to avoid supply interruptions.

4. Renewable energy sources/energy efficiency

As part of its bid for EU membership and as a result of its rapidly-growing energy demand, Turkey has in recent years introduced national legislation and adopted policies aimed at promoting energy efficiency and renewable energy.


Pursuant to the Renewable Energy Sources Law, the following sources currently qualify as “renewable resources”: wind, solar, geothermal, biomass, biogas, wave, small hydro power and current and tidal energy resources. Turkey has a big potential
in producing electricity from renewable energy sources (e.g., approximately 25% of the electricity in Turkey is produced from hydroelectric power plants). It is noteworthy that waste-to-energy, which is a controversial form of renewable energy, is not included. The regulations are not tailored to each energy resource individually but as the Turkish renewable energy market develops, it is expected that specific regulations accommodating the characteristics of each generation segment will be introduced.

Under the Renewable Energy Sources Law, developers that seek to generate renewable energy in Turkey must obtain from the EMRA a power generation licence under the Electricity Market Licensing Regulation and a renewable energy resource certificate (RER). RERs are valid for one year, and are issued to monitor the purchase and sale of renewable energy in the domestic and international markets. They are also issued to oversee the operation of incentives provided to developers.

Under the Licensing Regulation, the EMRA is required to forward a duly filed licence application to TEIAS, and/or the relevant territorially incumbent distribution company for a technical review of the proposed plant's connection to the transmission/distribution grid.

TEIAS and/or the relevant distribution company has 45 days to complete its review, and if it issues a favourable opinion, the EMRA then has 45 days from the receipt of such opinion to complete its own review.

The Renewable Energy Sources Law provides a purchase guarantee coupled with a guaranteed feed price for the benefit of all RER certified producers that commence their operations before 31 December 2011. The end of 2011 deadline may be extended by the Council of Ministers provided that its decision to grant such extension is published in Turkey's Official Gazette before 31 December 2009. The benefit of the guarantees, which are granted through the RER, extends for a maximum of 10-year period. However, as stated above, each RER has a term of one year and must be renewed annually.

In February 2009, Turkey ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change, following an overwhelming vote in the national parliament. Being late in participating in the Convention on Climate Change and ratifying the Kyoto Protocol, Turkey has missed the possibility of becoming a “party” to the protocol and benefiting from its financial tools.

5. Conclusion

Turkey performs well with respect to its grouping (Group B – EcT including observers), somewhat above average for electricity and considerably above average for gas. Within its Group, Turkey has an electricity sector score of 0.873 relative to an EcT (including observers) average score of 0.827. Turkey has a gas sector score of 0.840 relative to an EcT (including observers) average of 0.711.

The institutional structure and the regulatory framework meet the benchmark; however progress has still to be made with respect to market opening both in the electricity and gas sectors.

Turkey has one of the fastest-growing electricity markets in Europe. Electricity has become increasingly important in the industrial energy mix, although the bulk of industrial energy demand is still met by oil and coal. Despite high electricity prices (among the highest in Europe), demand has grown even faster in the residential/commercial sector, more than tripling in the past 15 years and is expected to double between 2009 and 2025.
Turkey’s ability to attract foreign direct investment and to capitalise on its geographical position as an “energy bridge” to Europe will be tested in the next few years. An east-west corridor, with potential supplies from Central Asia and the Middle East would be capable of delivering further gas supplies to the European gas market. This route is attractive to many European players as a way to diversify supply to their markets. The ongoing privatisation process also offers interesting opportunities for energy investors.

Electricity spider graph – Turkey

Note: The diagram presents the electricity sector results of Turkey, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Turkey are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
Note: The diagram presents the gas sector results of Turkey, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Turkey are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group B countries.

Gas Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
UKRAINE COUNTRY PROFILE

Overview

Ukraine has a population of approximately 46.38 million, with a GDP around USD 180,355 million. The total primary energy supply in 2007 was 137.34 Mtoe (million tonnes of oil equivalent), of which 0.6% is hydro power, 29.4% is coal/peat, 0.6% is combustible renewable and waste (including biomass, biogas and waste), 40.6% is natural gas, 11.2% is oil and 17.5% is nuclear. Net imports are around 59.61 Mtoe. CO₂ emissions are 313.96 (measured as Mt of CO₂). Ukraine’s energy sector is characterised by dependence on imported gas: Ukraine has in recent years consumed 68-78 bcm/y of natural gas, producing 18-20 bcm/y and importing the balance from Central Asia and Russia. Ukraine is at the final stage of negotiation for obtaining a full-scale membership in the EcT.

1. Institutional structure

The Ministry of Fuel and Energy (MFE) has primary responsibility over the energy sector, whereas regulatory implementation is the responsibility of the Ukrainian National Electricity Regulator Commission (NERC). NERC was originally set up on 8 December 1994 by Presidential Decree No. 738/94, as a special independent state body reporting to the President of Ukraine. After the Constitutional Reform of 2004, NERC changed its legal status, becoming a central executive authority, separated from the ministerial structure but subordinated to the Government. Despite its name, the NERC is responsible for regulation in electricity, oil and district heating sectors.

NERC is headed by a Chairman, supported by four Board Members and has a staff of 412 people, including central and regional offices. NERC is financed from the national budget, where it has a separate chapter that in 2009 amounted to 28.8 million Ukrainian Hryvnias (approximately equal to EUR 2,400,000, as of October 2009). Salaries of NERC’s chairman, members and working staff are approved by the Chairman of the Commission after obtaining prior authorisation from the Ministry of Finance. The only source for financing NERC’s activities, including salaries for its staff, is the funds allocated from the state budget.

NERC’s Chairman and Members of the Board are civil servants and are subject to the provisions of the national legislation on state service. In particular, the Law against Corruption prohibits civil servants from performing any other business or activity, except research, educational, artistic and medical practice.

According to the law, their service term is of six years and they can be re-appointed for a second term. They may be dismissed before natural expiration of their term due to: voluntary resignation; criminal sentence; gross violation of position requirements; certified grave health impediment; or retirement.

NERC sets tariff methodologies and approves tariff levels, even though some components used in calculation of regulated tariffs have to be previously authorised by MFE. NERC is also responsible for issuing licences and service quality.

80 Information herein is drawn primarily from Ukrainian legislation, NERC’s official documents and information made available on its website.
The Government can overrule NERC’s decisions that contradict Governmental policy in the energy sector. This possibility is given due to the legal status of NERC which as an executive body subordinated to the Government.

NERC’s decisions may be appealed to the administrative Court.

NERC has full powers to perform regular or out-of-schedule inspections of licence holders’ activities for compliance with legislation/rules and licensing conditions. Based on the results of such inspections, if breaches are identified, NERC can impose monetary penalties and suspend or annul licences. Energy companies regularly report to NERC and are obliged to submit any additional information requested and reasonably required for fulfilment of its regulatory functions.

According to the Laws “On Electricity Sector” and “On Natural Monopolies”, NERC regulates the activities of natural monopolies in the electricity and gas sectors. The Antimonopoly Committee of Ukraine performs the functions of the antitrust/competition authority. In case NERC detects that a licence holder does not comply with antitrust/competition legislation, NERC is obliged to inform the Antimonopoly Committee for them to further investigation.

The Antimonopoly Committee has the power to issue recommendations for NERC to cancel or amend its regulatory acts that not comply with competition legislation. All regulatory decisions issued by the NERC that may influence economic competition are taken in coordination with the Antimonopoly Committee.

2. Electricity sector

a. Market framework

Currently, the wholesale market is organised according to a single buyer model. Reforms, aimed at establishing a liquid market, based on bilateral contracts and balancing services, are currently ongoing. According to the market reform Action Plan approved by Government on 28 November 2007, the transition process will be completed by 2015. NERC is responsible for coordinating reform of the wholesale market.

Currently, non-household consumers are eligible and can choose their supplier. Retail consumers are served by the distribution company which operates in their region and are supplied at regulated prices. For this group of end-users there is currently no market opening timeframe.

Non-household customers, provided that they have financial requirements (eligibility), can obtain a licence from NERC for non-regulated supply and purchase electricity, for their own needs, from the wholesale supplier (single buyer). When the aforementioned wholesale market reform is completed, generators and eligible customers will be able to conclude direct bilateral contracts.

Under the current framework, the major generators (one nuclear, five thermal, one hydro and several smaller power generating companies) sell electricity to the single buyer, the state–owned company SE Energomarket, which, in turn, sells it to two categories of suppliers, regulated (unbundled distribution companies) and non-regulated ones.

Some electricity generators – combined heat and power (CHP), and small generators – can sell electricity either to SE Energomarket, to regulated electricity supply companies or to final customers located in the region of generators’ location. SE Energomarket is obliged by the law to purchase
electricity from renewable energy and co-generation plants, but de facto purchases all electricity supplied by non-competitive generators (all except big thermal power companies and several CHPs).

Transmission is performed by a state-owned company UkrEnergo, which is the sole Transmission System Operator (TSO) nationwide. As for distribution, neither the law nor the licence conditions require the setting up of separate legal entities. In fact, regional power distribution companies combine electricity distribution and electricity supply at regulated tariffs, with some also operating electricity generation plants.

Regulated power distribution companies (owners of power distribution networks) are in different ownership (they are mainly joint stock companies with different level of state control: from zero to a controlling stake). Non-regulated suppliers are all private. The TSO and the wholesale electricity supplier are state enterprises.

State assets in the electricity sector (state enterprises and state-owned stakes in joint stock companies), excluding nuclear power plants and TSO, are controlled by the state holding company Energy Company of Ukraine. In 2008, the share of power generating plants controlled by the holding company Energy Company of Ukraine in the total national electricity generation was 37.7%, as reported by the company; the share of state-owned nuclear power utility was 47%.

Regulated electricity suppliers provide roughly 80% of total electricity supplies (including electricity export). Non-regulated suppliers are mainly big industrial plants buying electricity for their own needs.

Ukraine is currently one of the main regional electricity exporters supplying electricity to Hungary, Moldova, Russia, Poland and Slovakia. The Integrated Energy System of Ukraine in 2002 was partly integrated into the Union for the Coordination of Transmission of Electricity (UCTE), after the connection of the “Burshtynskiy Energoostrov” line. The export potential is estimated in 6-7 TWh a year. However, export capabilities are limited by the lack of investments in modernisation of the power networks and, therefore, low quality of electricity.

b. Network access and tariffs

According to the Law of Ukraine “On Electricity Sector”, all electricity generators and suppliers have equal rights of access to the wholesale electricity market and electricity networks upon obtaining their respective licences. According to licence conditions, TSO and Distribution System Operators (DSOs) must not discriminate between applicants seeking connection. However, the current single buyer model imposes limitations to the right to access transmission and distribution electricity networks, since power generators do not enter into contract relation with the TSO and DSOs. After the market reform, the issues of connection and the use of the electricity transmission and distribution systems will be regulated by the Grid and Distribution Codes which are now in the process of drafting.

---

The UCTE operates the European synchronous grid and is an association of electricity distribution network operators in Continental Europe. Its interconnected network is a single phase-locked 50 Hz mains frequency electricity grid that supplies over 400 million customers in 22 countries, including most European Union members.
NERC approves *ex ante* tariffs for electricity transmission and distribution.

With respect to transmission, NERC approves a unified “postage stamp” tariff for the entire territory of Ukraine, based on the cost-plus principle. With respect to distribution, NERC approves tariffs that, being based on the cost-plus principle, are peculiar to each distribution company and differentiated by two voltage classes: 0.4-35 kV and 35-110 kV.

c. Operational environment

According to the Law “On Electricity Sector”, regulated electricity suppliers are obliged to accept the request of supply from any customer located on their service territory; on the other hand, household customers cannot switch suppliers.

As for long-term supply and demand balance, and additional generation capacity, MFE and the TSO, which is a state company subordinated to MFE, are the entities responsible.

NERC plays a key role in guaranteeing the quality and maintenance of the networks, as it approves investment plans submitted by the TSO and DSOs, after a first authorisation by MFE.

Concerning quality of service, framework legislation on distribution and retail supply is currently in preparation; NERC will be responsible for setting up quality standards and controlling their implementation.

Each year, NERC presents a report to Parliament, posted on its website: http://www.nerc.gov.ua. Its decisions are also posted in Ukrainian and Russian. By law, the NERC must hold evidentiary hearings and public consultations for its decisions, which are announced in the press and on its website. Any interested party can attend public hearings and speak at them. The parties attending the public hearings have a right to look through the documents prepared for the public hearings. Public consultations of draft regulatory acts, lasting from one to three months, must precede the official approval of respective regulatory acts according to the Law “On Regulatory Activity”.

Foreign capital investments are permitted, but a perceived less-than-favourable investment climate and imperfect regulation of business activities have likely limited private investment in the sector thus far. There is no one aggregated standard procedure for granting authorisation for new power plant construction. Separate permissions, such as feasibility study approvals, land allocations, and construction permissions are granted by different authorised state bodies via separate specific authorisation procedures. However, Ukraine has undertaken the process for approving a unified procedure, harmonised with European Union (EU) legislation, for granting authorisation for new generation capacity.

3. Gas sector

a. Market framework

The gas sector of Ukraine is dominated by the vertically integrated state-owned JSC Naftogaz Ukrainy. Through its subsidiaries, Naftogaz controls the entire gas chain: production, storage, transmission and transit, distribution and supply; it is also the exclusive supplier of all the gas imported to Ukraine from Russia and Central Asian Countries (roughly 75% of total supply), according to the terms of the contract concluded between Naftogaz and Russia’s Gazprom for the 2009–
2019 periods. Ukraine has Europe’s second largest underground storage after Russia; much of it is located close to the country’s western borders. Gazprom’s subsidiary, Gazprom-sbyt, is an important supplier of large industrial customers.

The Ukrainian gas transport network is one of the world’s largest: it has an annual nominal input capacity of 280 bcm and output capacity of 175 bcm. The network (comprising 37,000 km of pipelines) is the main route for transit of Russian gas exports to Europe. The network is owned by the Ukrainian state and is managed by the Naftogaz’s subsidiary Ukrtransgaz, which performs gas transmission. According to the licence conditions, Ukrtransgaz is not permitted to carry out gas distribution or regulated supply. Another small Naftogaz’s subsidiary, Chernomorneftegaz, manages a small part of the network in Crimea. The gas storage system comprises 12 underground facilities operated by Ukrtransgaz and a small one operated by Chernomorneftegaz.

The need for large-scale investment into the transport network becomes more current as the pipelines age. As discussions with Gazprom regarding to the modernisation and future of the network have reached a deadlock, Gazprom has decisively sought diversification of transit away from Ukraine. According to the EU-Ukraine Joint Declaration on the modernisation of Ukraine’s gas transit system (March 2009), Ukraine has committed to ensure the autonomy of Ukrtransgaz as a legal separate entity and in terms of organisation and decision-making, in line with EU Directive 2003/55/EC.

Gas distribution pipelines are state property, but they are operated by regional gas distribution companies (Gascos), which also supply retail consumers at regulated tariffs. Gascos are joint stock companies. Both distribution and retail supply are licensed activities, for which accounting separation is required.

Naftogaz holds stakes of shares in most of them, either as a major or minor shareholder.

b. Network access and tariffs

Only large and medium industrial consumers can choose their supplier, de facto limited to the duopoly of Naftogaz and Gazprom-sbyt. The retail sector (households, district heating, public organisations and small industries) is supplied under monopoly conditions by regional gas companies and, as of today, no timeframe for gas market opening has been formally established. However, gas sector reform, including market opening and other measures to provide harmonisation with the requirements of EU Directive 2003/55/EC, is on the political agenda.

The licence conditions for gas transmission and distribution include provisions imposing equal and non-discriminatory access to pipelines for each business entity seeking such access.

Sales, transportation and supply are undertaken in three different ways:

- some large industrial users have their own pipelines, connected directly to Ukrtransgaz’s high-pressure system; they pay for transport on those pipelines only; traders (predominantly Naftogaz and Gazprom-sbyt) are the sellers and suppliers
- other medium and large industrial users receive gas via low-pressure pipelines owned or leased by regional gas companies; they pay a transport
The gas is sold by traders in the same way; small industries, households and public sector organisations receive gas via low-pressure pipelines; they pay a transport tariff covering both high and low pressure pipelines; the seller is trader (almost always Naftogaz’s subsidiary Gaz Ukrainy); the regional gas company acts both as transporter and supplier of the gas.

NERC, in accordance with government guidelines, sets a ceiling for industrial prices and regulates more tightly residential and public sector prices; in particular, it determines: the maximum retail gas price for four categories of customers (residential, public organisation, district heating companies and industrial consumers); tariffs for gas transmission and storage (for Ukrainian companies only, and not for transit through Ukraine to other destinations); distribution tariffs; retail supply tariffs.

With respect to transmission, a unified “postage stamp” tariff for the entire territory of Ukraine, based on cost-plus principle, is set for the main pipelines operated by Ukrtransgaz, the only exception being large industrial consumers connected directly to main gas pipelines. Distribution tariffs are approved individually for each gas distribution company.

The full service tariff for non-households customers is made up of several components: wholesale gas price (differentiated per customer group), transmission tariff, distribution tariff (differentiated per gas distribution company), supply tariff, Naftogaz’s wholesale supply charge (if the gas is supplied by Naftogaz’s subsidiaries). Full service tariff rate is subject to VAT.

Gas tariffs for households, which are subsidised being on average less than half of industrial prices, are differentiated per consumption volume and approved by NERC in form of fixed rates.

NERC regulates also gas extraction, performed by Naftogaz’s subsidiaries or private companies in joint venture with state-owned entities, and gas storage.

c. Operational environment

All the regional gas distribution companies, which are subject to regulation, de facto have the obligation to guarantee universal service in their territory of competence.

With respect to security of supply, the subjects that have direct responsibility are Naftogaz, MFE and the Government. Naftogaz drafts yearly gas balances and monitors their implementation, which are prepared under the coordination of MFE and, in turn, approved by the Government.

According to the “Energy Strategy of Ukraine Till 2030”, formally approved by the Government, and its related Action Plan, MFE, Naftogaz and its subsidiaries are required to develop national plans on gas production, transmission and distribution pipelines, underground storages and supply sources diversification. Naftogaz is also responsible for the maintenance of gas networks and other essential infrastructures.

Foreign investment is not formally restricted; however the privatisation of gas transmission and distribution networks is not permitted by law.
4. **Renewable energy sources/energy efficiency**


These laws are complemented by a variety of policy documents (strategies and programmes) approved in recent years, such as the “Energy Strategy of Ukraine for the period till 2030” issued by the Cabinet of Ministers of Ukraine on March 2006; and the “Memorandum of Understanding on Co-operation in the Energy Sector” between EU and Ukraine, signed in December 2005. The fuel diversification prospects for Ukraine are set out in the Energy Strategy, which aims to promote a five-time increase of the energy output from nuclear and renewables by 2030.

The “National Agency for Effective Use of Energy Sources”, established in 2005 to replace the State Committee on Energy Saving, is the main policy body responsible for energy efficiency and energy saving policy and renewable energy promotion.

The share of renewable energy in national energy production is still negligible (around 3% in primary energy consumption). However, the recent introduction of a green tariff (2009) for electricity generation from renewable energy and combined heat and power production, is expected to significantly impulse the development of renewable energy and create favourable conditions for investment.

NERC is responsible for regulation of renewable energy, including licence issuing. In particular, NERC sets the aforementioned green tariff, which is equivalent to the general retail electricity tariff multiplied by a “green coefficient” defined for each type of renewable energy. The green tariff will be in effect until 1 January 2030. There is still no reliable data on its effectiveness.

In order to boost the use of renewable energy, the Government has recently issued a Resolution, No. 126 of 19 February 2009, aimed at drastically simplifying the procedures for building and operating renewable energy power plants, effectively abolishing the licensing requirement for such facilities. However, for the Resolution’s provisions to be fully implemented and take effect, NERC have still to introduce relevant amendments to the regulatory framework.

Ukraine is a highly energy-inefficient country though implementing energy-efficient measures is seen as one of the ways to address its over-dependence on imported Russian and Central Asian gas. Recent legislative activities show some progress in this respect. Since the beginning of 2009, industrial enterprises engaged in creating new production processes directed at the introduction of energy saving technologies are exempted, until 1 January 2011, from VAT and custom fees when importing to Ukraine equipment for such production process. All secondary legislation is in place and this mechanism is actually operational.

The Law No. 1264-XII “On Environmental Protection” dated 25 June 1991, the Law “On Ecological Expertise” and the Law No. 1560-XII “On Investment” dated 18 September 1991, sets out the primary legislative framework for environment protection, including environmental impact assessment, for the industry, energy and building sectors.

Emissions of dust, SO₂, NO₂ are subject to taxes established by the Government.
Ukraine became a Party to the United Nations Framework Convention on Climate Change in 1997 and ratified the Kyoto Protocol in April 2004, having signed it in 1999. After the ratification, a special interdepartmental commission was created to coordinate the efforts of the state authorities. In August 2005 the Government approved the National Action Plan for the implementation of the Kyoto Protocol and relevant changes were introduced in March 2009.

5. Conclusion

Ukraine performs poorly with respect to its grouping (Group B – EcT including observers) below average for both electricity and gas. Within its Group, Ukraine has an electricity sector score of 0.669 relative to an EcT (including observers) average score of 0.827. Ukraine has a gas sector score of 0.544 relative to an EcT (including observers) average of 0.711.

Taking into account its recent status of observer of the European Commission, the regulatory framework appears to be well designed, mainly in terms of authority of the regulatory body (NERC) and tariff structure, whereas progress has still to be made with respect to independence.

A reform of the electricity sector, which should result in the establishment of a fairly liquid wholesale market by 2015, is ongoing. Along with a certain degree of competition, it is expected to attract the interest of foreign electricity players.

The modernisation of the gas transport network is a central strategic issue not only for the Ukrainian gas sector but also for the Ukrainian economy. Substantial investment in the network is needed. In March 2009, at the Joint EU-Ukraine International Investment Conference on the Modernisation of Ukraine’s Gas Transit System, the Ukrainian government presented a Master Plan, which includes the identification of bankable projects aimed at improving the technical efficiency and introducing state-of-the-art technology. After an initial phase where banks and financial institutions will play a major role, an “industrial phase”, with gas players taking part in the enhancement and extension of the gas network, will eventually follow.
Electricity spider graph – Ukraine

Note: The diagram presents the electricity sector results of Ukraine, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Ukraine are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group B countries.

Electricity Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
Gas spider graph - Ukraine

Note: The diagram presents the gas sector results of Ukraine, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Ukraine are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group B countries.

Gas Sector - Comparative view of Group B countries (contracting parties and observers)

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.
C. Group C Countries (Armenia, Azerbaijan, Belarus, Kazakhstan, the Kyrgyz Republic, Mongolia, Russia, Tajikistan, Turkmenistan and Uzbekistan)

Referred to herein as Group C, this group is made up of Armenia, Azerbaijan, Belarus, Russia, Mongolia, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan. It is a complex grouping, made up of countries with widely disparate natural resources, infrastructure, size and economic development. The grouping recognises the historical links between these countries, which all (except from Mongolia) formed part of the former Soviet Union’s integrated power system, and the absence of any overarching treaty that defines a collective framework for the countries, as is the case with Group A and Group B, though again, voluntary and indicative only with respect to the observers in Group B. The individual country profiles provide an understanding of the level of development each energy sector has undergone and needs to undertake.

Unlike Groups A and B above, Group C countries have no external pressure towards the modernisation and liberalisation of their energy regulatory sector. It is thus particularly interesting to observe the progress they may have accomplished in this area. The three highest-performing countries in this group – Armenia, Mongolia and Russia – have made significant efforts over the last five to 10 years to reform their energy markets and regulatory frameworks. In the electricity sector Russia is the best-performing country by a considerable margin.

In the six lowest-performing countries, the least-developed indicator is the absence (or low level) of a wholesale market, while limited transparency and the absence or limited independence of the regulator are other critical factors. There are, however, exceptions: in Kazakhstan, for instance, a wholesale market has been active since 1996, an electric power exchange has been in place since 2001 and a grid code was adopted in the same year. In addition, wholesale market participants have established the Pool of Electric Capacity Reserves (Pool ECR), which supports a reservation mechanism to cover emergency deficiencies in contributors’ contractual obligations.
Overview

Armenia has a population of approximately 3.0 million, with a GDP around USD 11,917 million.\(^{\text{Iv}}\) The total primary energy supply in 2007 was 2.84 Mtoe (million tons of oil equivalent), of which 5.6% is hydro power, 23.4% is nuclear power, 58.0% is natural gas and 13.0% is oil. Net imports are around 2.08 Mtoe. CO\(_2\) emissions are 4.79 (measured as Mt of CO\(_2\)).\(^{\text{Ivii}}\) European Union (EU) relations with Armenia are governed by the EU-Armenia Partnership and Cooperation Agreement signed in 1996 and which entered into force in 1999. Following the enlargement of the EU, the EU launched the European Neighbourhood Policy (ENP) and Armenia became part of this policy in 2004.

1. Institutional structure

The Ministry of Energy and Natural Resources (MENR) is charged with primary responsibility for the energy sector. Regulatory implementation is the responsibility of the Armenian Public Services Regulatory Commission (PSRC), which was established in 1997 by the Decree of the President of Armenia “On the Energy Commission of the Republic of Armenia” (DP-717, April 1997).

PSRC is an autonomous regulatory agency; government entities cannot interfere with its decisions. It is a multi-member body responsible for electricity, gas, district heating and telecommunications. Its board is made up of five commissioners, including the Chairman. Currently, it has 107 staff members of whom 80% are highly qualified.

According to the provisions of the Law “On the Regulatory Authority of Public Services of the Republic of Armenia”, during their term, Commission members are forbidden from holding any paid job in addition to their position as commissioner and from working in public regulated entities for up to three years after expiration of their term. The law also forbids Commission members from having any interest in regulated entities.

Commission members are designated by the President of Armenia on the proposal of the Prime Minister and serve a five-year term (renewable and on a staggered basis, one expiring each year). Members can be dismissed on the basis of one of the following circumstances: physical impairment (permanent or serious); loss of citizenship; retirement age (65 years +); criminal conviction; disregard of duties; unmotivated and repeated absence; and breach of the aforementioned provisions on conflict of interest.

PSRC annually estimates its budget and submits it to the Government for approval. The budget is financed from compulsory fees paid by regulated entities. In 2009, the overall size of compulsory fees amounted to 418 million Armenian drams (approximately equivalent to EUR 720,000 as of October 2009). Commission members and personnel salaries are established by legislation and are higher than those of civil servants. The salary of the Chairman is twice that of a minister; commissioners’ salaries are three times the salary of a deputy minister.

PSRC is responsible for: setting tariff methodology and tariff levels; issuing licences and authorisations; establishing and controlling service quality standards; examining

---

\(^{82}\) Information herein is drawn primarily from the Armenian Public Services Regulatory Commission (PSRC), from answers to questionnaires provided by this project and from PSRC’s 2008 Annual Report.
consumer complaints; and approving *ex ante* investment plans in the sector under its responsibility. PSRC, in collaboration with the MENR, defines basic market rules. It is also able to impose fines for infractions, and may issue orders as well as suspend or revoke licences.

Regulatory decisions may be appealed to the administrative court. No time limit has been set for appealing to the courts, and decisions remain in effect while the appeal is pending.

A separate agency, the State Commission for the Protection of Competition, is in charge of preventing monopolistic activities.

2. **Electricity sector**

a. **Market framework**

According to the Energy Law (first adopted in 1996 and amended various times) electricity generation, transmission, and distribution companies receive separate licences; legal unbundling between transmission and other activities is required.

Currently, the market is composed of the following participants: one transmission company, CJSC Vysokovoltnye Electricheskie Sety, which is 100% state-owned; one distribution company, CJSC Armianskie Electroseti (AE), all of the shares of which belong to the Russian company Interenergo B.V.; a single system operator (transmission and distribution), CJSC Operator Systemy Electroenergetiky, which is state-owned and responsible for all dispatching services; and more than 50 generation companies, most of which are privatised.

AE enjoys an exclusive right of distribution and sale of electricity (the original five-year right fixed by law has expired but the status remains the same). Electroseti purchases electricity from national generating companies at regulated prices and on the basis of direct contracts. As a consequence, the wholesale market is a monopsony, with Electroseti acting *de facto* as a single buyer.

b. **Network access and tariffs**

AE is the sole transmission company. Legislation requires that AE supplies electricity to any customer that meets the requirements set by PSRC. Non-discriminatory access to transmission and distribution networks is required. Thus far, only electricity exporters have made use of third-party access.

The regulatory authority is responsible for setting tariffs and defining methodologies for tariff calculation. Within the framework established by legislation (the Energy Law and the related “Procedure of Establishing and Reviewing of Tariffs in the Sector of Energy”, June 2007), PSRC Commission has established the procedure for approving and reviewing tariffs, as well as a list of necessary documents a licensee must submit; all of these have been established according to legislation. The following categories of tariffs are currently in force in the electricity sector: generation (single price nationwide, which includes a capacity component with monthly payment), transmission, distribution, retail supply (two rates: day and night), export. In principle, tariffs cover all current and capital costs, and include a fair profit. No subsidies or grants are provided to private or state companies to cover possible financial gaps.
Tariffs may be reviewed either on the initiative of a licensee or the Commission. Once it has begun a tariff review process, PSRC has a 90-day period to issue its decision. The procedure for approving and reviewing tariffs is the same for all types of licences.

Despite considerable preparatory work, a grid code has not yet been adopted.

c. **Operational environment**

Foreign capital investment is not restricted. Tenders are carried out for new capacity projects of a large size. MENR elaborates development plans in the power sector while PSRC issues authorisations/licences for the construction and operation of new capacity. PSRC cooperates with MENR in monitoring medium and long term supply and demand balance, providing market analyses and forecasts.

Given the structure of the Armenian electricity market, AE performs the role of supplier of last resort.

As for quality of service standards, PSRC sets up rules and licence conditions. While those conditions require utilities to register customer complaints, PSRC has no ability to review internal complaint procedures of licensees. However it does have the authority to issue rules on dispute resolution and to directly review complaints.

A division of PSRC is responsible for supervising market dominance in the energy sector and compliance with market rules. With regard to this issue, full cooperation with the State Commission for the Protection of Competition is normally guaranteed.

Resolutions, licence rules, tariff filings and dates for hearings are regularly posted on PSRC’s official website, though the information is available only in Armenian. Regulatory decisions are also published in the “Reference Book of Ministerial Normative Acts.” Hearings are usually public, although they may be closed to protect confidential information. Licensed entities may determine what type of information is considered confidential, but the final decision belongs to PSRC. Yearly, PSRC is required to submit to the Ministry of Finance and Economy a financial report which is made public. The Ministry of Finance and Economy has the power to audit the regulatory agency.

3. **Gas sector**

a. **Market framework**

The market is *de facto* a vertically integrated monopoly. According to the Energy Law, the functions of import, transmission, distribution and system operator in the gas sector are subject to licensing by PSRC. These functions are currently monopolised by Armrosrgazprom (ARGP), a majority-Russian-owned company that, together with its subsidiaries, has complete control of the Armenian gas sector. ARGP was established in 1997, with shareholdings from the Armenian government (45%), Gazprom (45%) and the international group Itera (10%), to import, transport and distribute Russian gas. In 2006, a dual transaction gave on the one hand the control of ARGP to Gazprom, and on the other hand the control of the fifth unit of Armenia’s largest thermal power plant, Hrazdan, to ARGP. ARGP also has exclusive rights to system operation, and
ARGP is responsible for the operational and technical control of transportation, storage, transit and distribution. Transgaz LLC, a legally unbundled entity with 100% of its shares owned by ARGP, holds an exclusive licence to carry out gas transmission and transit.

b. Network access and tariffs

Third Party Access is established by law, with PSRC responsible for ensuring that non-discriminatory conditions are applied by Armrosgazprom. The absence of regulated tariffs for TPA and the aforementioned market conditions mean Third Party Access is not utilised in practice. A set of technical rules equivalent to a grid code is in force for both electricity and gas.

The following categories of tariffs are currently in force in the gas sector: transmission, distribution, system operator services, retail supply.

c. Operational environment

MENR is responsible for working out long term plans for the development of gas import and storage facilities, as well as for monitoring supply and demand balance. PSRC may provide the ministry with technical consultancy support and scrutinises, from a technical and economic point of view, investment programmes submitted by the licensed entities.

Foreign investment in the gas sector is not restricted by legislation. The notion of supplier of last resort is not applicable due to the market structure.

As in the case of electricity, quality of service standards is set by PSRC in coordination with the relevant public administration offices. PSRC ensures compliance with those standards and, in the event of breach, PSRC can adopt measures which range from issuing a warning to suspending or withholding a licence.

4. Renewable energy sources/energy efficiency

MENR is charged with developing, along the lines established by the Government, the national energy saving strategy and with promoting the diffusion of renewable energy sources. Regulatory implementation is carried out by various agencies. In particular, licensing and tariff setting are carried out by PSRC; national standards on energy saving are set by the National Body for Standards Setting.

To carry out any licensed activity in the energy sector, applicants must submit to PSRC a business plan which includes an environmental impact assessment and a detailed description of the technical solutions required to meet environmental impact limits set by law.

