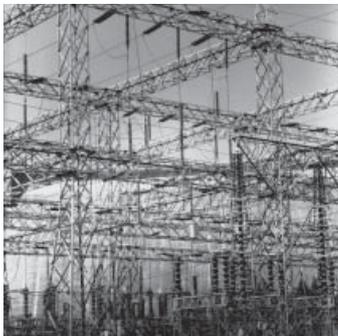


Law in transition *online*



Regulating the power sector

October 2008



Foreword

Core principles for effective power sector reform



The challenges of financing power projects in transition countries

The energy tango: reform and regulation in central and eastern Europe

Kazakhstan's electricity



Energy sector reform in Mongolia

Reform of the Russian electricity industry

The reform of Ukraine's wholesale electricity market



European Bank
for Reconstruction and Development

Law in transition *online*

Regulating the power sector

Abstract

Most transition countries have embarked upon reform of their power markets driven by the need for new investment in the sector, optimised power utility performance and increased security of supply. However, they have focused on implementing isolated reform elements instead of maintaining a solid, coherent politically agreed and sustainable reform agenda. In order to provide support for this critical agenda for the economy, the EBRD proposes in this autumn's edition of *Law in transition online* a set of principles to guide governments through the reform of their power markets. Highlighting a number of case studies, this journal also provides an insight into the power industry of key markets in transition countries (including Kazakhstan, Russia and Ukraine). Offering an analysis of regional sector policies, this issue aims to create a discussion platform for power industry specialists, policy-makers and stakeholders.

Chapters

- Foreword
- Core principles for effective power sector reform
- The challenges of financing power projects in transition countries
- The energy tango: energy reforms and regulation in central and eastern Europe
- Kazakhstan's electricity
- Energy sector reform in Mongolia
- Reform of the Russian electricity industry
- The reform of Ukraine's wholesale electricity market

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The European Bank for Reconstruction and Development (EBRD) is an international institution whose members comprise 61 countries, the European Community and the European Investment Bank. The EBRD aims to foster the transition from centrally planned to market economies in countries from central Europe to central Asia.

The EBRD's countries of operations are: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, FYR Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

The EBRD works through the Legal Transition Programme, which is administered by the Office of the General Counsel, to improve the legal environment of the countries in which the Bank operates. The purpose of the Legal Transition Programme is to foster interest in, and help to define, legal reform throughout the region. The EBRD supports this goal by providing or mobilising technical assistance for specific legal assistance projects which are requested or supported by governments of the region. Legal reform activities focus on the development of the legal rules, institutions and culture on which a vibrant market-oriented economy depends.

Information about the EBRD's Legal Transition Programme can be found at www.ebrd.com/law.

Energising electricity sector reform

Lord Mogg, President of the Council of European Energy Regulators (CEER) and Chair of the European Regulators Group for Electricity and Gas (EREG)¹



The link between economic development and a sustainable, secure energy supply is well recognised. The delivery of a high-quality, reliable electricity supply that is capable of meeting current and future demand is essential to any economic development programme. In common with the world's other regions, Europe faces many challenges in the energy sphere. There has indeed been progress towards a single energy market in Europe but it has been far too slow when measured against the EU's critical need for a coherent energy policy based on the principles of competitiveness, security of supply and sustainability.

We have strongly advocated that a truly European energy market requires an overarching EU legal, regulatory and institutional framework based on the development of an integrated EU-grid; the proper coordination of the network companies that operate it; the powers of the regulators to oversee it and the need for effective unbundling.

EREG has played a central role in advising the European Commission on its third generation of legislative proposals for energy now being negotiated by the European Parliament and member states. Central to the advice we have given is that independent and properly empowered regulators at both EU and national level are crucial in the delivery of predictable and coherent regulation which is at the heart of competitive markets and the creation of a sound climate for investment.

Regulation by national governments on its own is simply not enough to ensure the greater integration of national markets.

The reform agenda of unbundling, regulatory overhaul and private sector participation is key to energising today's economies, be they developed or in transition. Such reforms are essential to create stable and reliable energy systems, ensuring supply-side efficiency. Such reforms have become a prerequisite for attracting the serious (predominantly private) investment required for future development. In terms of our core work, such as preparing technical advice (in EREG) to the European Commission and monitoring compliance with existing rules, regulators promote the principles of competition and liberalisation and seek to ensure a consistent application in member states of EU legislation in electricity and gas. Although much remains to be completed for the EU many positive lessons can be drawn from developments in our electricity market in recent years. Much of that experience can be applied (and is indeed being applied) throughout the rest of Europe and Asia.

EREG plays a key role in the implementation of increasingly progressive reforms, both within and among its member countries. While its members have inevitably focused on an EU single energy market, regulators, through the Council of European Energy Regulators (CEER), look further afield to the external dimension of the EU energy policy.

1. The CEER is a not-for-profit association of the EU's independent national energy regulators. CEER is a preparatory body for the work of the European Energy Regulators Group for Electricity and Gas (EREG). EREG was set up by the European Commission as its advisory body on energy regulatory issues. EREG advises and assists the European Commission in consolidating a single EU energy market. Both CEER and EREG share the common objective of creating a single, competitive, efficient and sustainable internal market for gas and electricity in Europe, in the consumer's interest. (www.energy-regulators.eu)

The CEER is the body through which national energy regulators in Europe discuss, coordinate and speak with one voice externally. In 2006, the CEER took the initiative to launch the International Energy Regulation Network (www.iern.net) which today serves as a global web platform for cooperation, information exchange and assistance on energy regulation.

With a variety of partners, such as the European Bank for Reconstruction and Development (EBRD), the CEER ensures that the best regulatory practice is spread worldwide. Though fundamentally different institutions, the CEER and the EBRD have many common goals within the continent of Europe and beyond. We continue not only to spread the word about the principles of liberalisation but we have tried to lead by example. Our approach includes sharing the rich experiences of electricity sector reform and implementation borne from many collective years of operation that stretch from Europe's Atlantic Coast to the Bering Sea. The CEER, for its part, has taken a central role in developing effective and competitive electricity and gas markets in the Energy Community of South East Europe and more recently sharing its experiences with regulators in the Euro-Mediterranean. The EBRD has played a leading role in financing existing electricity infrastructure and supporting new and innovative renewable and energy efficient sources within that region and beyond.

The CEER welcomes this timely issue of *Law in transition online* which seeks to shine a brighter light on the challenges that the sector faces in transition countries, highlighting the progressive and successful way in which stakeholders have addressed many of these challenges. In this issue we learn about the experiences of lawyers and regulators, bankers and economists. *Law in transition online* contributors have proposed a set of high-level core principles for efficient sector regulation; the far-reaching restructuring under way in Russia is examined; innovative practices in Mongolia are highlighted; there is a report on reforms of the wholesale energy market in Ukraine; experiences of financing power sector projects are outlined; and recent developments in Kazakhstan are considered. Given the fundamental, cross-sector nature of energy, such contributions will be of great interest to a broad audience of power sector professionals, as well as those making or influencing legal, regulatory or general economic development policy.



Core principles for effective power sector reform

Paul Moffatt, Senior Counsel, Office of the General Counsel, EBRD
Vesselina Haralampieva, Associate, Office of the General Counsel, EBRD

One of the building blocks of an efficient market economy in the countries where the European Bank for Reconstruction and Development (EBRD) operates is a sustainable power sector. This article introduces a set of core principles¹ being proposed by the EBRD to guide transition countries reforming their power sectors.



Many EBRD countries of operations [...] have embarked on reforming their power and energy sectors.

The need for reform

Poor governance policies in the power sector, including the public financing of energy infrastructure and provision of energy services, have failed to support adequately economic and social development in many transition countries. Since electricity has been an integrated part of the state economy, traditionally viewed as a “symbol of the social compact between state and citizen”,² power sector reform has often taken on political dimensions. Difficulties in sustaining reforms and the lack of appropriate legal and regulatory mechanisms have led to low levels of investment in the transition economies and inefficient sector performance.

Many EBRD countries of operations, concerned about the inefficiency of state-owned power utilities and the need for new investments and modernisation in infrastructure, are reforming their power and energy sectors. To effectively address reform, political will is needed to deal effectively with institutional changes, to support necessary increases in energy tariffs and to mitigate the effect of customers' loss of beneficial positions, while building the right type of business incentives to invest in the sector.

The need to develop and modernise facilities using international best practices has led the EBRD to invest in power and energy projects

throughout central and eastern Europe and the Commonwealth of Independent States (CIS). The Bank has been fully committed to promoting market development, enhancing market sustainability, supporting energy efficiency and renewable energy initiatives, and facilitating positive reform. This support has prompted the Bank to develop principles for the power sector to guide the power reform agenda (the “Core Principles”).

While there are different models for power sector reform (each with its own advantages and disadvantages), a number of broad international best practices can be distilled, which experience has shown to be the building blocks of a robust and sustainable power sector, regardless of the reform model pursued. Equally, while legal and institutional frameworks for regulation can be unique to each country, reflecting its legal code, precedents, existing institutions, size and particular needs, there are key overriding principles that can apply to all. The Core Principles are intended to highlight these prevailing principles.

The purpose of the EBRD's Core Principles for the power sector

The Core Principles aim to provide guidance to transition countries that are implementing reform, taking account of the national institutional environment and the overall

1. The Core Principles comprise EBRD's proposal for a set of high-level guiding principles for the effective reform of the power sector of transition economies. The EBRD invites comment on the principles proposed herein. If you have any comments or questions please send them to the authors.

The authors are grateful to their colleagues in the EBRD Banking Department Louis Borgo, Milko Kovachev and Eric Peter and the Office of the Chief Economist Zbigniew Kominek for reviewing the draft core principles and providing their comments.

2. World Bank (2006), Reforming Power Markets in Developing Countries: What Have We Learned?

investment climate. The Core Principles are not intended to advocate a reform model that fits all transition countries irrespective of their market conditions, or promote laws measured against some abstract principles.

Instead, their main purpose is to highlight best practices and the necessary elements for efficient power reform while recognising the variations in the environment across the EBRD countries of operations. They are designed to promote integrity, transparency and efficiency in the power sector and reliability of power supply through establishing a robust and independent regulatory system. The Principles are not exhaustive, nor do they suggest that reform ends with the implementation of separate reform elements, such as unbundling, private participation or competition. Rather, the Principles are intended as an outline of the key reform elements that together contribute to the establishment of an economically efficient and effective power sector.

The Core Principles have been assembled taking account of work undertaken by, among others, the World Bank, the Organisation for Economic Co-operation and Development, the International Energy Agency, the European Union, the Asian Development Bank, regional and national regulatory bodies, as well as experience gained by the EBRD from its operations in the region.³

Overview of the Core Principles

To begin and maintain a sustainable reform programme, transition countries have to establish strategic priorities for the sector, taking local and regional conditions into account. The power sector conditions specific to each country influence the complexity, cost and sequencing of the reforms, and directly affect the outcome in the short and medium term. These factors include the size of the power sector, a country's income and local resources, its macroeconomic and political condition, as well as the international market situation.

Power sector reform is continuous and evolving, and should be comprehensively planned at the outset. Policy-makers must decide on the appropriate sequence of reform policies for the national market, which effectively links each element to produce a working package of reforms. The main reform elements, distilled from successful international experience, and best practices, include efficient regulation, unbundling of network elements,⁴ competition, commercialisation, private sector participation and the role of public private-partnerships. Reform policies cannot be effectively implemented unless the rule of law is respected in order to guarantee adequate appeal mechanisms and capacity for enforcement, as well as respect for property rights and recognition of arbitral awards.

Efficient regulatory reform brings transparency and legal certainty to the sector, an important prerequisite for raising investor confidence in the market. It has long been recognised that opening up the sector to private participation helps to accumulate investment and expertise, improves services to consumers, increases efficiency and can address some environmental issues, provided the right regulatory arrangements are in place. Private participation also helps to increase competition, while state-owned enterprises have low incentives to maximise performance levels. Competition in the power sector is best achieved through unbundling the market structures to allow distribution companies and large users of electricity to purchase electricity directly from generators.