As a consequence of an amendment passed April 2001, the Energy Law assigns dispatching priority to all the electricity produced from small hydro power plants and other renewable energy sources for the 15 years following plant commissioning.
On 9 November 2004, the Law “On Energy Saving and Renewable Energy” was passed. This Law defines policy for efficient electricity production and promotion of renewable energy. Much secondary legislation as well as considerable implementation mechanisms and procedure are still lacking. However, a feed-in tariff system is in place, ensuring a purchase price higher than the average electricity tariff. On 1 January 2009 the following feed-in tariffs were established (amounts set forth below exclude tax and assume an exchange rate of 1 USD to 400 dram):

- small hydro power plants (constructed on the natural aqueduct) = 17.127 dram/kWh (4.28 cents USD/kWh)
- small hydro power plants (constructed on irrigation systems) = 11.417 dram/kWh (2.85 cents USD/kWh)
- small hydro power plants (constructed on the aqueduct with drinkable water) = 7.613 dram/kWh (1.90 cents USD/kWh)
- wind power plants = 31.387 dram/kWh (7.85 cents USD/kWh)
- power plants that use biomass as a primary energy = 32.803 dram/kWh (8.20 cents USD/kWh)

The Law on "Ecological Tax Rates", adopted on 19 April 2000, introduced a number of emission taxes aimed at reducing the release of dust, sulphur compounds, chloride and other harmful substances.

Armenia ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change on 26 December 2002. The designated National Authority has not been established and the various mechanisms required by the Protocol have not yet been implemented.

5. Conclusion

Armenia performs very well with respect to its grouping (Group C), largely above average for both electricity and gas. Within its Group, Armenia has an electricity sector score of 0.664 relative to a Group C average score of 0.461. Armenia has a gas sector score of 0.582 relative to a Group C average of 0.399.

The institutional structure and the regulatory framework are largely above the average for its grouping. The regulatory body, PSRC, appears to be close to best standards both in terms of independence and authority.

Currently, the regulatory environment in Armenia is a hybrid one, which combines elements of the “single buyer”, “cost of service” and “competitive” models. This model has permitted the sector to emerge from crisis following the collapse of the Soviet Union integrated energy system. However, this model may pose significant challenges in the short or medium term, since it does not adequately promote exports, nor does it fully take advantage of unused cross-border transmission capacity and spare generation capacity.

In the gas domestic market, given the almost complete control of Gazprom, it seems complicated to introduce elements of competition in the short to medium term.
The priorities of the Armenian energy sector as a whole appear to be as follows: finalisation of the electricity sector reform; redesign of electricity and gas pricing mechanisms to deal with the likely gas price increases; development of a full-scale energy-saving strategy.

**Electricity spider graph – Armenia**

![Electricity Spider Graph](image)

Note: The diagram presents the electricity sector results of Armenia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Armenia are represented by the thick bold line. See next page for comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

**Electricity Sector - Comparative view of Group C countries**

![Comparative Graph](image)

Institutional framework, Tariffs and public service obligations, Market structure and access, Transparency and private participation.
Note: The diagram presents the gas sector results of Armenia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Armenia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.
AZERBAIJAN COUNTRY PROFILE

Overview

The Republic of Azerbaijan has a GDP of USD 46,259 million and a population of approximately 8.57 million. The total primary energy supply in 2007 was 11.91 million tons of oil equivalent (Mtoe) of which 1.7% is hydro power, 64.7% is natural gas, and 33.6% is oil. The Republic of Azerbaijan (RA’s) net exports of energy resources reached 24.20 million Mtoe. Net exports are around 39.61 Mtoe. CO₂ emissions are 27.58 (measured as Mt of CO₂).

1. Institutional structure

The Ministry of Industry and Energy (MIE) is the central executive authority implementing state policy and regulation for the energy sector. Regulatory policy is implemented primarily by the MIE, and also by the Ministry of Economic Development (MED) and the Tariff Council. The MIE is largely responsible for implementing the various regulations, orders and decrees issued by the government. The MIE has a board, approved by the Cabinet of Ministers, and has authority to issue orders and decrees within its area of competence. Such competence extends to most areas within the energy sector, but not to tariff regulation, which is within the area of competence of the energy regulator, the Tariff Council.

The Tariff Council acts pursuant to authority granted to it by Presidential Decree (26 December 2005), the Regulations on the Tariff (Pricing) Council, and the Resolution by the Cabinet of Ministers (9 March 2006). The Tariff Council establishes the tariff methodology, approves the tariff level proposed by regulated companies (including but not limited to energy), proposes changes to the legal framework as it relates to pricing; and settles disputes regarding price regulation and tariff application. It is an executive authority, guided by the Constitution, laws, the President’s decrees and executive orders, the Cabinet of Ministers’ enactments and resolutions, and existing international agreements. It may act upon its own initiative within its tariff jurisdiction.

The Tariff Council has a Chairman and 12 additional Council members who serve in a Council not a staff capacity. The Chairperson is the Minister of Economic Development and the 12 Council members are Deputy Ministers (Finance; Taxes; Justice; Transportation; Industry and Power Engineering; Communication and Information Technology; Agriculture; Education; Health; and Labour) and deputy heads of Committees (Customs and Construction). In the event that the President, pursuant to a decree, replaces the Minister and deputy heads of ministries and committees, that decree automatically replaces the Council Chairperson and Council members. There are no fixed terms, with the Chairman and members serving for the duration of their appointment by the President.

---

83 Information provided below is drawn primarily from official answers provided by the Ministry of Economic Development of Azerbaijan to a number of questions prepared within this project’s framework.

The Law on the Civil Service prohibits Council members and senior staff of the Tariff Council (and all other civil servants) from occupying paid positions in other state bodies and from engaging in any paid activity outside of the Tariff Council (except for scientific and creative activities) without their supervisor’s permission. There are no conflict of interest provisions concerning ownership of property interests or occupation of management positions in regulated entities by immediate relatives of the regulatory authority’s board members or senior staff.

Salaries of heads and board members, as well as staff, are set by resolution of the President. The salaries are equivalent to those of other civil servants. The Tariff Council has 25 staff members, 90% of whom are highly qualified personnel. The total budget is 353,507 manats (approximately Euro 302,401) and comes directly from the state budget (as does the budget of the MIE). The Cabinet of Ministers, through the Ministry of Finance and the Accounts Chamber, controls the Tariff Council’s use of the funds.

Governmental bodies may cancel or change decisions made by the Tariff Council, where such right is granted to them by legislation. Regulatory decisions may also be cancelled by court rulings. Energy companies may appeal against a decision of the Tariff Council, either directly to the Council itself or through court action. Appeal does not automatically terminate a decision, but if the appeal is deemed to have merit, the applicable Tariff Council decision may be amended or a new one may be defined.

Functions of the MIE include: licensing, consumer complaints and sanctions against energy companies for non-compliance with energy legislation.

Azerbaijan has a competition authority (the State Committee on Antimonopoly Policy and Support for Entrepreneurship), established in 1993.

2. Electricity sector

a. Market framework

Azerbaijan’s electricity sector is dominated by a vertically integrated monopoly managed by Azerenergy OJSC, a 100% state-owned enterprise. Azerenergy was established by Executive Order of the President No. 423 of 17 June 1996, and is engaged in the production, transmission, distribution, purchase and sale of electricity in Azerbaijan. Azerenergy is entitled to submit proposals on tariff increases and to take part in the tariff-regulation process, but final decision-making authority with regard to tariff determination in the electricity sector belongs to the Tariff Council. Azerbaijan’s legislation neither requires transmission and distribution to be separated from generation, nor envisages the presence of a separate transmission system operator and a distribution system operator. Accounting, functional and/or managerial disaggregation has not been accomplished or envisaged by legislation. Nonetheless, partial disaggregation has occurred; some mini-power plants have been privatised and two independent regional distribution companies have been created.

Involvement of new private generating enterprises (mini-power plants) in the electricity sector is minor thus far though additional investment in new generating capacities and transmission/distribution operations is a medium term policy objective.

There is no wholesale electricity market.
b. **Network access and tariffs**

The Azerbaijani electricity market has not opened yet and no formal opening time frame has been envisaged.

Legislation provides for principles of non-discriminatory access to network infrastructure, though this has not been implemented in practice due to the market structure.

No grid code has been developed in Azerbaijan. Access to, and proper investments in, the network are guaranteed by the Electricity Law. There are no access tariffs for generation/retailing and transmission/distribution. All the parties requiring access to transmission and distribution networks are obliged by law to comply with the same technical specifications, without discrimination or preference for any one party over another. In cases where system (transmission and/or distribution) operators refuse to provide access to their systems, the operators are required to provide an explanation of the reasons for refusal.

The regulated entities are required to provide economic substantiation of the expenses which are part of prices (tariffs). The calculated tariffs are reviewed by the Tariff Council and published upon approval. A uniform tariff for the population and other tariffs for commercial and industrial enterprises are in force. The following types of tariffs exist in the electricity sector:

- tariff for purchase of electricity from its producer;
- wholesale electricity sale tariff;
- retail electricity sale tariff; and
- export and import electricity tariff.

Depending on the specification of services, tariffs are determined on the basis of expenses necessary to obtain profit, considering cost price, production force, technology parameters, etc.

Tariffs are calculated on the cost-benefit basis using reports for previous years and actual data, as well as forecasted data taking account of an entity’s offer. A tariff rate incorporates the subsidy amounts, which are determined by the Government and outside of the control of the Tariff Council.

c. **Operational environment**

Foreign capital investment in energy assets/companies is permitted and not restricted. Investments in new generating capacities are encouraged, and long-term electricity procurement is guaranteed.

Determination of the electricity balance is a responsibility of the Cabinet of Ministers, jointly with the MIE. Both the MIE and the MED are involved in monitoring expected future demand and planned additional capacity, as well as in monitoring network service quality and level. Service quality control in the electricity sector is secured by the MIE. The Tariff Council has no power to impose fines or interfere if service standards are not met. A mechanism for consumer compensation is set forth in the civil law.
The legislation does not include a supplier of last resort, though Azerenergy *de facto* performs that function.

The energy legislation does not include special provisions for vulnerable customers *per se*, but there are general social support mechanisms which cover low income customers of all public services, including energy customers. As to cross-border exchanges, the Tariff Council has no power to approve operating and planning standards.

Export and import operations need a special permit for trading activity. Insufficient system interconnections pose an obstacle for using the export and import potential.

The Tariff Council submits reports on its work to the President twice a year. The regulatory authority’s decisions are posted on the website www.tariff.gov.az and published in official newspapers, only in Azeri.

The regulatory authority supports its decisions with facts, analysis and grounded conclusions, if necessary. Legislation does not envisage public hearings and does not require public consultations.

3. **Gas sector**

a. **Market framework**

All gas institutions remain in state hands and there are no plans to change this in the near future. The state-owned Socar produces the bulk of the country’s gas at Shah Deniz fields.

The state-owned Azerigaz OJSC is the monopolist gas supplier. It was established by Executive Order by the President No. 326 of 31 May 1996 and is engaged in gas transportation, distribution, purchase and supply and manages access to transportation and distribution networks.

No gas market opening plan is envisaged in the legislation. Consumers cannot purchase natural gas directly from producers; Azerenergy procures natural gas for electric plants under a contract agreement.

In 2007, Azerbaijan began to export gas to Georgia and Turkey from the Shah Deniz gas fields (Caspian Sea). The South Caucasian pipeline (690 km long) is the main gas pipeline through which the exportation is performed. It starts at Shah Deniz fields and runs across Azerbaijan and Georgia to the Georgia-Turkey border where it is connected with Turkey’s internal gas system, with the aid of a small pipeline segment built by Georgia.

b. **Network access and tariffs**

No grid code has been adopted in Azerbaijan, but a Law on Gas Supply was passed on 30 June 1998. The Law regulates the process of production, processing, transportation, storage, distribution, sale and use of all types of gas (including natural gas).

There is no third party access; access to the grid must be negotiated with Azerigaz.
As with electricity, in cases where system (transportation and distribution) operators refuse to provide access to their systems, they must (and actually do) provide full substantiation for the reasons of such refusal.

There are no access tariffs though separate tariffs exist for:

1. wholesale purchase of natural gas;
2. retail sale of natural gas to end consumers;
3. transportation of natural gas.

As with electricity, the gas tariffs are approved by the Tariff Council and are mandatory for all entities in Azerbaijan. The Tariff Council regulates gas tariffs in accordance with its internal rules. Regulated entities must submit the following data to the Tariff Council:

- reference on substantiation of prices and on the need to revise them
- calculation of cost prices of the entity’s goods and services
- expense items for the last 2 years and the last reporting period
- projected costs, breakdown of expenses related to production (services), and profit
- taxes and other payments
- breakdown of payables and receivables
- auditor’s opinion on the entity’s activities
- comparative table of new and existing prices

The Tariff Council’s decision is communicated to the public through the press.

c. Operational environment

Azerigaz CJSC acts as a supplier of last resort.

Azerigaz, the MIE and the MED are involved in monitoring of the medium- and long-term fuel and energy balance in the national market. The regulatory authority takes a direct part in monitoring expected future demand.

Monitoring of network service quality and level is the competence of Gosgaznadzor (State Gas Supervision) Department within the structure of the MIE. Service quality control in the energy sector is secured by the MIE. If such service standards are not complied with, compensation to end-consumers is provided according to civil law.

All investments in the distribution network and in the gas-transportation system are implemented by Azerigaz. In practice, the following investments are determined subject to this condition: (1) potential future investments and (2) current investments (for the current year and by quarter). As for cross-border exchanges, Azerigaz is the body responsible for developing operating and planning standards.
4. Renewable energy sources/energy efficiency

A Decree of the President approved the State Programme for Usage of Renewable and Alternative Energy Sources in the Azerbaijani Republic, implementation of which is assigned to the MIE. The Agency for Renewable and Alternative Energy Sources under the MIE also was established by presidential resolution. Responsibility for implementation of policy and legislation in the renewable energy sphere is placed on the MIE, which runs a dedicated department for alternative energy and the environment.

The MIE is appointed as the Programme’s implementation coordinator. The Programme specifies basic areas for the realisation of measures related to wind energy as the most advantageous energy source for the republic, as well as to using solar energy, energy of geothermal waters, hydraulic energy of mountain rivers and river canals as well as biomass energy.

The State Programme also provides for improvement of Azerbaijan’s regulatory framework for implementation of alternative and renewable energy sources, as well as for engagement of investors in projects related to the usage of alternative and renewable energy sources, promotion of appropriate conditions for their activities, and efforts to secure top-priority marketing of environmentally safe energy products in the energy market. The action plan of the State Programme envisages public information on alternative and renewable energy sources, development of training manuals in this field, and education.

No separate national laws have been passed on: (1) combined heat and electric power production, (2) energy efficiency, or (3) usage of renewable energy sources, though the Law on the Usage of Energy Resources, passed on 30 May 1996, defines legal, economic and social fundamentals for state policy on the use of energy resources as well as main directions for policy implementation. Article 12 of the Law on the Usage of Energy Resources identifies economic measures to secure rational usage of energy resources that include:

- applying economic levers and incentives to target the organisational, scientific, technological and economic activities towards rational usage of energy resources, particularly renewable energy sources; identifying core areas and sources of funding of the rational usage of energy resources for energy-intensive production processes and product types in all economic sectors as a basis for application of economic measures of impact upon the energy supply process;
- introducing a penalty for inefficient use of energy resources in the form of differentiated mark-ups to existing prices and tariffs, depending on over-consumption of energy resources compared to consumption quotas;
- providing subsidies, grants, tax discounts, credit preferences, and other benefits to encourage the creation, introduction and operation of advanced energy-saving technologies and equipment;
- applying a system of state tariffs and prices securing rational usage of energy resources.

In addition, state bodies (MIE, Ministry of Environment and Natural Resources (MENR)) have developed energy efficiency standards, and have organised a system of environmental and energy management, among other initiatives.

According to the Decree by the Cabinet of Ministers on the Rules and State Supervision over Tariffs, the following feed-in tariffs have been approved:
wholesale price of electricity produced by private mini-hydro power plants – 2.5 copecks per 1 kWh

for electricity produced by wind generators – 4.5 copecks per 1 kWh

Tariffs of electricity sold by private water and wind mini-plants do not include an electricity transit transmission tariff.

The Tariff Council has powers to set tariffs for any kind of renewable energy, but only wind energy and mini hydro power tariffs have been set. There is no difference in tariffs between cogeneration and traditional electric energy systems. At present, a uniform tariff is in force.

The Cabinet of Ministers issued on 3 March 1992 the Resolution No. 122 “On the introduction of pay for natural resources, payment charges for pollutant emissions into environment, and on the use of receipts from these payments”. The Resolution approved the Procedure for “Collection of a pay for natural resources, payments for pollutant emissions into environment, and for the use of receipts from these payments as well as payment rates for pollutant emissions into the atmosphere”. MENR is the controlling authority and sets limits for specific users of admissible pollutant emission volumes. Pollutant emissions above the set limits are paid at a rate five times higher than normal.

The payment for environmental pollution takes into account the environmental situation and the environmental significance of territories. Introduction of the payment for pollutant emissions does not relieve users from the obligation to implement measures of environmental protection and observation of nature-preservation laws.

There are no schemes of subsidies aimed to encourage energy efficiency and no specific obligations to purchase renewable energy. There is no established market for renewable energy, so no special form of contract for its sale exists. Procedures for dispute settlement and appeals are specified in contracts. The generating company may sell energy in the wholesale market at the tariffs approved by the Tariff Council.

In Azerbaijan, the State pursues a policy aimed at mitigating the consequences of climate change. These efforts include adoption of the State Programme for Usage of Renewable and Alternative Energy Sources in the Azerbaijani Republic as well as the establishment of a Designated National Authorities (DNA) under the Clean Development Mechanism (CDM) within the framework of the Kyoto Protocol to the United Nations Framework Convention on Climate Change ratified in 2000.

5. Conclusion

Azerbaijan performs weakly with respect to its grouping (Group C), well below average both for electricity and gas. Within its Group, Azerbaijan has an electricity sector score of 0.368 relative to a Group C average score of 0.461. Azerbaijan has a gas sector score of 0.336 relative to a Group C average of 0.399.

The absence of a clearly independent regulatory authority contributes largely to the low score given to institutional infrastructure and regulatory framework. Similarly, the vertically-integrated monopolies which characterise the electricity and gas sectors, as well as the absence of a market opening time frame, penalise the score given to market structure.

Some elements of dynamism have been recently introduced in the electricity sector through the privatisation of mini-power plants and the establishment of two independent regional electricity distribution companies. With prospects of sustained
demand growth through to 2015, the power sector will require substantial investment for the construction of new electric generation plants, refurbishment of existing facilities and strengthening of the power grid.

Azerbaijan switched from being a net gas exporter to net importer in the 1980s. Then, in 2007, what is likely to be a long period of exports began again, with Shah Deniz exports to Georgia and Turkey. The further development of the Shah Deniz fields depends, to a certain extent, on the prospects of the Nabucco pipeline project, a key route for the security of supply of Europe.

Electricity spider graph – Azerbaijan

Note: The diagram presents the electricity sector results of Azerbaijan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Azerbaijan are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

Electricity Sector - Comparative view of Group C countries
Note: The diagram presents the gas sector results of Azerbaijan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Azerbaijan are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.

Gas Sector - Comparative view of Group C countries
Belarus has a population of approximately 9.70 million, with a GDP around USD 60,302 million. The total primary energy supply in 2007 was 28.05 Mtoe (million tons of oil equivalent), of which 2.0% is coal/peat, 5.3% is combustible renewable and waste (including biomass, biogas and waste), 62.7% is natural gas and 30.0% is oil. Net imports are around 23.76 Mtoe. CO² emissions are 62.70 (measured as Mt of CO²).

1. Institutional structure

The ministries with primary responsibility over the energy sector are the Ministry of Energy (MEN) and the Ministry of Economy (ME). Meeting national energy needs and ensuring security of supply are the main responsibilities of the former, whereas the latter has jurisdiction over economic regulation. Gas, power and heat tariffs are regulated by the government for the residential sector, and by the ME, through its Price Policy Department, for all other categories of consumers. The ME approves tariffs in coordination with the energy sector enterprises/associations, SIE Belenergo and SIA Beltopgaz, both controlled by the MEN, which submit to the ME their expected costs and mark-ups.

Belenergo and Beltopgaz were established in their current form pursuant to the Decree of the President of the Republic of Belarus No. 289 dated 5 May 2006 “On the structure of the Government of the Republic of Belarus”. They are complex enterprise structures, made up of a large number of subsidiaries and divisions, which control the entire electricity and gas chain, including transmission and distribution networks.

The Law of Belarus “On State Service” prohibits civil servants from undertaking any other job or commercial activity, except for academic research and teaching.

2. Electricity sector

a. Market framework

The Belarusian electricity market is a vertically integrated monopoly run by the state-owned Belenergo.

Transmission and dispatch through the Unified Electricity System of Belarus is performed by RUE “ODA” (Operation and Dispatching Administration), which is part of Belenergo. At the regional level, generation, transmission, distribution and supply are carried out by integrated regional utilities, which are part of Belenergo.

The electricity system is mostly gas fired and provides the country with approximately 90% (2008) of its electricity usage while the remaining 10% is imported from Russia, Ukraine and Lithuania.

There are no wholesale transactions due to the market structure.

---

85 Information herein is drawn primarily from answers by the Ministry of Economy to questionnaires provided for this project.
b. Network access and tariffs

In Belarus there is no regulated Third Party Access (TPA) to the electricity transmission and distribution networks and no market opening time frame has been announced.

In principle, for authorised consumers that seek access to the networks, and have complied with the national unified technical conditions established by Belenergo, the law establishes non-discriminatory conditions.

Only all-inclusive end-user supply tariffs are set up; generation, transmission and distribution components are not itemised. Belenergo performs tariff calculations annually according to the methodology set by the MEN and the ME. Tariff levels are approved by the government for residential consumers and by the ME for all other consumers.

As for non-residential consumers, the following differentiated categories are currently in force: industrial consumers with a connected capacity of 750 kVA or more (tariff comprises two components: installed capacity and energy components); industrial consumers with connected capacity below 750 kVA (tariff comprises only the energy component); railroad transport; municipal transport; non-industrial consumers (which are state-controlled organisations, public utilities and other organisations determined by the government), and agricultural consumers.

The tariffs of the residential sector are uniform across the country.

Subsidised tariffs are provided for domestic and agricultural consumers as well as for some enterprises, the list of which is drawn up by the Council of Ministers.

An electricity grid code has yet to be adopted. Technical relations between energy suppliers and consumers are determined according to the Rules of Electricity and District Heating approved by the MEN.

c. Operational environment

Belenergo monitors medium and long term supply and demand balance, and submits fuel and electricity forecasts to the ME and the MEN.

With respect to future demand, Belenergo prepares plans for the development of generating facilities and networks and supervises the execution of those plans.

Maintenance and monitoring of the networks is performed by the regional electricity grid companies, all subsidiaries of Belenergo, which also are responsible for the quality of service.

The notion of supplier of last resort is not applicable in Belarus due to the monopoly structure of the electric sector.

Belenergo reports to and appears before the ME at least annually; though in practice this is done quarterly or more often depending on the requests of the ME. Belenergo may also be required to report before the Parliament.

The legislation does not require the Price Policy Department of the ME to publish an annual report on its regulatory activity or to hold public consultations and hearings. Regulatory decisions can be appealed to the Council of Ministers of Belarus.
Foreign investment in generation capacity is not formally restricted; whereas the electricity network system (transmission and distribution) is required to be entirely state-owned by the law.

3. Gas sector

a. Market framework

The Belarusian gas sector consists essentially of two companies: Beltransgaz, which owns the high-pressure transportation, transit and storage systems, and is responsible for new construction and maintenance; and Beltopgaz, which is responsible for gas distribution and domestic retail sales. Gazprom sells gas to Beltransgaz under contracts concluded annually; Beltransgaz resells gas to Beltopgaz, which through its subsidiaries (regional distribution companies) resells the gas to end users in all sectors.

In 2003 Beltransgaz was transformed from a state concern into a joint stock company almost entirely state-owned. In 2007, under an intergovernmental agreement, 12.5% of Beltransgaz was sold to Gazprom. Gazprom’s share was increased to 25% a year later; by 2010 it will be 50%. Beltopgaz remains a 100% state-owned enterprise, managed by the minister of energy and overseen by ME. Its gas division consists of seven regional companies, overall operating about 35,000 km of medium and low-pressure pipelines.

Belarus’ gas consumption is around 20-21 bcm/year, nearly all of which is imported from Russia. Gas is Belarus' predominant fuel, with a share in the energy balance of about 65%. The share of gas in the fuel balance of Belenergo, which produces all country’s power, was around 97% in 2006.

There are no wholesale transactions due to the market structure.

b. Network access and tariffs

In Belarus there is no TPA to the gas transmission and distribution networks and non-discriminatory access to transmission and distribution networks is required by legislation. No market opening time frame has been announced.

Separate tariffs for transportation and distribution are not established. There are general tariffs instead. Gas tariffs are regulated by the government for the residential sector, and by ME for all other categories of consumers. More specifically, the Government defines the prices at which Beltopgaz and its subsidiaries sell gas to residential consumers; the ME regulates the remaining prices (sales of Beltransgaz to Beltopgaz and a limited number of other customers) and transportation tariffs.

The state can support gas consumers (other than residential) by means of discounted gas prices, as well as by granting them the right to delayed or restructured payment; in the latter case Beltopgaz is granted the right to carry over corresponding amounts of debt.

Technical relations between gas suppliers and consumers are determined according to the Rules for Use of Gas and other regulatory technical documents.
c. **Operational environment**

In the gas sector, Beltopgaz performs the corresponding role and functions of Belenergo concerning the monitoring of supply and demand balance, the development plans and the maintenance of distribution networks. Beltransgaz is responsible for the transmission system and storage.

The notion of supplier of last resort is not applicable due to the market structure.

Similarly to the electricity sector, the transmission and distribution networks, as well as storage and other transportation facilities, are exclusively state owned.

4. **Renewable energy sources/energy efficiency**

The law “On Energy Saving”, entered into force on 15 July 1998 and last amended on 20 July 2006, defines energy efficiency as “a priority of the national policy of the Republic of Byelorussia” and entrusts the government and other state authorities to issue regulatory acts aimed at promoting rational use of energy sources. In fact, the most important energy task Belarus faces up is to prevent its gas consumption from growing. Realistically this will only be achieved by way of improved energy efficiency and conservation, especially in the power sector.

The law assigned a particularly relevant responsibility to the State Committee for Standardisation, which, through its Energy Efficiency department implements the state policy on efficient use of energy resources, develops and manages energy saving programmes (primarily directed at the industrial sector) and issues technical norms and standards for the energy sector.

The promotion of energy efficiency is basically carried out through grants and soft loans to energy inefficient companies which intend to implement energy saving projects.

At present a specific law on renewable energy sources is under preparation. The Government has set a target of 25% of total electricity and heat production by means of local fuels and renewable energy by 2012.

Electricity production from renewable energy sources is promoted through special purchase tariffs, which are set by Decree No. 91 of the Ministry of Economy, dated 31 May 2006.

There is no national law on combined heat and power generation. The Law "On Environment Protection” requires that, for any new economic activity that may have adverse effects on the environment, an environmental impact assessment has to be carried out and mitigation measures identified.

On 8 August 2005 (Decree of the President of Belarus No. 370), Belarus ratified the Kyoto Protocol to the United Nations Framework Convention on the Climate Change. The Ministry of Natural Resources and Environmental Protection was designated as the authority responsible for implementation of the related obligations.


Emissions of dust, nitrogen oxide and sulphur dioxide emissions nitrogen dioxide and sulphur dioxide emissions are taxed.

5. **Conclusion**
Belarus performs weakly with respect to its grouping (Group C), significantly below average for electricity and slightly below average for gas. Within its Group, Belarus has an electricity sector score of 0.411 relative to a Group C average score of 0.461. Belarus has a gas sector score of 0.379 relative to a Group C average of 0.399.

The absence of an independent regulatory authority and the prominent role of the state-controlled Belenergo and Beltopgaz in the tariff setting process for electricity and gas contribute largely to reduce the score given to institutional infrastructure and regulatory framework. Similarly, the vertically-integrated monopolies which characterise the electricity and gas sectors, as well as the absence of a market opening time frame, penalise the score given to market structure.

Belarus is largely dependent on gas imports, all of which currently come from Russia. Although gasification brought the benefits of using a relatively ecologically clean and efficient fuel, it also brought the burden of an increasing supply cost and the risk of facing supply cuts. The most important task that Belarus faces in the energy sector in the medium term is to prevent the growth of its gas consumption. This can only be achieved through improvement in energy efficiency and conservation, particularly in the power sector. To this respect, the target set by the Government of 25% of total electricity and heat production by means of local fuels and renewable energy by 2012 seems to be a step in the right direction.

**Electricity spider graph – Belarus**

Note: The diagram presents the electricity sector results of Belarus, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Belarus are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group C countries.
Electricity Sector - Comparative view of Group C countries

Note: The diagram presents the gas sector results of Belarus, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Belarus are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.
Gas Sector - Comparative view of Group C countries
Overview

Kazakhstan has a population of approximately 15.48 million, with a GDP around USD 33.13 billion. The total primary energy supply in 2007 was 66.46 Mtoe, of which 1.1% is hydro power, 46.5% is coal/peat, 0.1% is combustible renewable and waste (including biomass, biogas and waste), 35.5% is natural gas and 16.8% is oil. Kazakhstan is a net exporter, with net exports calculated at around 69.74 Mtoe. CO₂ emissions are 190.45 (measured as Mt of CO₂).\textsuperscript{86}

1. Institutional structure

The Ministry of Energy and Mineral Resources (MEMR) is the leading policy maker for the energy sector. According to the Presidential decree dated 24 June 2009, policy-making authority with respect to state regulation of electricity supply (0.4 KV grids) was transferred from the Ministry of Energy and Mineral Resources (MEMR) to the recently established Agency of Construction, Housing and Public Utilities.

A separate regulatory authority, the Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies (ANMR), is responsible for state regulation of activity of natural monopolies and prices of goods (works, services) on regulated markets. ANMR has territorial bodies, which are legal entities.

Its predecessor organisation, the State Committee of Kazakh SSR on the support of the new economic structures and limitation of monopolistic activity (Kazakhstan’s first anti-monopoly body), was established in 1991 to support the new economic structures and restrain monopolistic activity. On 29 September 2004, the functions of natural monopolies’ regulation and protection of competition were separated, resulting in the transfer of the pricing authority to ANMR and authority for protection of competition to the Ministry of Industry and Trade, within which the Committee on Competition Protection was established. On 13 October 2007 the Agency on Competition Protection (ACP) was established and replaced the abrogated Committee on Competition Protection. ANMR is a central executive body which carries out state regulation of the activity of natural monopolies, as well as of the prices for goods (works, services) of market entities occupying dominant (monopolistic) position in the market, particularly in the power and heat industry, oil transportation, oil products and gas. ANMR has the authority to set tariffs and define the tariff methodology. ANMR does not have the power to authorize new capacity, but does have the right to exercise control over procurements in limited circumstances. In the event of a violation of the legislation on natural monopolies and regulated markets, ANMR issues binding instructions for market entities to eliminate such violations. In the event that a regulated entity’s actions cause damage to customers, ANMR has the right to set a reduced (compensatory) tariff in favour of the violated party.

Management of ANMR is carried out by its Chairman, who bears a personal liability for work of ANMR, and also by a collective management body, ANMR’s board. The Board is made up of the Chairman of the Agency, his deputies and representatives of the Government. Board decisions are adopted by a simple majority of votes of the board members.

\textsuperscript{86} Information provided below is drawn primarily from the sources reported in the bibliography.
The Chairman, his deputies (on the recommendation of the Chairman) and members of the board, are appointed by the Government. There are no specific term lengths for the Chairman, Deputies or representatives of the Government and no apparent limits on reappointment. Members of the Board of Directors, including the Chairman, may be dismissed, without explanation, by the Government.

ANMR also has an Executive Secretary, who is responsible for implementation of the policy formed by the Chairman of ANMR and who is assigned for an indefinite term and is discharged by the President, with the concurrence of the Prime-Minister. The resignation of the government and of the Chairman of the Agency does not entail termination of powers for the Executive Secretary. ANMR has approximately 185 employees.

With regard to conflicts of interest no special provisions are made in the legislation for the regulatory bodies. Yet, the Law on state service provides limitations related to the activity of public officers performing government service. In particular, a public officer may not: participate in the management of a commercial company regardless of its form of incorporation, unless such direct participation is within the scope of his functions according to the legislation of the RK; hold a position which is in direct subordination to the position held by his closest relatives, except for the cases stipulated by the legislation. The Chairman and his Deputies are civil servants and are paid according to their civil servant category; salaries in large companies are higher than for comparable civil service positions. Staff members are administrative civil servants; their compensation is set in accordance with the staff list approved by the Government, generally in the same range as that of other central state authorities’ employees.

ANMR is fully financed from the state budget according to the budget proceedings stipulated by the law, with the 2009 budget being approximately KZT 1,334 Million (~ USD 11 Million).

Natural monopolies and any other regulated entities have the right to appeal to court for actions (failure to act) of the ANMR that contravene the law; and to the authorised body (ANMR) or to the court for actions (or failures to act) of other entities which affect their activity, profits, property or legal status.