Success for unbundling of power utilities, however, depends on the size of the market and the increasing degree of competition, and should be carried out only after thorough analysis and factoring in the expected cost of unbundling. For some EBRD countries of operations with small, underdeveloped markets and lack sufficient internal resources, unbundling may be more time and cost-consuming. These markets need a secure energy supply, which can be promoted

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Power sector reform is continuous and evolving, which should be comprehensively planned at the outset.

3. For example, see *supra* note 2; Asian Development Bank (2005), *Electricity Sectors in CAREC Countries*; World Bank energy section (www.worldbank.org/energy), European Commission Directorate - General for Energy and Transport (<http://ec.europa.eu/energy/>); Energy Regulators Regional Association (<http://www.erranet.org>); International Energy Agency (<http://www.iea.org>); Ofgem (<http://www.ofgem.gov.uk>).

4. Unbundling is an essential part of the liberalisation of electricity generation. Unbundling is the separation of the management and/or accounting of generation, transmission and distribution operations.”

through regional cooperation and stability and implemented through an integrated structure.

As an integral part of the market reform, the Core Principles emphasise the need to establish cost-reflective tariffs and raise public awareness of the economic need for setting appropriate tariffs. Allied to this, it is critical that governments address poverty and affordability concerns by mitigating the impact of reform on those for whom the immediate costs of reforms outweigh the benefits.

The transition countries are characterised by ageing and inefficient processes and technologies, energy-intensive production and low usage of renewable energy sources. Distorted prices and subsidies fail to create a level playing field between traditional fossil fuels and renewable sources, which in turn creates disincentives for innovative solutions to an insecure electricity supply.

However, the increased need to protect the environment and the need for a secure energy supply, place renewable energy sources and energy-efficiency mechanisms high on the reform agenda. In addition to tariff-setting, countries should implement regulatory intervention mechanisms to promote innovative sources of energy and encourage investment. Those transition countries that have chosen to maintain and develop their nuclear potential should strengthen their legal framework and improve safety mechanisms, including increasing the safety of their nuclear facilities, ensuring good management of radioactive waste and guaranteeing the safe decommissioning of old and ineffective facilities.



The transition countries are characterised by ageing and inefficient processes and technologies, energy-intensive production and low usage of renewable energy sources.

The Core Principles

1. Focus policy on the development of a predictable and transparent regulatory framework

The primary aim of sector policy should be to increase the attractiveness of the sector to private investment. Legal clarity and regulatory certainty are key instruments for achieving this. Therefore, a predictable and transparent institutional framework, reflecting international best practice, should form the centre-piece of government policy in the power sector. In addition to encouraging investment, such a framework is crucial for ensuring access to competitively priced, high-quality services.

Some of the key issues that policy should address through the institutional framework are: reliability, efficiency, transparency, asset management and the accountability of market participants. These elements can be best addressed through a restructuring programme aimed at commercialising state assets, vertically unbundling network components, introducing competition (where appropriate) and increasing private participation. Policy should be developed through consultation with all relevant stakeholders. Policy should set clear and precise objectives, realistic actions and a workable timetable. It should also clearly assign responsibility for specific actions to specified entities. Crucially, policy should explicitly direct the preparation of appropriate, clear and precise enabling legislation.

2. Ensure the separation of policy, ownership and regulation functions

International best practice requires a clear tripartite separation of regulation, policy-formulation and ownership⁵ functions within the sector to minimise conflicts of interest. This principle requires that government formulates policy and develops the laws that underpin and implement that policy. It also requires regulation by a separate agency that is independent of policy-makers and ownership.

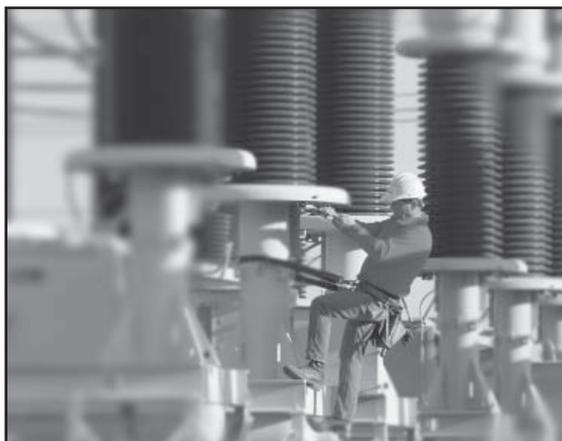
The policy function is generally reserved for the government and delegated to the relevant

5. Ownership refers to formal ownership, as well as control and operation.

line ministry. Policy is concerned with the fundamental issues of long-term economic development and achievement of certain social objectives, rather than the minutiae of day-to-day regulatory implementation.

The regulatory function is to implement policy formulated by government; to ensure that utilities and other sector stakeholders adhere to government policy objectives; to resolve disputes between sector participants and between operators and consumers; and to counsel government on sector developments, which may affect broader policy matters.

The third leg of separation – that of ownership from policy – deprives government of the ability to influence the decisions and operations of a state-owned utility for short-term political gain. This separation allows greater regulatory certainty, as policy that is introduced through separate, formalised written channels tends to be more carefully developed and



subject to fewer sudden changes. It also allows the more transparent operation of the government and its agencies because policy must be introduced in writing, through legally prescribed channels, thereby allowing stakeholder input. Furthermore, it enhances private investor confidence. Failure to separate policy from regulatory and asset ownership can make private investors reluctant to invest or demand either state guarantees or very high rates of return to compensate for the greater political risk and uncertainty.

3. Ensure that the legislative framework regulating the sector aims for maximum legal certainty

To create and sustain optimum conditions for private investment the legal framework for sector regulation should be formulated to ensure openness, transparency and legal certainty. Therefore, the legal framework should articulate rights and obligations of all market participants in clear and precise language. The legal framework should be synchronised with international best practices, which requires, at a minimum:

- clear delineation of the respective authorities: functions, enforcement powers and accountability of the government as policy-maker and the regulatory authority as the body implementing such rules and policies
- precise provision of rights and obligations of all sector participants
- establishment of an autonomous regulatory authority, together with provisions guaranteeing its independence, while allowing for appropriate accountability
- promotion of competitive markets wherever possible
- precise identification of offences, penalties for commission of an offence and clear processes for imposition of penalty
- appropriate avenues of and procedures for appeal against decisions by the regulator
- that primary legislation should be supplemented by coherent and comprehensive secondary legislation.

All laws, regulations and administrative guidance should be published or otherwise publicly available, free of charge, including on the internet.

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Failure to separate policy from regulatory and asset ownership can make private investors reluctant to invest...

4. Establish an independent, sector-specific regulatory authority

The effective empowerment and efficient operation of an independent regulatory authority is an internationally recognised critical component of modern regulation. Overall, an effective and credible regulatory framework must be built on independence, transparency and an appropriate balance between investor and consumer protection.

Regulatory independence is crucial for the regulator to perform its task effectively, and it must be explicitly guaranteed in legislation. Independence requires that the regulatory organisation, procedures, processes and finance be free from arbitrary political and bureaucratic interference, and relieved from undue influence from regulated companies and consumer interests.

At the same time, the regulator should be accountable to the appropriate authority (government/parliament) and customers, and restrained from implementing arbitrary actions. Accountability is essential for ensuring the regulator's day-to-day operation is transparent and that its performance is the best it can be. Transparency, in turn, attracts private investment as it creates confidence in the government and regulator's commitment to a set of fair policies. The regulator's main role is to balance the interests of market participants, that is, to encourage investment by protecting investors from arbitrary government actions as well as protecting consumers from abuse by firms with substantial market power. In this context, in countries where the political and regulatory risk is high, the regulator should implement sophisticated risk mitigation strategies for investors to increase the attractiveness of the sector.

5. Commercialise and corporatise power assets

Prior to any privatisation initiatives, the management and development of power supply should be commercialised by irreversibly removing political and bureaucratic control. Efforts to improve incentives and governance for power utilities will not be sustainable under political pressure and non-commercial business practices.

Operators can only function commercially on the basis of full, legally entrenched respect for property rights and the rule of law, together with sufficiently strong enforcement mechanisms that enable the collection of revenues and sanctions for theft and non-payment. Critical components of commercialisation and corporatisation are the appointment of an independent and competent board of directors, the adoption of a corporate style of governance and management and the development of independent accounting.

Commercialisation also requires that enterprises pay taxes and market-based interest rates, that they earn commercially competitive returns on equity capital and that they have the autonomy to manage their own budgets, borrowing, procurement and labour.

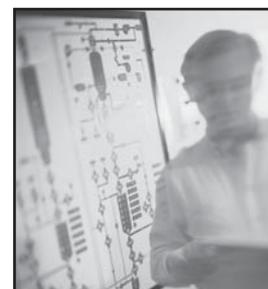
6. Set tariffs based on cost recovery and efficiency

To provide energy on a sustainable basis, the cost of supply must be recovered from consumers through appropriate tariffs, regardless of utility ownership. Since the sector is highly capital-intensive, tariffs should be set at levels that allow full recovery of the costs of operation and depreciation, and generate a reasonable return on the capital invested.

Accordingly, a programme of cost establishment, ideally through benchmarking, should be gradually implemented, together with well designed, targeted "safety net" payments for those consumers genuinely adversely affected⁶ by any tariff adjustments. With respect to creating incentives for efficiency, when an appropriate cost is established, an incentive-based tariff structure should be put in place. Incentive-based tariffing⁷ has become a preferred form of price control for regulated utilities across Australia, the European Union, New Zealand, South America and the United States.⁸

7. Implement unbundling to stimulate private participation and enable competition

In those countries where reform has been successful⁹ energy provision is most efficient and supply most reliable when the



6. Refers to those to whom the classification of energy poverty would apply – that is, those households spending a disproportionate amount of monthly income on energy.

7. Under incentive-based tariffing, a price or revenue-cap essentially allows tariffs to be set for a number of years based on a forecast of future costs over this period, including an allowance for expected efficiency improvements. If the regulated firm is able to reduce actual costs below forecast levels then it is allowed to retain the additional profits until the next price review, thus giving the firm an incentive to seek efficiency gains. Consumers benefit because, at the next price review, prices can be reduced to the new, lower, actual cost level. Incentive regulation lowers the cost of administering regulation as micro-management of the regulated entities is largely avoided, as is the intensive data collection and authentication required under traditional (in other words, rate of return) regulation.

8. Traditionally the United States favoured an alternative rate of return method of regulation.

9. For example Australia, Denmark, the Netherlands, New Zealand, Sweden, the United Kingdom and some US states.



Reforms need to allow for a country's current stage of economic and political development...

10. Vertical unbundling refers to the process of separating vertically integrated utilities into independent generation, transmission and distribution companies.

11. However, there may be a case for vertically integrated structures to remain intact in smaller systems where sufficient economies of scale are lacking, provided these entities are sufficiently commercially focused. At the same time, competition introduced through horizontal unbundling is only suited to large and middle-income power markets. Through effective neighbouring trade practices, small power markets may group to foster competition among operators.

12. However, the public-private partnership may be the most efficient functioning model for transition markets with weak regulatory and institutional capacity.

13. Key renewable sources in the region include hydro power, wind-based generation and biomass fuelling.

14. However, with ever-cheaper technology and the recent rises in oil and gas prices, renewable energy is becoming increasingly competitive.

15. Establishing standard power purchase agreements (PPAs); ensuring long-term electricity generation licences and PPAs for independent power producers; favourable tariff-setting; light-handed regulation; setting targets for the share of renewables in the electricity generation mix; providing subsidies to renewable energy-based power systems; feed-in tariffs; and quota mechanisms.

sector is subject to appropriately regulated competitive forces. For competition to develop, monopolistic activities, such as operating both the transmission and distribution networks, need to be effectively separated from potentially competitive activities, such as generation and supply. Vertical unbundling¹⁰ is the key to making this separation work. It enables energy generation companies non-discriminatory access to transmission and distribution networks, increases transparency at each stage of the energy cycle and improves the effectiveness of sector regulation.