2. Electricity sector

a. Market framework

The main electricity market participants are: the transmission network (a national power grid company JSC KEGOK which also performs the functions of System Operator); electricity producers (over 60 plants with different forms of ownership, with a total available capacity of around 15,000 MW and total installed capacity – 18,990 MW); operator of centralised electrical energy trading KOREM JSC; regional electricity distribution companies (delivering electricity to retail customers); consumers of electricity, load serving entities (some of them fulfilling function of supplier of last resort). Until recently, Kazakhstan had a unified power system, consisting of a competitive (deregulated) wholesale market and retail markets.
The balancing market, which has operated since 2008, functions in simulation mode, without financial settlement of electricity supplied/consumed on the balancing market. At the wholesale market level, the producers, KEGOK JSC, regional electricity companies and the wholesale electric energy customers have established Capacity Reserve Pool of Kazakhstan (CR Pool) to maintain continuity of power supply.

The wholesale market structure is considerably more advanced than elsewhere in the region (with the exception of Russia), though there is not as yet a fully competitive market or a transition to a real time market. Electricity exchange has been taking place since 2001. Until 2008, when the Law on electricity was amended, the wholesale market involved deregulated purchase and sale of electricity, with bilateral deals based on forward (term) contracts. As a consequence, since 1 January 2009, a transition from competitive price formulation in the wholesale market towards price regulation has been taking place in Kazakhstan. In particular, the Law on electricity provides that:

- an energy generator sets electricity sales price independently, yet not higher than the maximum tariff set for a corresponding group of energy generators. The maximum tariff is approved according to 13 groups of energy generators classified by type, installed capacity, type of fuel and distance from fuel deposits, for a minimum term of 7 years
- if the investment obligations of an energy generator cannot be met at the expense of the maximum tariffs, the generator has the right to apply a calculated or individual tariff provided that technical specifications are approved by the authorised body and an investment agreement is made

The government has declared that after 2015 there will be a shift back to the competitive (deregulated) pricing in the electricity market.

b. Network access and tariffs

According to the "grid code" both generators and customers have the right to non-discriminatory access to the power grids. For this purpose they need to:

- sign with the grid company a contract for "entry", stating all the necessary conditions of joint activity
- receive technical conditions from the grid company for connecting a specific energy unit to the network, and to fulfil some requirements provided by normative acts

A separate fee for access to power grids is currently not provided. Until January 2009 there was a procedure under which if connection to the network was leading to its expansion and reconstruction, the owner of the connection had to compensate the grid company. The fee was set pursuant to the methodology approved by ANMR, subject to the connected capacity and payment per unit of power, set forth in the grid company’s approved network development plan. Subject to entrepreneurship support measures, such payments were abolished in December 2008.

When calculating and setting the tariffs one of the following methods is applied, depending on the specific case presented: setting of the rate of profit on adjustable base of the involved assets or establishing tariffs for the intermediate term period.
Separate transmission, distribution and end-user tariffs are in place as follows:

- Transmission tariffs are fixed according to the zone tariffs set for each of the eight power transmission zones. The zonal tariff includes payment for the use of the national power grid and payment for electricity transmission to a certain region, the amount of which depends on the energy deficit level of a particular zone and on the grid’s transmission capacity.

- Distribution tariffs are fixed as “entry tariffs”, which are calculated according to one of two voltage groups (220/110/35 kV, and 10/6-0.4 kV) at the customer’s connection points to the power grids. The tariffs are fixed to cover: standard technical losses; excessive losses of up to 0.8% of the volume of rendered services, provided that the distribution company implements an investment programme for reducing the excessive losses approved by a corresponding regulatory agency; and excessive losses of up to 5% of the volume of rendered services (per year), provided that the average value of entry tariff was approved for the distribution company.

- End-user tariffs are made up of expenses of an energy supply company for purchase of electricity and payment for its transportation, sales market-up and profit.

The Law on natural monopolies stipulates that “the tariffs [...] for regulated services (goods, works) of a natural monopoly entity set by an authorised body shall not be lower than the costs of inputs needed for rendering such regulated services [...], and shall consider the possibility of getting a profit to ensure efficient functioning of a natural monopoly entity.” Nevertheless, the majority of end-user tariffs is regulated and tariffs for distribution companies are low, limiting revenue available to companies to rehabilitate and develop the networks.

The activity of electricity generation, transmission and distribution, operation of power plants, power grids and substations, as well as electricity purchase for resale, are all subject to licensing. The state body authorized to issue licences for such types of activity is ANMR; prior to 2008, this was a function of the MEMR.

c. Operational environment

Kazakhstan was one of the first former Soviet states to reform their electricity market, beginning in 1996. To date, about 70% of generation assets are in private ownership as a result of privatisation of energy enterprises.

The majority of domestic generation (primarily from coal-fired plants) is based in the north, while Kazakhstan’s hydro power plants are to the east. The grid infrastructure is old, resulting in considerable electricity losses. Until recently it was also not integrated; the transmission system was made up of three disconnected networks, with the northern two networks connected to Russia and the southern network the only one connected to the Unified Energy System of Central Asia. Security of supply issues to the south of the country has prompted efforts to build a north-south power line with the aim to supply southern Kazakhstan from the North.

After completion in 2008 of the construction of a second transmission line (500 kV), the North-South power system of Kazakhstan can meet domestic electricity
needs in electricity. Interstate flows in 2009 were: with respect to Russia – export 2.1 billion kWh, import 0.6 billion kWh; with respect to Kyrgyzstan – import 0.55 billion kWh (for solving irrigation problems in the South of Kazakhstan).

The Law on electricity provides for a supplier of last resort in the retail market. As a first step, the responsibility of the supplier of last resort is assigned to the distribution companies. There are no limitations on foreign investments into Kazakhstan’s energy sector. Investments in construction of large energy facilities require endorsement of the MEMR and permission from the Government. A state licence is also needed for electricity production.

In event that the client for construction is a state company, a tender is held in line with the correspondent legislation. If a facility is built subject to an investment programme of a company – natural monopolist, in order to take account of the construction expenses within the tariff of this company, such investment programme should be accorded with ANMR. The MEMR develops programmes for power sector development and national fuel and energy balances for the medium- and long-term. It also carries out permanent monitoring of the expected future demand for electricity and, if necessary, submits relevant proposals to the Government and Parliament.

For electricity and gas alike, ANMR is responsible for developing an annual plan of the Agency's operation and submitting a yearly report to the Government on the results of its activity. ANMR reports to the Government and Parliament at least once a year.

The decisions of the Agency are published in the mass media and on the Agency's website http://www.regulator.kz. The Regulator must communicate its decisions in writing.

For transparency purposes, in terms of its activity ANMR widely holds public hearings before making tariff (prices, rates of charge) setting decisions for regulated services (goods, works). Public hearings are held with members of the parliament, representatives of the governmental bodies, consumers and their public associations, mass media, independent experts and natural monopoly entities.

In 2008 ANMR held 850 public hearings: 366 on the consideration of tentative tariffs, 216 on the consideration of the draft technical losses, 268 on the execution of tariff estimates.

A grid code has been in place since 1996. It sets forth the reasonable amount of time that can be taken by the transmission company to connect or repair the line; ANMR as well as the State Power Supply Inspectorate (Gosenergonadzor) have the right to monitor time taken and address any infractions. Similarly, the responsibilities of ANMR include in particular control of the quality of services rendered in the markets it regulates. For this purpose, ANMR carries out inspection of enterprises both on its own initiative and upon customer requests and, if needed, issues binding instructions. In case service delivery standards are violated ANMR and ACP issue binding instructions for market entities for their elimination.
3. Gas sector

   a. Market environment

   Market participants in the gas sector are: the vertically integrated state oil and
gas company, JSC NC KazMunaiGaz; large independent (private) gas producers
such as TengizShevroil and Karachaganak Integrated Organisation; the main
transportation network owned by JSC KazTransGaz (100% shares of which
belong to JSC NC KazMunaiGaz); local gas distribution networks, suppliers and
customers. JSC KazTransGaz owns packages of shares and acts as managing
company for a group of gas and gas transportation companies, the main ones
being:

   ▪ JSC “Intergas Central Asia” which is an operator of main gas transportation
   ▪ JSC “KazTransGaz Aimak” engaged in natural gas distribution in the regions
     of the country and its sale to companies, organisations and the public
   ▪ several other local distribution companies

   In addition to the KazTransGaz system, gas distribution in certain regions is
carried out by other local companies too, but their influence upon the gas market
is insignificant.

   Kazakhstan’s gas market is not open to competition. Gas supply is carried out
based on gas supply contracts concluded between the suppliers and the consumers.
Gas transportation is carried out based on a gas transportation contract. A
contract for gas transportation is proposed and, as a rule, the transporter submits
it to the supplier who previously filed an application for gas transportation.

   As mentioned above, almost all extracted gas is accompanied by oil extraction,
mostly from the Tengiz and Karachaganak projects in the West of the country.
The major part of this gas is brought back into the well to support certain
pressure in the reservoir and to improve oil extraction.

   b. Network access and tariffs

   Rules of supply, transportation and sale of natural gas approved by the
Government have required Third Party Access to the transportation network
since 11 June 2003. Specifically, they stipulate that the transporter shall ensure
free access of the supplier to the gas transportation system at any time, and sign
a contract for gas transportation subject to all the necessary conditions. In
addition, Order No. 99-OD of the Chairman of ANMR dated 24 March 2005,
established the norms for provision of equal access conditions for regulated
services (goods, works) in the sphere of storage and transportation of gas or gas
condensate, via main and/or distribution pipelines, operation of gas distribution
units or related gas distribution pipelines. A customer has the right to equal access
with respect to regulated services of gas storage.

   Pursuant to the Decree No. 155 of the Government dated 14 March 2006,
ANMR sets gas tariffs, including among others:

   ▪ natural gas transportation via main pipelines
   ▪ natural gas transportation via distribution pipelines for domestic consumers
   ▪ liquefied hydrocarbon gas transportation via gas pipelines from a group
     reservoir unit to a valve at the consumer's lead-in
natural gas storage

The methods used in Kazakhstan are:

- distance method of tariff calculation for the transportation of transit gas via main pipelines (Tariffs for transit gas transportation are set per every 1000 m$^3$ of gas for 100 km of transportation distance)
- tariff calculation method considering transportation volumes and reimbursement of expenses regardless of the distance (gas transportation tariffs for consumers are set per every 1000 m$^3$ of gas regardless of the length of gas pipelines within the territory of the RK, subject to technical possibilities)

When calculating and setting tariffs the following methods are applied: setting of the rate of profit on adjustable base of the involved assets; and establishment of tariffs for the intermediate term period.

c. Operational environment

Kazakhstan is a net exporter of gas. Most of Kazakhstan’s gas reserves are located in the west of the country near the Caspian Sea, with roughly 25% of proved reserves located in the Karachaganak field. The gas companies are largely state-owned. Privatisation of the state assets was carried out only in the sphere of gas extraction and, partially, in the sphere of distribution.

No supplier of last resort is provided for in the gas market structure.

JSC NC KazMunaiGaz and MEMR monitor the expected future demand and extra facilities in the gas sector and, if needed, MEMR submits correspondent proposals to the Government and the Parliament. MEMR is responsible for the development of the national fuel and energy balance in natural terms. MEMR also controls technical maintenance, operation, safety and use of main pipelines.

Decisions on covering peak load are made by gas transportation companies based on the possibilities of using technical gas reserves in gas storages and also other suppliers' sources, subject to agreement with the gas owner, or through redistribution of gas delivery to the consumers.

4. Renewable energy sources/energy efficiency

The renewable energy and energy efficiency policies of Kazakhstan are set forth in: the Law on energy savings, dated 25 December 1997, and amended in 2006, with new amendments currently under consideration; the Law on the measures of state support of renewable energy sources, adopted (by the Parliament) on 4 July 2009. Heat and electricity cogeneration are handled separately, and addressed in large part by the Law on the electricity sector as the majority of power plants in Kazakhstan are combined heat and electricity generation plants.)

The Law on the measures of state support for use of renewable energy sources provides for the creation of favourable conditions for the construction and operation of renewable energy facilities by means of: a process for development and approval of the plan (programme) regarding location; mandatory purchase of electricity by a regional grid company and KEGOK; partial compensation for electricity losses in their grids as a consequence of the above mentioned mandatory purchase of electricity; and an individual tariff is set by ANMR, with the tariff fixed at a level that ensures investment payback at reasonable levels.
Investor interest in wind power plants and hydro power plants in particular is evident, with more than 20 perspective sites for the construction of wind power plans and dozens of sites for the construction of small hydro power plants currently under review. Renewable energy projects must be submitted for approval to local authorities and MEMR.

The Law also stipulates that state regulation in this sphere includes general licensing procedures. Amendments to the Law on licensing exclude from licensing electricity and heat generation for own needs if based on renewable energy.

In March 2009 Kazakhstan ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change, with expectation that its "clean development mechanism" (CDM) will be applied in the country. The Japanese Public Company NEDO already has implemented a pilot project, to be executed pursuant to the CDM, for the reconstruction of the Ural CHP with a construction of a 25 MW gas turbine unit with investments of USD 15 million.

The legislation stipulates collection of the following payments for contamination of the environment and violation of the environmental legislation:

- for emissions (discharges) of contaminating substances, allocation of production and consumption wastes within the established limits (standard payment)
- for emissions (discharges) of contaminating substances, allocation of production and consumption wastes above established limits (above-the-norm payment)
- funds for compensation of the damage caused to the environment and natural resources due to violation of the environmental legislation

Payment rates for environmental contamination are calculated on an annual basis by the state provincial (municipal) funds for environmental protection, and are approved by the heads of the provinces, subject to an agreement with the MENR.

5. Conclusion

Kazakhstan performs satisfactorily with respect to its grouping (Group C) and particularly with respect to the other Central Asian Republics; specifically, it performs considerably above average for electricity and significantly above average for gas. Within its Group, Kazakhstan has an electricity sector score of 0.548 relative to a Group C average score of 0.461. Kazakhstan has a gas sector score of 0.465 relative to a Group C average of 0.399. The regulatory framework is well above the average of its grouping; the score given to the regulatory authority stands out.

The electricity market, and this is reflected in the Assessment, benefits from a competitive wholesale market for capacity and electricity, established as early as 1996, a power exchange, which has been in place since 2001, and a grid code was adopted in the same year. However, since 1 January 2009, a transition from competitive prices formation towards regulated prices has been taking place.

By contrast, the gas market is dominated by the vertically integrated state-controlled KazMunaiGaz, even though there are large independent gas producers. So far, gas exports have depended on one buyer, Russia, due to the geographical lay out of the pipelines, however the completion of the Trans-Asian pipeline to China is going to open more options for Kazakhstan.
The adoption in summer 2009 of a new law for the promotion of renewable energy sources has already produced an upsurge in the interest of investors, particularly in the sector of small hydro power and wind power.

Electricity spider graph – Kazakhstan

Note: The diagram presents the electricity sector results of Kazakhstan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Kazakhstan are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

Electricity Sector - Comparative view of Group C countries
Note: The diagram presents the gas sector results of Kazakhstan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Kazakhstan are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.

**Gas Sector - Comparative view of Group C countries**
KYRGYZ REPUBLIC COUNTRY PROFILE

Overview

The Kyrgyz Republic has a population of approximately 5.24 million, with a gross domestic product (GDP) of USD 4,420 million. The total primary energy supply in 2007 was 2.91 million tons of oil equivalent (Mtoe). Consumption structure is as follows: 38.5% is hydro power, 0.1% is combustible renewable and waste (including biomass, biogas and waste), 17.2% is coal/peat, 22.2% is natural gas, and 22.0% is oil. The country’s net imports of energy resources reached 1.49 million tons of oil equivalent (Mtoe). CO₂ emissions are 5.71 (measured as Mt of CO₂).

1. Institutional structure

The energy sector is managed and regulated by the Ministry of Energy (prior to 2009, known as the Ministry of Industry, Energy and Fuel Resources (MIEFR)), which is responsible for strategic planning and forecasting in the energy sector, development of the energy strategy, as well as for drafting new legislation or amendments and introducing these drafts to the government for adoption. The State Department for Regulation of the Fuel and Energy Complex (hereinafter referred to as the State Department), which has tariff setting and licensing authority, is a department within MIEFR.

This structure is a relatively new one, having been formed in 2007. Prior to that time, the State Agency on Energy for Anti-Monopoly Policy and Promotion of Competition was responsible for regulation of the energy sector as well as monitoring of competition. It continues to be responsible for the latter. One challenge in the past for energy regulation in the Kyrgyz Republic was the repeated change-over in the structure and management of the bodies authorized to regulate the sector. Though it sits within the Ministry of Energy, the State Department is a legal person and has its own staff and structure, along with a separate settlement account in the Central Treasury of the Ministry of Finance. The State Department’s structure includes an Executive Council consisting of the Minister of Industry, Power and Fuel Resources, the Director of the State Department, and the Deputy Minister of Economic Development and Trade. The term of office of the Executive Council’s members is six years, but the total duration of their exercise of powers may not exceed 12 consecutive years. All the Executive Council members have equal rights in decision-making and equal votes in voting. The State Department’s Director is appointed to the post for an indefinite term and released from it by the Kyrgyz Republic’s Prime Minister upon submission by the Minister of Industry, Power and Fuel Resources.

The minimum basic wage rate of the State Department staff is 4,000 soms (around USD 92), with a coefficient depending on the position – from 2.3 for the management to 1.4 for specialists. There are also supplements for class ranking and for seniority in civil service. Overall, salaries of the regulatory authority’s staff are lower than those of the Ministry’s employees, because the State Department is its subordinate institution. The State Department employs 20 persons (not counting junior attending personnel and Executive Council members). All employees, including Executive Council members, have the status of civil servants.

87 Information provided below is drawn primarily from the answers provided by the Ministry of Industry, Energy and Fuel Resources of the Kyrgyz Republic to questionnaires within this project and from the sources listed at the end of this document.
With respect to conflict of interest provisions, the Kyrgyz Law on Civil Service envisages that all civil servants must observe a system of standards, setting and regulating a civil servant’s rules of conduct. A civil servant, in particular, is prohibited from:

- engaging in any other paid activity except pedagogical, scientific and creative activities
- receiving from third parties any remuneration for execution of actions or omission related to the exercise of official duties
- using his/her official position to address any question directly affecting personal interests of the civil servant and his/her family members
- holding the position of director in any entity, regardless of the entity’s form of ownership, or being a member of governing bodies of other entrepreneurial entities in which the State owns more than 30% of shares
- serving as a direct subordinate of a close family member

The total amount of the regulatory authority’s annual budget for 2008 was 4,900 thousand soms (around USD 124,516). Average wage was USD 150 for staff and USD 200-250 for managers. The budget is subject to the Ministry’s of Finance approval; the funds’ acquisition process is carried out according to a request as per an approved estimate for each expenditure item.

Pursuant to the Law on energy, the State Department is responsible for: setting of prices and tariffs in fuel and energy organisations; issuance of licences for operations in fuel and energy organisations; approve decisions on the imposition of economic sanctions in case of breach of legislation or non-compliance with established license terms and conditions, including issuance of binding injunctions to natural and legal persons, regardless of their ownership form, as to termination of breaches on matters included in the State Department’s competence.

In case of failure to comply with an injunction, the State Department is entitled to apply to court. Companies, consumers, consumers’ public organisations and associations, and other legal persons have the right to apply to court for declaring invalid the decisions of the anti-monopoly body and sectoral bodies of state regulation, in full or in part, if such decisions do not comply with the law. Submission of an application to a court does not suspend execution of decisions of the anti-monopoly body and sectoral bodies of state regulation.

2. Electricity sector

a. Market framework

Unbundling of Kyrgyzenergo, the state vertically-integrated monopoly, into separate companies by function (electricity generation, transmission and distribution) began in 2001. At present, the Kyrgyz Republic’s electricity sector structurally consists of six majority state-owned OJSCs, including one generating company (Electric Plants OJSC), one electric-grid transmission company (NEGC OJSC), and four regional electric-grid distribution companies. In addition, the Kyrgyz Republic has the following small private power producers: Ghakan HPP, Ark, Kaliniskaya HPP and Koshoy; and the following private distribution companies: Transelectro, Aksel, Energotrade and Energotehservice. However, thus far, the restructuring of the energy sector has not resulted in creation of a competitive wholesale market. Virtually the entire volume of electricity (about 98%) is produced and sold by one generating company (Electric Plants OJSC)
pursuant to model contracts registered with the Registrar of electricity market contracts appointed by the State Department.

The National Energy Programme for 2008-2010 envisages that “transformation of the existing wholesale electricity market into a fully opened retail market should become one of the principal results of electricity reform” but does not specify any concrete time limits. A corresponding draft Law on Amending the Law on Electric Energy has been developed but not yet passed. At present, there is no competitive wholesale and retail electricity market.

Legislation does not provide for separate (independent) operators of transmission and distribution networks. Grid operation is performed by the grid companies themselves – NEGC OJSC and distribution companies.

b. Network access and tariffs

The law provides for third party access. There are no separate network access tariffs. The Rules for Use of Electricity sets forth the technical requirements and specifications for connection to electric networks.

The grid company’s expenses are reimbursed from the tariff for electricity supplied from the network. The State Department is responsible for developing a tariff methodology, while its Executive Council is authorised to set tariffs. Separate tariffs exist for end-users (a common tariff is applied across different customers); electricity generation (set forth in power purchase agreements between parties on the domestic market); connection usage and fees; and ancillary service charges.

Expenses incurred by energy companies are reimbursed through centralised distribution of funds collected from end-consumers for electricity supplied thereto. All consumers (natural and legal persons) must pay for the energy consumed by means of transferring funds solely to a transit account in an authorised bank. The funds are then accumulated in a special organisation (RSK OJSC) and distributed among generation, transmission and distribution companies, in a percentage established by the State Department’s Executive Council. Such cost equalisation mechanism is explained by the need to balance the differences between the inherent costs of electricity distribution in various geographical areas.

Tariffs for electricity supply to end-users from the network are set differently for the various consumer groups, which are divided into 10 tariff groups proceeding from:

- their funding source (budget-funded and non-budget-funded)
- purposes of the use of electricity (domestic, industrial, pumping stations, commercial, and others) and capacity

Depending on a tariff group, one of the following tariff types is applied:

- single-rate tariffs specifying the cost of 1 kWh of electricity supplied to a consumer
- double-rate tariffs specifying the cost of 1 kW of permitted or consumer-ordered capacity per month, and the cost of 1 kWh of electricity consumed
In practice, tariffs do not reflect all necessary expenses, with cross-subsidisation among various consumer groups. Industrial users cross-subsidise low income consumers; in addition, cross-subsidisation of tariffs for electricity and heat continues. Electricity tariffs for the domestic population are low and, until 2008, remained at about the same level for over five years. At the same time, company costs have risen, making the tariff levels increasingly difficult to support economically.

In November 2009 the State Department developed a new medium-term tariff policy for 2010-2012, pursuant to which decisions of the government have been adopted, holding that electricity tariffs should be increased on the average twice in 2010.

Activities concerning production, transmission, distribution and sale of electric and thermal energy, as well as natural gas, are subject to licensing. The State Department’s Executive Council is a state body authorised to issue licences for these activity types.

In the field of retail electricity trade, licences for the right to sell electricity have been issued, in addition to four monopolistic territorial distribution energy companies, to more than 40 various joint-stock companies and private entrepreneurs. Some have small distribution networks. However, under the existing process, a customer cannot choose an electricity supplier or producer. A consumer buys electricity from “its” distribution company.

c. Operational environment

Kyrgyz legislation contains no restrictions on foreign investments in the energy sector and includes certain conditions to attract investors, including in the energy sector. Investors are selected on a competitive basis through a tendering process. The existing legislation and tariff policy envisage guarantees of return of investments made in new generation capacities. To produce electric power, one needs to obtain a state licence.

 Preferential discounts in payment for electricity consumption are established legislatively for certain population categories (vulnerable customers) at specified levels of power consumption. In addition, subsidies from the budget are envisaged for pensioners with low pension levels in the form of monthly compensation payments used solely to pay for electricity.

The sector suffers from low tariffs for domestic customers (and therefore limited revenue), the cross subsidisation of household customers and vulnerable customers in particular, along with system losses (technical losses are a consequence of weak infrastructure), electricity production shortage during dry periods and commercial losses that result from unsatisfactory accounting and theft. As a consequence, the government has to limit consumption in winter months by means of rolling blackouts on the administrative basis.

The State Department reports annually on its activity to the Ministry of Energy and to the Government. The Ministry of Energy is responsible for presenting the Parliament with an annual report on its work, including that of the State Department.

The State Department has an obligation to inform the public, through the press and a website, about its activities and decisions. At present, the State Department has no website of its own, and its decisions are published on the Ministry of Energy’s site http://www.mpe.gov.kg, in the news section in Kyrgyz and Russian. To explain its decisions and injunctions to licensees and consumers, the State Department organises conference, seminars, round-tables (including with the participation of international
institutions), and carries out information campaigns in the press and on television. In addition, a Plan of Public Hearings in all regions regarding tariff policy and discussion of energy carrier tariff methodology has been developed and is currently under approval.

The Ministry of Energy develops electric power engineering development programmes and national fuel and energy balances for a medium- and long-term outlook. It also continuously monitors expected future demand for electricity, and submits, if necessary, proposals to the Government and Parliament to address any identified deficit. The State Department’s duties include quality control of services provided by electricity companies. For this purpose, the Department inspects the companies, both on its own initiative and on the clients’ requests, and issues, if necessary, binding injunctions.

The State Inspectorate for Energy and Gas, subordinated to the Ministry of Energy, it is authorised to carry out control and supervising functions on ensuring reliable, safe and trouble-free work of power equipment in production, transmission, distribution and consumption of electric, thermal energy and natural gas by power enterprises and all consumers irrespective of ownership.

3. Gas sector

a. Market framework

The natural gas share in a balance of fuels and energy of the Kyrgyz Republic constitutes more than 30%. Natural gas consumption constitutes about 700-750 million cubic metres a year and 98-99% is imported from Uzbekistan. The length of gas pipelines with distribution networks constitutes about 600 km.

At present, natural gas transportation and distribution in the Kyrgyz Republic’s entire gas market is handled by Kyrgyzgaz OJSC. For 2009, the company is not included in the register of natural and legal monopolists that, by some estimations, could be connected with preparation of transfer of a company in management to Russian "Gazprom". Functional regional units (directorates) of gas facilities, directorates of main gas pipelines, and liquefied gas branches have been established within Kyrgyzgaz OJSC.

Autonomous gas supply systems, as part of the Kyrgyzgaz OJSC structure, exist in the north and south of the country. In addition, an autonomous gas supply system of Kyrgyzneftegaz JSC operates as a separate legal entity functions in Naryn oblast for Kochkor-Ata town where 16,800 people are living.

Overall, the government carries out step-by-step restructuring of natural monopolies, including in the gas sector, by creating a transparent and competitive environment, developing market mechanisms, attracting investments, reducing state subsidies gradually, and pursuing a tariff policy on the self-support principles.

b. Network access and tariffs

According to the Law of the Kyrgyz Republic on Oil and Gas, a holder of a licence (for gas transportation) must provide open third-party access for transportation of oil, gas and oil products given excess in pipelines and premises. Open access is provided subject to payment of necessary transport tariffs, and based on a contract signed by the two parties. If, within six months upon receipt of a request for open access, the license holder and the third party have not managed to reach agreement on the commercial basis for such deals, the licensing authority has the right to take necessary measures to secure such agreement.
between the parties following a statutory procedure. Access tariffs are approved by the State Department’s Executive Council’s resolution.

As with electricity, the State Department is authorised to develop a methodology, and the State Department’s Executive Council is authorised to set tariffs. Separate tariffs for gas transportation and distribution exist.

According to a medium-term policy concerning gas tariffs for 2008-2012, gas tariffs in the Kyrgyz Republic must be based on the principles of automatic acceptance of imported gas cost, whereas a regulated price will include costs of gas transportation within the country, including maintenance and capital expenses.

Gas transportation tariffs for main and export directions are generally set for the transportation of 1000 m$^3$ of gas per 100 km.

In low-pressure gas networks, “postage stamp” tariffs are applied for gas deliveries at the local level for the population and small enterprises.

c. Operational environment

The MIEFR adopts development programmes and national fuel and energy balances for a medium- and long-term outlook, continuously monitors expected future demand for electricity, and takes appropriate measures, if necessary, to achieve the objective of ensuring the country’s energy security.


The State Department’s duties include quality control of services provided by gas enterprises. For this purpose, the Department inspects enterprises, both on its own initiative and on the clients’ requests, and issues, if necessary, binding injunctions.

4. Renewable energy sources/energy efficiency

The 2008 Law on Energy Savings, the 2008 Law on Renewable Energy Sources address, respectively, the energy efficiency and renewable energy policies of the country. These documents, as well as relevant national programmes and strategies, provide for a package of legal, organisational, scientific, production, technical and environmental measures aimed at efficient use of energy resources, and at promotion of renewable energy sources into circulation.

The laws establish the following, with the aim of incentivising renewable energy and energy efficiency:

- the availability of grants to socially significant projects, via the newly formed Energy Saving Fund
- including costs of implementation of energy-saving measures in setting of regulated energy resource prices (tariffs subsidies for electric power produced from biomass and using renewable sources
- incorporation in the electricity and heat tariffs of economically justified expenses incurred by electricity and heat consumers due to the implementation of energy saving measures
- obligation for energy companies to purchase electricity produced from renewable energy sources (mandatory purchase obligations)
exemption from customs duties for the import and export of equipment and installantions required to produce renewable energy

gas and renewable fuel in gaseous state, complying with standards, must be included in the system of supplies of organisations working with gas pipeline and heat networks

liquid biological fuel complying with a national standard must be included in the system of fuel sale to organisations

electricity prices must secure recoupment of capital investments in construction of these plants within seven or eight years

The Ministry of Energy also designs and implements measures to develop and rationally use the country’s fuel and energy potential.

Renewable energy-related activities are subject to licensing on general terms as per the Laws of the Kyrgyz Republic on Energy and on Licensing. Renewable energy-related activities are not subject to licensing if renewable energy is used for in-house consumption.

Environmental pollution is subject to payments collected to local Funds of Nature Conservation and Forestry Development. The Funds’ means are formed and spent according to annual revenue and expenditure estimates approved by the Fund Board and agreed upon with the Ministry of Economy and Finance.

In May 2003, the Kyrgyz Republic ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change (Clean Development Mechanism) in May 2003.

Though policy and legislation envisage a package of measures, including improvement of the regulatory legal framework, increase of energy efficiency and usage of renewable energy, practical implementation is not advancing quickly enough due to the country’s ongoing economic pressures.

5. Conclusion

The Kyrgyz Republic performs slightly below average with respect to its grouping (Group C) for electricity, with a sector score of 0.453 relative to a Group C average score of 0.461.

The absence of an independent regulatory authority, separate from Ministry or government, contributes largely to reduce the overall score given to the country. One priority is to establish – and maintain over the long term – an independent regulator that is capable of effectively intervening in the ongoing restructuring of the sector.

The electricity sector has been unbundled as early as 2001, when the former vertically-integrated monopolist, Kyrgyzenergo, was split into separate companies (OJSCs) which carry out the different functions of the electricity system (generation, transmission, and distribution). This is reflected in the relatively high score given to the market framework indicator, slightly above the average of its grouping. The restructuring of the electricity sector, however, has not resulted in the creation of a competitive wholesale market, since for all practical purposes there is only one supplier.
With respect to renewable energy sources, the Kyrgyz Republic's potential is considerable: hydro power resources are estimated at 160 billion kWh/y, with the current level of utilisation less than 10% of that amount. The construction of hydro power facilities will be of crucial importance to overcome the electricity deficit of the country and exploit this potential.

**Electricity spider graph – Kyrgyz Republic**

Note: The diagram presents the electricity sector results of Kyrgyz Republic, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Kyrgyz Republic are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

**Electricity Sector - Comparative view of Group C countries**
Overview

Mongolia has a GDP of USD 5,259 million\textsuperscript{lxvi} and a population of approximately 2.61 million.\textsuperscript{lxvii} The total primary energy supply in 2007 was 3.09 Mtoe (million tons of oil equivalent) of which 71.1\% is coal/peat; 3.4\% is combustible renewable and waste (including biomass, biogas and waste) and 25.5\% is oil. Mongolia is a net exporter, with minimal import of electricity and no import of natural gas. CO\textsubscript{2} emissions are 11.28 (measured as Mt of CO\textsubscript{2}).

1. Institutional structure

The Ministry for Mineral Resources and Energy (Ministry) sets policy in the energy sector, while the regulatory authority, the Energy Regulatory Administration (ERA), is the implementing authority. ERA is an autonomous regulatory agency that covers only the electricity and heat supply sectors; there is no natural gas supply and no gas market. As a practical matter, some overlap in responsibilities between the Ministry and ERA are found in the law, and efforts are underway, pursuant to a Memorandum of Understanding between the two bodies, at the initiative of the regulator, to better delineate the functions and responsibilities of each.

In place since 2001, ERA is a multi-member body. Its board (Council of Regulators) consists of three regulators including the Head of the Council. The Prime Minister of Mongolia designates the Head of the Council of regulators and the other two regulators, upon proposal of a member of the Cabinet responsible for the energy sector. The initial appointment of regulators is for two, four and six years on the rotary principle and the subsequent appointment is for six years. The appointment can be renewed only once. The regulators can be dismissed by the Prime Minister only for cause. Conflict of interest rules prohibit the regulators and senior staff from having interests in the regulated entities and from having management positions in these entities.