While there are a number of levels of unbundling that can be applied to a given market – ranging from weak (functional separation, accounting separation or independent management) to strong (separate ownership or divestiture) – experience shows that vertical unbundling supports the development of the sector in both small and large power economies, as well as achieving high investor credibility in the market.

Reforms need to allow for a country's current stage of economic and political development and the size¹¹ and features of its power market. This is because transition economies have a different risk-reward trade-off than the more developed economies. However, there is scope for some form of competition in most, if not all, transition economies. Competitive behaviour in the sector is usually driven by private participation because private owners have higher incentives for efficiency and better management performance than state-owned enterprises.¹²

8. Promote the development of renewable energy sources

The increased emphasis on environmental protection, coupled with the rapid increase in oil and gas prices and greater competition for limited natural resources, has put renewable energy firmly on the energy centre-stage. The adoption of renewable energy policies can bring advantages to a country and an energy system, with renewable projects aiding security of supply by both reducing the need for imported fuels and increasing the diversity

of a national generating portfolio. Despite these advantages, renewable energy has yet to make a meaningful impact in the EBRD region.¹³ Primary impediments to progress with renewable energy projects appear to be weak political commitment and the absence of the necessary regulatory incentives. With the challenging economic environment of many transition countries and the absence of cost-based tariffs and collection discipline, the case for renewable energy becomes politically charged on two levels. Even where tariffs of energy from fossil fuels are cost-based, renewable energy will likely continue to be significantly more expensive and will therefore need financial support to compete with established, conventional generation in most situations.¹⁴ Beyond tariff-setting there are a number of short and medium-term support mechanisms¹⁵ that can create sufficient investor confidence to develop projects, but as with the development of the broader sector, these need to be clearly articulated in policy statements, which direct the development of a detailed support framework for the regulation of renewable energy.

9. Support energy-saving and energy efficiency mechanisms

Inefficient and wasteful use of energy through high-energy intensity and low operational efficiency is a continuing legacy of many transition economies in the EBRD region. As with renewable energy, the increased emphasis on environment protection, oil and gas price increases and dwindling fossil fuel production has also put energy efficiency on centre-stage. Inefficient usage has been shown to drain public and private finances, create social hardship, weaken the competitive advantage of private companies, threaten energy security and contribute disproportionately to carbon emissions.

Despite this legacy these issues can be addressed through an appropriate combination of policy commitment, regulatory implementation and supporting mechanisms. Cost-oriented tariffs based on actual usage can go a long way towards encouraging consumer efficiency, though

with appropriate, targeted allowance for those consumers genuinely adversely affected by any tariff adjustments.

To effectively deal with energy-intensive production, governments should envision greater support for the development of innovative technologies, know-how transfer and rehabilitation of the energy infrastructure at all stages of the energy cycle. Allowances in the tariff for investment costs in such areas will provide an attractive incentive for energy operators to optimise the efficiency of all levels of their operations.

On a broader level, government and relevant regulators should set achievable goals for improving energy efficiency in the construction of new buildings, transport and agricultural systems, waste and industrial plants, as well as raise awareness of energy-efficiency and energy-saving mechanisms among businesses, municipalities and households.

10. Ensure market reforms are implemented in the appropriate sequence

The process of reforming power markets is complex and challenging requiring thorough long-term planning. Before initiating reform, government should ensure that there is a firm and clear policy basis supporting it. The sequence in which reform is implemented should be made clear from the policy documents and be based on sound economic, legal and political evaluation of relevant market factors, including size, income and structure of the power market, country institutional capacity and potential investor interest in the market. A roadmap to regulatory and market reforms provides a clear policy and comfort to investors.

In this sense, careful consideration of the sequence of strategic reforms (in any sector) is essential for establishing stable and predictable conditions for implementation and for managing risks for investors, consumers and governments. A basic sequence of reform would include:

- entrenching the legal and regulatory framework
- restructuring and commercialising the power market and its suppliers, creating a basis for private sector participation
- move to cost-based tariffs ensuring that scope for competition in the relevant parts of the market (for example, generation and supply) is included in the reformed market structure.

Only after these fundamental changes have been introduced should the next step in the sequence – privatisation of relevant sections of the sector – be considered. The economic and efficiency disciplines that accompany private investment are key contributors to the gains in performance of utilities and the reduction in retail tariffs. However, such gains cannot usually be expected if public monopolies are merely replaced by private monopolies. Liberalisation is the critical counter-balance to focused private interests.

Although the timing and extent of liberalisation will differ from country to country, it is clear the liberalising measures need to be in place and evident, even if not fully activated, before sector assets are privatised.

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A roadmap to regulatory and market reforms provides a clear policy and comfort to investors.

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The challenges of financing power projects in transition countries

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In transition countries, financing of power projects raises a number of issues that potential investors need to consider. While analysing separate components of the reform agenda, that is, unbundling, liberalisation and privatisation, this article discusses the various risks that go along with the power reform. Power reform in transition economies does not always achieve a high level of sustainability. Instead, power sector reform may have partial results, which may discourage investors if they are not aware of the potential risks. A certain amount of change and development in the market and in the regulatory framework should always be expected in the context of transition economies, especially in view of high fuel prices and environmental concerns.



Governments often impose restrictions on tariff increases even when the regulator is meant to be independent by intent and design.

When financing power projects in any of the EBRD's countries of operations, the approach will depend on the market structure, level of state ownership and operating performance of the borrower. The market structure can vary from a vertically integrated monopoly to fully unbundled and liberalised. The former is where each of the three main operations is separated from the others into an individual legal entity: as in generation, distribution and transmission. Further subdivisions include supply, the contracting for purchase and sale of electricity (but not its physical transportation, which is done by distribution along low voltage lines, or transmission, which is carried out along high voltage lines).

Unbundling

Unbundling has become standard practice in most markets because it ensures that each component of the sector operates according to commercial principles without being subsidised by other components, and that its true performance can be viewed

in isolation. However, as each component becomes independent it can also become vulnerable to the activities of the other components. For example, if distribution refuses to pay transmission or generation, the latter two suffer as they have no direct relationship with end-users (those who ultimately pay for the services of the sector). This has been a problem in various countries.

Another issue is if the regulator refuses to allow costs that are out of the operator's control to be passed on to end-users. This means the operator must absorb increasing costs without being able to charge for them, which in turn squeezes profits. Since tariffs to end-users, particularly households, are a politically sensitive issue, governments often impose restrictions on tariff increases even when the regulator is meant to be independent by intent and design.

This "squeezing" can also arise in privatisation, either where the losses of the company being privatised are under-reported by the

seller or where there are requirements on the buyer to make investments. In the latter case, the buyer can find itself having to invest without getting the tariff increase necessary to cover the investments, or having to make other investments which the buyer identifies as necessary or appropriate but which the regulator will not allow. In the case of underestimated losses, the regulator may not allow any new recognition of losses even if properly accounted for, because it would also mean a tariff increase. These are all issues that have to be taken into account when considering financing as they can affect the financial resources of the borrower.

There are further subdivisions of distribution and transmission that separate the physical operation of the wiring infrastructure from the system operation. These determine when and how much power should be dispatched across the wires.

The dispatching is carried out according to existing contracts and short-term arrangements entered into by the system operator to cover imbalances (that is, where demand and supply are mismatched based on existing contractual arrangements or commitments). The dispatching of generators (that is, the request that a generator produce power for the system) should ultimately be based on that generator being the most efficient at that time. Long-term contracts can sometimes lead to a skewing of this principle in favour of dispatching generators that are not as efficient as others available. If the skewing is large enough, this can sometimes lead to the off-taker reneging on a contract. In this case, the generator in question can be deemed a “stranded asset”, an asset that is overvalued and which therefore has no buyers. If financing has been based on the contractual arrangements rather than the efficiency of the generator, then repayment or return of the financing will very likely be in jeopardy and a stranded asset created. This happened in Poland, where many power purchase agreements were signed in the 1990s, which quickly became uncompetitive when new entrants drove down prices.

Liberalisation

By liberalisation we mean that a market structure has been created where end-users are free to choose from competing suppliers and where all operators are seeking to maximise profits within the market structure and the relevant regulatory rules.

There are various types of market designs and none has been identified as the true best practice, although certain precepts are considered fundamental.

- There should be competition where possible (that is, where it is not a natural monopoly, as with the infrastructure for transmission and distribution).
- The market should be governed by objective rules and the regulatory framework should be transparent and predictable.
- The market should set tariffs and the energy poor (those spending more than 10 per cent of their income on energy) should be supported through well developed safety nets administered by the government, not through subsidies forced on the energy sector operators.
- Each end-user should pay its true cost of service, although it is equitable in certain cases to spread the costs across the system to ensure everyone is connected to the system.
- All operators should be bound by service standards, but they should be allowed to recover their costs as well as all costs out of their control by passing such costs through to end-users.
- Natural monopolies and service standards should be overseen by a sector regulator that is independent by statute from government influence. This is so it can set regulations that not only benefit the end-users but that also take account of the needs of the sector to achieve sustainability. To preserve its independence, the regulator should be funded from fees levied on market operators rather than from the government budget.

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The EU is proposing reducing to zero the number of carbon credits allocated to thermal generators in 2012.



If the EBRD lends to a company in such a market, it will use its covenants structure to try to resolve some of the sector issues.

If these precepts are not being closely observed in the relevant market then there is a risk that the operator's ability to recover costs will be impaired to some degree, and this affects the investor's/lender's perception of risk when providing financing.

As noted above, no market structure is considered today to have achieved pure sustainability – the state of having taken all issues into account, including environmental and social considerations – and so require no further restructuring. The EU itself is constantly updating the sector regulations and the changes afoot are by no means benign, particularly as climate change issues take on ever greater importance: for instance, the EU is proposing reducing to zero the number of carbon credits allocated to thermal generators in 2012, which will have a significant impact on the viability of certain thermal power plants. Therefore a certain amount of evolution in the market and regulatory environment is always to be expected.

However, many transition countries are still further behind their Western counterparts in achieving sustainability and so there can sometimes be surprises for private operators and financiers. In many countries there is only partial liberalisation, partial privatisation, partial independence of the regulator and only partially completed market designs: even if the intent is to achieve the end result of a programme that exists on paper, the road can be bumpy and uncomfortable with various re-routings and backward movements. For instance, a government can appear to contradict its own energy strategy and delay further privatisation while it deliberates on whether to put certain assets together in packages. The concept can be tied to restructuring the market design, which may result in less competition, putting newly privatised companies at greater risk than they first envisioned. Such an action will probably have a chilling effect on the interests of investors considering entering the sector, causing further delay in new investments and prolonging system instability for current participants.

Measuring these risks and mitigating them if possible is a key to financing. In some instances mitigation may not be possible and operator and financier alike accept the risk. This risk may be acceptable where the authorities have shown a good track record in observing agreements. Some countries are more advanced than others and this can also provide further comfort. However, operators and investors or financiers must always recognise that a highly regulated field such as electricity will mean that relations and negotiations with authorities will be a constant part of their activity.

Given the varying states of liberalisation, one is likely to encounter various types of companies seeking financing, or at least companies operating in a variety of markets that give rise to different types of approaches to financing. In the less liberalised markets, or where the market does not function because, for instance, all the unbundled entities still belong to the state and true competition can't be expected, financing may require a sovereign guarantee from the state. In this instance there is simply too much risk that the loan will not be repaid from the borrower's own sources for the financier to rely solely on the borrower for repayment. This would normally mean that the government needs to introduce certain measures to make the sector creditworthy: if the EBRD lends to a company in such a market, it will use its covenants structure to try to resolve some of the sector issues, requiring certain relevant actions by the government.

Once the sector achieves a certain level of sustainability the financing can take on the borrower's risk. However, there is still often the need for a comfort letter from the government, in other words a moral undertaking by the government on certain issues related to the sector and the borrower that help reduce the level of risk perceived in the transaction.