In accordance with ERA’s Charter, the Head of the Council of Regulators establishes the salaries for the board and personnel, which are higher than civil servant salaries. ERA has 26 employees, including its Council of Regulators. ERA has an independent budget, approved by the Cabinet, though the Ministry on Mineral Resources and Energy and Ministry of Finance can revise the ERA budget before its approval by the Cabinet. ERA’s budget is made up of fees paid by the regulated entities. In 2009, the budget of ERA was USD 440,000.

The regulatory authority is responsible for: tariff methodology; tariff levels; licensing and establishing licence conditions; authorisations of new generating capacity; service quality; consumer complaints; wholesale market structure; penalties against energy enterprises for failure to comply with energy legislation and licensing; and monitoring sector activity. The Ministry has authority for developing policy in the sector, for \textit{ex ante} approval of investment plans in electricity transmission and distribution and gas transportation and distribution; and for \textit{ex post} prudential review of investment decisions.

\textsuperscript{88} Information herein is drawn primarily from the regulator, from answers to questionnaires provided for this project.
According to the Law on the Energy Sector, an energy enterprise has the right to appeal a regulatory decision in the Administrative Court in the event that an enterprise does not agree with the decision of ERA. The Court can overrule a regulatory decision, though no appeals (or overruled decisions) have occurred to date. The Court is also empowered to suspend a regulatory decision pending appeal.

Mongolia has a competition authority (the Unfair Competition Regulating Authority), which is responsible for addressing anti-competitive behaviour and reviewing mergers and acquisitions. The ERA cooperates with this authority.

2. Electricity sector

a. Market framework

Market participants are five combined heat and power plants, one (state-owned) electricity transmission operator and ten electricity distribution companies. One of the four largest distribution companies was fully privatised in 2004; with the exception of two private distribution companies, all the rest are state joint-stock companies.

Vertical separation of an integrated utility enterprise took place in 2001 according to the Law on the Energy Sector. The integrated enterprise was unbundled into generation, transmission and distribution companies; the law does not require separation between distribution and retail/supply functions and such separation has not occurred.

The ERA launched a market model with a single buyer in 2002. Five power generating companies sell electricity at regulated tariffs to the single buyer. The central regional energy transmission company sells the purchased electricity to ten distribution companies. The central regional distribution company, which functions as the single buyer, sells the purchased electricity at wholesale prices. Distribution companies distribute electricity and supply it to the end-users at distribution prices. In accordance with this sequence, regulated generation tariffs are set, then tariffs for transmission and distribution, and finally, tariffs for end-users.

In addition to the single buyer market, a spot market has been operating since 2006 and an auction market has been operating since 2007. Incremental electricity demand is now auctioned among generating licensees for the best price reducing percentages.

At the moment, customers cannot switch suppliers. A timetable for market opening has not been set and there are no eligible customers at present. ERA has the right under the law to designate a date for market opening.
b. Network access and tariffs

ERA has the following tariff authority under the law:

- Set methodologies used for calculation of tariffs on electricity and heat for licensees and consumers
- Set methodologies used for calculation of balancing services and auxiliary services
- Set the tariff structure
- Provide conditions for stabilising the tariffs for the use of the most low-cost electricity and make provisions for efficient market functioning
- Monitor the application of the set tariffs and actual indices of costs that are included in the tariffs

At present the regulatory authority of Mongolia has set twelve heat and eight electricity tariff categories, regulated for generation, transmission, distribution and end-users. The tariffs for electricity and heat are set based on the specifics of the territorial location and needs for their consumption and are calculated according to the appropriate methodology. For instance, for the inhabitants of the central, western and eastern regions, the tariffs for electricity differ. Cross subsidies between electricity and heat are commonplace. The most recent large tariff increase (electricity price increased 28% and heat price increased 39%) took place in July 2008. Previous increases had been gradual. This increase was an effort to make tariffs more cost reflective and to provide sufficient funds to energy companies to allow them to pay for operations, maintenance and improvements. Lifeline tariffs are in place, and ERA has developed progressive block tariffs.

Currently the regulatory authority does not set access tariffs between the system operations. The rates are set on a contractual basis. During 2006 there was no increase in heat tariffs. ERA attributed the decision to not increase heat tariffs to the fact that electricity sales increased in 2006, and hence, revenues increased, making a tariff increase less necessary to produce the appropriate revenue requirement.

The law requires non-discriminatory access to transmission and distribution networks. The legislation does not require, however, that all parties seeking access to the transmission and distribution networks must follow the same set of technical terms and conditions, or pay the same tariff. In practice there is discrimination. The grid code, adopted in 2003, regulates functional and operational relations of the power plants and grid companies. The grid companies extend the networks at the expense of the municipal and state budgets. The payment for the connection is set by the grid enterprise. The transmission company and the Ministry are responsible for electricity transmission planning.

The ERA issues licences for the following activities: import/export; construction of cross-border lines having capacity of over 5 MW, upon permission of the State Central Administrative Authority; generation; dispatch, upon permission of the State Central Administrative Authority; transmission; distribution; regulated and unregulated supply.
c. Operational environment

Foreign capital investment into energy assets/companies is permitted. Incentives for providing opportunities for and encouragement of investments include tenders; guaranteed tariffs for renewable energy (though not yet implemented); long-term agreements on purchase of electricity; or a combination of all these options.

The Law on Energy Sector in force does not include special provisions for vulnerable customers, but the regulatory authority calculates and applies tariffs for vulnerable customers depending on the income of the consumers and based on the amount of their energy consumption. To meet the needs of the vulnerable and low-income categories of population, a delayed electricity tariff is set. The ERA does not have policy-making powers to eliminate access restrictions. Social authorities of this country are entirely responsible for these issues.

The law and the rules do not provide for a “supplier of last resort.” The regulatory authority does not participate in the process of implementation of measures to cover peak demand and to address any shortfalls. Shortfalls are the responsibility of the National Dispatch Centre.

The framework for ERA in primary legislation and secondary legislation developed by ERA emphasises transparency. ERA issues an annual report in Mongolian and English, and sends its reports to the Parliament, Cabinet of Ministers, licensees and other organisations with which it cooperates. These reports include the key activities of ERA and can be found on its website, www.era.energy.mn. Decisions of the Council of Regulators are published in the daily press and on its website (though not in English). As of 2006, the ERA began to perform internal audits of its licensees, with the stated objective to determine the efficiency of expenditures, assess the implementation of the International Accounting Standards and monitor compliance with the Accounting Law.

3. Renewable energy sources/energy efficiency

On 9 June 2005, the Parliament of Mongolia approved “A National Renewable Energy Programme” for the period 2005-2020, to facilitate the wider use of renewable energy in Mongolia. The Programme’s goals include: a total installed capacity generated by renewable energy power sources of 3-5% by 2010 and 20-25% by 2020 of the total energy production; and a programme for increased decentralised electrification of remote rural villages to provide electricity to 100,000 households by 2010 and all rural families by 2020.

A Renewable Energy Law was adopted in 2007. This law sets forth feed-in tariff ranges for renewable energy, categorised by type. Pursuant to the framework established by the Renewable Energy Law, ERA developed and approved the first long term Power Purchase Agreement to be signed between the “Central Regional Electricity Transmission Network” State Owned Stock Company and private investor “Newcom” Co., LTD. Approval of this agreement was the first step to encourage private sector participation in the energy sector.

Mongolia ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 1999.
4. Conclusion

Mongolia performs reasonably well overall and very well with respect to its grouping (Group C), largely above average for both electricity and gas. Within its Group, Mongolia has an electricity sector score of 0.746 relative to a Group C average score of 0.461. Its gas sector is too limited for rating.

Institutionally, Mongolia has made significant strides and offers a sound regulatory framework and operational structure. Additional clarity of roles and responsibilities would serve to heighten investor confidence in the sector, and additional renewable energy incentives and support schemes would likely increase needed investment.

Electricity spider graph – Mongolia

Note: The diagram presents the electricity sector results of Mongolia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Mongolia are represented by the thick bold line. See next page for comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

Electricity Sector - Comparative view of Group C countries
RUSSIA COUNTRY PROFILE

Overview

Russia has a population of approximately 141.64 million, with a GDP of approximately USD 1,608 billion.\textsuperscript{xviii} The total primary energy supply in 2007 was 672.14 Mtoe, of which 2.3% is hydro power, 15.2% is coal/peat, 1.0% is combustible renewable and waste (including biomass, biogas and waste), 6.2% is nuclear power, 54.3% is natural gas, 19.7% is oil and 1.3% of geothermal/solar/wind. Net exports are around 544.40 Mtoe. CO$_2$ emissions are 1587.36 (measured as Mt of CO2).\textsuperscript{ixix}

1. Institutional structure

In the Russian Federation (RF) the energy sector’s regulatory functions are distributed among several authorities: the Ministry of Energy (ME), the Federal Tariff Service (FTS), the Federal Anti-Monopoly Service (FAS), and the Ministry of Economic Development (MED). For the electricity sector a non-commercial organisation, the Market Council, has been established to control the proper execution of Wholesale Electricity Market Rules.

The ME and the MED are charged with primary responsibility for the energy sector; ME develops investment programmes and authorises energy facility projects and MED deals with general energy regulation issues in the framework of economic planning and development. Tariff regulation is the responsibility of the FTS.

The FTS is a federal executive body which regulates tariffs of natural monopolies, and in particular tariffs in the electricity, oil and gas sectors. The FTS reports directly to the government. It was established in its current form in 2004, replacing the former Federal Energy Commission.

The Head of the FTS, who may have up to 5 deputies, is appointed (and may be dismissed) by the government. Appointment is for an undefined term of service.

The FTS consists of 12 administrations and 2 independent departments. According the maximum headcount established by the Government, the FTS may have up to 527 staff members. As of January 2009 the number was 359.

FTS does not have regional offices, however there are regulatory governmental agencies (Regional Energy Commissions or RECs) that operate on a regional level and apply rules and methodology guidelines issued by FTS.

Resolution of the RF Government No. 995 of 26 July 2004, “On tariff setting decisions and powers the FTS”, provides the FTS with a Management Board, comprised of 12 members and drawn from FTS executives and officials from various ministries, with the FTS Head serving as the chairman of the board.

\textsuperscript{xviii} Information herein is drawn primarily from the regulator (FTS) and information made available on its website and Gazprom’s Annual Reports.
The members of the Management Board are civil servants; conflict of interest provisions stipulated in the Federal Law of RF “On State Civil Service in Russian Federation”, dated 27 July 2004, prohibit them from:

- carrying out any other business activity
- holding profit generating securities in cases stipulated by the federal law
- receiving rewards from natural persons or legal entities executing official duties
- being engaged in payable activity financed solely from funds of foreign states, international and foreign organisations, or foreign citizens
- being member of the management body of any commercial entity (and therefore of any entity regulated by the FTS)

The monthly salary paid to federal civil officials, including members of the Management Board and personnel of the FTS, is established on a differentiated basis by the Orders of the President, and is normally lower than that of companies in the corresponding sector.

The FTS is financed from a special chapter of the federal budget.

Governmental authorities do not formally have the right to overrule, or in any way alter, the decisions of the regulatory authority, even though the government may represent its views through its representatives on the Management Board. FTS’s decisions may only be appealed in court.

The FTS is responsible for setting tariffs (tariff limits) and settling disputes concerning regulated services.

The FTS is also empowered to impose penalties for violation of law on natural monopolies concerning tariff and price regulation.

The FAS is the federal-level executive governmental body which controls the execution of the competition laws and related areas. It was established by the Decree of President of Russia No. 314 of 9 March 2004.

2. Electricity sector

a. Market framework

The strides that Russia has made to reform its electricity market over the last decade offer a useful model for neighbouring countries. The monopoly RAO Unified Energy System (UES) (established in 1992 pursuant to Decrees of the President) has been restructured and unbundled, with 20 of the resulting companies being privatised in 2008. The reforms created six wholesale thermal power-generating companies (OGKs – which remain separate from hydro and nuclear assets) and 14 territorial generating companies (TGKs – which provide district heating as well as power). Foreign investors include E.ON and RWE of Germany (in OGK 4 and TGK 2, respectively), ENEL of Italy (in OGK 5) and Fortum of Finland (in TGK 10, plus a minority share in TGK 1). The (60%) state-owned RusHydro JSC manages the vast majority of the Russian hydro power plants.

The operation of the country's transmission grid Unified National System (UNS), remains under state control through the Federal Grid Company, which is the transmission system operator (TSO).
In 2006 a wholesale market (power exchange) was established. The share of electricity that is sold at non-regulated prices is increasing gradually, from 5% of the forecast balance prepared by the FTS for 1 January 2007 to full liberalisation of the wholesale electricity (capacity) market in 2011. By that date, all market participants, excluding the household sector, will be eligible and 100% volumes of electricity will be traded at free prices. As of 1 January 2010, 60% of the non-household market has been liberalised.

In the interim phase, the rest of traded electricity is exchanged and paid for at regulated prices pursuant to regulated bilateral contracts (on a take-or-pay principle).

The wholesale market is made up of:

- **Day-ahead market (DAM):** based on the mechanism of competitive price formulation or auction of electricity buyers’ and sellers’ bids. Auctioning is conducted daily, one day ahead of real time, and simultaneously for each hour of the day in question. Based on its results, balanced planned hourly output/consumption volumes are formed and equilibrium prices are determined, taking into account system constraints and electricity transmission losses. A major bid selection criterion is the maximisation of total benefit to DAM participants (maximum of the welfare function).

- **Free bilateral contracts:** the execution of free bilateral electricity contracts by market participants, offering a complementary trade mechanism by which contractual prices and supply volumes are defined by the parties. For the preservation of the day-ahead market financial balance, the parties to the contract pay the cost of electricity load losses and system constraints associated with the corresponding contract (thus free contracts parties pay the nodal price difference).

The DAM is complemented by a balancing market. Volumes of actual output/consumption deviation from planned amounts for each participant are sold and purchased in the balancing market. The balancing market calculations are performed one hour ahead.

No liberalisation time frame has been established yet for the household sector.

**b. Network access and tariffs**

Russian legislation stipulates non-discriminatory access to grid infrastructures. The FAS is responsible for settling disputes that may arise from access denial, whereas FTS and RECs are responsible, respectively, for those related to tariffs on transmission lines (UNS) and regional distribution networks (less than 220 kV).

The FTS is responsible for setting tariffs, in compliance with the detailed federal relevant legislation.

The RECs are responsible for setting tariffs at the regional level according to the guidelines issued by the FTS. The FTS approves and amends:

- tariffs for electricity transmission services through the UNS

---

90 FTS website: [http://www.fstrf.ru/eng/about/dep/electro](http://www.fstrf.ru/eng/about/dep/electro).
marginal (i.e. bottom and/or ceiling) tariff levels for electric energy provided to consumers in the territorial entities of the Russian Federation by producers of energy inclusive of marginal tariff levels for electric energy provided to households

- marginal tariff levels for heat energy produced by electric power stations functioning as co-generators
- tariffs or their marginal levels for electric energy (power) sold by producers at the wholesale market of electric energy (power) at regulated prices
- tariffs for services of organised trade operations in the wholesale market of electric energy (power); for services of operational-dispatch supervision in electricity sector; for services ensuring system reliability in electricity sector; for organised operations and development of the UNS
- indicative prices for electric energy and power for traders of the wholesale market that supply residential customers for the purpose of shaping regulated contracts
- marginal tariff levels for services of electric power transmission through power distribution networks within the territorial entities
- fees for technical connection to the UNS

Regulated electricity prices for retail end-users, which are differentiated by categories, are typically the sum of the following components: weighted average generation cost, capacity cost in the wholesale market, cost of ancillary and system services, and retail supply cost (including distribution). The free market prices of the wholesale market (DAM) are transferred to end-user prices for participants of retail market in accordance to liberalised market share. Thus retail market participants (except for households) in fact partially pay for consumed electricity at regulated tariffs and partially (in accordance to liberalised market share) at free market prices.

c. Operational environment

The ME is responsible for monitoring the expected future demand, foreseeing the need for additional production capacity and ensuring the security of supply.

The legislation and market structure include a last resort supplier (LRS), which operates within the territory of the subjects of the Federation (Service Area of the LRS). Within each subject of the Federation several LRS can operate. LRS are defined for a certain period at special tenders. Each LRS is obliged to conclude contracts for electricity supply with any customer within their service area.

Currently, the legislation does not include any provision on vulnerable customer categories.

In the competitive areas of the electricity market - that is generation and supply - there are no limitations on foreign capital investment. Transmission assets and facilities are controlled by the state.
Each federal executive authority is obliged to prepare and publish annual reports on its activity. The annual reports of the FTS are available on its official website: www.fstrf.ru. FTS decisions are also posted.

3. Gas sector

a. Market framework

In Russia, one state-controlled company, OAO Gazprom,\footnote{According to Gazprom’s 2009 Annual Report, as 31 December 2008, the Russian government controls 50.002% of shares in Gazprom through: the Federal Agency for Federal Property Management (38.373%), Rosneftegaz (10.740%) and Rosgazifikatsiya (0.889%); ADR holders own 22.150%.} dominates the gas sector, accounting for over 60% of Russian reserves (almost 30 tcm according to IEA 2008) and almost 85% of Russian production, amounting in 2007 to about 548.6 billion cubic meters. This means that Gazprom is by far the largest gas producing company in the world.

Oil companies and independent gas producers each account for another 20% of the Russian gas reserves and produce the balance of the total production.

Since the beginning of 2000s, international concern about Gazprom’s capacity to keep current production levels has increased. For more than 20 years Russian gas production has relied on three super-giant fields (Medvezhe, Urengoi and Yamburg) located in the Nadym-Pur-Taz region of western Siberia. These fields are all well in their declining phase. To compensate for declines at older fields, in the next decade, Gazprom will have to put into production undeveloped giant fields for which it holds development licenses. The three main options are: the Ob and Taz Bay fields, the Yamal Peninsula fields and the Shtokman fields in the Barents Sea.

Gazprom owns the Russian gas transit and transmission system. The year 2006 marked a change in the legal status of Gazprom Export – the company’s export subsidiary – in relation to exports. Before 2006, Gazprom enjoyed a \textit{de facto} monopoly position over gas exports, but not a legal one. Starting from mid 1990s, the monopoly of Gazprom was challenged: first, independent companies such as Itera began to export gas to CIS countries; then, about a decade later, Eural Trans Gas started exports to Europe. Partly in response to these developments, and mainly as a consequence of the January 2006 Ukrainian gas transit/supply crisis, the 2006 Law “On Gas Exports” gave Gazprom a legal monopoly.

Russian gas exports to Western Europe started in December 2007, initially to Austria. Overall exports to Europe, in the period 1997-2007, have shown a steady increase, reaching at the end of the period a level of approximately 160 bcm per year.\footnote{Gazprom’s 2008 Annual Report.} This means that Gazprom is by far the largest exporter to Western Europe and of critical importance for the region’s security of supply. The vast majority of gas is sold on long-term 20-25-year contracts, mostly renewed in the first half of the 2000s; however it is worthy to note that in recent years Gazprom Marketing and Trading, Gazprom’s UK subsidiary, has an increasingly active short-term business in the Northwest Europe.

Gazprom’s deliveries to Europe depend mostly on transit through CIS countries. Currently, more than 90% of its gas exports transit Ukraine, Belarus and Moldova (Ukraine alone accounting for about 75%). Only supplies to Finland...
and Turkey (through the Blue Stream submarine pipeline) are direct. In order to reduce dependence on transit countries and to meet Europe’s growing import needs, Gazprom has launched two major submarine pipeline projects: the Nord Stream pipeline and the South Stream pipeline. The former will link Russia’s Baltic coast near Vyborg with Germany’s Baltic coast in the vicinity of Greifswald, with a total length of about 1,200 km (planned for commissioning in 2011); the latter will run under the Black Sea from the Russian coast (Beregovaya compressor station) to the Bulgarian coast, with a total off-shore length around 900 km. At the same time, for domestic use and for re-export Gazprom has been buying cheaper gas from neighbouring CIS countries, such as Turkmenistan and Kazakhstan. A major issue for direct imports from Central Asia to Europe has been transportation capacity, which will improve in the near future thanks to the construction of several large pipelines.

At the wholesale domestic level, the Mezhregiongaz (MRG) gas exchange was established in November 2006. The exchange was intended to accelerate the transition to unregulated gas prices by providing a price discovery mechanism. In 2007, the first year of trading, 10 bcm of gas were traded, with Gazprom accounting for about half of the volumes and independent operators for the rest. In 2008 volumes were below that level.

Gazprom is also the largely dominant end-user supplier, controlling the vast majority of the regional distribution companies.

b. Network access and tariffs

The law stipulates that gas transmission and distribution network owners are obliged to provide non-discriminatory third-party access to free capacity, according to procedures determined by the government. The procedure to access Gazprom’s system is currently stipulated in the Regulation “On the Provisions for Access of Independent Enterprises to the Gas Transportation System of JSC Gazprom” approved by the Resolution No. 858 of the RF Government, dated 14 July 1997.

FTS regulates and approves tariffs for the following areas:

- gas transmission and distribution
- wholesale supply
- gas supply to end users (as maximum prices)
- liquefied gas used in the household sector

Since the end of 2006, a new policy has been in force in Russia that addresses price increases, specifically holding that by 2011 domestic prices will be at “parity” with export prices (less transportation and excise duty), resulting in a domestic price that would be 60-70% of export prices. This is the culmination of steady progress over the past 2-3 years to bring domestic gas prices to more cost-reflective levels. In 2008, prices were slightly less than half of the European level. The price reform envisaged by the new policy (even if the fulfilment of

---

93 Companies that are not affiliated with Gazprom OJSC, Yakutgazprom, Norilskgazprom, Kamchatgazprom and Rosneft are not subject to regulation.
the target price for 2011 appears to be uncertain) is expected to have a knock on effect on energy efficiency, bringing needed improvements in the sector.

c. Operational environment

In the gas sector the role of the ME is less prominent than in the electricity sector. Nevertheless, it assesses and coordinates draft investment plans of gas companies and prepares draft decisions for the government; for that purpose, it can require relevant documentation from the involved companies.

The legislation does not formally include a last resort supplier in the gas sector. In practice, regional gas companies belonging to the Gazprom Group perform this function.

As for security of supply (at the end-user level) and protection of vulnerable customers, the law “On Gas Supply in the Russian Federation” provides a number of qualified buyers with a priority right for the conclusion of gas supply contracts. These subjects are essentially state or municipal entities and utilities that supply gas to household consumers (and provide universal service).

Foreign capital investment in the gas sector (exploration, production, transmission, wholesale supply and export) is subject to state control, and is included in the list of business activities “which have strategic value for the Defense of the State and National Security Support”, according to the Federal Law No. 57 of May 2008, “On the Procedure of Foreign Investments into Economic Organisations of Strategic Importance for the Defense of the State and National Security Support”.

4. Renewable energy sources/energy efficiency

The energy policy of Russia is broadly outlined in the Energy Strategy document approved by the Government in 2000 and confirmed in 2003. The document sets out key energy policy for the period up to 2020 and identifies several priorities including: increasing energy efficiency, reducing impact on the environment, and sustainable development.

Russia’s current use of renewable energy is very low, although it has huge wind, hydro, geothermal, biomass and solar energy resources. In particular, Russia’s territorial expanse of arable land provides ideal conditions for biomass production for both biofuels and heat generation. Russia has over 20 million unused hectares of available land.

The ME is charged with primary responsibility for the implementation of the national renewable energy and energy efficiency policy.

Currently, the Russian legislative and regulatory framework appears to provide insufficient mechanisms for renewable energy promotion. A comprehensive draft law on a renewable energy has been pending since 1998. There is a policy on the promotion of electricity generation on renewable energy basis and it is laid down in the Federal Law No. FZ-250 dated 4 April 2007 “On Introduction of Changes into Separate Regulatory Acts of Russian Federation Connected with the Implementation of Measures on the Restructuring of the Unified Energy System of Russia” with concretisation and detail specification in further bylaws. Although there is still no specific renewable energy legislation, the Russian Strategy for Energy Efficiency, produced in 2006 and specific to energy efficiency rather than the sector overall, mentions the importance of distributed power generation from renewable sources.
A November 2007 amendment to the Electricity Law of 26 March 2003 stipulates that the government may decide to establish special certificates for renewable energy producers or special tariffs (i.e. mark-up over average market price) for access to the wholesale markets for the electricity generated by renewable technologies.

The Law stipulates support mechanisms for energy generation on renewable energy basis including:

- subsidies for grid connection costs for generators with a capacity below 25 MW and possibility to cover other costs from the federal budget
- obligation for grid companies to buy electricity from renewable energy at fixed tariffs established by the government for the compensation of their technical losses
- mark-ups to the RES-electricity price above the wholesale market price

However, there are still no provisions regarding licensing, land use, and the installation of capacities for renewable energy.

Similarly, there is no formulated governmental policy and comprehensive legislation for the promotion of combined heat and power generation (even though the above-mentioned amendment of March 2006 applies also to CHP) and energy efficiency.

The President approved the Kyoto Protocol to the United Nations Framework Convention on Climate Change on 4 November 2004 and Russia officially notified the United Nations of its ratification on 18 November 2004. The issue of Russian ratification was particularly closely watched by the international community, as the accord was brought into force 90 days after the Russian ratification.

Russia does not face mandatory cuts since its greenhouse-gas emissions fell well below the 1990 baseline due to a drop in economic output after the break-up of the Soviet Union. Because of this, despite its growing economy, by 2012 Russia will not exceed the level of emissions in 1990.

It is debatable whether Russia will benefit from selling emissions credits to other countries in the Kyoto Protocol, although Gazprom has already entered the market.

Russian renewable energy producers aim at Emission Reduction Units from Joint Implementation projects under article six of the Kyoto Protocol.

5. Conclusion

Russia performs reasonably well overall and very well with respect to its grouping (Group C), largely above average for both electricity and gas. Within its Group, Russia has an electricity sector score of 0.829 relative to the Group C average score of 0.461. Russia’s electricity sector performs well in comparison to the average assessment score of the Energy Community contracting parties and observers (0.827) though it lags behind the EU Member States (with a group score average of 0.93). With regard to the gas sector, Russia’s score is 0.648, well above the Group C average of 0.399. In comparison to the average assessment score of Group B (0.711) and Group C countries (0.864), however, Russia does not perform that well.

The institutional structure and the regulatory framework are significantly above the average of its group, and the regulatory body, FTS, appears to be close to international standards in terms of authority.
Russia’s efforts in the last decade to reform its electricity market offer a useful model for its neighbours. The former monopoly RAO UES has been unbundled, and 20 of the resulting companies were privatised in 2008 — several with foreign investor participation. The wholesale market can be regarded as competitive and the reform is now smoothly moving towards a full liberalisation of the non-household market.

The situation is sharply different in the gas market, in which the state-controlled Gazprom has a legal monopoly on gas exports. Huge investment is needed in the exploration and production sector to allow Gazprom to meet expected domestic demand and export contractual obligations and to compensate the declining production of aging fields.

Since 2006 Russia has had a new policy to address price increases and requires that by 2011 domestic prices will be at “parity” with export prices (less transportation and excise duty); this in order to bring domestic gas prices to more cost-reflective levels. The price reform is expected to have a very positive effect on energy efficiency.

Electricity spider graph – Russia

Note: The diagram presents the electricity sector results of Russia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Russia are represented by the thick bold line. See next page for comparison purposes, the shaded area presents the electricity sector average of the Group C countries.
Electricity Sector - Comparative view of Group C countries

Gas spider graph - Russia

Note: The diagram presents the gas sector results of Russia, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Russia are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.

Gas Sector - Comparative view of Group C countries
TAJIKISTAN COUNTRY PROFILE

Overview

Tajikistan has a population of approximately 6.74 million, with a GDP of USD 5,134 million. The total primary energy supply in 2007 was 3.90 Mtoe (million tons of oil equivalent). Consumption structure is as follows: 37.8% is hydro power, 2.0% is coal/peat, 13.9% is natural gas, and 46.3% is oil. The country’s net imports of energy resources are about 2.32Mtoe. CO₂ emissions are 6.90 Mt.

1. Institutional structure

The Ministry of Energy and Industry (MEI) is the public authority managing the fuel and energy sector. It is the primary government body responsible for the development and implementation of energy policy. The Minister of Energy and Industry is appointed and dismissed by the President of the Republic, also acting as Chairperson of the Government.

The Law on natural monopolies, in force since 6 October 2008, establishes that regulation in the sphere of natural monopolies is carried out by authorised state bodies, which are identified by legislative acts (laws or decrees).

With respect to the energy sector, regulation is the responsibility of the Ministry of Economic Development and Trade (MEDT), which includes a dedicated department to which energy functions were transferred from the State Agency on Antimonopoly Policy and Entrepreneurship Support pursuant to the President’s Decree of 30 November 2006. The State Agency has maintained responsibility on issues related to entrepreneurship support.

The Government’s Resolution of 28 December 2006 established a staff of 280 persons for the MEDT (without maintenance personnel), including 200 employees for its central office. The Civil Servant Code and the Law on Civil Service envisage that, during staff selection and deployment in public authorities, a civil servant occupying an executive position must carry out his duties without display of regionalism and without appointment of staff on the basis of personal devotion. MEDT is fully financed from the state budget within the statutory defined budget process framework. The budget for public authorities is formed by the government and approved by the Parliament.

The MEDT is responsible for the following in the energy sector: tariff methodology, tariff level proposals, service quality, consumer complaints and anti-competitive behaviour. MEI is responsible for: licensing, approval of investment plans and technical and safety standards. Final approval and amendment of tariffs for end-users is within the competency of the President.

To investigate cases of antimonopoly law violations, the Minister appoints a working group consisting of MEDT employees and, if necessary, external experts. Inspections of economic entities are carried out on the basis of the Minister’s orders.

94 Information provided below is drawn primarily from the sources listed at the end of this document.
2. Electricity sector

a. Market framework

The electricity sector is managed by Barki Tojik OJSHC, a 100% state vertically-integrated energy company, responsible for all state-owned assets in the electricity sector (all electric power plants (mainly hydro power plants), transmission networks, and three regional distribution companies).

In 2004, Barki Tojik was included in the structure of the then Ministry of Energy but it was later separated by a decree of the President of Tajikistan of 28 March 2006. Officials have repeatedly stated their intention to create a competitive wholesale electricity market but, so far, no practical step has been made in this direction.

The only exception to the system of full state ownership is a concession for the management of a small and isolated autonomous vertically-integrated energy company (Pamir) located in the remote Pamir Mountains, in the southeast region of the country. A commercial department of Agha Khan Foundation undertook this initiative, due to the lack of funds to improve the worsening electricity conditions in the region.

b. Network access and tariffs

The legislation does not envisage third party access rules. Due to the de facto monopoly of Barki Tojik, except for the isolated region of Pamir, the third-party access to a network is not currently an issue in Tajikistan. All activities related to electricity production, transmission and distribution, with the exception of self-generation are subject to licensing. Electricity tariffs are differentiated for the following major end-consumer groups:

- industrial consumers
- agricultural producers
- budget-funded organisations
- pumping stations and electric transport
- electric boilers for building heating
- households

Tariffs for end-consumers (except for the Tajik Aluminium Plant – the country’s largest electricity consumer and which provides around 70% of Tajikistan’s foreign currency flow) are also divided into summer and winter tariffs. In summer, when there is abundant water in mountain rivers and HPPs (hydro power plants) produce more electricity, the electricity tariff is substantially lower than in winter.

Socially vulnerable population categories are provided budget subsidies to pay for electricity, to an amount of up to 150 kWh per family.

Collection of payments from electricity customers is low. The President highlighted the seriousness of the problem in a speech in 2008, noting that in 2007 Barki Tojik closed with a financial loss of 39 million somonis as a result of non-payments, which is about 11% of its expenses.
c. Operational environment

Foreign investments in the sector are permitted and supported by law. Construction of new generating capacities in the energy sector requires governmental permission and a tender process. Foreign investors may be granted tax discounts and other benefits.

A number of energy facilities have been built with involvement of foreign state capital (Russia, China, Iran), including three units of Sangutda HPP, 167.5 MW each, North-South 500 kV power transmission line, etc. MEI and Barki Tojik are responsible for promoting investment in new generating capacities, transmission lines and/or rehabilitation of existing assets, supplies from adjacent countries, etc.

MEDT reports to the Parliament at least once a year. The President may seek a report at any time. Barki Tojik is required to submit its budget and plans for approval to the Ministry of Finance and the MEDT. Legislation requires the MEDT in its regulatory capacity to publish its decisions. The MEDT is required by law to hold public hearings. It must publish information about the hearing date and venue in the press, at least three days prior to the hearing. Public hearings are held no later than 10 days prior to making a decision on approval of tariffs. In practice, information on such publications and public hearings is not readily accessible.

MEI develops electric power engineering development programmes and national fuel and energy balances for a medium- and long-term outlook. It also monitors expected future demand for electricity, and submits, if necessary, proposals to the Government. MEDT’s duties include quality control of services provided by monopolies. For this purpose, MEDT inspects enterprises both on its own initiative and on the clients’ requests, and issues, if necessary, binding injunctions.

Network service quality is monitored by Energonadzor State Enterprise.