Not all potential borrowers will be able to borrow immediately without support, as different companies have differing conditions. A company that is still in state hands does not usually have the know-how to improve operating standards to bring them to levels accepted as best practice. This is particularly true if the market in which the company is to operate has progressed significantly. The management of the state company is not usually used to operating on a commercial basis and has to obey government orders, which may not always be consistent with best commercial practices. Public companies are often at cross-purposes with the commercial mission, operating according to political whim. Nevertheless, it is possible to finance on a public non-sovereign basis (providing finance to a public company without a state guarantee) if these issues can be mitigated, with support from advisers and within a loan structure and market where the borrower can be protected from government interference.



Privatisation

It has been shown that companies perform better if they have been privatised, although this may not prove the case if relations with the authorities are strained or if the privatisation was premature, that is, executed before a minimum level of liberalisation had been truly achieved (although it may appear on paper that progress has been made). In either case, the investor may have very limited

recourse to gain redress. The EBRD can be effective in mitigating this situation since it enjoys an important standing in its countries of operations and can act as an honest broker between the company and the government to smooth over problems and guard against any backsliding by the government.

When referring to “privatised” we mean that the company is at least 50 per cent plus one share owned by a sponsor which is itself not a state entity. Of course, there are exceptions to this qualification where the company in question operates fairly independently of its state owner and has acquired the qualities of a “qualified strategic investor” (an investor that is recognised as operating commercially for profit and that has the background, know-how and financial resources to take on certain projects and deliver the desired impact). Examples include Electricité de France and EVN of Austria, among others. The latter recently acquired the distribution company ESM of the Former Yugoslav Republic of Macedonia in an international competitive tender that sought strategic investors for a privatisation.

If relations between the government and the private sector operator, and the status of liberalisation are not material issues, financing privately owned projects is the most desirable approach as it generally enjoys two important qualities. First, the investor has been adjudged qualified to operate and turn the company around and has the necessary funds to support the company through lean years (although sometimes recourse to the strategic investor itself, as parent and provider to the borrower, may be required to ensure this support). Second, since it is private, it will operate for purely commercial reasons without being unduly influenced by politics.

What to consider before providing financing

When approaching financing in any country or region, the first consideration should be whether certain basic parameters are being reasonably met. Are billing and collection achieving reasonable results? This is usually

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The EBRD can...act as an honest broker between the company and the government to smooth over problems...

the work of distribution, which has the relationship with the end-users. If collections are poor, or are not in cash, then the sector as a whole is possibly uncreditworthy and the first action has to be to address this problem. This may require some regulatory and legal restructuring as well as some level of privatisation of distribution.

If the distribution system also suffers from commercial losses (such as power being stolen, or a lack of evidence of consumption, meaning there is no billing for usage), then further remedial work will be required before the sector is ready to consider further financing. This remedial action consists of improving commercial practices, from installing new meters to improving billing and collection. If technical losses are also high (actual low efficiency in infrastructure), then investments will be required there too. However, these are considered to be further down the priority list as the return for each unit of investment is lower than that for commercial investments. Once the sector cash flow is stabilised, then other parts of the sector can be considered for investment, such as generation and transmission. If the sector is already on a good footing in terms of revenues, then one can move directly to financing generation and transmission without first addressing distribution. (Box 1 details an EBRD project supporting investment in the transmission network.)

When financing power generation, the main consideration should be whether the project is competitive – in other words whether it achieves a relatively high position in a merit order dispatch. Obviously this is after considering all the costs involved, including meeting environmental requirements.

The merit order is the order in which a dispatcher will call upon generators to come on-line to supply power. A generator that is low in the merit order will not be dispatched except in rare peak load situations. Therefore it will receive little in terms of revenue. One cannot expect contracts to change this situation. In fact, the liberalisation process is evolving such that policy-makers are

trying to eliminate long-term power purchase contracts so that stranded assets will not be created and true competition distorted.

There are various types of generation but the merit order applies to all of them. However, different elements contributing to the merit order are emerging, in particular the cost of carbon emissions. Certain projects emit more carbon than others and so, under new legislation being adopted in various jurisdictions, these projects are at risk of having to reduce their emissions. In future it is likely that all carbon emitters will have to purchase limited numbers of carbon credits. The price of these credits will determine where on the merit order a generator can compete.

Conclusion

The power sector is not homogeneous in all its subsectors, or from market to market, and potential investors and financiers need to consider different issues in various circumstances. Furthermore, while certain aspects of sector operation or restructuring for liberalisation appear to have a reliable orthodoxy, it is in how they are implemented and managed that risk arises and needs to be mitigated.

Never far from a government's attempts to improve the power sector, it should be assumed that the power industry will undergo regulatory and policy changes over time, particularly in the era of climate change and high fuel prices. This means that the main emphasis for investors/financiers in due diligence and project selection should be on best commercial, environmental and technical practices, which should result in strong competitiveness. In this way, the adverse effects from changes in market design can be minimised.

Box 1: How EBRD financing can support power sector development

The Bulgaria Transmission Line project involved the construction of a new 150 km, 400 KiloVolts transmission line from Stip in FYR Macedonia to Chervena Mogila in Bulgaria (80 km of the line is in Bulgaria).

The EBRD financed the entire project through a 15-year sovereign-guaranteed loan to FYR Macedonian power company Elektrostopanstvo na Makedonija (now ELEM). Bulgaria financed its part through a power delivery agreement with ELEM: NEK (the transmission company of Bulgaria) repays ELEM with power as and when each portion of the transmission line has been built in NEK's territory.

Project benefits include:

- an increase in potential power transfers of up to 1,000 Megawatts between the electric systems in the region
- enhanced flexibility of supply, creating opportunities for significant savings in generation investment by unlocking access to unused power reserves
- reduced losses and increased stability in the regional grid
- leveraging and reinforcing cooperation, thus promoting the efforts of the Energy Community of Southeast Europe to create a regional energy market
- support for long-term reform measures, including independent regulation and improved tariff structures for cost recovery in FYR Macedonia.

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The energy tango: energy reforms and regulation in central and eastern Europe

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Power sector reform in the countries of central and eastern Europe has followed a parallel course of development over recent years driven by common challenges such as capacity shortages, conservative attitudes towards new investment and sector instability caused by frequent amendments to legislation. Governments, as well as already established players in the energy industry, are reluctant to open the market to competition, introduce effective regulation or abolish regulated end-user prices. In this respect, the role of international and regional sector organisations is essential for ensuring information exchange between market participants and promoting legal harmonisation.

1. This article deals with the broader central and eastern Europe (CEE) region. This encompasses the following sub-regions, each with its own characteristics.

- South-eastern Europe (SEE) (Albania, Bosnia and Herzegovina, Bulgaria, FYR Macedonia, Montenegro, Romania and Serbia). In some SEE countries, capacity shortage forces an increasingly robust energy flow between the CEE and SEE markets with common price characteristics – this could be one of the common factors of the region.
- The European Regulators' Group for electricity and gas (ERREG) Regional Initiatives define the countries of the CEE electricity region as: Austria, the Czech Republic, Germany, Hungary, Poland, the Slovak Republic and Slovenia.
- The Union for the Co-ordination of Transmission of Electricity (UCTE) south-eastern region, consisting of: Bosnia and Herzegovina, Bulgaria, FYR Macedonia, Greece, Montenegro, Romania and Serbia.

Countries such as Bulgaria, the Czech Republic, Germany, Hungary, Poland, Romania and the Slovak Republic share the same strategic investors in the electricity industry – so the wholesale traders and the suppliers could trade between these markets more effectively.

Energy reforms in central and eastern Europe (CEE)¹ over the last five years or so can be likened to the tango: small steps forwards and backwards, sometimes slowly, sometimes quickly, but – overall – a story of advancement.

The developing legal/regulatory framework and advancing market structure is like watching two dancers quick-stepping forward. When the couple stands still momentarily they create an atmosphere of tension: translate this to energy reform and it can be felt that no headway is being made. If the dancers move backwards – or the politicians begin amending the legal framework backwards because they have been threatened with the consequences of market tendencies (higher end-user prices, decreased price control or massive exports to neighbouring markets endangering the security of supply situation of the national market) – this can paint what seems like a disappointing picture.

However, to get a fuller picture of reform progress it helps to look at the whole process, rather than just one point in time. Those

countries in the midst of energy reforms are in a completely different situation from those that restructured their energy industry by introducing wholesale and retail competition a decade ago. But why is the situation in this region – for the last two to three years and in the foreseeable future – different from that in the 1990s, when Great Britain and Scandinavia created efficient competition in national and regional markets?

In the 1990s energy prices were low, investment requirements were negligible and supply was abundant in these markets. The general market economy was functioning and stable and competition-oriented governments were in place, so citizens and politicians had a general understanding of, and faith in, the positive effects of efficient competition on the economy and prosperity in general. Environmental considerations had no significant effect on end-user energy prices.

The situation today is completely different for the new European Union (EU) member states and those non-EU member

countries in the same region.² And, indeed, some characteristics are true for all EU members, such as high and continuously increasing energy prices (see chart 1).

The key elements that influence the attitudes of governments towards energy reform are:

- the increasingly powerful Russian energy producer, Gazprom, which could reduce the chance of wholesale competition⁵
- the as-yet-unknown consequences of the new CO₂ emission credit trading regime post-Kyoto (with the potential for energy-price increases created by the market price of carbon credits and security of supply (SoS) problems caused by the decline in power generation from fossil fuels)⁶ and those arising from the “third package”⁷ of EU legislation (especially unbundling).⁸

Other characteristics of the region (and some other national markets among pre-existing EU members) include:

- capacity shortage caused mainly by a massive increase in demand without effective energy efficiency measures and a lack of investment in new generation capacity, which could create SoS problems in a number of national markets
- high end-user prices and potential SoS problems that may discourage politicians who are ready to make non-market-based administrative interventions (discriminative cross-border capacity allocation rules, caps on end-user prices, supporting former single buyer (SB) type market models)⁹
- lack of faith in the benefits of competition
- conservative attitudes of financial institutions towards new investments – such as a preference for projects using “feed-in tariffs”¹⁰ instead of new generators selling energy at market prices – or support for long-term contracts with state-owned wholesalers that reproduce or maintain the SB market structures

2. Countries in the SEE region such as Bulgaria, Croatia, Romania and Serbia, which influence the CEE market.

3. Baseload is the minimum amount of electric power delivered or required over a given period of time at a steady rate.

4. The Leipzig-based European Energy Exchange (EEX) provides spot and derivatives markets for power, natural gas and emission rights. Furthermore, EEX offers trading of cash-settled coal contracts. EEX was founded in 2002 as the result of the merger of LPX Leipzig Power Exchange and European Power Exchange. Operating markets for energy products and emission allowances under one roof, EEX is the leading energy exchange in continental Europe. EEX prices serve as the reference for the major European energy markets. Currently more than 200 trading participants from 19 countries trade at EEX (as of April 2008). Members range from top investment banks to small, regional producers, from all over Europe.