3. Gas sector

a. Market framework

Gas demand, which amounts to less than 1 bcm per year, is covered predominantly (98%) by imports from Uzbekistan. Imported gas transportation and distribution are handled by the state-owned monopoly, Tajiktransgaz OJSC. The remaining 2% of gas demand is met by Tajikistan’s own resources.

b. Network access and tariffs

Due to the monopolistic nature of the sector, the question of third-party network access has yet to arise in Tajikistan.

Tariffs for transportation of natural gas through main distribution gas pipelines for consumers are set by MEDT. A postage stamp tariff methodology is used, taking into account transportation volumes and cost reimbursement regardless of distance.

Tariffs for imported gas sale are uniform for all consumer categories including households, budget-funded and commercial organisations, and industrial enterprises (reduced tariffs may be set for large enterprises). Tariffs take into account the purchase price of gas, as well as costs of its transportation and distribution.
c. Operational environment

MEI is responsible for developing the fuel and energy sector as a whole, including planning of gas transportation and sale. One of its functions consists of planning and forecasting the dynamics of demand for and supply of, all types of energy resources for considering and amending, plans and programmes under implementation (these plans and programmes have not been found in open sources).

MEDT’s duties include quality control of services provided by monopolies. For this purpose, MEDT inspects enterprises, both on its own initiative and on the clients’ requests, and issues, if necessary, binding injunctions.

Network service quality is monitored by Energonadzor State Enterprise.

4. Renewable energy sources/energy efficiency

Tajikistan’s policy on energy efficiency and renewable energy is defined by the National Strategy and the National Development Programme for the period until 2015, as well as the Law on Energy Saving of 10 May 2002 (energy efficiency) and the Law on Energy of 30 July 2007 (on combined heat and electric energy).

To date, there is no separate law on renewable energy. However, work is carried out on the use of renewable energy. For example, the President stated in April 2009 that 15 mini-HPPs had been put into operation in January-March 2009 and that construction of 15 more would be completed by the end of the year. To improve legislation in the above-mentioned fields, the President commissioned a plan for the following in his Decree on 24 April 2009, which included:

- Energy Saving Programme for 2010-2015;
- measures for large-scale use of non conventional and renewable energy

In the last few years, Tajikistan has prioritised energy efficiency. For example, a Presidential decree in 2009 ordered the replacement of energy saving lamps in the public buildings and streets, as well as 240,000+ to lower income families. In addition, two plants for production of such lamps are to be built.

Tajikistan ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in October 2008 within the Clean Development Mechanism framework.

5. Conclusion

Tajikistan performs poorly with respect to its grouping (Group C) and well below average for electricity. Within its Group, Tajikistan has an electricity sector score of 0.214 relative to a Group C average score of 0.461.

The absence of an independent regulatory authority contributes largely to reduce the overall score given to the country. In fact, one of the priorities of Tajikistan’s energy sector is the establishment of an independent regulatory body capable of effectively intervening in the planned restructuring of the sector. Moreover, the energy sector is increasing its focus on the development of regional cooperation and regional energy exchanges by strengthening regional energy trade.
Hydro power is one of the promising export potentials of Tajikistan and it has a hydro power potential equal to an annual production of 527 billion kWh.

At present, due to outdated infrastructure, low tariffs and inadequate billing systems, energy utilities struggle to cover their costs and, as a consequence, investment in improving the quality of service is limited. Tackling these issues appears to be a prerequisite to attracting foreign investment necessary in the energy system.

Electricity spider graph – Tajikistan

Note: The diagram presents the electricity sector results of Tajikistan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Tajikistan are represented by the thick bold line. For comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

Electricity Sector - Comparative view of Group C countries
TURKMENISTAN COUNTRY PROFILE

Overview

The Republic of Turkmenistan (RT) has a population of approximately 4.96 million, with a GDP of USD 18,269 million. The total primary energy supply in 2007 was 18.07 Mtoe (million tons of oil equivalent), of which 73.7% is natural gas and 26.3% is oil. Turkmenistan’s net exports of energy resources reached 48.01 Mtoe. CO₂ emissions are 45.31 Mt of CO₂.

1. Institutional structure

The Ministry of Finance, engaged in handling tariff methodology matters and, in particular, setting basic tariffs for transmission, shapes a tariff policy in the national economy.

The Ministry of Energy and Industry (the Ministry) is the state authority responsible for management of the country’s electricity sector. The Ministry includes Turkmenenergo State Electric Energy Corporation, a vertically-integrated entity managing all state assets in the sector.

To manage the country’s oil and gas sector, a new governmental authority – the State Agency for the Management and Use of Hydrocarbon Resources under the President of Turkmenistan (the Agency) was established in March 2007 by a Presidential Resolution.

The Agency assumed all the powers of the Ministry of Oil and Gas Industry and Mineral Resources concerning the issuance of licences for exploration survey, development of deposits, oil and gas production and transportation. The Agency also concludes agreements with contractors and sets uniform rules for all the companies operating in the country. The Agency operates under the President of Turkmenistan, whose remit includes all political decisions in the country, including the oil and gas sector as strategic for Turkmenistan. The Agency is responsible for all matters relating to the use of hydrocarbon resources, including those relevant to political decisions (gas export, construction of new export gas pipelines, and others). The Agency is headed by a Director appointed and dismissed by the President of Turkmenistan. Nominations for Agency unit heads are agreed upon with the President of Turkmenistan.

On 20 August 2008, the Law on Hydrocarbon Resources was signed, legislatively enshrining the powers of the State Agency for the Management and Use of Hydrocarbon Resources. The Agency, *inter alia*, exercises control over performance of works, and manages assets and financial resources. A tariff for gas transportation through a main gas pipeline is set and charged subject to agreement with the Agency.

According to the Law of Hydrocarbon Resources, the Agency’s income sources consist of royalties, bonuses, income on the production sharing agreements (PSAs), income on other contracts, and other income including assets and financial means. The Agency deducts 10% of all such income to the state budget of Turkmenistan. A procedure of calculation and payment of the said deductions to the state budget is set forth by the Ministry of Finance, the Chief State Tax Service, and the Agency.

---

95 The information provided below was drawn mainly from the sources listed at the end of this document.
The share of the Agency’s income left payment of the above-mentioned sums to the budget remains at the Agency’s disposal. The Agency has its own budget, whose expenditures are controlled by the Government represented by the Chairperson of the Government (i.e. the President of Turkmenistan).

Decisions made by the regulator (the Agency) may be cancelled only by the President of Turkmenistan. Other state bodies may only submit to the President of Turkmenistan their opinions and proposals on some or other matter related to the Agency.

The Ministry of Oil and Gas Industry and Mineral Resources secures implementation of a uniform policy in the matters related to the use of mineral raw resources, analytical work and preparation of long-term plans and nationwide programmes of the mineral raw base development.

Turkmengas State Concern develops, produces, reprocesses, transports and sells gas, gas condensate and liquefied gas.

The Law establishes that any dispute:

- between the Agency and a Licensee related to suspension and/or cancellation of a License shall be settled, as far as possible, through negotiations
- between the Agency and a Contractor related to performance of a Contract shall be settled, as far as possible, through negotiations including the involvement of independent international experts, or according to the dispute settlement procedures previously agreed upon in the Contract

If a dispute cannot be settled within three months upon a written request of one of the disputing parties, another party may apply to international arbitration bodies according to the Contract, by notifying the adverse party in due time in written. All other disputes, including disputes between the contractor and the Agency and other persons of Turkmenistan, shall be settled by kazyet and arachi kazyet (judicial instances) of Turkmenistan.

The management of Turkmengas SC may appeal to the Agency in due course specified by the state mechanism.

2. Electricity sector

a. Market framework

The electricity market in Turkmenistan is represented by a vertically integrated monopoly, namely Turkmenenergo State Corporation.

Turkmenenergo was established on 1 July 2005, by renaming Kuvvat State Energy and Technology Corporation, founded in 1993, pursuant to the Resolution by the President of 28 June 2005. At present, the Turkmenenergo system includes:

- 8 state central heating plants
- 6 territorial vertically integrated companies – electricity producers (energy companies)
- 1 electric networks enterprise
- a company responsible for electric lighting of the city of Ashgabat (the country’s capital)
- a state body for electricity sector control
- some auxiliary companies

Since 1 January 1993, electric power is supplied to the population, within the set amounts, free of charge.

It should be noted that, upon independence, Turkmenistan’s leaders renounced the idea of privatisation of electric power facilities, considering them as strategic for the country’s vital activities and sustainable economic development. Therefore, the country’s electricity sector is represented by a single vertically integrated corporation, and this situation in the sector will most likely not change in the foreseeable future.

b. Network access and tariffs

No information is currently publicly available on network infrastructure access, tariff policy and electricity tariffs in Turkmenistan.

c. Operational environment

Pursuant to the Law on Foreign Investments (2008):
- foreign investors and enterprises with foreign investments are granted a national legal regime
- foreign investors are free to choose the size, composition and structure of capital of the enterprise they found, unless otherwise specified by Turkmenistan’s laws
- activities and/or territories in relation to which investment activities are restricted or prohibited, as well as other restrictions for foreign investors, may be set forth by Turkmenistan’s laws only to the extent necessary for the protection of the foundations of the constitutional order, defence capability and security
- customs duty reliefs and other preferences are granted

Foreign capital, particularly from Iran and Turkey, takes active part in Turkmenistan’s energy sector, meaning to increase electricity exports to these countries. A number of projects are currently underway for the construction of new, and the reconstruction of existing power-generating capacities using General Electric (U.S.) steam-and-gas technologies and equipment. A long-term agreement on increasing electricity production volumes in Turkmenistan is active between the Ministry of Energy and Industry of Turkmenistan General Electric.
3. Gas sector

a. Market framework

A state monopoly – Turkmengas State Concern – operates in Turkmenistan’s gas sector.

Within established quotas, gas is supplied to the population of Turkmenistan free of charge.

There was no privatisation or liberalisation in Turkmenistan’s gas sector. However, the Law on Hydrocarbon Resources (e.g. Article 37 “Title to pipeline transport”) allows that, within the framework of oil works, a contractor is deemed the owner of an infield pipeline built thereby, though title to a main pipeline shall belong to Turkmenistan unless the Government makes a specific exception.

The 2008 Law on Foreign Investments made possible: share interests of foreign investors in enterprises jointly with legal and natural persons of Turkmenistan; establishment of enterprises fully owned by foreign investors, establishment of branches of foreign legal persons, or purchase of existing enterprises; purchase of movable and immovable properties, except for those restricted in civil circulation by Turkmenistan’s legislation and purchase of property and non-property rights established by the legislation of Turkmenistan.

b. Network access and tariffs

Third-party access to gas transportation systems is accomplished on the contractual basis with Turkmengas SC, coordinating its actions with higher authorities, especially if a contract is concluded with “important” customers, or for large volumes of gas pumping.

A gas transportation tariff is set by Turkmentransgas Association, agreed upon with Turkmengas SC, and approved by the Agency. A procedure of appealing against the body’s decision concerning gas-transport network access conflicts is implemented through appeals to higher and controlling bodies of the country, as well as in judicial proceedings.

c. Operational environment

The Agency is responsible for new investments, the Ministry of Oil and Gas Industry and Mineral Resources is responsible for sector development planning, and Turkmengas State Concern is responsible for gas sale.

Turkmenistan officially proclaimed an “open-door” policy and formation of a favourable investment climate. The prospects of collaboration in developing Turkmenistan’s gas industry for foreign business were the key agenda item of the Exploration, Prospecting and Development of Gas Fields Conference, organised in Ashgabat by the Turkmengaz State Concern in March 2008. At the same time, a new wording of the Law on Foreign Investments was passed. Negotiations are underway concerning new investment projects in Turkmenistan with well-known oil and gas companies from Russia, the United States, China, United Kingdom, France, Germany, Japan, and some other countries. Presence of foreign capital in Turkmenistan’s economy is expanding each year.
4. **Renewable energy sources/energy efficiency**

Turkmenistan possesses a huge potential for wind and solar electric energy, but rich gas and oil deposits have not encouraged development of this sector. Besides, the population does not pay for electricity consumption due to state subsidies. All these conditions do not promote successful development of renewable energy projects in this market.

Nevertheless, the President Gurbanguly Berdymukhamedov defined the use of renewable energy, primarily the use of solar and wind energy, as a priority area in the development of the country’s energy sector.

Research on alternative energy in Turkmenistan is conducted by Gyun (Sun) Research, and Production Association. Gyun has developed a few installations and complexes that use solar and wind energy for industrial purposes. These include:

- general-purpose solar drying unit
- solar desalinating module for desalination of saline water having any mineralization degree
- UV unit for drinking water decontamination
- solar heating module for hot water production

Two experimental autonomous sheep-breeding solar complexes have been built for farms engaged in distant-pasture cattle breeding to maintain a 1000-head herd of sheep and support vital activities of a sheep herder team. Each of them includes a wind diesel unit, a hydraulic system for saline water lifting, a solar desalinating stock for water collection and desalination, and a residential house blocked with a solar greenhouse that allows using solar energy for heating.

In June 2009, the Islamic Development Bank provided funding to Turkmenistan for the implementation of a new project called “Studying a possibility of silicon production for solar photoelectric converters”.

Turkmenistan ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 1998. Turkmenistan has no quantitative obligations on the Kyoto Protocol and may engage in GHG emissions trading through the implementation of projects within the Clean Development Mechanism (CDM).

To secure fulfilment of Turkmenistan’s obligations ensuing from the UN environmental conventions and programmes, a State Commission has been established. The President signed a Resolution on 14 May 2009, prescribing the creation of an inter-agency commission on CDM to secure active engagement of advanced technologies and foreign investments to the national economy through the implementation of environmentally safe and energy-saving technologies within the Kyoto Protocol CDM framework.
5. Conclusion

Turkmenistan performs poorly with respect to its grouping (Group C), largely below average for both electricity and gas. Within its Group, Turkmenistan has an electricity sector score of 0.120 relative to a Group C average score of 0.461. Turkmenistan has a gas sector score of 0.110 relative to a Group C average of 0.399.

The absence of an independent regulatory authority contributes largely to reducing the score for institutional infrastructure and regulatory framework. Similarly, the state concerns which characterise the electricity and gas sectors, as well as the absence of any market opening time frame and the *de facto* absence of a retail market (because electricity and gas are supplied free of charge to residential consumers), penalise the score given to market structure.

Turkmenistan is Central Asia's biggest natural gas producer. Foreign investment in the energy sector is expected to dramatically increase in the next few years, with the Caspian Sea shelf remaining a priority.

Significant effort has been made by the government to attract more foreign investment and improve the country's business climate.
Electricity spider graph – Turkmenistan

Note: The diagram presents the electricity sector results of Turkmenistan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Turkmenistan are represented by the thick bold line. See next page for comparison purposes, the shaded area presents the electricity sector average of the Group C countries.

Electricity Sector - Comparative view of Group C countries
Gas spider graph - Turkmenistan

Note: The diagram presents the gas sector results of Turkmenistan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Turkmenistan are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.

Gas Sector - Comparative view of Group C countries
Overview

Uzbekistan has a population of approximately 26.87 million, with a GDP around USD 19.21 billion. The total primary energy supply in 2007 was 48.68 Mtoe, of which 1.1% is hydro power, 2.3% is coal/peat, 86.1% is natural gas and 10.5% is oil. Net exports are around 11.34 Mtoe. CO₂ emissions are 113.37 (measured as Mt of CO₂).

1. Institutional structure

The Ministry of Finance is the state body in charge of price regulation. The Cabinet of Ministers, headed by the President, is the state body which identifies which customers are subject to mandatory service. State control over natural monopoly entities is performed by the state anti-monopoly authority which, at present, is the State Committee of the Republic of Uzbekistan on De-monopolization, Support of Competition and Entrepreneurship (the State Committee).

State control over compliance with the state standards in the sector of production, health protection and safety conditions is performed by:

- in electricity sector, by the State Inspection on Supervision of Electricity Sector UzGosEnergoNadzor, which is subordinate to the Government
- in gas-oil sector, by Uzbekistan State Inspection on Monitoring the Use of Oil Products and Gas, which is affiliated to the Cabinet of Ministers (Uzgosneftegasinspektsiya)

State electricity generation, transmission and distribution assets are managed by the State Joint-Stock Company “Uzbekenergo” (SJSC Uzbekenergo). Uzbekenergo, established on 22 February 2001 to take over from the abrogated Ministry of Energy and Electrification, is directly subordinate to the Cabinet of Ministers.

The gas sector (encompassing all stages, from geological exploration to sales of end products to the customers) is managed by the National Holding Company “Uzbekneftegaz” (NHC Uzbekneftegaz), accountable directly to the Cabinet of Ministers. To perform production, processing and sale of gas and gas condensate, as well design, construction, operation and repair of gas pipelines, a license is needed; this is issued by the special Commission of the Cabinet of Ministers.

The State Committee was established in May 2005 on the basis of the Committee on De-monopolization, Support of Competition and Entrepreneurship, the Committee for Economic Insolvency of the Companies at the Ministry of Economy, and the Administration on Small and Private Business Development of the State Property Management and Entrepreneurship Support Committee.

The State Committee implements regulation and antimonopoly policy in economic areas, including the energy sector. As part of this it monitors competition, the protection of customer rights and regulates the performance of natural monopolies’ performance. Such regulation includes the ability to impose penalties for violations and fixing tariffs.

96 The information below is obtained primarily from responses of the Ministry of Economy of the Republic of Uzbekistan to the questionnaires regarding the given project, and from the sources, enlisted at the end of this document.
The State Committee is managed by its Chairman, who is appointed for a fixed term and is discharged by the Government. The salary of the management and employees of the State Committee is established in accordance with the staffing table approved by the Government, and depends on each position and its category.

The State Committee employs up to 600 people (including local sub-departments).

The State Committee has its own budget, which needs to be preliminarily approved by the Government, and which is financed from the budget of the Republic.

In case the holder of the natural monopoly does not plead guilty and does not pay the penalty voluntarily, the State Committee refers to court on imposing the penalty. The holders of natural monopolies and their customers have the right to appeal to court to declare decisions (instructions) of the state antimonopoly authority to be partially or completely invalid.

A decision (instruction) of the State Committee can be appealed against in court within one month from its adoption. Decisions are not suspended for the period of appeal.

2. Electricity sector
   
a. Market environment

Since 2001 Uzbekistan’s energy sector has been functioning within the framework of the state company Uzbekenergo, an open joint-stock company, which also includes coal sector companies.

Currently, Uzbekenergo encompasses almost all generating, transmission (mains), distribution and supply companies (54 enterprises in total, including: 11 unitary state enterprises, 41 open joint stock companies and two limited liability companies).

The electricity market in Uzbekistan is a vertically integrated monopoly at present.

For an efficient payment collection for the electricity supplied, as well as for the introduction of modern accounting methods and management during mutual settlements of accounts for electricity, on 4 July 2009 the Cabinet of Ministers issued the Decree that stipulates a step-by-step transfer during 2009-2010 of the electricity supply functions to private operators. Other steps towards the liberalisation of the electricity market are not yet envisioned in legislation, including the recent the Law “On Electricity” of 30 September 2009.

Uzbekenergo is the primary electricity producer in Uzbekistan. It supplies centralised electricity to the national economy and the public, as well as heat to industrial companies and domestic households in a number of cities in Uzbekistan. The share of power plants that are not part of Uzbekenergo is less than 3% (320 MW).

Uzbekistan is undergoing a sector restructuring with the subsequent unbundling of monopolistic activities (dispatching and transmission) from competitive (supply and generation) ones, and further introduction of market-related elements in the electricity sector.

Sale of state assets has also taken place (state shares in a number of stock companies dealing with electricity distribution and supply, and in a number of
stock companies generating heat and electricity) and the process of privatisation of the country’s electricity companies has been practically completed.

Electricity sales-purchases in Uzbekistan are performed based on approved tariffs and according to the following scheme:

- A single electricity buyer model (at present, it is the wholesale company “Energosotish” by which the single buyer concludes agreements with: generating companies regarding electricity purchase; territorial distribution companies regarding electricity sales; the grid company regarding electricity transmission from generating companies to territorial distribution companies
- Territorial distribution companies sell (autonomously or via their electricity supply departments) electricity to consumers based on electricity supply contract

This procedure of electricity sales and purchases was common practice which is now formalised in the Law of the Republic of Uzbekistan “On Electricity” which came into force on 1 October 2009.

b. Network access and tariffs

Access to transmission and distribution grids is under the control of Uzbekenergo. To connect to the grid, the customer must apply to the grid company to receive technical conditions for connection.

Fulfilment of the conditions, including construction of new or reconstruction/expansion of existing electricity facilities (substations, transmission lines, and transformer substations) is with the efforts and at the cost of the customers.

The Ministry of Finance is authorised to approve tariffs for end customers, which are developed either on its own initiative or by the government’s instruction.

All electricity customers are divided into ten tariff groups (industrial companies with connected capacity of up to and more than 750 kVA budget organisations, population, electricity for heating, etc.), regardless of their administrative jurisdiction, ownership type and geographic location.

Load serving companies have the authority to differentiate electricity tariffs based on the day time zones (peak hours, semi-peak, night load) and the season (summer and winter periods), provided the customer has a multi-tariff metering device.

There are two types of electricity tariffs:

- The single-rate tariff — consists of the fee for 1 kWh of active electricity supplied to the customer and
- The double-rate tariff – consists of the annual payment for 1 kW of maximum capacity declared by the customer for participation in the maximum load of the energy system and payment for 1 kWh of supplied electricity
The Law “On Natural Monopolies” prescribes that “draft prices (tariffs) for commodities, which are produced by natural monopoly entities, shall be assessed by an authorized state body within one week, taking into account their influence upon products for customers”.

In general, Uzbekistan is in the process of a gradual increase of electricity tariffs (the latest increase took place on 1 July 2009).

Discounts for socially vulnerable consumers are established by the Decrees of the President and are implemented by means of compensation payments for electricity consumed.

c. **Operational environment**

The State Committee submits both annual and other regular reports to the Cabinet of Ministers, the Ministry of Economy and to other state executive bodies depending on the reported issue.

The Law “On Competition and Limitation of Monopolistic Activity” prescribes the following duties to the antimonopoly authority: provide publicity to performance; inform population via mass media, including specialised periodicals in the course of implementation of measures on de-monopolisation of economy, competition support and protection of customers; conduct analysis of foreign antimonopoly and customers’ protection experience. According the Law, the State Committee’s decision concerning prices (tariffs) must be published by the natural monopoly entities in the mass media no later than 15 days prior to their coming into force. Regulatory bodies have their own official websites and press-centres. Directors of these bodies take part in briefings and make presentations to the mass media. Reports on the performance of these bodies are published regularly. The official website of the State Committee, [http://www.antimon.uz/](http://www.antimon.uz/) provides information in three languages: Uzbek, Russian and English.

Attraction of foreign investment in the energy sector is a national priority. In the recent years the amount of these investments is increasing parallel to the decrease of projects financed under sovereign guarantees.

The highest amount of investments (45% of total investments), is in the oil and gas sector of Uzbekistan. Newly discovered oil and gas deposits can be granted to foreign companies, which perform geological exploration works for further development under a 25-year concession with the possibility of extension. Foreign companies which express readiness to conduct exploration works on oil and gas are granted the most-favoured status.

The Ministry of Economy together with Uzbekenergo prepares regular fuel-energy complex balances.

Uzbekenergo monitors expected future demand for electricity and, if necessary, sends proposals to the Government. It also develops proposals regarding attraction of investments into construction of new generating capacities, electricity transmission lines and/or rehabilitation of existing assets, supplies from neighbouring countries, etc., and sends such proposals to the Government.
3. Gas sector

a. Market environment

Out of the proven 1.58 trillion cubic metres of gas deposits, in 2008 Uzbekistan had an output of 62.2 billion m³. Out of these, domestic consumption made up 48.7 billion m³, and the remainder was exported to Kazakhstan, the Kyrgyz Republic, Russia, Tajikistan and Ukraine.

Uzbekistan’s gas transportation system consists of 13,000 km of gas mains (used for gas transportation inside the country, and for transportation of transit gas from Turkmenistan, 23 compressor stations and three main underground gas storages; the system is connected to gas transportation systems of all the neighbouring countries (Kazakhstan, the Kyrgyz Republic and Turkmenistan).

Uzbekistan’s gas sector is represented by the vertically integrated monopoly – the NHC Uzbekneftegaz, established in December 1998 on the basis of Uzbekistan’s State Concern of the petroleum and gas industry for the purpose of making it more attractive for foreign investors by means of improving its organisational and legal structure.

Uzbekneftegaz consists of six joint-stock companies, including:

- joint-stock company Uzneftegazdobycha (city of Tashkent) – is involved in exploration of oil and gas deposits, output of oil, gas and gas condensate, processing of natural gas;
- joint-stock company Uztransgaz (city of Tashkent) – executes gas transportation and underground storage, manages the units located within the territory of Uzbekistan, which perform domestic natural gas transportation and also export it abroad, provides transit of natural gas from neighbouring countries (not including the mains Bukhara-Ural and Central Asia-Centre, which are operated by the Russian Gazprom, and a number of separate gas pipelines, which belong to gas processing and gas extraction companies).

Uztransgaz also supplies gas supply via its regional departments to all categories of consumers. Export supply is the prerogative of NHC Uzbekneftegaz.

Hence, the gas market of Uzbekistan is a vertically-integrated monopoly and is likely to remain in this form for the foreseeable future.

For the purpose of decreasing the state share in statutory funds of companies of the leading strategic industries, increasing the role of private property in the development of the country and attraction of direct foreign investments into modernisation, technical and technological re-equipment, state enterprises of the industry have been transformed into joint-stock companies.

In accordance with the Privatisation Programme for 2007-2010, 84 enterprises of NHC Uzbekneftegaz are subject to sale at public auctions; as of 2008, 11 enterprises out of them have been sold.
b. Network access and tariffs

The issue of network operation (gas transportation network) is regulated by the Laws “On Natural Monopolies”, “On Customers’ Rights”, and by corresponding rules of gas production, transportation and distribution, which prescribe a non-discriminatory principle of access to the networks.

Gas transportation is performed on the basis of agreements, which prescribe, in particular, the liabilities of the transportation system’s operator regarding the regulated price for transportation, data on producers and sellers of gas, data on agreed amounts of gas and a gas pumping schedule.

Agreements that provide domestic transportation and storage do not require approval at the governmental level. For gas export operations, the amount, terms and price should be approved by the government prior to signing the agreement.

Decisions regarding access to gas transportation network can be appealed to higher and supervisory bodies.

NHC “Uzbekneftegaz” and SC “Uztransgaz” develop the initial data for tariff methodology and tariff drafts for gas transportation (transmission) including distribution networks, gas supply to customers, additional services, and connection to the gas transportation network. Tariff drafts undergo the approval procedures according to the established order, including approval by the State Committee, and are finally approved by the Ministry of Finance.

Tariffs are established for the next budget year. Information regarding the new tariffs is delivered to the customers via mass media, for example, via the NHV Uzbekneftegaz website. Tariffs for gas transportation at the main and exporting pipelines are established, as a rule, for 1000 m³ of gas per 100 km.

A “postage stamp” tariff is applied to the low pressure networks supplying gas at the local level to homes and small businesses.

Based on the decisions of central and local authorities, vulnerable customers, as well as veterans, may be exempt from payments for gas, in full or partially.

c. Operational environment

Long-term balances and security of supply issues are handled by the Ministry of Economy. The Ministry of Finance performs monitoring of tariff policy; the State Committee monitors compliance with the customers’ rights. Practical plans and data on the current situation come from NHC Uzbekneftegaz, its subsidiaries and structural departments.

Monitoring of expected demand and required additional capacity for production and storage is the task of NHC Uzbekneftegaz.

All the above mentioned state bodies report to the Government and the President.
4. Renewable energy sources/energy efficiency

Uzbekistan’s policy on energy efficiency and renewable energy is set forth in:

- the Law “n Rational Energy Utilization” amended in 2003 (energy efficiency and renewable energy)
- the Programme for Development and Reconstruction of Generating Facilities 2010 of SSC Uzbekenergo and the Scheme of Energy System Development 2020 (electricity and heat cogeneration)

These laws define legal, organisational, production and environmental measures targeted at efficient utilisation of energy resources and engagement of renewable energy in the process.

In terms of renewable energy in particular, the law “On Rational Energy Utilization” provides that:

- power plants, which utilise renewable energy are provided with priority dispatching right, within limits and according to schedules which allow the secure and efficient functioning of the grid
- energy suppliers are obliged to provide energy intake to their grids from the mentioned producers according to the prices formed in accordance with the stipulated procedure
- heat and electricity prices should provide an accelerated payback of capital investments into construction of these facilities within the terms approved by the Government

In the recent years, development of renewable energy, primarily the exploitation of hydro power potential of small rivers, has significantly increased.

Separate companies also conduct development and production of energy facilities consuming renewable energy which are successfully used in rural and remote areas.

Hence, in 2004-2005, 25 thermal and combined solar facilities for production of electricity and heat were commissioned in remote areas of the Aral Sea. In 2005–2006, six photoelectric solar facilities and collectors for water heating were commissioned in the Dzhiazak and Bukhara regions.

Considering the relevance of the issue, measures are planned for the development and implementation of renewable energy, including improvement of the relevant legislation.

In Uzbekistan fees for emission of polluting substances and waste disposal are applied to further measures on environmental protection.

Uzbekistan ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change in December 2006. For the purpose of implementing the complex measures within the framework the Kyoto Protocol’s the Clean Development Mechanism (CDM), the Council on CDM was established within the Cabinet of Ministers, consisting of directors and representatives of corresponding Ministries and Administrations.

The Ministry of Economy is the national body of Uzbekistan on CDM within the Kyoto framework. The first two projects within the CDM framework were officially registered in March 2009.
5. Conclusion

Uzbekistan performs weakly with respect to its grouping (Group C) and well below average for both electricity and gas. Within its Group, Uzbekistan has an electricity sector score of 0.260 relative to a Group C average score of 0.461. Uzbekistan has a gas sector score of 0.272 relative to a Group C average of 0.399.

The absence of a clearly independent regulatory authority contributes largely to reduce the score given to institutional infrastructure and regulatory framework. Similarly, the vertically-integrated monopolies which characterise the electricity and gas sectors, as well as the absence of a market opening time frame, decrease the score given to market structure.

In 2008 Uzbekistan, with gas output of about 58.5 bcm, was the fifteenth largest gas producer in the world. In the same year only an estimated 5% of that output was produced with the participation of foreign capital. So far the largest investors are Russian and offshore companies, although since the mid 2000s Asian companies have increased their presence. In the foreseeable future foreign investment is likely to increase dramatically, if Uzbekistan wants to increase its exports (which are currently modest with respect to reserves). Investment should be primarily directed into development of gas deposits and modernisation of the pipeline network, including export lines.

Electricity spider graph – Uzbekistan

Note: The diagram presents the electricity sector results of Uzbekistan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall electricity regulatory framework approximates international best practices. The results for Uzbekistan are represented by the thick bold line. See next page for comparison purposes, the shaded area presents the electricity sector average of the Group C countries.
Electricity Sector - Comparative view of Group C countries

Gas spider graph- Uzbekistan

Note: The diagram presents the gas sector results of Uzbekistan, in accordance with the benchmarks and indicators identified in the assessment model. The extremity of each axis represents an optimum score of 1.0, that is, full compliance with international best practices. The fuller the “web”, the closer the overall gas regulatory framework approximates international best practices. The results for Uzbekistan are represented by the thick bold line. For comparison purposes, the shaded area presents the gas sector average of the Group C countries.

Gas Sector - Comparative view of Group C countries
VIII. APPLICATION OF THE ASSESSMENT MODEL EXPLAINED

The EBRD region comprises European Union (EU) Member States, Southeast Europe and Eastern Europe, Russia, the Caucasus, Central Asia and Mongolia. Given the geographic, natural resource, infrastructure, economic and political spectrum reflected in the Bank’s countries of operations, the Assessment Model must be sufficiently flexible to accommodate regional differences. The Model therefore is designed to adapt to the differences in regions, to the extent possible. It offers a quantitative analysis that accommodates partial or developing frameworks.

The Assessment Model is based on a generally applicable list of criteria and principles that have reached international recognition. While no agreement mandates or otherwise binds the EBRD countries of operations, internationally experts have reached a high degree of consensus regarding the value and importance of adherence to best practices based on these principles in order to achieve successful liberalisation and competition in the energy sector. These principles address in particular market design, competition, transparency, clarity of rules, and predictability of rule-making and decision-taking, along with accountability of sector actors. In order to facilitate use of the Assessment as a high-level, preliminary guidance for investment, the Assessment Model is grounded in the market-oriented, liberalised perspective. It is designed for compliance with the principles that underlie best practices, with expectation that countries in the EU generally will adhere to these principles, while those beyond the EU borders will strive to adhere to these principles but may be in the formative or early implementation stages. The benchmarks used in this Assessment (discussed in part III) are formed from these principles; in turn, developed from these are the incorporated indicators. These are discussed below.

1. Indicators

In order to provide a fair measurement of the regulatory frameworks in the EBRD countries of operations, this Assessment develops eight indicators for electricity and gas from the core benchmarks of the Assessment Model. Each indicator has a score, and the composite score from all indicators is used to assess each participant country. Each score is developed in accordance with best practices, so that, the most fundamental criteria (such as regulatory independence, for instance) and the details underlying these (such as, in the case of independence, separation utility and government) receive the greatest weightings.

Though the indicators are the same for electricity and gas, several sub-components of the indicators do vary in order to accurately reflect the differences between the electricity and gas sectors. The differences are small and, where applicable, noted.