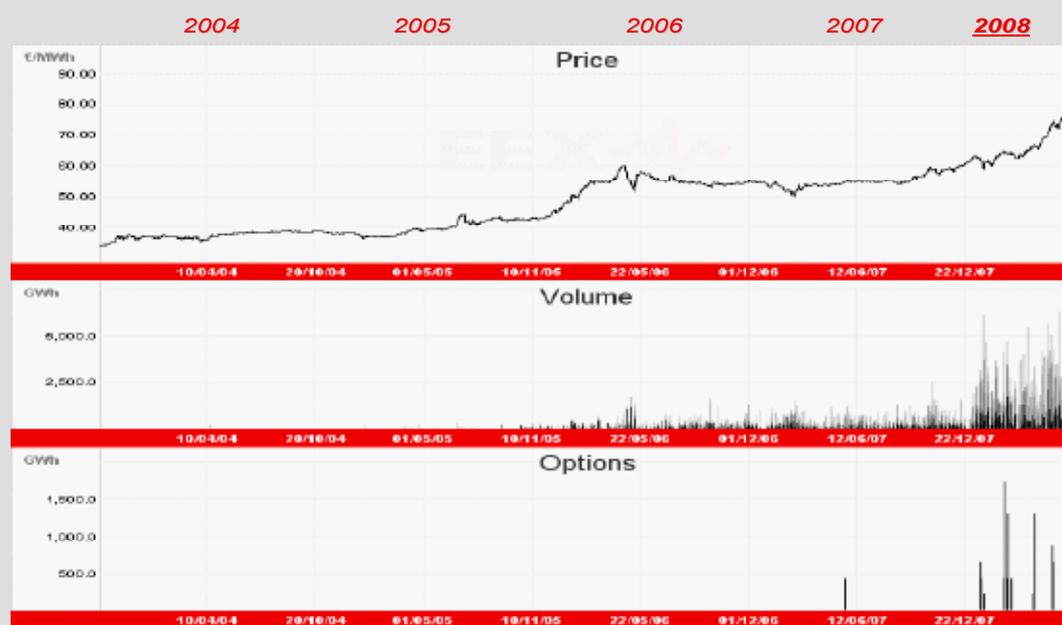
5. Every European government would like to reduce its dependence on Russian gas supply. If this is not possible, they would like to create long-term contracts with Gazprom. The EC has mentioned several times that the increasing gas-supply dependence could endanger the security of supply (SoS) situation in Europe, because the Russian government could use the security of gas supply in political debates. Wherever there is one dominant supplier on the wholesale market (with long-term contracts and price formulas), as is the case in several EU countries (especially in CEE and SEE), there is no chance of healthy, efficient competition with market-driven prices.

6. In Hungary, for example, new capacity coal-fired power plant investments have been postponed since the as-yet-unknown CO₂ emission limits and CO₂ emission credit prices means the return on investment could be very risky. The amount of power generated in existing coal-fired units could be also questionable.

7. See http://ec.europa.eu/energy/electricity/legislation/index_en.htm

8. Electricity industry investors mention frequently that the “ownership unbundling” concept of the third package of the EC (http://ec.europa.eu/energy/electricity/legislation/index_en.htm) could reduce the willingness to invest. The author does not necessarily agree with this position, but, hesitation in new generation investment could endanger SoS in some markets.

Chart 1: Future baseload³ prices for 2009 at the European Energy Exchange (EEX)⁴



Source: Extracted from data at http://www.eex.com/en/Market_20Data/Trading_20Data

Notes: Phelix is the Physical Electricity Index. Calculated daily, the Phelix is the average price for base load (Phelix Day Base) and peak load (Phelix Day Peak) electricity traded on the EEX Spot Market. Cal-09 means call options for 2009.

9. Several governments restructured their former state-owned vertically integrated companies in a way that separated the generation and distribution/supply from the former headquarters company structure, which remained a wholesaler and transmission company. In the early days of market reform (and in some cases as a prerequisite to the privatisation of generators) the state-owned wholesaler signed long-term contracts – power purchase agreements (PPAs) – with generator companies. Where the existing generator companies are obliged by law to offer their capacity to the nominated wholesaler (as a central agent), this wholesaler is known as a single buyer (SB). The former Portuguese, Polish and Hungarian market models are similar to this. The state-owned SB may have a buffer function, with the government controlling the regulated end-user price through the limited profit of the SB. The main disadvantage of the SB model is the lack of wholesale competition.

10. The “feed-in tariff” system is one of the tariffing mechanisms designed to support renewable energy and combined heat and power. With a “feed-in tariff” system there is an obligation to buy electricity produced by renewable or combined heat and power producers at a rate that is higher than the market price. This system is attractive and predictable for the investors involved in renewables or combined heat and power (no market risk).

11. The other possibility is that this inhibits the market model from becoming an efficient, functioning wholesale competition with several players.

12. IP/08/850 EC press release: Brussels, 4 June 2008: *State aid: Commission requests Hungary to end long-term power purchase agreements and recover state aid from power generators.* “The European Commission has asked Hungary, following an in-depth investigation under EC Treaty state aid rules, to end long-term power purchase agreements (PPAs) for electricity because they constitute unlawful and incompatible state aid to the power generators. The PPAs should be terminated before the end of 2008. Hungary must at the same time recover the aid granted to the generators concerned since Hungary’s EU accession.”

13. Foreclosure means that new players are prevented from entering the wholesale market, or end-users from contracting directly with generators. Vertical foreclosure means that integrated incumbents who operate simultaneously at network, wholesale and distribution levels, prevent new players from entering.

- constant amending of the legal and regulatory framework in order to align with EU directives, to meet the demands of private investors and the requirements of customers, and generally move towards efficient national and regional wholesale and retail competition.

In light of these circumstances, achieving all-round satisfaction – that is, happy end-users, satisfied private investors, silent trade unions and patient politicians – through a buyer’s market with functioning competition is difficult, but not impossible.

Barriers to market reforms

Market structure

One of the things that banks and investors involved in new power generation argue most strongly for is long-term contracts – that is, power purchase agreements (PPAs) – for new projects with one strong (possibly state-owned) participant. On the one hand this requirement is acceptable because there is no functioning wholesale market, no liquid power exchange and no indicative price signal in most of these national markets. On the other hand, this approach (PPAs with non-market-based price formulas) entrenches the existing SB market model and limits the opportunity for a functioning, multi-player wholesale market where generators compete with each other.¹¹ The dilemma for regulators and governments is how to balance the two arguments.

Can investors be expected to accept any market risk if there is no functioning wholesale market? Will they build new generation capacity that could compete with other generators in market conditions such as these?

The National Regulatory Authority (NRA) and the National Competition Authority (NCA) enforce, and in some cases (such as Hungary), the EC Directorate-General for Competition (DG Comp) requires the cancellation of the existing long-term PPAs signed with one state-owned central agent (a single buyer).¹² This is because of their market foreclosure¹³ and/or state aid nature.¹⁴ The EC’s energy sector inquiry was launched in June 2005.¹⁵

The final report confirmed the Commission’s initial analysis that barriers to competition exist in a number of areas. It focused on: market concentration/market power; vertical foreclosure; lack of market integration (including lack of regulatory oversight for cross-border issues); lack of transparency; price formation; downstream markets; balancing markets; and liquefied natural gas. DG Comp accepts that investors should be allowed compensation from the government if they are unable to recover their investment (the maximum amount of stranded cost compensation is calculated in advance, with future returns also being taken into account).

However, there are a number of arguments that foreign private investors and incumbent wholesalers (SBs) could use to convince governments to leave the private contracts intact and maintain the existing market, including the following.

- Could the generators sell their power without a functioning wholesale market?
- The government needs to demonstrate to other types of investors that it respects investors’ interests.
- Private investors could challenge the government, which would be a lengthy and risky court process.
- The PPA structure could keep the end-user price low and protect end-users from hungry foreign strategic investors.
- With the wide range of PPA product portfolios¹⁶ the SB is the only national wholesaler able to maintain real SoS.

Countering these arguments is not always easy, especially in an environment where a competition culture is not particularly prevalent. If there is neither a functioning wholesale market nor an indicative price signal, how can competition among generators be created when all of the competitive companies are contracted with a single entity? And how can a liquid power exchange (with a market reference price) be established when there

Box 1: How regulators could support competition

The 2003/54/EC Directive

In Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC, Article 23 requires the NRAs “to support competition” and states that “... regulatory authorities ... shall ... be responsible for ensuring ... effective competition and the efficient functioning of the market...”.

Paragraph 8, Article 23 of Directive 2003/54/EC states that: “Member States shall create appropriate and efficient mechanisms for regulation, control and transparency so as to avoid any abuse of a dominant position, in particular to the detriment of consumers, and any predatory behaviour. These mechanisms shall take account of the provisions of the Treaty, and in particular Article 82 thereof.”

One possible approach in implementing these regulations as *ex ante* intervention could be to use the significant market power (SMP) concept (see below) that has been borrowed from EU telecoms regulation, where this concept and procedure is widely used. Hungarian electricity and gas laws authorise the Hungarian Energy office (HEO) to carry out a market analysis to identify SMP and to intervene if necessary.

The Hungarian Electricity Act, Article 107. (1) provides: “With a view to promote effective competition on the electricity market, to avoid any abuse of a dominant position and to protect the interests of users, the Office shall conduct market analysis

- on the wholesale market,
- on the retail market,
- on ancillary service markets.”

Article 108 of the same Act provides: “The Office may impose an obligation or obligations within reasonable limits upon the licensee that had been identified by the Office as having significant market power from among the obligations specified under Sections 110–111 and in specific other legislation with a view to promote effective competition on the relevant market.”

The SMP concept is an *ex ante* regulatory tool to protect the market against abuse of market power by the dominant player (that has “significant market power”). The regulator has to analyse the relevant market and identify who has significant market power, if (instead of market-based), capacity release for new entrants, greater transparency of the operations of the SMP player in comparison to other market players, and so on. This *ex ante* regulatory tool is not a substitute or replacement for the *ex post* action (mitigation, penalty) of the competition authority in cases of abuse of market power.

any. In order to restrict the opportunities for abuse of market power by the SMP player, the regulator may need to impose some obligations, such as cost-based pricing

14. State aid is when the price of the PPA paid by a state-owned wholesaler to the generators is above market price. State aid is defined by four general tests, all of which must be met for support to be classed as such. The tests derive from Article 87(1) (ex 92(1)) of the EC Treaty which provides that: “Save as otherwise provided by the Treaty, any aid granted by a Member State through state resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market”.

15. Pursuant to Article 17 of Regulation (EC) No. 1/2003, it had the objective of identifying the barriers currently impeding the development of a fully functioning open and competitive EU-wide energy market. The preliminary report was published in February 2006.

16. In an SB model the state-owned central agent (dedicated wholesaler) has contracts with different types of generators (base load, load follow, peaking units) and imports. This portfolio allows the SB to better fit its supply offer to the need (consumption profile) of end-users.

is a highly concentrated supply side? Without a determination of the economic benefit of competition, governments could easily defer to these arguments so as to maintain the status quo, thereby postponing – not only the painful decisions – but with them competition and real consumer choice. The real disadvantage of this position would be a non-competitive industry with high energy prices.

There are some regulatory possibilities to mitigate the market power of the former SBs

and to free up capacity for new entrants. In Hungary the regulator, the Hungarian Energy Office (HEO), is authorised to identify participants from different markets with significant market power (SMP) – such as wholesale, retail and ancillary services – and impose obligations, such as a capacity auction.

Those in the energy industry, especially current and possible future dominant players, do not welcome new regulations (see Box 1 on page 4). The industry misunderstands (or

Table 1: Differing points of view with regard to new regulation on significant market power

Arguments against the new SMP regulation	Counter-arguments
Competition is the field of competition authorities, so why are the regulators intruding into this territory?	The <i>ex ante</i> NRA actions and the <i>ex post</i> NCA procedures supplement, rather than substitute, each other.
The regulator should only start the SMP procedure <i>after</i> any abuse of market power that harms the end-users has been detected.	If the abuse happens in networked industries, there is less chance of effective restitution of competition due to the high sunken costs and market entry barriers inherent in the sector. Hence there is a need for a preventative approach in order to achieve effective competition as envisaged in EC Directive 2003/54 which requires “appropriate and efficient mechanisms for regulation ... to avoid any abuse of a dominant position”. If the abuse has already happened then the NCA, rather than NRA, procedures take effect.
Any obligation imposed on a market player with SMP (such as a forced and controlled capacity auction and/or cost-based, benchmark-price-based price caps), reduces the market value of this player during potential privatisation. In other words, there is less income for the state budget.	The government has to take into consideration which is more important: the possible higher privatisation income (a single occurrence) or the long-term economic benefit of more intensive competition.
Any imposed price cap (cost-based pricing obligation) on wholesale energy prices reallocates the extra profit (monopoly rent) from the dominant player to other traders exporting to neighbouring markets, where the short position might create a higher price.	This is a real “danger” in that suppliers and traders on the retail market would achieve excessive profit. The adoption of the SMP procedure for the retail market could reduce the scope for such profits for market players with significant market power.

knowingly misinterprets) and confuses the *ex ante* regulatory interventions, which aim to prevent the possibility of the abuse of market power, and the *ex-post* mitigation and fines imposed by the competition authorities on those misusing their dominant position. Table 1 on page 5 sets out some of the reasons they oppose this new regulatory tool and some counter-arguments.