Each indicator is assigned a point value, with a total of 100 for all eight indicators (the maximum score that can be achieved). Subcomponents of the indicators are assigned a score between 0 and 1, with 1 indicating the optimal score, and weighed according their relevance for the Assessment Model. The subcomponents are described further in a separate section below.
a. Regulatory independence – 15 points

This indicator assesses the institutional framework to measure the degree of freedom from industry, government and political interests of a regulatory authority. Such freedom enables the regulatory authority to act in ways that develop and guide market competition and restrict market distortion (either existing or attempted). This category is the anchor for a regulatory framework with limited regulatory risk. In particular, it encompasses three related concepts:

- Separation from industry (ownership, control and operation functions) as a first priority, and separation from government (in particular, the policy maker, usually Ministry) in charge of energy issues, as a second-level priority; the weighting reflects this priority
- Financial independence, namely a budget for the regulator that is fixed, relies on fees from licensees and is not vulnerable to political pressure during the execution of regulatory responsibilities, receives the highest weighting, while regulatory budgets that are part of the central budget and dependent on ad hoc governmental approval receive the lowest ratings
- Professional security of positions and personnel. This criterion includes: a salary structure that gives a fair, competitive salary to regulators and high level staff so as to ensure qualified personnel and discourage corruption; and fixed term lengths with a fair appointment process and removal only for cause. The greater the security from political and industry interference, the greater the weighting

b. Regulatory authority – 15 points

A regulatory authority requires autonomy over certain subject matters in order to be able to do its job in an efficient and effective manner. It should, for instance, have decision-making authority, ability to set tariffs and define applicable methodologies without intervention, licensing authority that allows it to monitor the behaviour of licensees, and the like. The tariff making authority is critical because pricing is often the subject of intense political pressure from all sides. The more independent the regulatory authority, and the more autonomy it has to decide the framework tariffs, the more likely is a market economy that supports competition and cost-reflective prices.

Part of this consideration is whether regulatory authorities are able to make decisions that retain integrity, and are not compromised by being overruled or subject to an unduly lengthy appeal process that puts the regulator’s decision on hold pending appeal. This section looks at:

- Clear divisions of responsibility between policy-making, industry, and regulation, with full points provided where these responsibilities have minimal overlap
- At a minimum, the regulator requires authority in the area of tariffs, and the greater the ability to set these tariffs or the methodologies in a manner that protects against manipulation from government or industry, the higher the weighting
- For real effectiveness, the regulator also requires authority in other key areas, such as licensing and complaint resolution, but also in monitoring and investigatory functions of the regulatory authority; the greater the regulatory powers in these areas, as long as these powers do not cross the
line into policy-making or industry responsibilities, the greater the weighting

- The ability to penalise industry for violations of regulatory rules is critical; powers to penalise must be set forth in law and regulations, but also the regulator must be able to impose and enforce licensing provisions and procedural rules; in this subcategory, the highest weighting is given to those structures that allow penalties in actual fact rather than simply *pro forma* penalties, such as the withdrawal of a licence, which the regulator is usually unwilling or unable to use for sector security reasons

- Part of regulatory authority is the ability to make decisions that are adhered to and final, in a manner consistent with the rule of law. Therefore, an optimal regulatory environment includes a transparent and accessible appeal system that does not create undue delay and does not put on hold regulatory decisions for any notable duration. Frameworks that allow regulatory decisions to go into effect pending appeal but can also demonstrate a fair, open and efficient appeal process receive the highest weighting

c. Market framework – 14 points

Review of the market framework assesses the degree to which competition is possible as well as the nature that such competition must take. To this end, this indicator includes the following subcomponents:

- Type of market model; the more open to competition, the greater the weighting

- Eligibility thresholds; the existence of an aggressive but reasonable time table for market opening, beyond merely large customers, is given the higher weighting; significant limits on (or no) eligibility results receive a lower weighting

- Level of unbundling in industry; the more separation of industry, and particularly separation of the TSO from generation and supply, the higher the weighting, with the lowest weighting assigned to vertical integration and mid-range weighting where unbundling is confined to accounting but not extended to management and/or ownership

- Retail choice and the ability to switch suppliers is a sign of a truly competitive market; the more customer choice in actual fact, the higher the weighting, lower weighting is given when choice exists on paper but not in practice

- Lowest weighting is given to sectors in which choice is absent

Finally, the electricity and gas questionnaires used for the Assessment, and consequent data received, reveal considerable variance as to the type of market model (single buyer v. procurement competition), unbundling status (generation v. other activities) and the existence of an electricity spot market v. a gas hub or a notional balancing point. The more open to competition the model, the higher the weighting it receives.
d. **Network Access – 12 points**

This indicator is critical as it offers a sense of network options available to new market entrants. In other words, without access to the network and indeed a stable network able to handle increases in capacity, new producers cannot sell their product, within or without the country’s borders, and new customers may be restricted. Thus, this indicator includes the following considerations:

- Third Party Access rules that are clear and non-discriminatory receive the highest weighting, with the caveat that limited priority is allowed under (carefully) targeted rules for new investment and renewable energy; discriminatory limits on Third Party Access that are not constrained by renewable energy or investment incentives result in a zero rating
- Any legal, regulatory or operational constraints on Third Party Access exist; these are weighted with a zero (0) unless justified by exceptions
- Clear and fair rules and obligations for network expansions are in place to accommodate new capacity and new customers; the more transparent, the higher the weighting

**e. Tariff structure – 12 points**

A liberalised market requires that energy enterprises are able to charge (and receive) a fair price for the energy produced, distributed and supplied. This indicator therefore assesses the tariff process, with higher weightings given to the following:

- Methodologies that are published in advance and subject to public consultation
- Regulated tariffs that are fixed *ex ante*, pursuant to clear rules, and published
- Regulated tariffs that are cost-reflective and cross-subsidies are eliminated
- The regulated tariffs include incentive components
- A separate tariff for Third Party Access is in place
- All or only some types of tariffs are regulated (in particular whether generation is subject to tariff regulation)

The data on gas specifies the different types of methodologies applicable to gas.

**f. Public service obligations – 10 points**

It is widely accepted that some energy services, most significantly transmission, are monopolies and thus require regulation that includes public service and public protection components. This indicator therefore looks at – and gives the higher points to – adequate and fair processes, though not overtly market distorting. In particular, the higher ratings are given when consumer protection provisions are in place that are proportional to the need, i.e., meet legitimate public service obligations while being the least restrictive possible for competition and trade between states. This section therefore gives weighting to frameworks that provide the appropriate balance, while also giving the regulatory authority appropriate monitoring powers to ensure the balance is sustained. For this section the specific areas of focus are provisions relating to:

- Supplier of Last Resort
- Quality of Service
- Network Maintenance
- Protection of Vulnerable Customers

g. Transparency and accountability – 12 points

Without transparency and accountability, any regulatory and policy framework can be subject to abuse, misinterpretation or disregard. It is therefore vital that regulatory and policy reforms are accompanied by rules that are publicly available and accessible and subject to public consultation and comment. The regulatory and policy frameworks must also make the responsible institutions accountable so as to inspire confidence and build the trust of the public and private sectors. The components of this category are the following:

- Periodic public reporting: the highest weighting is assigned when procedures are in place for the regulator to report its activity in a transparent and predictable manner that is also readily accessible to the public; in some regimes, reporting is made to government bodies but is not public and in these cases, the weighting is zero
- Publication of decisions and rules: publication should be predictable, clear and accessible
- Public consultations and hearing: the greatest weight is given to regulatory processes that integrate the public as much as reasonable, so, for instance, the public has an opportunity to be heard at tariff hearings that will affect the public interest, either through physical representation at a hearing or through the ability to send written comments, and a process is in place to respond to such comments
- Conflict of interest provisions: these are in place to restrict regulators and their staff from working at the regulatory authority if they have too close a connection to industry or government, such that the potential of conflict is raised. The goal here is to limit the potential for conflict so as to reduce the possibility of undue influence from industry and government and increase public confidence in the regulatory process. Rules that meet this goal are given the highest weighting

h. Private sector participation – 10 points

This section is most concerned with the viability of the existing framework for bringing in new investment, and gives the higher weighting to:

- Incentives for new investment
- Provisions that facilitate cross-border trade
- Third Party Access exemptions for new investment
- Framework to monitor market abuses that allows new entrants to the market and reduces incumbent priorities or manipulation of the market

Information gathered in response to the questionnaires was collected in a database designed by the Assessment Team and analysed in accordance with indicators stemming from the benchmarks that form the Assessment Model. These indicators are weighted and each country is measured using these weightings.
2. **Weightings explanation**

As noted, the weightings are from 0 to 1, with 1 being the highest score that can be provided and 0 the lowest. Fractional weighting are provided in order to recognise adequately the ongoing state of reforms in many of the EBRD countries of operations and the increasing steps taken by these countries to improve their regulatory frameworks.

The weightings are combined proportionate to the importance of each indicator, with some indicators, such as regulatory independence holding greater importance than others, such as public service obligations. Within each identified indicator are sub-categories (up to 16 per indicator), each of which has a separate weighting; the final weighting per indicator is an average of these weightings. A homogenised approach was used to measure each sub-component, indicator and overall score. 97

Finally, based on these weightings, the countries are compared within their respective groupings to indicate relative conditions for regulatory development, put into the appropriate regional, geographic basis.

The spider graphs offered are based on weightings developed from the electricity and gas questionnaires. Some participants do not have an active gas system (i.e. Albania, Montenegro and Mongolia) or have a gas system that is not sufficiently developed to allow a full assessment (Bosnia and Herzegovina, FYR Macedonia, Tajikistan and the Kyrgyz Republic); as a consequence for them gas graphs are not provided. A similar pattern applies to the bar graphs offered in the Results section.

A comparative view of the participants by group is also offered. The bar graphs show, for the electricity and the gas sector, the total percentage score (to a maximum of 100%) assigned to each participant and its components. For graphical reasons, the eight indicators which make up the Assessment Model have been combined as follows: “institutional framework”, which is made up of indicators 1 and 2 and comprises 30% of the point-scoring potential; “market structure and access”, which is made up of indicators 3 and 4 and comprises 26%; “tariffs and public service obligations”, which is made up of indicators 5 and 6 and comprises 22%; and “transparency and private sector participation”, which is made up of indicators 7 and 8 and comprises 22%.

Finally, as noted above, renewable energy and energy efficiency are addressed separately from the identified eight indicators, with a section on renewable energy and energy efficiency provided in the Results Section, and analysed qualitatively only.

A glossary of main technical terms used in this report is contained in Annex 1.

---

97 Detailed description of the weighting structure, including all indicator subcomponents, is provided in the Annex 1.
IX. ASSESSMENT RESULTS ACROSS REGIONS

Through the examination of existing regulatory frameworks and their operation in relation to accepted best practices this Assessment seeks to provide guidance and direction for further power sector reform and development in the EBRD countries of operations. One of the challenges has been to provide enough insight to the respective countries’ frameworks and operational environments while maintaining data and analysis at a level that would enable viable cross-country and regional comparisons. While acquiring information on the markets of central Europe is not difficult, that task becomes progressively more difficult as one proceeds eastwards. While we have endeavoured to include as much information as possible on the market and institutional structures the absence of data from the earlier transition countries has made comparative assessment challenging. One overarching objective is to provide a platform to understand the energy sector structures and operations in the Group C countries and to offer a model to assess them. These countries, unlike those in Groups A and B, have no umbrella framework or model that offers direct oversight of their progress. As discussed below, the EBRD countries which are EU member states and the Energy Community contracting parties and observers are part of increasingly active monitoring structures.

1. Group A Countries (EBRD Countries of Operations which are EU Member States)

   a. Sector obligations/commitments for Group A countries

   EU Members have committed themselves to a host of obligations, reflected in the *acquis*, including the Directives, regulations and other mandates. While subsidiarity\(^\text{98}\) remains a linchpin of the EU framework, as the recent entry into force of the Treaty of Lisbon\(^\text{99}\) and adoption of the enhanced set of energy directives set forth in the Third Energy Liberalisation Package\(^\text{100}\) indicate, the

\(^{98}\)“Subsidiarity,” the legal foundation of the relations among EU Member States as established in the Treaty of Maastricht in 1992, is an organising principle, with some similarities to federalism, based on the concept that matters ought to be handled by the least centralized authority, so that only those matters that must be addressed at the regional level are so delegated. The current formulation of the concept provides:

> *In areas which do not fall within its exclusive competence, the Community shall take action, in accordance with the principle of subsidiarity, only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community.*

(Article 5(2) of the Treaty Establishing the European Community)

\(^{99}\)The Treaty of Lisbon, which came into effect 1 December 2009, creates a long-term President of the European Council and makes other changes to strengthen and streamline decision-making at the regional level. The purpose of the Treaty as stated in its preamble is to “enhanc[e] the efficiency and democratic legitimacy of the Union and to improv[e] the coherence of its action.”

\(^{100}\)The Third Package is made up of two directives and three regulations:

general direction continues toward a more vertical and streamlined decision-making process under which closer integration will continue. The Third Package (entered into force in 2009 with implementation targeted for 2011), supersedes existing energy Directives and strengthens unbundling between production and supply; harmonises and strengthens the duties of national regulators, giving them enforcement and penalty powers, while increasing their autonomy. With respect to energy regulators in particular, the Third Package gives stronger and better defined powers to the regulators, including the ability to issue binding decisions on companies, take appropriate measures in cases where the functioning of the gas and electricity markets is insufficient, and impose penalties on companies that do not comply with their legal obligations or with regulatory decisions. The new legislation also provides considerable clarity on issues of removal, term, independence and budgetary autonomy which were previously left to best practice but now enshrined in mandatory requirements, including limited for cause removal, separate authority over its own budget and management for a five to seven year term, renewable only once.\textsuperscript{101}

In addition, the Third Package creates new regional organisations of regulators (ACER) and transmission operators\textsuperscript{102} to harmonise and coordinate activities.\textsuperscript{103} The objective of ACER is to assist the national energy regulatory authorities and to coordinate their actions as proves necessary; ACER is authorised to issue opinions and recommendations, make decisions in specific cases, and submit framework guidelines on access to electricity and gas networks.\textsuperscript{104} ACER promises to bring a monitoring and oversight function to energy regulation in the EU, thus facilitating the more rapid harmonisation of frameworks and ultimately, greater efficiency and transparency of trade between EU Member States.

The countries studied under this Assessment, which are the more recent entrants in the EU,\textsuperscript{105} have advanced in many respects faster than the other countries in which the EBRD invests in large part as a result of membership, which brings with it:

\textsuperscript{101} The Third Package also brings important changes to the energy sector that relate to customer choice and to market structure and operation. In particular, the Third Package encourages ownership unbundling, i.e., separating ownership (viewed as closely related to control) of generation and supply from ownership of the transmission system operator. Minority ownership of an undertaking is allowed, as long as minority ownership does not come with decision-making rights. The idea, hotly debated during the consultation period for the Third Package, is that ownership of network, supply and generation will result in a company making commercial decisions that favour all aspects of its operations, in turn minimizing the options for third parties to enter the market. Where a transmission operator is an independent company it has no considerations regarding profits of individual supply or generation but instead looks to maximizing the profit of the operator to the benefit of the network. Though not favoured, the third legislative package includes two alternatives to ownership unbundling: the independent system operator (ISO) and the independent transmission operator (ITO) structures, both of which place strict requirements on autonomy and independence of the operator.

\textsuperscript{102} Regulation (EC) No. 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No. 1228/2003 is part of the Third Package and sets out rules for cross-border exchanges in electricity to secure supply, enhance competition and the development of a well-functioning and transparent wholesale electricity market. This Regulation establishes a European Network of Transmission System Operators for Electricity (ENTSO) to promote the internal market in electricity and cross-border trade, as well as development of the European electricity transmission network.


\textsuperscript{104} The Third Package provides that the Agency comprises an Administrative Board, a Board of Regulators, a Director, and a Board of Appeal. ACER is expected to start running in the spring of 2011.

\textsuperscript{105} These are: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.
Pressure to reform. Aside from Treaty obligations, these countries are subject to national reporting requirements and EC investigation and litigation.

Access to resources. EU membership includes financial support and access to training, education and institutional assistance and participation, including access to the Council of European Energy Regulators (CEER) and the European Regulators Group for Electricity and Gas (ERGEG).

These twin factors have, unsurprisingly, led the newer EU Members to progress more rapidly toward reform, consistent with the EU goals of internal harmonisation and a borderless market.

At the same time, some smaller new members have concerns about protecting their domestic energy providers, for both economic and security of supply reasons. Eighty percent of the electricity sector in Slovenia remains publicly owned. While economic exigencies led Hungary to privatise much of its generation and distribution early on, with sales to large international enterprises, the ongoing experience with MVM and long term power purchase agreements also show the difficulty in achieving reforms that reduce domestic ownership and control. As reflected in the country profiles, incumbents typically retain much of the domestic markets. Tensions between national interests and the expansionist goals of vertically integrated utility groups outside these new members (e.g. E.ON, RWE, EDF), seeking to enhance their dominance of Europe’s energy market, could lead to competition litigation and wariness in facilitating new entry in domestic markets.

In sum, the nature and content of the EU Member States’ regional commitments have made steady, but deliberate progress.

b. Regional considerations for Group A countries – electricity

Developments in the electricity sector are influenced by technical connection constraints, such as the isolation of the Baltic market from the remainder of the EU. While for historical reasons, infrastructure pointed east, new connections are needed north and west to facilitate an EU-wide borderless market, a primary goal of the Baltic States.

The size of the EU-wide region also necessitates some sub-regionalisation, which leads to debates regarding to which sub-regional market a new entry should belong. Because a few of the new entrants (Group A countries) also lie at the EU’s eastern borders, they provide the transit area from non-members to members, and must frame their markets to facilitate trade both within the EU and with their neighbours outside of the EU zone. For example, Slovenia, given its location, is participating in two of seven ERGEG’s Regional Initiatives as well as Energy Community’s “the 8th Region.”

---

106 The Regional Initiatives are seven electricity markets and three gas markets within the EU, in which national regulators cooperate to harmonise rules and practices to facilitate the single internal EU market. The initiatives relevant to this study are the Baltic initiative (Estonia, Lithuania and Latvia), the Central East initiative (Austria, Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia) and the Central-South initiative (Italy, Austria, France, Germany, Greece, and Slovenia). Further discussion of the regional initiatives can be found in the ERGEG and CEER website, http://www.energy-regulators.eu. The 8th Region, consisting of (among others) Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, FYR Macedonia, Montenegro, Romania, Serbia and Slovenia, is an effort to implement a common procedure congestion management and transmission capacity allocation on a regional level. See http://www.energy-
A disparity of domestic resources among members can also lead to challenges at an individual country level that must be viewed not only at that level, but in the context of that country’s regional obligations. For example, the shutdown of the Ignalina nuclear power plant, itself precipitated in part by Lithuania’s EU membership, creates resource needs that Lithuania must address within the context of its environmental and other commitments. Bulgaria faces a similar challenge with the closure of its nuclear facility, which was a condition for the country’s EU membership. The newer members, generally speaking, are greater supporters of nuclear energy (though France, one of the originating EU Members has long supported nuclear power despite strong opposition from its neighbours) and less supportive of further environmental constraints than their more longstanding counterparts.

One common challenge faced by most Group A countries of operations relates to the use of natural gas as a power plant resource. With the majority of natural gas coming from one source – Russia – EU Members are seeking to diversify through additional infrastructure to gain access to other sources, reduce demand and increase investment in other sustainable resources. Given their location and greater dependence on Russian resources, the newer members feel a relative greater urgency in this area of security of supply, also colouring their approaches. This is discussed more fully in the gas section, though it is important to emphasise that the gas issues directly impact electricity due to the use of natural gas as power.

Hence, challenges faced for the smaller new entrants include enhancing competition in a net import market with limited cross-border capacity. Countries like Estonia with domestic resources similarly lack incentives to accelerate or facilitate new entrants. As to the larger new entrants, Bulgaria is struggling to keep up with demands for market development; Poland has done well but faces the challenge of meeting environmental constraints in the face of its dependence on coal; while OPCOM, the Romanian power exchange, is one of the most liquid platforms in central and Eastern Europe, with turnover of almost 15% of all electricity consumption in June 2009.  

**c. Regional considerations for Group A countries – gas**

One of the most important regional considerations for the natural gas market in the EU is security of supply. The gas supply disruption of January 2009, which resulted from the Russia-Ukraine transit crisis, revealed weaknesses in the existing import arrangements and in particular, the level of risk exposure of the Eastern part of the internal EU gas market. For historical reasons, gas markets in Central and Southeast Europe lack sufficient network integration and supply portfolio diversification. At the moment Western Europe gas flows go in two directions, allowing import and export of international gas into and from its networks. In Eastern Europe, however, one legacy of the former Soviet Union is the fact that pipelines allow gas to flow only from East to West, bringing gas from Russia but not allowing gas from the West. In addition, the area suffers from insufficient peak storage.

*footnote cont’d*

community.org/portal/page/portal/ENC_HOME/AREAS_OF_WORK/ELECTRICITY/Regional_Market/8th_Regione.

Last year's interruptions of supply have prompted renewed efforts across the Eastern European region to enhance security of supply. In particular, the South-South-East gas regional initiative (SSE GRI)\textsuperscript{108} has identified a variety of measures aimed at mitigating risks of future supply disruptions. One priority is strengthening of interconnection. Additional measures, which are to a large extent interrelated and overlapping with the priorities previously identified, include: network harmonisation, supply diversification, reverse-flow capability and market flexibility through storage, LNG and hub trading. The implementation of these measures contribute significantly to the security of energy supply in the EU as nearly half of the European transit capacities are transported through the countries of the South-South-East Region.

Steps toward diversification include:

- Liquid hubs, which can allow market participants to complement their supply portfolios in the short-term
- Adequate peak storage capacity, available to all market players, which could mitigate the effects of supply shortage or disruption in a timely and efficient manner
- Improved interconnections between markets – both along the lines of the proposal of the EU Commission’s Second Strategic Energy Review (i.e. North-South interconnection in Eastern Europe) and through new sources (mainly LNG) – and the better use of existing networks (making reverse flows possible), which could provide long-term diversification of supply and reduce substantially individual transit risks

These measures are mutually reinforcing. Importantly, in the event of a supply disruption, coordinated gas dispatching between adjacent TSOs is essential.

Specific interconnection projects that would facilitate proper market response in case of default of one supplier (and as identified by the SSE GRI) are:

- Denmark – Poland (Baltic Pipeline)
- Poland – Slovakia / Czech Republic
- Slovakia – Hungary
- Romania – Hungary
- Germany – Italy, Slovenia (Tauern Gas Pipeline) Southbound transit through Romania, Bulgaria, to Greece and Turkey (which may be upgraded for northward flows)

\textbf{d. Chart for Group A countries}

A comparative view, in ascending order, of the participant of for Group A countries is presented below. The bar graphs show, for the electricity and the gas sector, the total percentage score (to a maximum of 100%) assigned to each participant and its components. As noted, due to graphical reasons, the eight indicators which make up the Assessment Model have been coupled as follows: “institutional framework”, which is made up of indicators 1 and 2 and comprises 30% of the point-scoring potential; “market structure and access”, which is made

\textsuperscript{108} Participating countries are Austria, Bulgaria, Czech Republic, Greece, Hungary, Italy, Poland, Romania, Slovakia and Slovenia.
up of indicators 3 and 4 and comprises 26%; “tariffs and public service obligations”, which is made up of indicators 5 and 6 and comprises 22%; and “transparency and private sector participation”, which is made up of indicators 7 and 8 and comprises 22%.

Electricity sector in Group A countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Institutional framework</th>
<th>Tariffs and public service obligations</th>
<th>Market structure and access</th>
<th>Transparency and private participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estonia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovak Republic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gas sector in Group A countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Institutional framework</th>
<th>Tariffs and public service obligations</th>
<th>Market structure and access</th>
<th>Transparency and private participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latvia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovak Republic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e. Trends in Group A countries

Drivers at the EU level will be the implementation of the recently adopted Third Energy Liberalisation Package and the EU Climate and Energy Package, and the general issue of security of supply. The treatment of vulnerable populations is also a priority. The creation of a new Agency for the Cooperation of Regulators (ACER) provides an additional vehicle for harmonisation and adoption of good practices resulting from lessons learned.

In June 2009, the European Commission launched an infringement proceeding against 25 member states (all but Cyprus and Malta) for failure to comply with its legislation on developing an internal energy market, focusing, on lack of transparent, simple and inexpensive procedures to address consumer claims, lack of transparent access to cross-border electricity and gas network infrastructure and market distortion caused by regulated pricing. Attention must continue to be paid to reforms in these areas.

f. Conclusions for Group A countries

Overall, as expected, the Group A countries perform better than non-EU Member States. The majority of the best practices that underpin the benchmarks in the Assessment are included as part of the EU energy acquis and promoted through
regional cooperative bodies. Generally speaking, within Europe, the Baltic States and Southeast Europe show the greatest growth in demand for electricity, which means the development of the institutional oversight and market controls will take place in an environment seeking to repress demand and increase supply.

2. **Group B countries (EBRD Countries of Operations that are Contracting Parties or Observers to the Energy Community Treaty)**

   a. **Sector obligations/commitments for Group B countries**

   The Energy Community Treaty (EcT) countries, contracting parties and observers, while not obliged to adopt and follow all EU requirements, still look to the EU model as its cohesive template and, at least with respect to signatory aspirants to accession, bind themselves to much of the basic structures and best practices contained in EU mandates. While obligations on the EcT contracting parties are less demanding than for EU Members, and for observer countries commitment is entirely voluntary, the principles embodied in the EU legal framework provide a detailed blueprint, allowing for a harmonising approach among Energy Community contracting parties as well as those looking towards membership. At the same time, these countries have other influences. For Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro and Serbia, the energy systems are influenced by the centralised system previously in place. Similarly, these and other Energy Community contracting parties and observers are influenced by their relationships to the east. In addition, these countries have been the recipients, across the board though to varying degrees, of technical assistance from IFIs and other donors, bringing various levels of reform efforts to the countries and often looking outside the EU for best practice examples.

   Unsurprisingly, increasing involvement in the Energy Community, which includes papers, resources and forums that offer guidance on best practices, tends to reflect the emergence of more liberalised and transparent legal and regulatory frameworks. Implementation of these is going slowly, with some policy changes, such as the adoption of a gas law in Albania, and a developing gas law in Bosnia and Herzegovina, are difficult to implement giving the limitations presented by infrastructure and supply. In this region, institutional and legal reforms at the primary law level in particular have been adopted but their implementation is lagging behind, and more time is needed to assess the effectiveness of reforms in practices.

   Recent developments toward conditional approval to Ukraine and Moldova to change from observer to contracting parties demonstrate the general direction in this region toward closer and more formalised adoption of an increasingly liberalised market template; Turkey has begun similar negotiations. Transformation in status for these countries, will, for example, require them to commit to implementation of specific EU legislation by dates certain, e.g. Ukraine will have to comply with the 2003 gas and electricity directives, and at present the Government of Ukraine has entered into a Memorandum of Understanding with the European Commission on behalf of the Energy Community, with fixed dates for adhering to market opening and conforming its legislation to the Energy Community *acquis*.

   b. **Regional considerations for Group B countries – electricity**

   Developments in this arena are influenced by historical infrastructure limitations, market size and resources. The geographic location of the Energy Community countries – that is, between the EU and resource rich countries to the east – presents transit potential, promoting pursuit of import infrastructure. In fact, the observer Energy Community countries, with the exception of Moldova (i.e.
Ukraine, Georgia and Turkey) are noteworthy for their relatively larger size and energy strategic positions, which present opportunities for the Energy Community contracting parties and the EU internal market. The tension noted with respect to the smaller newer EU Members between pressures to facilitate a borderless market and concerns about security of supply and the influence of large multinational companies is even more apparent among the Energy Community contracting parties and Moldova. The region is generally characterised by small systems with limited potential for market liquidity, underdeveloped generation and interconnection capacities, and lack of harmony in allocation of cross-border capacities (though, as discussed below, the latter is the subject of much work over Coordinated Auction Office (CAO), which seeks to bring harmonisation and efficiency to trading arrangements and operations). Bilateral trading remains the main form of trading, with the introduction of day-ahead markets awaiting legal and regulatory frameworks, including harmonised balancing mechanisms and congestion fees.

Importantly, participation of Moldova and Ukraine in the energy markets to their west is challenged by infrastructure limitations; Moldova borders Romania but its network is not synchronous with the European network. Development of electricity interconnections among Romania, Moldova, and Ukraine and western countries are infrastructure priorities.

c. **Regional considerations for Group B countries – gas**

The gas markets across the Energy Community contracting parties are small and fractured. Montenegro and Albania lack a gas market, and the gas markets in Bosnia and Herzegovina and most of the FYR Macedonia are at only the initial stage of gasification. As a consequence, there is a pressing need for further gasification in much of southern and western Serbia, and southern Croatia. The gasification of the region requires large up-front investments, both in the form of new pipelines and construction of new capacity for the markets.

It is recognised that the small size of these markets is such that it would be difficult to establish new bulk transmission lines to supply these markets alone. However, the fact that there are a number of proposals for major transmission lines which will cross the Balkan region en route to supplying major markets in Western Europe opens the possibility for spur lines to augment existing supplies to the region.

Currently the markets of the region are energy intensive. Long-term energy growth in relation to GDP growth will be affected by the changing structure of production in the economies, the adoption of more energy-efficient technologies and environmental considerations. If the infrastructure needs are met (a large caveat), natural gas could play a significant role. Availability of resources is not an issue in the medium term, as there are known large-scale gas reserves in Russia, Central Asia, the Caspian region, the Middle East and North Africa (which could supply LNG).

In 2008 a Regional Gasification Study for Southeast Europe,\(^{109}\) commissioned by the World Bank, has proposed the concept of gas ring (EC Ring), which would link together many or all of the aforementioned import pipeline projects. The

---

EC Ring concept involves overlaying the branch pipelines that would arise from each separate major import transmission pipeline (existing and proposed), which together would form a ring connecting the ungasified or low gasified countries of the region (see Figure 1, where the yellow arrows show the possible gas entry points). Analysis is complicated by uncertainty over which of the proposed transmission options will materialise. The EC Ring would be a major infrastructure project, with an estimated overall capital cost of around USD 1 billion. The ring concept is appealing for incremental development; in particular, the first stage of the project should bring gas to new power stations on the Adriatic coast, an area not yet gasified, anchoring in this way the bankability of the infrastructure investment.

**Figure 1 - Energy Community Ring concept.**

With respect to observers of the EcT, the modernisation, management and control of Ukraine’s gas transport system are of particular concern for the region as well as Western Europe given its large gas supply and strategic placement. Without substantial investment in the network, Ukraine is at risk of losing its role of key transit country, with Russia increasingly keen to diversify transit away. The reconstruction and modernisation programme for 2007–2010 announced by Naftogaz Ukrainy in September 2006 (incorporating elements of previous similar programmes announced in 2003 and 2005) estimated costs of modernisation at USD 4.62 billion, most of which will have to come from external sources. The valuation of the Ukrainian transport network is a subject of political and commercial dispute, and estimates vary largely. Two interrelated factors will determine the future management and control of the transport network: (1) the underlying, unresolved conflict between Russia, which continues
to seek ownership and/or management control of the system, and Ukraine; and (2) the urgent need to modernise the network and fund its expansion. The Government of Ukraine’s commitment in 2009 to modernize Ukraine’s gas transmission system offers significant supply potential for Ukraine’s neighbours and for Western Europe. The commitment is specific in its scope and includes establishment of an independent gas transmission operator, business development plans that are commercial, transparent and publicly accessible, and cost reflective tariffs.

While these steps offer promise for Ukraine’s energy sector and economy, as well as for countries to Ukraine’s west, care must be taken to realise the commitments in a manner that takes account of (and maximises) regional potential.

Similar reforms in Turkey offer parallel opportunities not only for Turkey but for its neighbours and Western Europe alike. Turkey has the potential to become a vital corridor for gas to the EU. In particular, an East-West corridor would be capable of delivering considerable gas supplies from Central Asia and the Middle East to the European gas markets. This route is attractive to many European players and countries as a way to increase security of supply. In fact, two big projects – the Turkey-Greece-Italy Project and the Nabucco Project – are already partially built or in advanced status of planning. However, Turkey can serve as an “energy bridge” to Europe only if it can navigate the political interests with diplomacy and if, through regulatory and related reform measures, it establishes a climate conducive to foreign direct investment.

d. Chart for Group B countries

A comparative view, in ascending order, of the participant of the Energy Community group (contracting parties and observers) is presented below.

Albania, Montenegro, Bosnia and Herzegovina and FYR Macedonia are not included in the comparative view of the gas sector. The first three do not have a gas system yet (even though they have set up an essential gas regulatory framework), and the gas systems of the last two are not sufficiently developed to allow for a full assessment.