There is no easy answer to the last argument in Table 1. The other three arguments do not take the end-users' views or interests into account.

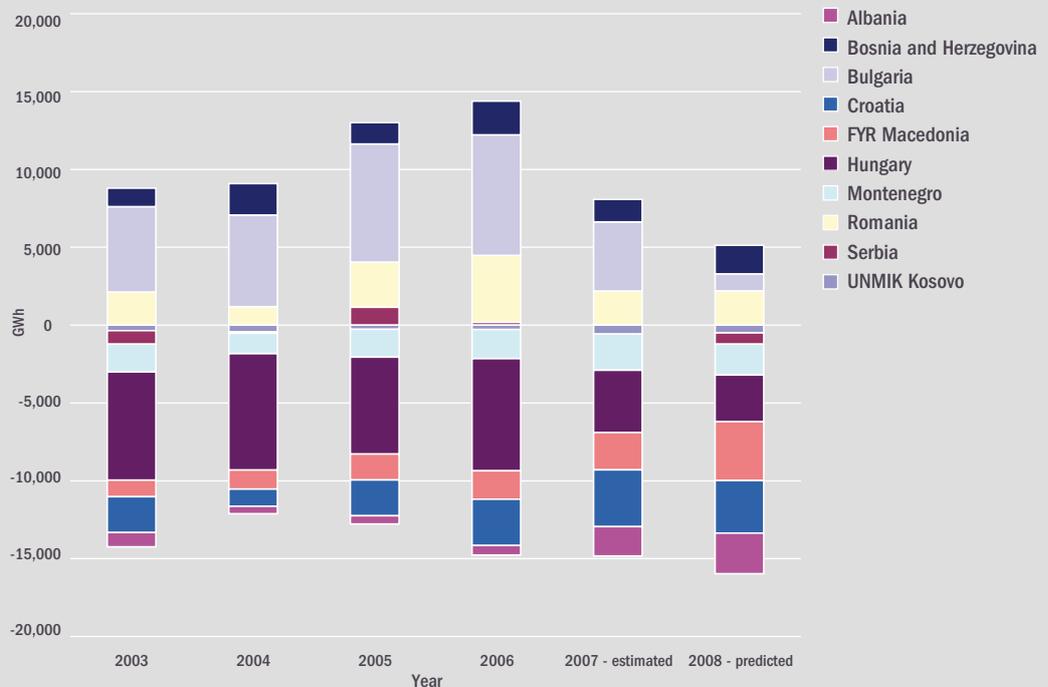
The first SMP procedure in the Hungarian power industry was completed and resolutions were issued in June 2008. This SMP procedure, however, is only a second-best solution to efficient, healthy competition.

We could say that there is no real problem with the present market structure, as existing PPAs will be terminated sooner or later and new generation capacities will compete with existing ones – the end-users will then be able to choose. This is an accurate analysis when the legal/regulatory framework is sufficiently stable and non-discriminatory, when there is no urgent need for new capacity and investors and banks are ready to assume a certain amount of risk. But, in the case of a regional capacity shortage, the chances of consumers being able to switch supplier and receive a secure supply are not so bright.

Exports are turning into imports

According to the Union for the Co-ordination of Transmission of Electricity (UCTE), "Before 2010, South Eastern UCTE is not expected to have the preferred level of remaining

Chart 2: Net export position of some Energy Regulators Regional Association members



capacity”.¹⁷ This means that the net export position of certain national markets in the CEE and SEE region is diminishing and turning into a net import position (see Chart 2).

Whenever a capacity shortage threatens, even those politicians who support a competitive market can become concerned and the arguments of the incumbent wholesaler (such as those below) can become rather appealing:

- the state-owned wholesaler (former SB) should enter into contracts with potential new generators, offering the comfort they need
- the government should issue a tender for “guaranteed” new capacities
- the state (through the state-owned incumbent) should build new capacity, securing the supply.

If the SoS is seriously threatened, politicians could accept these proposals, which create temporary administrative barriers against new entries into the market and against cross-border trade. Examples of this include the Hungarian priority of already allocated capacity (AAC), the Slovakian export fee and the Polish zero capacity on annual and monthly cross-border capacity auction. However, such administrative measures discourage new private investments since – rather than establishing regional market conditions, which could be carried out through the access capacities of neighbouring markets – they create isolated, relatively small national markets.

Regulators should find a way to provide more comfort for investors in new capacity without threatening future competition. They could prepare certain support mechanisms as a fallback scenario, such as capacity market rules, but they should be aware that these mechanisms are jeopardising future market conditions.

The mitigation of market power

Market power, its potential abuse, the painful consequences of a highly concentrated market and potential mitigation are issues often discussed in national markets undergoing the transition to a functioning market. On the relatively small national markets of the new EU member states and the SEE region, the formerly vertically integrated company still has an SB-type wholesaler role with high market ratio on the wholesale market (through generation assets and/or PPA structure and/or priority rights of former import contracts (AAC) at borders). This comfortable position held by dominant players is often strengthened or reinforced by a transmission system operator (TSO) belonging to the same group.

Some may question what is wrong with this. A state-owned dominant player on the wholesale market could serve the interests of the national economy and the end-users, as well as fulfilling politicians’ wishes of low household prices and high budget income. But is the picture really so optimistic? Does the dominant wholesaler use its portfolio price (cost of PPAs) to serve the retailers, suppliers or traders and universal service providers (USPs)? In the Hungarian case, for example, the answer is no – the energy price for USPs serving households and small consumers was adjusted to the portfolio cost (purchase price of wholesaler) to fulfil the wishes of politicians, but the average price for industrial consumers was €10 higher than the German energy exchange price contracted for the same period (2008). This is well above the portfolio cost. The argument of the wholesaler was that selling at the regional wholesale price instead of the lower national price is evident among market conditions.

How can the state-owned dominant player satisfy the politicians’ dual expectation of providing low energy prices for households and generating a high company income in order to feed the national budget (or making acquisitions in the region)?

The result of full market opening was evident in Hungary: the 30-40 per cent price increase for the industry in January 2008 was painful for the Hungarian economy as a whole. Was it the result of the former regulated wholesale price regime, or the potential appetite for profit of the dominant player, or the real or artificial capacity shortage of the region? Perhaps the answer is that it was – to a certain extent – the result of all of them. But, as history shows us, the dominant player is in a position to abuse its dominance until an efficient competition emerges. The high wholesale energy price could be the “source” of the monopoly rent. The SMP procedure, however, could be a solution to reducing this.

Is it really in the interests of consumers in the long run, however? There are some private investors who are not keen on concentrated markets. Postponed investments could lead to SoS problems, which is certainly not in the interests of consumers.

There is clearly another dilemma for the regulator here: should it support the state-owned former incumbent and consequently preserve the present, highly-concentrated market structure, or mitigate the market power of this entity? The latter could spark accusations that the regulator assists new, foreign entrants to the detriment of the national company.

With political will varying in strength and direction it is very difficult to act in the interests of economy and general consumer prosperity. This is the challenge for regulatory bodies, which is why this work is a delicate balancing act.

The other way to mitigate the market power of dominant players on the national markets is to establish a wider regional market where market share drops automatically. The European Regulators Group for Electricity and Gas (ERGEG) has launched some regional initiatives, supported by the EC. Most new EU members are involved either in the CEE region or in the current 8th ERGEG region.¹⁸ Regulators and TSOs are working

hard to harmonise cross-border rules and transparency criteria and to decrease market entry barriers in these regions. However, bringing about these changes is a major challenge without the political support of the governments involved. The harmonisation of the legal and regulatory framework is in the hands of governments and legislators, not the regulators.

As already mentioned, governments facing a capacity shortage tend to introduce temporary administrative barriers to cross-border trade. These measures separate the national markets instead of establishing regional ones. Even so, the creation of regional markets can bring about positive changes.

End-user prices

Regulated or market-based end-user prices are an important issue in respect of the functioning market and of the affected end-users. The EC sector inquiry (2007) report¹⁹ highlights the phenomenon of regulated end-user prices acting as a market distortion, especially for industrial users. The new EU members have understood this and most governments and legislators eliminated the possibility of regulating energy prices on a wholesale and retail level (with the exception of special services for households, such as USPs). However, some older EU members, such as France, introduced regulated prices for industrial users. The consequence of taking this sort of action while building the consumer price determination for the functioning market conditions (instead of the politicians through regulated tariff) was that energy prices rocketed (as, for example, in Hungary). This was due to a number of factors:

- previously regulated wholesale prices (until the end of 2007) did not fully follow fuel prices
- capacity shortage in SEE meant that traders, suppliers and importers with “short” positions serving consumers on markets where capacity shortages occurred paid higher prices for energy

18. The ERGEG 8th region comprises: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Italy, Kosovo, Macedonia, Romania, Serbia and Slovenia.

19. The European Commission's energy sector inquiry was launched in June 2005, pursuant to Article 17 of Regulation (EC) No. 1/2003, with the objective of identifying the barriers currently impeding the development of a fully functioning open and competitive EU wide energy market. The report was published in January 2007 and is available at <http://ec.europa.eu/comm/competition/sectors/energy/inquiry/index.html>.

- the monopoly rent of the dominant player
- controlled, reduced USP prices raised the price for industrial users.

The situation when national energy market prices are higher than regional market prices could have a significant effect on the competitiveness of end-users in the industrial and service sectors, and subsequently on the whole of the national economy. Political reaction was immediate: parliament amended the law enlarging the umbrella of the USP so that all households, public institutions, local governments and small industrial users were eligible for universal service subject to a controlled price. However, this is not the best message for the industry, which could cross-subsidise the USP clients. The end-user's purchasing power on the market-based or above price decreased: in other words – the tango dancers took a few steps back.

However, there have been some developments in energy reform in the CEE and SEE region.

- There is intensive, continuous regulatory cooperation (under the leadership of the ERGEG, ERRA and ECRB²⁰) aiming for legal and regulatory harmonisation with the Directives and relevant EC regulation and with the best European practice building regional markets.
- Members of the ERRA have taken a common position regarding price increases and capacity shortage in some regions.²¹
- During 2007, some 40 per cent of energy sold on the retail market in Hungary was supplied by suppliers/traders other than the incumbent.
- There is a functioning, liquid power exchange in Romania (OPCOM).
- There are functioning NRAs with adequate statutory power, authorisation and expertise.
- A coordinated explicit cross-border capacity auction exists in the CEE region.

- There is a non-regulated end-user price for industrial users.
- There is a mechanism supporting vulnerable consumers.
- There are advanced methods for monitoring service quality.
- Based on price signals and relative comfort, an increasing number of investors are interested in new generation.
- A memorandum of understanding on market coupling between Austria, Hungary and Romania is about to be signed.
- The possibility of a regional power exchange is in development (CEEPEX²² concept) with the cooperation of the World Bank, E-Control and HEO (the Hungarian regulator).

Conclusion

Some arguments put forward suggest that the SB model could be a dead-end in terms of wholesale and retail competition.²³ The incumbent wholesaler (that is, the former regulated SB) could strengthen its position on the market and could build on political support as a state-owned company in such a way as to maintain its position in the longer term.

In any case, the political will for market-based mechanisms is essential. Without this support only short-term, transient results can be achieved. Market reforms in this region are very complex and require patient, but consistent, movements forward.

Governments, with their changing direction and levels of political support, are not always ready to manage energy reforms and so national regulators and competition authorities should take the lead. International organisations such as the Council of European Energy Regulators (CEER), ERGEG and ERRA have an important role to play in knowledge transfer and information exchange between regulators, market players and consumers. Regulators and market

20. ECRB: Energy Community Regulatory Board (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Italy, FYR Macedonia, Romania, Serbia (including Kosovo), Slovenia)

21. www.erranet.org/Events/ERRA/2007/Topical_Workshop_Bucharest_December#materials

22. Central Eastern European Power Exchange

23. For example, by Mr Laszlo Lovei, "The Single-Buyer Model", Viewpoint, Note Number 225, Private Sector and Infrastructure Network, The World Bank Group, Dec. 2000: http://www.wds.worldbank.org/servlet/main?menuPK=64187510&pagePK=64193027&piPK=64187937&theSitePK=523679&entityID=000094946_01062804081970

participants should convince governments to provide more support for the legal harmonisation necessary for regional markets. The SMP concept could be implemented to avoid the abuse of market power.

The transition period between a regulated market (regulated wholesale and retail price) and functioning competition (market-based prices) is full of tension and painful actions; this is why this period should be as short as possible.

Substantial progress has been made towards creating functioning national and regional energy markets, but there is still much to do. The energy tango dancers should keep on dancing.

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Kazakhstan's electricity

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This article focuses on the development capacity of the natural monopoly regulator in Kazakhstan and describes possible ways of improving the policy and institutional environment for private sector participation and investment in the energy sector. It further summarises the current challenges facing electricity regulation and suggests a number of ways of addressing these. In order to attract private investment, the state should work to establish an independent, clear and predictable regulatory regime and ensure political stability.

This article is based on work undertaken by Economic Consulting Associates¹ for the EBRD to help develop the capacity of the infrastructure regulator in Kazakhstan with the aim of improving the environment for private sector participation and investment in the energy sector, as well as in rail and telecommunications. The focus here is on electricity though the findings generally apply equally to other infrastructure sectors. The article summarises the current challenges facing electricity regulation and suggests a number of ways of addressing these.²

The electricity industry

The current legal and regulatory framework for the electricity sector in Kazakhstan was largely established in 1996-98. Significant further changes were introduced with the Law on the Electric Power Industry³ (dated 9 July 2004).

There are eight major power plants defined as having "national significance", of which four are thermal and four are hydro. There are also a number of smaller power plants at the regional level, many of which are combined heat and power. The total installed capacity is over 18,000 megawatts (MW), of which about 78 per cent is coal-fired. Capacity significantly exceeds demand following the sharp decline post - 1991 in common with other former Soviet economies as uneconomic heavy industry shut down - from

which demand has not fully recovered.

The Kazakhstan Electricity Grid Operating Company (KEGOC) owns and operates the national power grid and the power market and manages international electricity exchanges. There are 21 regional electricity distribution companies across the 14 oblasts (administrative regions), major cities and the capital, Astana. Electricity distribution and retail supply were separated as part of the 2004 reforms.

The 1996-98 reforms introduced bilateral contracting⁴ between generators and suppliers/large customers with all parties being able to use the national transmission network to transport electricity on equal terms. The 2004 laws introduced a revised arrangement with a voluntary centralised spot market in which a price for each hour is set.⁵ It also offers a variety of forward contracts⁶ for the sale and purchase of electricity. Participants can, however, continue to use bilateral contracts.

There is substantial private sector involvement in generation, with around 80 per cent of capacity privately owned or managed, including some by the US firm AES. There has also been some private sector participation in distribution and supply with both national and international investors, including AES and Access Energy from Russia. Some

1. Economic Consulting Associates provides consulting services on infrastructure policy, markets and regulation to industry and government.

2. While it is understood that the authorities in Kazakhstan have proposed changes to laws and processes which impact on the regulation of electricity and relevant sectors (and which may address some of the challenges identified in this article), the final content of these changes, and timing for implementation, is not yet clear.

3. Law #588-II.

4. In a bilateral contract each party to the contract makes a promise or promises to the other party.

5. In a centralised spot market, generators submit offers to supply electricity. Offers are selected in order from lowest-cost (subject to operating constraints) until demand in each period is met. The last offer selected sets the spot market price. In Kazakhstan, generators can choose whether to participate in this market or not - in some countries, participation is obligatory.

6. In forward contracts, delivery of the commodity is deferred until after the contract has been made, but the price is determined on the initial trade date.

international investors have, however, been disenchanted by some elements of the regulatory framework and have withdrawn.

Kazakhstan's surplus of electricity generating capacity means power shortages are not a major concern as yet. However, the elderly transmission and distribution networks require major expenditure to compensate for a long period of under-investment and to increase reliability and reduce losses.

Regulatory framework

Regulation of electricity, along with other natural monopolies⁷ and competition, was initially the responsibility of the Anti-Monopoly Agency (AMA). AMA was created through the Law on Natural Monopolies⁸ but in 2004 it was separated into:

- the Agency for the Regulation of Natural Monopolies (AREM) and
- the Agency for Protection of Competition (APK).

This means there are now two regulatory bodies and two laws governing the regulation of the electricity sector.

- The Law on Natural Monopolies relates to electricity networks and is regulated by AREM.
- The Law on Competition relates to electricity generation and supply and is regulated by APK.

AREM directly regulates electricity transmission and distribution charges. In principle, electricity generation and supply prices are unregulated, unless APK considers that a company holds a dominant position. A company is deemed to have a dominant position if its market share exceeds 35 per cent in a particular area. Invariably, APK finds that there is a dominant position which results in direct price regulation. This *ex ante* regulation is unusual internationally, where antitrust regulators typically limit themselves to avoiding the creation of dominant positions,

and penalising and remedying abuses of a dominant position on an *ex post* basis.⁹

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Electricity is just one part of AREM's responsibilities, which include other network infrastructure providers such as the national telecoms, railways and gas pipeline companies, regional heating, water supply and sewerage companies, air and sea ports.¹¹ AREM was the sole regulator of all natural monopolies until 2004, when its responsibilities were reduced to the regulation of 176 of the larger natural monopoly entities. Regulation of 652 smaller companies was transferred to the Akimats (oblast governments), but the transfer was not a success and was reversed through further legal amendments in 2005 and 2006.

AREM's current allocation of responsibilities to the oblasts loosely mimics the federal and state-level arrangements in the United States. The central AREM office is responsible for regulation of natural monopolies which serve more than one oblast or are large in size. Smaller, local natural monopolies are regulated by AREM's regional branches in each oblast under the overall guidance of the AREM central office.

Emerging concerns

Since its creation, AREM has made significant progress towards introducing a modern regulatory framework, based on US models. However, a number of concerns have arisen, in part due to the mismatch



AREM's [...] responsibilities to the oblasts loosely mimics the federal and state-level arrangements in the United States.

7. A natural monopoly occurs where the cost of producing the product is lower if there is just a single producer than if there are several competing producers (due to economies of scale). For example, unless existing capacity is exhausted, you would generally not build two competing electricity or gas pipeline networks serving the same destinations as the total costs of supply would be higher than building a single network.

8. Law on Natural Monopolies number 272, 9 July 1998, as amended by Law #364 of 26 December 2002 and Law #13 of 20 December 2004.

9. *Ex ante* regulation is anticipatory and aims to prevent an undesirable outcome, while *ex post* regulation deals with redress of proven misconduct.

10. *Ex ante* regulation is anticipatory and aims to prevent an undesirable outcome, while *ex post* regulation deals with redress of proven misconduct.

11. Responsibility for telecommunications was transferred to the Agency for Informatisation and Communications during 2007

between these models and the realities of the Kazakh situation. Of particular note are:

- AREM's vulnerability to political interference at both central and oblast level
- bureaucratic and heavy-handed procedures for tariff approval
- an uncoordinated framework between the economic and competition regulators.

Political interference

Political interference in regulatory decisions stems, in part, from AREM's lack of independence. AREM's powers and responsibilities derive primarily from the Law on Natural Monopolies¹² which gives an "authorised agency" the broad authority to "control and regulate the activities" of natural monopolies. AREM was nominated as the authorised agency through its statute issued by the prime minister.¹³ The statute is explicit in giving AREM responsibility for the "formulation of state policy in the areas of natural and state monopoly"¹⁴ and this undermines a fundamental regulatory principle of separation of policy-making from regulation.

In 2004, Presidential Decree #1382 (9 June 2004) changed AREM's status to a central executive body.¹⁵ This put AREM in a similar position to a ministry and made it subject to a number of rules and regulations governing state bodies, including employment, budgeting and expenditure regulations.

The organisation, staffing and financing of AREM, as well as its reporting obligations, are established by the government. The Agency is headed by a chairman who is appointed and dismissed by the prime minister¹⁶ (previously, the chairman had been appointed by the president). Deputy chairmen are appointed and dismissed by the government on the recommendation of the chairman. There is no fixed term of appointment and no professional qualifications are specified in the statute.

While all regulators must recognise the primacy of government policy decisions, regulators also need the independence to

be able to act within this policy framework, taking decisions on their technical merits. This requires regulators to have clear powers and duties, the knowledge that they cannot easily be dismissed for disagreeing with ministers, and access to skilled and experienced staff able to provide the required technical expertise.

AREM's independence is compromised by the following factors:

- it is not established as a statutory body in primary law
- it has no fixed terms of appointment and no requirements for professional qualifications
- it is subject to government salary scales and employment rules.

Regional AREMs are even more exposed to informal political pressure from Akimates. They suffer from the same lack of independence as the central AREM, but this is exacerbated by the close relationships that generally exist in smaller communities and the limited number of companies that they regulate – allowing pressure from Akims (provincial governors) in relation to politically sensitive utilities.

Tariff approval procedures

AREM's current approach to regulation follows a cost-plus methodology.¹⁷ AREM scrutinises costs on a line-by-line basis with all numbers supported by extensive documentary evidence. AREM concentrates on verification of individual expenditures against norms or historic costs with little attempt to benchmark costs with those of other companies.

While such approaches are applied in countries such as the United States, in these cases tariff reviews occur relatively infrequently they can last for more than one year, and regulators are well-resourced and benefit from an extremely well-developed supporting consulting industry. This contrasts strongly with Kazakhstan where reviews are annual and take place within a tight time frame, and where staff constraints leave AREM dependent on a small number of external



Regional AREMs are even more exposed to informal political pressure from Akimates.

12. Article 13.

13. Decree #1109 of July 2004.

14. Article 1. Article 9 expands this responsibility still further to include not only state policy on natural monopolies but also state policy on state monopolies.

15. The statute describes AREM as a central executive body "forming part of the Government of the Republic of Kazakhstan".

16. Article 4 of AREM's Statute #1109.

17. Where the regulator determines the generation price with the costs incurred by the utility, and the profit allowed.

consultants for critical parts of the review.¹⁸

This results in an extremely high workload for AREM. It is also a major burden for the regulated companies and encourages neither cost efficiency nor transparency in the process. In practice, it appears that much of the evidence advanced by companies cannot be reviewed in any detail, so AREM falls back on using somewhat crude bases for its decisions.

AREM had previously been encouraged to move away from cost-plus pricing and to allow a price-cap or revenue-cap framework, referred to as mid-term tariffs (MTT) in Kazakhstan. This had the dual aim of encouraging efficiency improvements and dropping the burdensome and unreliable tariff approval procedures. Amendments to the Law on Natural Monopolies in December 2005 made allowance for MTT.¹⁹ However, a backward step was taken when AREM issued Order #287 on “Approval of the methodology for the tariff-cap calculation for the services of natural monopolies”. This contained the restriction that:

“costs for each year of the tariff control period should be identified based on forecast of marginal growth of tariffs on regulated services for midterm period stipulated by the Midterm Programme of Socio-Economic Development of the Republic of Kazakhstan (hereinafter, the Midterm Programme)”²⁰

The Midterm Programme contains forecasts on the growth of tariffs for most of the regulated network sectors (excluding rail and telecommunications) that are approved through government resolutions. This means that, rather than approving or rejecting submissions made by the entities based on independent technical criteria, AREM has agreed that it will only approve costs that conform to forecasts of tariff increases approved by the government.

Lack of coordination of competition and natural monopoly regulation

The division of infrastructure companies into their separate natural monopoly

and competitive components has taken place gradually. Even where separate businesses have been created or accounting separation has taken place, coordination of price regulation has been a problem.

Recommended solutions

In its work supporting AREM, ECA made a number of recommendations to address these concerns. While not all may be implemented in full or in the recommended form, measures of these types are required for further improvement of Kazakhstan’s regulatory framework.