---

110 Over the years in which the conflict over control of the network has dragged on, the issue of modernisation has constantly been postponed. Mooted options for the future management and control of the transit system include:

- management by a consortium with 50-50% Ukrainian - Russian participation
- management by a consortium with German (or broader European) participation, as well as Russian and Ukrainian (possibility raised in Kiev by an E.ON Ruhrgas representative in early 2007)
- privatisation (despite lobbying by market reformers in Ukraine, it seems the least likely)
- continued management by Ukrtransgaz
Electricity sector in Group B countries

Gas sector in Group B countries

Notes: (O) stands for observers of the Energy Community Treaty. The results for Serbia do not include Kosovo.

e. Trends in Group B countries

Efforts in the area of facilitation of market transparency, congestion management, transmission capacity allocation, elimination of cross subsidisation, treatment of vulnerable customers, and increased development of renewable energy and energy efficiency are likely priorities. Harmonisation of licensing regimes and other steps to facilitate regional market development are probable near term considerations. Signatory countries will need to focus on meeting their EcT obligations, including the full opening of their markets and great market transparency.

One near term collective step the countries in this group are taking toward harmonisation and cross-market facilitation is the creation of CAO, a limited liability company owned and operated by the Southeast European TSOs and located in Montenegro, to address cross-border transfer capacity. Currently in the Southeast European region, if a trader seeks to deliver across the region, it confronts three different auction offices, with three different time horizons and requirements. Under the CAO, auctions are first coordinated along the same time horizons, using the same rules followed by assumption of unified load flow based auctions on a daily, monthly and yearly basis. The CAO has completed its dry run phase, the relevant entities are entering into a memorandum of understanding, and operations are anticipated to commence in 2011.

As a part of this coordinated effort to manage congestion and facilitated cross-border electricity trade, an eighth European sub-region was identified within which to operate under a harmonised capacity allocation approach, consisting of the
EcT contracting parties, neighbours Bulgaria, Greece, Romania, Slovenia, and the
interconnections between the region and Italy. Further ties, such as the
construction of transmission lines across Georgia and Turkey are underway.
Given the potential for development of Georgian hydro power resources and
synergies from export to the Turkish market, both Georgia and Turkey are
expected to benefit from increased participation in the Southeast Europe and EU
internal market.

In the case of gas increasing attention, to security of supply, resulting from
threats to supply or recent interruptions as well as increased energy usage, means
that the need for infrastructure development and modernisation – and supporting
financing – is no longer set aside as a secondary priority.

f. Conclusions for Group B countries

Progress among the Energy Community countries varies in light of disparate
sizes, resources and historical influences. The general direction toward best
practices, however, continues and is likely to remain steady largely thanks to the
EcT, which aims to extend the EU energy market, in particular the shared trade,
transmission and environmental frameworks to the Union’s southern and Eastern
European neighbours.

3. Group C Countries – (Armenia, Azerbaijan, Belarus, Kazakhstan, the Kyrgyz
Republic, Mongolia, Russia, Tajikistan, Turkmenistan and Uzbekistan)

The countries in Group C (except for Mongolia) are loosely bound together by
expectations of a CIS market economy following the break-up of the Soviet Union.
Some countries in Group B, like Ukraine, Georgia and Moldova in particular, share a
similar history of a unified energy system but for political and economic reasons are
moving toward the frameworks of their Western neighbours despite having systems
that are synchronous with their Group C neighbours to the East.

This group of countries is, as noted elsewhere, inconsistent, with disparate levels of
development, resource and transit/trade potential. For the most part, the countries in
this group have received less reform directed attention than those in Groups A and B
and as a consequence are less advanced in terms of adoption and implementation of
principles reflective of best practices. It is worth noting that, broadly speaking, due
to regional proximity as well as possibilities for trade and regional integration with
existing and developing infrastructure, Group C can be viewed, in the electricity
sector, as loosely breaking into interrelated subgroups: the Caucasus (Armenia,
Azerbaijan); Russia; Belarus; Central Asia (the Kyrgyz Republic, Kazakhstan,
Tajikistan, Turkmenistan, and Uzbekistan); and Mongolia. For gas, giving separate
consideration to Russia and to areas within and around the Caspian helps understand
the specifics of the region’s largest gas market.

a. Sector obligations/commitments for Group C countries

As discussed, a major factor delineating these Group C countries from the EU and
Energy Community (contracting parties and observers) countries is the lack of
obligation or motivation to conform to the EU or other unitary organisation’s
market and regulatory framework. With no umbrella obligatory template to
follow, and with sometimes starkly different resource, geographic, political and

111 See generally http://www.energy-community.org/portal/page/portal/ENC_HOME/AREAS_OF_WORK/
ELECTRICITY/Regional Market/CAO. The area is reference the 8th region to follow up on seven sub-regions within
the EU identified by ERGEG for specific Regional Initiatives to develop markets within these areas.
historical backgrounds, unsurprisingly, overall this region is marked by less progress on the institutional and market front, with substantial disparities in progress and approaches from country to country. Geographical proximity and resource interdependence, such as the physical interdependence among the Central Asian Republics with respect to hydro power should drive closer cooperation among sub-groups of these countries, to transform current governmental cooperation agreements into unified institutional frameworks. At the same time, the geographic conditions in the region also present immediate challenges to regional trade that must be respected and weighted carefully in any move toward regional agreements. In addition, Group C countries are supported through individual country and regional initiatives that are project and activity specific (key one are discussed in the next sections), but also from other regional and international commitments, including: entry or aspiration for entry into the WTO (e.g., the Kyrgyz Republic’s plans to privatise and restructure Kyrgyzgaz JSC and begin the liberalisation of the gas sector); commitments to the Kyoto Protocol; bilateral pacts and relations, particularly with Russia; and participation in the Energy Charter Treaty process.

Important drivers of regulatory reform in the Group C countries are regional institutions and initiatives, as well as EU, IFI and donor driven bilateral agreements. Participation by the countries in cooperative organisations in particular demonstrates a common desire for liberalisation and harmonisation of the regulatory frameworks in this region. Some noteworthy examples include:

- Energy Charter Treaty, signed in 1994 and entered into force in 1998, is a multilateral treaty encouraging the extensive use of legal methods in solving international economic disputes. The original intention of the Treaty was to facilitate energy flows from east to west but then extended to include three other areas – investment, trade and dispute settlement. The Treaty creates rights and obligations in international law for all of its contracting parties. By 2008, most of the EBRD countries of operations ratified the Treaty with the notable exceptions of Russia and Belarus. Russia’s ratification has been conditional on reaching a consensus on the Transit Protocol, which was intended by the EU to provide for a greater certainty for participants and investors in gas commerce. For Gazprom, however, the Transit Protocol’s provisions would allow uncontrolled transit of central Asian gas to Europe, which would affect its position on the international gas market in price negotiations. The gas transit has become increasingly more important, as exports volumes, and therefore the costs of transit failures, increase. Even though there is not a clear outcome of this stalemate, the Energy Treaty remains the main legal basis for the EU to build its energy relations with the Group C countries (and with the Group B observers). Since the provisions of the Treaty have a direct application in national law, they affect to a large extent the energy policies of most of the Group B and Group C countries.

- the Black Sea Economic Cooperation (BSEC) group, which includes Armenia, Azerbaijan and Russia’s membership, along with membership of some Group B countries and two Group A countries (Bulgaria and Romania), and is directed at promoting good governance among its countries so as to facilitate trade and economic development


112 The 12 BSEC Member States are comprised of Bulgaria, Georgia, Romania, the Russian Federation, Turkey and Ukraine which are littorals of the Black Sea, as well as Albania, Armenia, Azerbaijan, Greece, Moldova and Serbia.
agreements with the EU such as the EU-Azerbaijan memorandum of Understanding on Energy, signed in 2006, the Baku Energy initiative, launched in 2004, and the INOGATE programme, as well as regulatory bodies in the EU, such as CEER and ERGEG, which good practice guidance through papers and public consultations, engage in some trainings of regulators outside the EU; and in particular support efforts to link regional regulators bodies and individual regulators to improve regulatory practice.

- the Central Asia Regional Economic Cooperation Programme (CAREC), led by the Asian Development Bank, and intended to facilitate trade in target economic sectors, such as energy

- the Energy Regulators Regional Association, which includes all the Group C countries, along with all Group B countries and the majority of Group A countries. Holding regular presidium and committee meetings on targeted subject areas critical to energy regulation, ERRA’s main objective is to increase exchange of information and experience among its members and to expand access to energy regulatory experience.

- the National Association of Regulatory Utility Commissioners, which conducts exchanges with regulatory bodies internationally and has ongoing partnerships with many of the Group C countries.

- international conferences dedicated to energy sector reform, most notably the World Regulators’ Conference, which is the only global energy conference focusing exclusively on the regulatory aspect of energy markets; the Conference brings together representatives from almost 100 regulatory authorities around the world (last held in Athens in 2009, it meets every three years).

One point worthy of note is that due to the disparities in this grouping, the focus of international assistance and investment is often divided by subgroup. In the case of Russia, a monolith in terms of energy resource, infrastructure and development, investment and reform are more progressed. Reform in Russia has tended to focus on liberalisation of the electricity sector, while reform efforts in surrounding countries often focuses on strategies to limit the monopolistic position of Russia, and diversify in order to promote security of supply. As the CAREC, Baku and Black Sea initiatives make evident, various efforts toward similar goals are underway, but these are disparate and have not resulted in concrete regional guidelines and commitments that place obligations on governments to reform. The latter are particularly necessary in Group C, where

---


116 The eight CAREC countries are Afghanistan, Azerbaijan, China, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan. The CAREC initiative includes regional meetings of high level governmental officials, and in 2008 at the Seventh Ministerial Conference of CAREC countries, CAREC adopted an energy strategy; see http://www.carecinstitute.org/uploads/docs/CAREC-Regional-Cooperation-Strategy-in-Energy.pdf.

117 http://www.erranet.org

118 http://www.naruc.org/programs.cfm?c=International
turnover and upheaval in government are common and international commitments serve to drive forward reform irrespective of the individual party or person in power.

b. Regional considerations for Group C countries – electricity

While the EU and Energy Community countries profiled in this Assessment are generally energy importers, many of the countries in Group C are exporters, with further supply potential. Aside from oil, natural gas and uranium, one major source of power is hydro power. In some of the countries with large hydro power sources, while exports are high, the countries remain highly dependent on import during the summer and other dry periods.

Russia

Market reform in Russia has been steady in the electricity sector and could in some respects be used as a blueprint for its neighbours. The monopoly RAO UES (Unified Energy System of Russia) has been unbundled, and 20 of the resulting companies were privatised in 2008 — several with foreign investor participation. The reforms created six wholesale thermal power-generating companies (OGKs – which remain separate from hydro and nuclear assets) and 14 territorial generating companies (TGKs – which provide district heating as well as power). Foreign investors include E.ON and RWE of Germany (in OGK 4 and TGK 2, respectively), ENEL of Italy (in OGK 5) and Fortum of Finland (in TGK 10, plus a minority share in TGK 1). The 60% state-owned RusHydro JSC manages the vast majority of the Russian hydro power plants. The operation of the country's transmission grid remains under state control through the Federal Grid Company.

At the wholesale level, a power exchange was established in 2006. The share of electricity that is sold at non-regulated prices is increasing in stages, from 5% of the forecast balance prepared by the Federal Tariffs Service of Russia for 1 January 2007 to full liberalisation of the wholesale electricity (capacity) market in 2011. In the interim phase, the non-liberalised volumes are exchanged and paid for at regulated prices under regulated bilateral contracts.

The power exchange is complemented by a balancing market. Volumes of actual output/consumption deviation from planned amounts for each participant are sold and purchased in the balancing market. The calculations are performed one hour ahead.

Russia’s influence and role in some areas, e.g. Central Asia, to act as gatekeeper between east and west, has not brought with it parallel institutional reforms, though if leveraged, Russian could offer a valuable model of reform to many of its fellow Group C countries. As a general rule, for historical and political reasons, regulation and policy in these countries has been driven less by independent authority and open competition, and their energy sectors are more centralised. The extent to which this status quo helps or hurts the economic engines on its borders seeking to invest or increase its security of supply may influence the degree or speed of change. Belarus, for instance, is closely linked and dependent upon Russia, such that separate regulatory development is challenging.

Central Asia

The energy sectors of the Central Asian republics are at highly different stages of development, with Kazakhstan significantly more developed toward electricity market trade than the other countries in the region. The Kyrgyz Republic is
making some important moves in the right direction, but is being stalled by political instability. Tajikistan is in the process of making reforms but lacks a clear legal and regulatory structure to facilitate trade. Uzbekistan and Turkmenistan have thus far stayed largely out of the regional electricity market initiatives, though the participation of each is essential for a real regional market to develop. Uzbekistan houses the United Dispatch Centre, a quasi independent entity that provides dispatch authority, mainly limited to controlling the operation of a 500 kV transmission loop, coordinating cross-border power flows and regulating frequency and load reliability within Central Asia; thus it has a particularly vital role. The temptation of course is to rely on the greater developed market structure in Kazakhstan to lead and design the direction of the regional market. But while the experience of Kazakhstan must assist the overall process of creating a regional market, the importance of buy-in and active participatory input from all included republics cannot be underestimated. This is particularly true given the politics of the region.

In the Central Asian region, the Central Asian Power System (CAPS) offers the potential for expanded regional trade. Large reservoirs and hydroelectric power stations offer abundant electricity, though the use of water has become a touchstone for economic and political relations in the countries of the region and due to resource fluctuations (seasonal and other factors affecting water level). Most of the water flow in the Central Asian region comes from the Kyrgyz Republic and Tajikistan, with Uzbekistan, Kazakhstan and Turkmenistan dependent on this water flow, which can vary greatly from year to year given weather conditions. While these elements would logically promote cooperation, creation of regional institutional bodies and harmonisation of regulatory frameworks, the general presence of such resources can also affect national political interests. Water use disputes between Uzbekistan and the Kyrgyz Republic thwart efficiencies that could otherwise be developed for the benefit of the population of each.

For instance, conflicts of interest regarding water usage and rights among countries in the region affect investment into big hydro power facilities on the trans-border rivers of Amu Darya and Syr-Darya, the most important water arteries in the region. The conflict is between the “upstream” countries (Tajikistan and the Kyrgyz Republic) which control the heads of the Amu Darya and Syr-Darya rivers, and the “downstream” countries (Kazakhstan, Uzbekistan and Turkmenistan) which critically depend on the water flow from these sources.

For the Kyrgyz Republic and Tajikistan, the “upstream” countries, the construction of the hydro power stations is of crucial importance in order to overcome their deficit of electricity as both countries lack from the sufficient oil and natural gas resources necessary to provide for the electricity and heat needs of its population and economy. The Kyrgyz Republic, for example, is a net exporter of electricity (to Kazakhstan, Uzbekistan and China), 90 percent of which comes from hydro power plants. At the same time, the country is a net importer of primary energy because it lacks adequate fossil fuels, particularly oil and gas, to support automatic and industrial sectors. For the “downstream” countries, the impact of such projects on their predominately agriculture-based economies can be severe. For example, Uzbekistan, which has the biggest population among Central Asian countries with about two-thirds resident in rural agricultural areas, depends heavily on the water supplied from the “upstream” countries. Moreover, in the last several years, upstream and downstream countries have clashed over the issue of the hydroelectric facilities autumnal and winter water discharges disrupting the agriculture of the downstream states.

In 2009 both Kazakhstan and Uzbekistan announced their withdrawal from CAPS (in October and November, respectively). On the Kazakh side, KEGOC, the
company in charge of the national electricity network, complained for several months of the illegal misappropriation of electricity by Tajikistan, thus threatening Kazakhstan’s southern regions with important electric deficits. Kazakhstan withdrew from CAPS twice during the 2002-2009 period because of unauthorised extraction of its electrical energy. In particular, from the 26 of February to the 11 of March 2009, the energy system of Kazakhstan worked in parallel mode due to the imbalance of production and consumption of electricity in the region. On the 24 of October 2009, Southern Kazakhstan separated from CAPS and started working in a parallel mode. This event was followed by the official decision of Kazakhstan to definitely withdraw from CAPS.

Uzbekistan benefits from prime geographic location as many areas of the Kyrgyz Republic and Tajikistan are supplied with electricity through power lines that cross the Uzbek territory. In particular, the Kyrgyz Republic depends on lines traversing Uzbekistan to supply electricity from its Jalalabad Province to its Osh and Batkent regions. Uzbekistan has often exploited its key role of transit country by raising its transit tariffs and thus making difficult profitable exchanges between countries, in particular between Tajikistan and Turkmenistan. Uzbekistan’s position with respects to the CAPS is also influenced by the problems arisen from water management issues in the region, demonstrating that from the point of view of negotiating energy agreement across regions, water rights issues and corresponding issues of social support and economic development are vital considerations.

**Armenia and Azerbaijan**

In the Soviet Era the Armenian electricity system was designed and developed, in addition to meeting internal demand, to supply electricity to neighbouring countries: Georgia, Azerbaijan and Turkey. After the collapse of the Soviet Union, the Armenian electricity sector suffered from a dramatic decline in domestic demand and the abrupt termination of exports. In recent years, thanks to economic recovery and a profound restructuring of the sector (in 1997 generation, transmission and distribution companies were separated from the vertically integrated public monopoly), the electricity market has been revitalised and the export market has recovered. Between 2000 and 2006, annual electricity exports to Georgia varied between 200-660 GWh/year, though exports ceased in 2007. In late 2007, Turkey and Armenia concluded an agreement on electricity cross-border trades, under which Armenia would initially supply 1.5 TWh per year to Turkey. The agreement has not yet been implemented. A special export agreement was signed with Iran in 1998 to exchange electricity flows between the two systems under a “non-profit” regime. Under this agreement, Armenia is allowed to import electricity from Iran during peak load periods (winter months), exporting an equivalent quantity during off-peak periods (summer months, which are peak loads in Iran).

In the Caucasian region there is a large unused cross-border transmission capacity, which in fact offers a strong rationale for the creation of a regional market, despite the presence of political tensions that would need to be overcome.

**Mongolia**

Though part of CAREC and ERRA, Mongolia often stands relatively alone in this Group, in large part due to having a small population that is spread out across a large territory and limited resource potential. Still, Mongolia has made enormous strides in terms of reforming its framework and is a good example of a country that has utilised the regional fora benefits its energy sector.
c. Regional considerations for Group C countries – gas

In light of the breadth of the third grouping and in particular the different sources of gas supply in this grouping, regional considerations for natural gas must be broken down into sub-regions. Within Group C, key regional gas consideration fall into two broad groupings, those stemming from dominance of Russia and the Russian natural gas pipeline system on the one hand and natural gas imports from the Caspian region and their transport routes on the other.

In the Caspian region there are major gas exporters (most notably Turkmenistan) that have large-scale production and export programmes, one big producer (Uzbekistan) with a production mostly destined to the internal market, and two countries (Azerbaijan, the only one on the west side of the Caspian Sea, and Kazakhstan) that have only recently become net exporters but have considerable export potential. The 1999 natural gas discovery of Azerbaijan's Shah Deniz field has boosted the region's natural gas export prospects. The Shah Deniz field, thought to be the largest natural gas discovery worldwide since 1978, is being developed for export to Turkey. The infrastructure that will be built to deliver this natural gas has helped to renew international interest in the region's natural gas.

So far, in addition to problems related to the unresolved legal status of the Caspian Sea, natural gas exports from the Caspian region have been hindered by geography. The majority of the Caspian Sea region's natural gas reserves are located on the east side of the Caspian, in relatively remote areas. The contribution of the Caspian region to global gas supply will depend on the level of investment in exploration and production, and on the availability of reliable routes to international market on commercial terms. A significant role in determining overall volumes of gas available for export will be played by the region’s own demand, which has been steadily growing for the last decade as a result of gas subsidised prices and largely inefficient energy use across the region.

To the East of the Caspian Sea, with the exception of a low-capacity pipeline from Turkmenistan to Iran, all international routes for east Caspian producers are through the Russian pipeline network. The Central Asia – Centre pipeline system consists of four main export pipelines (known as SATS-1, 2, 4 and 5), running in parallel to join the Russian pipeline network at Alexandrov Gai. This is the most important artery for export of gas from Central Asia (primarily from eastern Turkmenistan and southern Uzbekistan). There is also a western branch, the SATS-3 pipeline, which runs from Turkmen Caspian Sea territories to the north. The eastern branches meet with the western one in Kazakhstan; from there the pipelines run north where they are connected to the Russian natural gas pipeline system.

Thanks to the design of the former Soviet Union’s network system, built on geographically centralised principles, Russia’s effort to prevent substantial trading links being formed without its participation have been largely successful. This gives Russia’s Gazprom a largely dominant role in the region, which has allowed, until recently, the gas giant to buy gas from Central Asian countries (Turkmenistan, Kazakhstan and Uzbekistan) at prices well below the international level. However, due to Russia’s strong need to make its own gas balance, the prices offered by Gazprom for Central Asian gas exports have risen significantly in the last 3 years, and are likely to rise further. In March 2008, Gazprom and the heads of the national oil and gas companies from Turkmenistan, Kazakhstan and Uzbekistan announced that trade in Central Asian gas would, from 2009, take place at ‘European level prices’ (in terms of netback).
To the West of the Caspian Sea, the South Caucasus Pipeline (or Baku-Tbilisi-Erzurum Pipeline), which brings gas from the Shah Deniz offshore gas field in the Azerbaijan Caspian Sea to Turkey, entered into operation in late 2006. The pipeline runs parallel to the Baku-Tbilisi-Ceyhan pipeline oil through Azerbaijan and Georgia. The current pipeline capacity, which amounts to 7.8 bcm/y, has been dimensioned to support the first phase of Shah Deniz field development. An expansion of the South Caucasus Pipeline has been decided at the end of 2008 to increase capacity to 16-20 bcm/y by 2012. This is linked to second phase development of Shah Deniz.

Given the anticipated increase in Caspian natural gas production and export, there are currently numerous proposals on the table either to strengthen and expand the existing pipeline network (Russian system, South Caucasus Pipeline), or to build new pipelines. Because many of the proposed projects are competing for the same sources of gas, it is clear that not all projects under study will go ahead. The main proposals, shown in Figure 2, are:

“Southern Corridor” Pipelines
- Trans-Caspian options
- Expansion of the South Caucasus Pipeline
- Nabucco
- Greece-Italy Interconnector
- Trans-Adriatic Pipeline
- White Stream

Pipelines to Russia:
- Enhancement of the Central Asia-Centre Pipeline system
- Caspian Coastal Pipeline

To China:
- Turkmenistan-Uzbekistan-Kazakhstan-China Pipeline

To Pakistan/India
- TAPI (Turkmenistan-Afghanistan-Pakistan-India) Pipeline
- South Europe Gas Ring Project, which aims at bringing natural gas from the Caspian Sea, Middle East and Southern Mediterranean countries to Europe through Turkey and Greece
The Nabucco project is intended to connect European markets with gas supplies from the Caspian region and Middle East.\(^{119}\) With a projected transport capacity up to 31 bcm/y, Nabucco is intended to open up a fourth supply corridor for natural gas into Europe (in addition to gas from Norway, Russia and North Africa) and allow the transit countries to benefit from supply diversification. Following a development phase until the end of 2009, construction is envisaged in two stages from 2010, with the pipeline becoming operational in its first stage from 2013. The 3,300 kilometres (2,050 mi) long pipeline will run from Erzurum in Turkey via Bulgaria, Romania, and Hungary to Baumgarten, a major natural gas hub in Austria; it will be connected with the Tabriz–Erzurum pipeline and with the South Caucasus Pipeline, connecting Nabucco Pipeline with the planned Trans-Caspian Gas Pipeline. The Nabucco project is included in the EU Trans-European Energy Network programme and a feasibility study for the Nabucco pipeline has been performed under an EU project grant. Construction of the pipeline is expected to begin in 2010 and is planned to be finished in 2014. It is estimated to cost around EUR7.9 billion.\(^{120}\)

The Turkey-Greece-Italy Interconnector (TGII) project aims to link Turkey to Greece and then Italy, as an exporting route for gas from the Caspian region. A tri-lateral agreement was signed by Turkey, Greece and Italy in July 2007 that set up the overall commercial and legal framework for the TGII. Volumes of gas

---

119 The Nabucco Pipeline Company was established in 2004, with six equal shareholders: OMV (Austria), MOL (Hungary), Transgaz (Romania), Bulgargaz (Bulgaria), BOTAS (Turkey), and since February 2008 RWE (Germany). The company leading the project is OMV.

120 Nabucco Gas Pipeline Project Company, Press Conference, 29 May 2008, reported by Reuters UK.
supplied along the TGII are expected to rise to 11 bcm per year in 2012, with 8 bcm supplied to Italy and the remainder to Greece.

The Trans Adriatic Pipeline (TAP) is a project being promoted by the Swiss Elektrizitäts-Gesellschaft Laufenburg (EGL) and Norway's StatoilHydro. EGL signed an agreement in February 2008 with StatoilHydro to establish an equal joint venture to develop, build and operate the TAP. A final investment decision is anticipated in the second half of 2009, with the earliest date for completion being 2012. TAP is intended to link Southeast Europe and Italy, where EGL operates large natural gas-fired power plants.

The White Stream Pipeline project is an initiative to bring Caspian gas across the Black Sea from Georgia to Romania (either directly, or via the Ukrainian region of Crimea). The project, which was formerly known as the Georgia-Ukraine-European Union (GUEU) pipeline, would by-pass both Russia and Turkey. It foresees an initial capacity of 8 bcm per year, potentially rising to 32 bcm. It has generated some interest and political support, notably from Ukraine, but sources of natural gas and commercial sponsors still remain unclear. The Azerbaijan government made a strong push in October 2009 for this project, with the goal of diversifying its gas exports and transporting its gas to Europe without having to go through Turkey, which currently monopolises transit routes.

Enhancement and modernisation of the Central Asia-Centre Pipeline system has been a longstanding priority for Gazprom. In addition to the plans for a Caspian Coastal Pipeline described above, the Russian desire to reinforce this corridor as the main export route for East Caspian gas. On 20 December 2007, Russia, Turkmenistan and Kazakhstan agreed to construct a new pipeline (Caspian Coastal Pipeline) parallel to the existing SATS-3 line. The pipeline will be built between Belek compressor station in Turkmenistan and Alexandrov Gay compressor station. Capacity of the new pipeline will be 20 bcm a year, with 10 bcm supplied each by Turkmenistan and Kazakhstan. Construction of the pipeline is expected to start in early 2010.

After signature of a General Agreement on Gas Cooperation between China and Turkmenistan in April 2006, the construction of an eastern export route for Turkmenistan gas (Turkmenistan-Uzbekistan-Kazakhstan-China Pipeline) advanced rapidly in the 2007-2009 period. The rationale for this export route are a production sharing agreement for the China National Petroleum Corporation (CNPC) to develop reserves in eastern Turkmenistan, and a 30-year gas sale and purchase agreement for up to 30 bcm/y signed in July 2007 between China and Turkmenistan. The pipeline starts in Saman-Depe carrying natural gas from the Bagtyyarlyk gas fields on the right bank of Amu Darya in Turkmenistan. The pipeline enters Uzbekistan in Olot and runs across Uzbekistan to southern Kazakhstan parallel to the existing Bukhara–Tashkent–Bishkek–Almaty pipeline. The second line of the pipeline starts in Kazakhstan, and from there it runs to Alashankou in China, where it is connected to the West–East Gas Pipeline. The pipeline was inaugurated on 14 December 2009 in a ceremony in Saman-Depe during Hu Jintao's visit to Turkmenistan with the leaders of Turkmenistan, Uzbekistan and Kazakhstan.

The idea of a southern export route for Turkmenistan (Turkmenistan-Afghanistan-Pakistan-India Pipeline (TAPI)) gas gained momentum again following the overthrow of the Taliban regime in Afghanistan in 2001. A

---

121 It will be linked with the branch line from western Kazakhstan, to be commissioned in 2011, which will supply natural gas from the Karachaganak, Tengiz and Kashagan gas fields.
technical and economic feasibility study, funded by the Asian Development Bank and completed in 2003, found that the pipeline would be advantageous compared to LNG imports and could be supported by demand from Pakistan alone. Afghanistan would benefit from transit fees. The study estimated the cost of the pipeline at USD 3.3 billion, but this estimate was raised in 2008 to USD 7.6 billion. The 1,680 kilometres pipeline would run from the Dauletabad gas field to Afghanistan. From there TAPI would be constructed alongside the highway running from Herat to Kandahar, and then via Quetta and Multan in Pakistan. The final destination of the pipeline will be the Indian town of Fazilka, near the border between Pakistan and India. First deliveries are provisionally scheduled for 2015; this would require pipeline construction to begin no later than 2010.

Russia’s gas dominance in the region is behind many of the above initiatives, as diversification and security of supply lead concerns in the region and beyond given that about 25% of the natural gas consumed in the EU is provided by Russia (and over 75% of this comes through Ukraine). Ongoing disputes between Russia and Ukraine regarding transit prices and Ukrainian debt mean that the current structure poses considerable risks to security of supply. The January 2009 dispute between European countries and Russia regarding supply failures (all via the Ukrainian route) is representative.

d. Chart for Group C countries

A comparative view, in ascending order, of Armenia, Azerbaijan, Belarus, Russia, Mongolia and the Central Asian republics is presented below.

Mongolia, Tajikistan and the Kyrgyz Republic are not included in the comparative view of the gas sector. The first one does not have a gas system, and the gas systems of the last two are not sufficiently developed to allow a full assessment.

Electricity sector in Group C countries

Gas sector in Group C countries

e. Trends in Group C countries

Security of supply will be an important factor for undertaking reforms in the energy sector, as the exporting countries balance their interests between the large presences on their borders. Internal development of infrastructure and expansion of services are also likely priorities for many of these countries.

One growing influence is China, which currently has significant investments in Central Asia, e.g. investment in oil resources in Kazakhstan. Given China’s proximity, growing energy needs and economic strength, its participation is increasing and will increase its influence in the region.

f. Conclusions for Group C countries

The energy sectors in this group of countries, and indeed the overall economic and political structures, vary greatly. Given the lack of the unifying pressure of EU accession, disparity in speed of progress among these countries is likely to continue. A key challenge will be persuading the political leadership to undertake and implement reforms that are in the best interests of their nations. With such political engagement and acceptance, the potential for progress is great.

X. RENEWABLE ENERGY SOURCES/ENERGY EFFICIENCY

1. Overview

The area of renewable energy and energy efficiency is characterised by a wide variety of authority and competencies among regulators. This situation is exacerbated by unclear division of responsibilities between energy regulators and governmental bodies charged with environmental and related issues. Responsibilities are typically diffused over ministries, system operators, market operators, regulator and other agencies charged with specific environmental issues (and others). With respect to the energy regulators’ role, a worrying trend is apparent. In a majority of countries, the regulators have only limited responsibilities in the renewable energy and energy efficiency sectors, and express limited knowledge about policy matters in these areas. Traditionally, regulators and their staffs are likely to come from a background in and familiarity with technical, engineering issues associated with electricity and gas production and transmission, and not an environmental focus. At the same time, policy attention to renewable energy and energy efficiency issues has meant that Ministries and other government arms often claim the issue within their jurisdiction.
Certainly the same pattern displayed with respect to progress in general for the most part repeats itself in the renewable energy and energy efficiency arena: the EU countries, bound to an array of specific legislative obligations, can focus more on implementation of region-wide initiatives and progress more rapidly. Energy Community countries, bound to fewer requirements are generally behind their EU neighbours but moving on a path forward. Finally, the third group, Group C, are not subject to a unifying template and have further to go.

Overlaid on this regulatory status are the differences, displayed elsewhere on the global front, between developed and developing countries, between countries with resources (renewable and otherwise) and have-nots.

2. Group A countries

Generally speaking, the Group A countries assessed here, while having to comply with a variety of legal obligations, have found compliance with obligations such as emission reductions relatively easy, because the base year starting point by which they are measured is a time when they were much more industrially based. One can thus anticipate from this group a growing challenge to meet reduction and efficiency goals going forward over time as their economies grow. Countries like Poland with dependency on sources such as coal or peat will face the technical challenges of using these resources within the parameters allowed in terms of emissions, in a cost-efficient manner. Countries dependent upon gas imports can see environmental concerns as a part of a larger security of supply issue, providing additional impetus for development of domestic renewable resources and increased energy efficiency.

All of these issues will be played out in a legal environment of each country developing National Action Plans to meet the requirements of the EU’s Climate Change Package, with its 20-20-20 goals (20% reduction in greenhouse gas emissions, 20% increase in energy efficiency and 20% share of renewables), and to comply with specific legislative directives and regulations regarding labelling, building performance and other EU mandates. The EU seeks to lead on the issue of climate change, with even more ambitious targets likely.

Hence, the countries in this assessed group will focus on achieving their targets and requirements. Bulgaria, for example, recently announced plans to bolster, with EU financial assistance, its energy efficiency (like many of the newer EU Members, its energy intensity levels are high compared to the EU-15, creating low hanging fruit in the search for avenues for improvement). Sourcing 9.4% of its energy from renewables in 2005, its EU target requires a 16% level by 2020.

3. Group B countries

The Energy Community countries confront similar conditions and considerations, with generally (although not uniformly) less developed economies than their western neighbours. The availability of resources and potential resources varies, from Albania’s existing high percentage share (28.6% in 2005, given its reliance on hydro) to minimal existing renewable reliance in countries such as Moldova and Ukraine (3.2% and 1.5%, respectively). Countries with high renewable potential, e.g. Georgia, in respect of its hydro power resources, will be looking to exploit these resources both domestically and for export.

The integration of EU and Energy Community regulatory goals and methodologies is reflected in, for example, Article 9(8) of the EU’s new directive on renewables, Directive 2009/28/EC, which expressly provides: “Member States and the Community shall encourage the relevant bodies of the Energy Community Treaty to take, in conformity with the Energy Community Treaty, the measures which are necessary so that the Contracting Parties to that Treaty can apply the provisions on
cooperation laid down in this Directive between Member States.” Currently, for example, the Energy Community is having a study completed on the current state of renewable energy in the Energy Community countries; the impact of the new renewable directive on Energy Community countries, achievable targets for 2020, and the costs of meeting those targets, and a task force is investigating and will propose the modalities for possible adoption of the directive within the EcT. The Energy Community countries submit implementation plans explaining how they will meet their Treaty obligations, and the Energy Community Secretariat reviews implementation of Treaty obligations by the Contracting Parties.

In sum, a path exists for development of regulatory continuity, unity and development, with greater challenges, such as the lack of easily accessible, accurate and consistent data upon which to measure progress, as well as greater avenues for quick results, such as reduction in high energy intensity rates. Efforts will be needed to correct subsidies hindering development of renewable energy, to assure adequate support schemes, such as feed-in tariffs, mandatory take off requirements and grid connection preferences and certificate of origin mechanisms; and to streamline regulatory frameworks, through, e.g. development of licensing, concession and permitting procedures focused on renewable energy promotion and identification of appropriate environmental impact assessment approaches.

4. **Group C countries**

The third group generally presents a different picture – newly developing countries with no binding regional impetus for renewable energy and energy efficiency, and, further divided, within this group, between resource rich and importing countries.

The factors and issues influencing renewable energy and energy efficiency development in this group are similar to those faced by developing nations globally, including identification of nationally appropriate and achievable climate change mitigation commitments and actions, risk management strategies, technology development and transfer, and financial resourcing.

The difficulty of achieving consensus on substantive actions in these areas in the absence of regional organisations with common approaches and binding commitments is exemplified by the delay in the timetable set in the Bali Action Plan roadmap calling for parties to the United Nations Framework Convention on Climate Change to establish a further protocol beyond the commitments embodied in the Kyoto Protocol in 2005 at the 15 Conference of Parties in Copenhagen in December 2009. Instead, the meeting in Copenhagen extended work on any legally binding commitments for another year.

The actions of large developing emitters such as China and India to engage in various voluntary national actions while eschewing binding agreements, mandatory targets and timetables probably presents a more attractive template to this third group. Efforts could concentrate on mechanisms to refurbish existing infrastructure and develop new resources. Uzbekistan, for example, possesses 70% of the gas in Central Asia, 30% of the oil, 20% of coal and 14% hydro potential. It also has an immense potential for solar energy. Currently energy independent, reduction in its intensity of use for environmental purposes requires regulatory impetus, including rational prices. Overhaul and renovation of existing power plants and network could have strong beneficial impacts, demonstrating the potential effect of infrastructure investment,

which in turn, could be encouraged through a more transparent and predictable legal and regulatory framework.

In sum, the challenges this region faces are immense, but so is its potential.

XI. CONCLUSIONS AND RECOMMENDATIONS

1. General conclusions

Overall, regulatory risk is diminishing across EBRD countries of operations and investment opportunities are on the rise.

As expected, in general, Group A countries perform better than non-EU Member States because the majority of the best practices that underpin the benchmarks in the Assessment are included as part of the EU energy acquis; similarly, because Energy Community contracting parties have committed to comply with certain EU requirements, the Assessment anticipates higher performance on the benchmarks from these countries as well. In the absence of a unified framework for the reform, Group C countries have varied systems, at varied stages of development, with limited harmonisation across national frameworks.

2. Implication for policy and recommendations

Considerable reforms in the EBRD energy sectors are evident, with liberalisation and transparency promoted, at least on paper, in the majority of EBRD countries. In Central Asia and some Caucasus countries though, the absence of a regulatory authority limits the ability of reforms, as some separation from the government has proved integral to the success of market opening, the introduction of an investment climate for non-incumbents, and movement toward cost-reflective tariffs.

From a policy perspective, as countries navigate toward reforms (albeit at different speeds), one or more overarching agreements regarding the benchmarks of sound regulatory practice would aid the process toward reform. Fundamentally, national action, in isolation of a regional framework or regional agreement, is likely to have a flawed and haphazard result. In Southeast Europe, national reforms have been circumscribed and defined by regionally driven guidelines, standards, advisory and interpretive notes and in some cases, rules with regional institution building as a cornerstone of regional market development. While experiences in one region should not be transferred wholesale to another region, experiences elsewhere offer important lessons.

Such agreements could be memorialised in an MOU among EBRD countries of operations, or other such collectively negotiated documents. As part of such agreement, individual plans that articulate how the countries plan to move toward these benchmarks would ensure a common path trajectory among all these countries. Along the same lines, the umbrella commitments to which the Energy Community contracting parties have entered, and the observers are on the cusp of entering, has proven a good driver of reform, albeit one that is supported through promises of additional funds and the hope of eventual EU membership. For the EU countries, this path is already paved by the older EU countries, and the EU Directives and regulations to which new member states must adhere.

The real difficulties lie beyond the EU and Energy Community (including its observers), to the third grouping of countries, over which there is no framework agreement or target framework agreement. Reaching such agreement, either over the region overall, or perhaps more appropriately given the diversity within this
group, among countries in sub-grouping of this region (for example, Central Asia, the Caucasus could each form separate groups), would serve to drive forward reforms and offer an anchor for investors, IFIs and donors as they assess regulatory risk.

At all times, agreements must be structured in a manner that offers broad applicability but also is able to incorporate the particular geographic, historical, political and economic backgrounds.

Any regional agreement on benchmarks and reform targets is intended as a vital step in the process of reform and not an end to reform efforts. Taking the Energy Community as an example, voluntary MOUs should be viewed as first steps toward later acceptance of mandatory targets. Steady but slow steps are best because they allow the time necessary for building blocks to develop, and hold, in the face of inevitably (and largely predictable) challenges. In this respect it is useful to look a little closer at the genesis of the Energy Community.

The Energy Community itself, for instance, was born of a long series of regional initiatives, with increasing regional targets, responsibilities and ultimately, requirements developed over time. To understand the current status, it is necessary to look back a decade. The underpinnings of the regional market development initiatives began around 2000, but the first regional group formation to support the process occurred in 2002 through what is known as the Athens Forum. The European Commission spearheaded the creation of this Forum, with active support from IFIs and donor agencies. Several EU countries were leaders in promoting the process, notably Greece, which committed to running the Forum itself, and Austria, which now hosts the Energy Community Secretariat, with leadership at high government level. Most of the non-EU nations in the SEE region and Greece signed the Athens Memorandum of Understanding of 2002 (2002 MOU), which was a non-binding agreement to take several steps towards the creation of such a regional market and its eventual integration into the EU’s internal energy market. Under the 2002 MOU, the signatory nations pledged to “devote their best endeavours” to create the following institutions that would operate their respective (national) segments of a regional electricity market:

- A State Energy Authority, placed within a government ministry, with the primary purpose of ensuring the secure provision of energy at competitive prices;
- An Electricity Regulatory Authority, completely independent of the interests of the electric power industry, that would be responsible for monitoring the electricity market;
- Transmission System Operators, to manage the flow of energy across the nation’s electrical system and ensure the reliability of that system; and
- Distribution System Operators, to maintain the distribution system, ensure its ability to meet demand and, if necessary, expand it.

The signatory nations also agreed to “endeavour” to take several steps to promote regional trade, including: (1) the development of action plans to carry

---

124 The 2002 MOU was signed by Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Romania, Turkey and Yugoslavia, as well as the United Nations Interim Mission in Kosovo (UNMIK). The European Commission also signed the 2002 MOU as a sponsor, and Austria, Hungary, Italy, Moldova and Slovenia signed as “observers.”

125 Parallel obligations for gas were added in 2003.
out tariff reforms and identify infrastructure needs; (2) the implementation of cross-border trade tariffs and congestion management systems; (3) the adoption of an authorisation procedure for the construction of new generation capacity; (4) the implementation of grid codes that share common elements across the region; and (5) the adoption of the EU’s guidelines for cross-border trade and transmission. To perform much of the work involved in creating a regional market, the signatory nations created a Ministerial Council, made up of the Energy Ministers of each nation. This Council would make strategic decisions concerning the regional market, advise the Athens Forum (which continued to meet throughout the process of creating the Energy Community), and, if necessary, formally endorse the Forum’s conclusions. A Permanent High Level Group (PHLG) was also created and given the mission of supporting the Ministerial Council and ensuring that its decisions were carried out. Although the 2002 MOU stressed that it was not legally binding on the signatory nations, it called on the PHLG to assess the voluntary commitments contained within the 2002 MOU, for the purpose of proposing a legally binding document. While the 2002 MOU focused on national action, early on it was recognised that such national mandates could not be achieved without a regional framework to support it.

It is important to recognise the importance of stakeholder participation to drive forward regional reforms, and also IFI and donor support for measures to move forward the regional market, including national and regional components of assistance. These various groups then all came together through the Athens Forum, which has met at least twice a year since 2002. In December of 2003, after several benchmarking studies to determine the progress made by the signatory nations in carrying out the commitments listed in the 2002 MOU, most of these nations, along with some new partners, three entered the Athens Memorandum of Understanding of 2003 (2003 MOU). Like the 2002 MOU, the 2003 MOU was not binding but the signatory nations clearly indicated their desire to replace it with a legally binding agreement as soon as possible. The 2003 MOU went further than the 2002 MOU and asked the signatory countries to adopt by June of 2004 a regional energy strategy identifying the principles which would govern the anticipated regional market and to set a time table for its implementation. In particular, these countries were also expected to adopt the rules relating to the market structure, network access and the operation of electric power systems contained in the European Union’s Directive 2003/54/EC. These rules required member countries to designate a TSO to manage flows on the

126 The Ministerial Council was a formal group of Ministers who could act with authority granted at the highest levels. They were expected to meet only occasionally, and only for the most important policy matters. The PHLG was to be its support and research group, mostly made up of lower level government officials who reported to their Ministries and could meet more often to get the work done. In concert with the establishment of these two key regional bodies made up of government officials from all the participating nations, the regulators were also called upon by the European Commission to create a regional group. They did this through an existing organisation called the Council of European Energy Regulators (CEER), which was itself a voluntary group made up of regulators from the European Union Member States. CEER created a subgroup within its organisation in order to support the SEE regional electricity market process. This subgroup included CEER members and representatives of all South East European regulatory authorities (and the Ministries where regulatory authorities did not yet exist). Led by EU Members Greece and Italy, this group, called the CEER Working Group for South East Europe Energy Regulation (CEER WG SEEER) met to discuss regulatory issues that arose as the regional energy market developed. As part of its work, the CEER WG SEEER put forth, through a collaborative internal process, important position papers on issues such as market design, standards of minimum regulatory competencies, inter-state compensation mechanisms for the trade of electricity, and the like. Around the same time, the European Commission also asked the system operators to organise a group. In parallel with steps taken by the regulators, the organisation of EU Transmission System Operators (TSOs), ETSO, formed a subgroup called SETSO that extended beyond the EU Member borders into non-EU Member States in SEE. Just as the regulators designed papers through a collaborative process, SETSO did the same, including important TSO benchmarking reports, minimum standards for TSOs, and input into market design and compensation mechanisms.
system, ensure the system’s ability to meet the demand placed on it, and ensure that there was no discrimination among system users. The 2003 MOU provided that these TSOs were to be legally separated from the rest of their associated undertakings and be managed separately; it also incorporated requirements of Directive 2003/54/EC to appoint a regulatory authority which would ensure effective competition, proper functioning of the market, and independence of all interests in the electric industry.

In December of 2004, the Ministerial Council approved the Tirana Declaration, under which the signatory countries to the MOUs would create a Southeast European Regulatory Board for Electricity and Gas (Board). The Board was to facilitate coordination and consultation between the regulatory authorities of each of the signatory countries, as well as to supervise the integration of regulation throughout the region. The Board would also monitor the region’s energy supply and draw up guidelines on market design, licensing procedures and other market authorisations. Membership of the Board was to consist of the heads of the regulatory authorities that each state had designated in response to the 2003 MOU. The Tirana declaration set a clear target: it stated that it would go into force one month after its adoption by the Ministerial Council.

Flowing from the Tirana Declaration, in which formal steps were taken to further institutionalise the regional process, negotiations began for the development and signing of a region-wide Treaty. Around this time too, the emphasis shifted from electricity to energy (including gas), though electricity would continue to be the primary emphasis up until the present day, when gas is starting to take centre stage.

In 2005, most of the nations which had entered into the 2003 MOU signed the Treaty establishing the Energy Community. Unlike the earlier MOUs, this Treaty requires, rather than simply requests, the signatory nations to take action aimed at creating this market, including (as discussed elsewhere) the adoption of the EU standards for market rules, environmental protection and renewable energy. It is also forward thinking, providing that the energy acquis to which these states are bound through the Treaty may be expanded with the passage of new legislation; bans the use of customs duties and quantitative restrictions on the import and export of energy between Energy Community members; and allows the institutions of the Energy Community to take measures to ensure that each signatory nation’s market is compatible with the regional market.

The process has not been easy and without dissent. Significantly, Turkey decided not to sign the EcT, though it remains an Observer to the process. Moreover, many goals have taken far longer to reach than anticipated. A standard market design has been, for instance, in the works for years but has not yet been achieved, and only recently has agreement on the coordinated auction office appeared evident, after many years of negotiations. The market framework is in place, but the market itself is only budding. Despite this, overall, the progress toward a common goal of liberalisation is remarkable.

The Energy Community process has several defining characteristics:

127 Memorandum of Understanding of the Regional Energy Market in South East Europe and its Integration into the European Community Internal Energy Market, 2003 (2003 MOU). The 2003 MOU was signed by Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Serbia and Montenegro, Macedonia, Romania, Turkey, UNMIK, and the European Community. Austria, Italy and Greece signed as “political participants to the process.”
At an early stage, the goal was twofold: to agree on minimum national requirements and to support these through the creation of regional organisations with representatives from each country that would be part of the regional market.

The goal was realised first through voluntary agreements and voluntary organisations, themselves formed after significant negotiation and meeting at a political and technical level.

Voluntary agreements were gradually expanded to include increasingly reform minded provisions directed at regional trade.

Neighbouring countries were included with differing roles in order to promote as much buy-in and as seamless a market structure as possible. Multiple actors within the energy sectors of each state were included: governments, operator and regulators.

Southeast Europe has the benefit of strong leadership from the EU and collaborative commitment from donors.

The countries of Southeast Europe had a distinct incentive to follow the EU: the hope of EU membership. Moreover, regional rules already established by the EU were used as a basis for the regional initiatives. This is one of the only regions in the world where a ready-made body of regional rules already existed that could be used as a template for regional market reform in a neighbouring area.

Not surprisingly, the experiences from the examples of regional energy market initiatives around the world demonstrate that the clearer the set of responsibilities attributed to each regional institution vis-à-vis the national institutions, the easier the course of development – though it must be recognised that regional market development is always a stop and start process, with successes and setbacks, requiring a long-term commitment. The Southeast Europe process demonstrates how regional institutions can evolve as they assist the leadership of the regional energy market. For instance, the Ministerial Council and the PHLG themselves changed in structure and authority with advancements in the market (with the Treaty came new mandates and a somewhat different membership); correspondingly, new regional institutions also metamorphosed from less well defined organisations (with the Treaty came the ECRB, which had its operational roots in the CEER WG SEEER).

3. Summary

The Assessment reveals that the European Union Member States have embraced international best practices and the principles embodied in the EU legal framework and are moving steadily toward broad-based reform of their energy sectors, including the promotion of renewable energy and energy efficiency. Challenges remain to secure real competition on the wholesale and particularly the retail side, facilitate customer switching, and improve the investment climate. With respect to renewable energy and energy efficiency integration in particular, much more work and political commitment are needed, though this is on the rise and real change has occurred in the last five to ten years in particular. While this is true inside and outside the EU, an important difference is that the EU countries receive significant pressure from the European Commission to bring forward reforms in the energy sector generally and most recently in the renewable energy and energy efficiency sectors in particular. Such pressure takes the form of EU Directives and regulations, national reporting requirements and EC investigations as well as carrots of financial support. Regulatory development in particular benefits from the work and supporting papers issued by CEER and ERGEG, both
regulatory bodies that promote regulatory reform consistent with best practices, including through use of public consultations and publicly issued discussion papers and sector guidelines.

Overall, institutional changes predate, to greater and lesser degrees, actual changes in market operation. Here too, efforts to promote renewable energy and energy efficiency are taking hold, though at a slower pace overall than for Group A countries, and with varied effect and limited integration. Best practices in energy regulation among the Energy Community contracting parties, and the observers, are further encouraged through increasing relationships with the EU internal market and its supporting institutions, such as ERGEG, the European Network of Transmission System Operators (ENTSO-E and ENTSO-G), the Southeastern Europe Transmission System Operators (SETSO) and others. These steps are relatively new, however, and movement is comparatively slower as a consequence.

Beyond the EU and the Energy Community, policy and regulatory development could be described as inconsistent. The energy sectors of these countries, and indeed the overall economic and political structure, vary greatly from country to country. As a general matter though, in these countries regulation and policy are driven less by independent regulation and open competition, and their energy sectors are more centralised than in the EU and Energy Community.

The general conclusion of the Assessment is that where sectors perform lower than the EBRD average and in particular low for their grouping, it is critical that additional steps are taken to improve regulatory autonomy and authority and to put in place a coherent regulatory framework underpinned by principles of transparency, non-discrimination and liberalisation. Without autonomy, pressure from industry, operators and government, the regulator is unable to curb market abuses and take measures to end subsidised operators in sectors that may have been closed to competition for a long period of time. Other factors such as Third Party Access, unbundling, public consultation, public hearing, dispute resolution and appeal mechanisms are important supporting steps that make possible a sound regulatory framework consistent with best practices.

The main recommendations of this Assessment are:

- Reforms in the EU need to continue, with additional emphasis on developing frameworks in support of renewable energy and energy efficiency, including strengthening the role of the regulator in developing and implementing any such framework. Additional work in the EU through ACER, which is to be based in Slovenia, to improve harmonisation of national frameworks within the EU and with their neighbours to the East is recommended.

- In the Energy Community, among the contracting parties, important institutional reforms have been realised and continue to be realised; the challenge now is to move toward implementation so that real market advances can be realised. The Coordinated Auction Office is among the most promising of the steps being undertaken, with a trial underway and the real-time run planned for 2010.

- For the Energy Community observers, the move toward the Energy Community framework marks a significant step forward, particularly given the strategic and resource importance of these countries, particularly Ukraine and Turkey. Attention must be given to addressing infrastructure limitations, synchronising and developing the regulatory framework in support of market opening and cross border trade of electricity, and the natural gas transport across national boundaries.
Where no regulator exists (Azerbaijan, Belarus, Central Asia other than Kazakhstan) it is critical that regulators are put in place, and remain subject to fixed institutional frameworks developed from best practices. The energy sector in the region suffers from high turn-over among regulators and Ministry officials who are in charge to setting and implementing policies for reform. Such turn-over presents challenges to the process of reform, which requires certainty and predictability.

4. Commitment of the EBRD to its countries of operations

Internationally, in the energy sector, unlike some other sectors such as telecommunications, no multilateral agreement binds all EBRD countries of operations to certain identified general principles. The absence of such an agreement is regrettable. Sector development overall would be improved by a negotiated agreements by which all countries voluntarily committed themselves. The EBRD encourages the initiation of a process of public comment, public consultation and high level negotiation among stakeholders to develop and bring such a multilateral agreement based on sound international best practice into force.

As part of its commitment to its countries of operations, the EBRD looks forward to building upon the conclusions of this Report through stimulation of policy dialogue among stakeholders on elements of an efficient power sector reform. The EBRD can play an important role in initiating public comments and facilitating consolidations of the results of the Assessment. A core aspect of this work is to encourage regional integration through harmonised and transparent frameworks that in turn make possible regional trade, in particular with respect to the Group C countries where challenges and potential alike are the greatest.

---

ANNEX 1 – Assessment Model and Methodology

Glossary of main technical terms used in this Report

**Acquis**: the term acquis communautaire or (EU) acquis is used in EU law to refer to the total body of EU law accumulated thus far. The EU energy acquis refers to the EU body of law that pertains specifically to the energy sector.

**Ancillary services**: all services necessary for the operation of a transmission or distribution system.

**Ancillary service tariff**: tariffs for “ancillary services”.

**Balancing** (Gas): balancing is a requirement applicable for transmission systems to indicate that the energy sent or requested from energy producers or other suppliers should be equal to the amount of energy delivered to customers. In gas transmission, in order to ensure the safe operation of the network, pressure must be maintained within acceptable limits, which implies that input and output flows of gas must be balanced. The TSO has the ultimate responsibility for (residual) balancing.

**Bio-fuel**: liquid fuels derived from plant materials, including bio-ethanol (alcohol made by fermenting sugar components of plant materials, mostly starch and sugar crops) and cellulosic biomass (such as trees and grasses). Biogas is a type of bio-fuel.

**Biomass**: a renewable energy source derived from living, or recently living organisms, such as wood, waste, and alcohol fuels; the biodegradable fraction of products, waste and residues from agriculture (including vegetal and animal substances), forestry and related industries, as well as the biodegradable fraction of industrial and municipal waste.

**CPI-X methodology**: an incentive-based formula for price control, in which price changes are limited to the increase in a general price index, such as the Consumer Price Index, minus a factor (x) determined by the regulator to reflect anticipated efficiency gains or productivity growth which will lower the price of supply to the customer.

**Captive customer**: an energy customer that purchases electricity from a regulated supplier designated by law, and without the option to choose supplier.

**Cost of service tariff methodology**: a tariff system that allows the producer to recover an amount equal to it costs/operating expenses (as long as reasonable) and a reasonable return on the rate base.

**Cross-border exchange**: a physical flow of electricity on a transmission network that results from the impact of the activity of producers and/or consumers outside from another transmission network.

**Cross-border transit fees**: compensation, using received by the system operators, for costs incurred as a result of hosting cross-border flows of electricity on their network.

**Distribution**: the transport of electricity on high-voltage, medium voltage and low voltage distribution systems with a view to its delivery to customers, but not including supply.

---

129 Definitions in this Glossary are taken from those used in the EU Directives and explanatory papers, as well as from expert treatises on the energy sector that are funded and approved by IFIs and international donor agencies.
**Distribution System Operator (DSO):** a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution system in a given area and, where applicable, its interconnections with other systems and for ensuring the long-term ability of the system to meet reasonable demands for the distribution of electricity.

**Electricity grid or network:** an electrical grid is an interconnected network for delivering electricity from suppliers to consumers. It may be referred to as a distribution network (or grid) or a transmission network (or grid), largely depending on the voltage level. Electricity in a remote location might be provided by a simple distribution grid linking a central generator to homes, pursuant to a concept known as distributed generation.

**Eligible customer:** customers who are free to purchase electricity from the supplier of their own choice.

**Emission trading scheme:** an administrative trading system used to control pollution by providing economic incentives for achieving reductions in the emissions of pollutants.

**End-user or the final customer:** customer purchasing electricity or natural gas for their own use.

**Energy:** all forms of commercially available energy, including electricity, natural gas (including liquefied natural gas), liquefied petroleum gas, any fuel for heating and cooling (including district heating and cooling), peat, coal and lignite.

**Energy Community:** the group of countries (all contracting parties are currently Southeast European countries) that signed the Treaty establishing the Energy Community in Athens, Greece in October 2005 and entered into force on 1 July 2006. The Treaty aims to establish a common regulatory framework for trading energy across South East Europe and the EU internal market.

**Energy Community Treaty (EcT):** the Treaty establishing the Energy Community in Athens, Greece in October 2005 and entered into force on 1 July 2006.

**Energy efficiency:** encompasses all changes that result in a reduction in the energy used for a given energy service, such as lighting, or level of activity. This reduction in the energy consumption may be due to technical changes or to other changes, including better organisation and management or improved economic efficiency in the sector (e.g. overall gains of productivity).

**Entry-exit model:** a network access model that has become standard in European gas transmission networks and allows shippers to book capacity rights independently at entry and exit points. Compared to the former common distance or path-dependent point-to-point regimes, this model represents a general improvement towards more flexibility for shippers, system transparency and cost-reflective network tariffs.

**Feed in Tariffs (FIT):** an incentive structure to encourage the adoption of renewable energy, usually through primary or secondary legislation, through setting mandatory prices for type and quantities of renewable energy at above-market rates.


**Gas storage facility (infrastructure):** a facility used for the stocking of natural gas and owned and/or operated by a natural gas undertaking, including the part of LNG facilities used for storage but excluding the portion used for production operations, and excluding facilities reserved exclusively for transmission system operators in carrying out their functions;
**Gas (trading) hub:** a “point” (virtual or physical) where gas trading is facilitated by an operator which organises the exchanges: receives and treats the trading notifications (also known as nominations) of the parties.

**Generators or producers:** a natural or legal person generating electricity or gas.

**Grid access:** access to electricity grid.

**Grid Code:** a regulation that sets forth rules that govern the development, maintenance and operation of a coordinated system for the transmission of electricity, to facilitate competition in the generation and supply of electricity and to promote the security and efficiency of the power system as a whole.

**Hydro power:** power derived from the force or energy of moving water, which may be harnessed for electricity.

**Network or system operator:** the entity that coordinates controls and monitors the operation of the electrical power system.

**Installed or technical capacity:** the maximum firm capacity that the transmission system operator can offer to the network users, taking account of system integrity and the operational requirements of the transmission network;

**Interconnection capacities:** capacities of transmission and distribution systems linked together by means of one or more interconnectors.

**Kyoto Protocol:** protocol to the United Nations Framework Convention on Climate Change, an international environmental treaty with the goal of stabilising greenhouse gas emissions. Initially adopted in December 1997 in Japan, the Protocol entered into force in February 2005 and approximately 187 states have ratified the protocol. The Protocol allows for several flexible mechanisms, such as clean development mechanism, emissions trading and joint implementation to allow specified industrial countries (known as Annex I countries) to meet identified greenhouse gas emission targets.

**Licences:** permits issued to the energy undertakings for performing the energy activities.

**Liquified natural gas (LNG):** a natural gas that has been converted temporarily to liquid form for ease of storage or transport.

**Market opening:** the process or the degree of market liberalisation.

**Market operator (MO):** the operator licensed by the regulatory or other authorities and authorised to undertake all the functions described for it in the market rules.

**Market rules:** the relevant secondary legislation of the power sector that determine the electricity market framework.

**Price cap:** the price cap is simply a process for establishing rates or prices that will be charged for a particular good or service. In some instances, there are governmental organizations that determine price regulation. One excellent example of price cap regulation is in the rates that may be charged for household utilities, such as water and electricity.

**Public Provider (gas):** a public-service gas provider.

**Public service obligations:** obligations imposed on energy undertakings in the general economic interest, or in relation to security, including security of supply, regularity, quality and price of supplies and environmental protection, including energy efficiency and climate protection.
**Power exchange**: a sales forum or marketplace used by energy producers and which works for participants in much the same way as a stock exchange in the financial industry; usually owned and operated by the parties who use it.

**Postage stamp transportation tariff**: non-industry-specific term for a rate structure in which each customer in a given class is charged the same rate for a commodity as every other customer, regardless of the cost of serving different customers in the same class. Also refers to rates set for all customers in a given territory regardless of their distance from the point where the given service or commodity is supplied; common in the gas sector though postage stamp tariff structures are disfavoured in the electricity sector.

**Quality of service standards**: a set of standards/indicators fixed by the regulation to guarantee a certain level of quality and performance of a contracted service. Electricity and gas supply service quality have many technical and commercial dimensions: continuity; physical quality; tension/pressure; and degree of responsiveness of service providers to customer problems and complaints.

**Rate of return**: the rate of profit (or return) of an investment, expressed as a percentage of the total amount invested. It is usually calculated on an annual basis.

**Renewable energy**: renewable non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydro power, biomass, landfill gas, sewage treatment plant gas and biogases)

**Security (energy)**: means both security of supply and provision of electricity, and technical safety.

**Security of Supply**: the ability of a system to supply final customers with electricity or gas.

**Single buyer**: an entity, most commonly a transmission (and dispatch) company, which has the exclusive right to purchase electricity from generators and sell it to distributors.

**Supplier of last resort**: an energy supplier that is automatically assigned to serve an existing customer immediately following deregulation, or an energy supplier that must supply a given classification or sub-classification of customers who may not be able to acquire energy from any other provider. In many cases, the supplier of last resort is the utility company that the customer used before deregulation.

**Supply contracts**: agreements for the sale, including resale, of electricity or gas to customers.

**Tariff methodology**: the methodology used for calculation of tariffs.

**Tender documents**: documents for the tendering procedure.

**Tendering procedure**: the procedure, often launched by the government, through which planned additional requirements and replacement capacity are covered by supplies from new or existing generating capacity.

**Third Party Access (TPA)**: the right of independent undertakings operating in the energy sector to access and use various energy network facilities owned by other companies.

**Tons (or “tonnes”) of oil equivalent (Toe)**: normalised unit of energy. It is equivalent to the approximate amount of energy that can be extracted from one tone of crude oil. It may be used to compare the energy from different sources.

**Trader**: a person licensed for the sale and purchase transactions.
Transmission (electricity): “transmission” means the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but not including supply.

Transmission (gas): the transport of natural gas through a high pressure pipeline network other than an upstream pipeline network with a view to its delivery to customers, but not including supply.

Transmission System Operator (TSO): a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long term ability of the system to meet reasonable demands for the transmission of electricity or gas.

Unbundling: the process of separation of the integrated electricity utilities.

Integrated electricity utilities: a vertically or horizontally integrated undertaking.

Horizontally integrated utility: an undertaking performing at least one of the functions of generation for sale, or transmission or distribution of electricity, and another non-electricity activity.

Vertically integrated utilities: a vertical organisational structure including generation, transmission, maintenance, operation, distribution and supply.

Wholesale market: market in which the energy is purchased for the purpose of resale.


iii The *acquis communautaire* is the body of EU law which accession countries must adopt. The *acquis* is divided into chapters, one of which relates to energy.


v The *acquis communautaire* is the body of EU law which accession countries must adopt. The *acquis* is divided into chapters, one of which relates to energy.


viii The *acquis communautaire* is the body of EU law which accession countries must adopt. The *acquis* is divided into chapters, one of which relates to energy.


xi The *acquis communautaire* is the body of EU law which accession countries must adopt. The *acquis* is divided into chapters, one of which relates to energy.


xiv The *acquis communautaire* is the body of EU law which accession countries must adopt. The *acquis* is divided into chapters, one of which relates to energy.
The acquis communautaire is the body of European Union (EU) law which accession countries must adopt. The acquis is divided into chapters, one of which relates to energy.


The Treaty establishing the Energy Community went into effect in 2005, and Title II of this Treaty extends parts of the EU acquis communautaire to the territories of the Treaty’s contracting parties, of which Albania is one. Specifically, the Contracting Parties have committed to: transpose (EU Electricity) Directive 2003/54 and Regulation 1228/2003 into national legislation by 1 July 2007; to open the electricity market to non-household customers by January 2008 and full opening by 2015, to transpose (electricity security of supply) Directive 2005/89 by the end of 2009; (EU Gas) Directive 2003/55; to open the gas market to non-household customers by January 2008 and full opening by 2015; to transpose (access to gas networks) Directive 2004/67/EC and (security of gas supply) Regulation 1775/2005 by the end of December 2009. For environment and competition, the contracting parties to the Treaty are required to take various steps and plan for bringing legislation in line with the EU, though requirements on the contracting parties in these areas as a general matter are less expansive. Specific requirements are available at http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/EU_Legislation.
2008 and full opening by 2015; to transpose (access to gas networks) Directive 2004/67/EC and (security of gas supply) Regulation 1775/2005 by end of December 2009. For environment and competition, the contracting parties to the Treaty are required to take various steps and plan for bringing legislation in line with the EU, though requirements on the contracting parties in these areas as a general matter are less expansive. Specific requirements are available at http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/EU_Legislation.

The Treaty establishing the Energy Community went into effect in 2005, and Title II of this Treaty extends parts of the EU *acquis communautaire* to the territories of the Treaty’s contracting parties, of which FYR of Macedonia is one. Specifically, the Contracting Parties have committed to: transpose (EU Electricity) Directive 2003/54 and Regulation 1228/2003 into national legislation by 1 July 2007; to open the electricity market to non-household customers by January 2008 and full opening by 2015; to transpose (security of electricity supply) Directive 2005/89 by the end of 2009; (EU Gas) Directive 2003/55; to open the gas market to non-household customers by January 2008 and full opening by 2015; to transpose (access to gas networks) Directive 2004/67/EC and (security of gas supply) Regulation 1775/2005 by end of December 2009. For environment and competition, the contracting parties to the Treaty are required to take various steps and plan for bringing legislation in line with the EU, though requirements on the contracting parties in these areas as a general matter are less expansive. Specific requirements are available at http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/EU_Legislation.


The Treaty establishing the Energy Community went into effect in 2005, and Title II of this Treaty extends parts of the EU acquis communautaire to the territories of the Treaty’s contracting parties; as an Observer rather than a party, Georgia is not required to implements the incorporated parts of the EU acquis communautaire, though Observer status does indicate a willingness to bring its framework closer to Energy Community and EU standards. The specific provisions that form part of the specific Energy Community acquis are available at http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/EU_Legislation.