Enhancing AREM’s independence

Existing legislation should be amended to strengthen AREM’s independence.

- AREM’s statute should be amended to remove its role in developing policy, thereby ending the potential conflict between its roles as policy-maker and regulator.
- AREM’s status should be established in primary law, giving greater assurance of its permanence.
- The primary law should be strengthened to specify:
 - fixed terms for the chairman and deputy chairmen
 - professional qualifications
 - grounds for dismissal.

Introducing benchmark regulation

Benchmark regulation should be introduced for regional electricity distributors, along with increased flexibility in the application of MTT. This would end the current need for detailed individual cost reviews and create a more up-to-date incentive-based regulatory methodology. AREM is investigating the potential for this in more detail.

Organising regulation by type of work

The problem of coordination between competition and utility regulators is not



The problem of coordination between competition and utility regulators is not unique to Kazakhstan.

18. It is understood that proposals for revision of cost/tariff setting methodology are currently under consideration.

19. The law now provides for AREM – as an alternative to approving tariffs for an indefinite period – to set a price/tariff-cap for a period of validity determined by AREM.

20. Paragraph 8.

unique to Kazakhstan. The United States and Europe have almost exclusively favoured separate competition and sector regulators, whereas Australia and New Zealand have favoured combined regulation.

Kazakhstan began with separate regulators. These were then combined and subsequently separated again in 2004. A reintegration would be extremely disruptive and would also be contrary to international practice in Europe and the United States.

While there is a need for separate competition and sector regulators in Kazakhstan, the allocation of responsibilities between AREM and APK could be more efficiently arranged.

It would be more efficient to divide responsibilities between AREM and APK according to the type of regulatory work involved rather than the type of business. AREM could be responsible for tariff reviews for both natural monopolies and for businesses that have a dominant position, while APK could be responsible for work that is more traditionally assigned to antitrust regulators. This would require an amendment to primary legislation.

Long-term outlook

To attract investors, Kazakhstan needs to establish an independent, transparent and predictable regulatory regime and, in order to demonstrate the stability of this regime to investors, it needs to maintain that regime over a reasonable period of time. An unstable and unreliable regulatory regime will increase regulatory risk and raise the premium that investors demand in order to invest in Kazakhstan.

Relatively simple and painless changes in legislation and even simpler changes in statutes are needed to increase the independence of Kazakhstan's regulatory agencies. Independence is the regulatory holy grail that is never completely attainable, but these changes will create the foundations that will encourage greater independence from

political interference. Cultural changes need to take place within the regulatory agencies; these are less tangible but will follow over time, particularly if the legal framework is in place.

One cultural change, the seeds for which have already been sown, is the move away from excessive command-and-control regulatory intervention when reviewing and approving tariff submissions. Regulators everywhere have an obligation to encourage cost efficiency in natural monopolies but regulators elsewhere have adopted arm's-length techniques which simultaneously encourage efficiency. These include price-cap, revenue-cap and benchmark regulation. These techniques need to be included among the set of tools used by the regulators in Kazakhstan and the regulations need to be adapted to make these techniques fit-for-purpose. Improvements in the primary law would also help.

One of the major outstanding issues for network regulation in Kazakhstan is clarity over the respective responsibilities of AREM and APK. The current situation, with AREM regulating the networks and APK regulating the prices of "competitive" services along the supply chain is a recipe for problems. A continuation of two bodies – one for the network industries and the other a competition regulator – is consistent with international practice and makes sense. However, definition of the respective responsibilities of the two bodies is urgently needed and this requires amendments to the laws.

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Energy sector reform in Mongolia

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The Energy Law of Mongolia has largely transformed the power sector in the country and aims to stimulate private participation and investment in the sector. This article provides a descriptive analysis of the structure and functions of the regulatory authority and the guarantees for its political independence. The Mongolian government has recognised the need to secure a sustainable energy supply by developing renewable energy potential and improving the current power system. A new legislative framework on renewable sources of energy has been adopted as a part of the Government Action Plan.



Fundamental changes have occurred in the country's energy sector.

When the Mongolian parliament enacted the new Energy Law in 2001, it provided the legal framework to allow the energy sector to be restructured from being centrally planned to market-based.

The Energy Law aims to create competition and increase private participation and investment in the energy sector. It also

provides regulations for energy generation, transmission, distribution and supply activities, as well as the construction of energy facilities and the use of energy resources (see Box 1 for more details).

Since the Law came into force, fundamental changes have occurred in the country's energy sector. Previously, all state-owned power

Box 1 - The Energy Law of Mongolia

The Energy Law of Mongolia came into force on 1 February 2001 in order to create a legal basis to transform the energy sector from a centrally planned to market-based sector.

The Law includes six chapters and 38 articles. To facilitate implementation, full powers and responsibilities of the key institutions involved in managing and operating the energy sector – such as parliament, the cabinet, the State Central Administrative Authority, governors of Aimag¹, the Capital City, Soums² and Districts, the Regulatory Authority, the National Dispatching Centre, and the regulatory boards of Aimag³ and the Capital City – are as follows:

- the State Ikh Khural³ formulates state policy on energy and makes decisions regarding the construction of nuclear power plants
- the Ministry of Fuel and Energy is in charge of the development of policy, including the development of energy resources; energy use; import and export of energy; construction of power plants; transmission lines and networks; energy conservation; use of renewable sources; regulation; and international cooperation
- the Energy Regulatory Authority (ERA) is in charge of issuing licences, approving tariffs and protecting the rights of consumers and licensees.

1. In Mongolia, "Aimags" are the first-level administrative division (provinces). Each Aimag is divided into Soums.

2. Soums are second-level administrative subdivisions.

3. The Mongolian parliament.

enterprises operated under the management of the Energy Agency⁴ within a centralised vertical management structure. With the Energy Law, this centralised structure was unbundled⁵ and separate, independent companies dealing with generation, transmission, distribution and supply were created.

One of the more important provisions of the Energy Law was the establishment of an independent body, the Energy Regulatory Authority (ERA). The ERA carries out its mandate using various instruments provided by the Energy Law, including licensing powers, tariff approval powers and monitoring.

Seven years have passed since the Energy Law came into force and during this time the key institutions that manage and operate the energy sector have been carrying out many significant tasks.

The Energy Regulatory Authority

The Energy Regulatory Authority (ERA) was established in 2001. It regulates energy generation, transmission, distribution, dispatching and supply in accordance with the provisions of the Energy Law and related legislation. The main responsibilities of the ERA are to issue operational licences, to review and approve the tariffs of licensees (the

energy companies that sell to the end-user), to protect equally the rights of the consumers and licensees, and to create and maintain conditions for fair competition among the generation and supply companies (see Box 2 on page 7) for how the EBRD is supporting the ERA).

In accordance with the Energy Law, the ERA must perform the following tasks:

Task 1: Issue, amend, suspend and revoke licences, set operational and licensing terms and requirements for licensees, as well as monitor compliance with these terms and requirements.

When the ERA started operations, 18 large energy companies had licences for energy activities. By the end of 2007 the ERA had granted 142 licences in 10 categories to 64 enterprises and organisations.

The ERA annually monitors and evaluates the fulfilment of terms and conditions of all licences granted. Forty-nine licensees⁶ are being benchmarked quarterly and semi-annually, and their ratings⁷ are being published in daily newspapers.

Task 2: Develop methodology to determine tariffs, define the structure of tariffs and review, approve, inspect and publish tariffs of licensees.

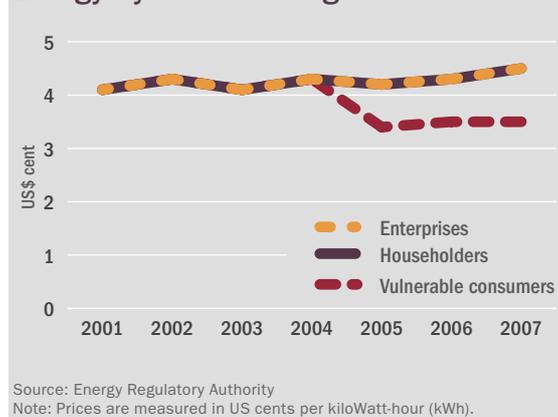
Originally, tariffs were artificially low, which did not allow the energy companies – that is, the licensees – to recover their costs and expenses. By setting tariffs the ERA aims to ensure the financial viability and sustainable operation of these licensees, while balancing their interests with those of the consumers.

The ERA, aware of how prices can affect the social and economic situation of the country, increased tariffs several times. However, none of these increases is understood to have burdened the consumer too much. The ERA has also developed a life-line tariff⁸ for consumers on low incomes (vulnerable consumers).

“ ”

By the end of 2007 the Energy Regulatory Authority had granted 142 licences in 10 categories to 64 enterprises and organisations.

Chart 1: Electricity prices in the Central Energy System of Mongolia



4. The Energy Agency is responsible for implementing the government's policies on energy use. Its main objective is to provide a reliable supply of electricity and heat, based on the most effective means of generation and distribution.

5. Unbundling refers to the "structural separation" of the various functions in an energy market, namely generation, transmission, distribution and supply. The separation applies to ownership, corporate affiliates and/or management/accounting.

6. Eighteen large energy sector entities; twenty-four housing service companies with heat distribution licences; and seven small, local electricity distribution companies.

7. The ratings are assigned according to a ranking procedure approved by the ERA. They are based on licensees' performance criteria such as profit and loss, liabilities and receivables, a power plant's internal electricity consumption rate, transmission and distribution losses.

The regulated tariffs for consumers in 2001-07 are shown in Chart 1 on page 2.

Task 3: Protect equally the rights of the consumers and licensees while resolving disputes between licensees, and disputes between licensees and consumers.

The ERA resolves disputes and complaints from consumers and licensees according to relevant laws, rules and regulations. To aid transparency the ERA has compiled statistics of the complaints and dispute resolution process. The statistics show that between 2001 and 2007, 363 complaints from licensees, consumers and other related organisations were received, dealt with and fully resolved.

As Table 1 shows, complaints have risen from 46 in 2001-02 to level off just below 70 in 2007. While this rise can be interpreted negatively, it can also be seen as a reflection of increased competition and growing confidence in the ERA as a place for resolving licensee disputes and dealing with consumer complaints.

Table 1: Number of complaints resolved by the Energy Regulatory Authority of Mongolia

Year	Complaints resolved
2001-2002	46
2003	34
2004	72
2005	75
2006	70
2007	66
Total	363

Source: ERA, 2008

In addition, since 2004 the ERA has conducted four large public hearings concerning tariffs. Public hearings are seen by the ERA as an important way of promoting stakeholder and public awareness of, and participation in, energy sector regulation.

Task 4: Create conditions for fair competition among the electricity generation and supply companies in accordance with the Energy Law.

One of the ERA's main obligations is to guide the transition of Mongolia's energy sector from a centralised, command-based system to a market-oriented one. Currently, within the Central Energy System (CES),⁹ electricity is traded through the main market – the “single buyer model” (SBM)¹⁰ – and two other accompanying markets: spot¹¹ and competitive.¹² As a first step, the SBM was introduced into the CES as an operational model in 2002.

In 2001, before the inception of the SBM, the rate of revenue collection within the sector was only about 75 per cent. However, since the SBM was introduced in 2002, the collection rate has increased consistently year-on-year and reached 100.3 percent¹³ in 2007 for the first time (see Chart 2 below).

In the spot market, the differences between actual dispatch and the contractual commitments of each generator can be traded. The spot market is intended to operate at the margin, that is, most of the energy is traded through bilateral contracts and only a small amount is traded in the spot market.

The National Dispatching Centre has been acting as an operator of the spot market. By operating in the spot market, the power plants will try not to breach the dispatching graph (plan).¹⁴ If they do breach it, they will bear some responsibility as per the market-oriented economical principle. In other words, the trade is done by selecting the highest tariff of the companies participating in the market. The spot price applied to this transaction is the energy tariff of that generator approved by the ERA.¹⁵

8. A tariff system that takes account of consumer income levels to ensure affordability.

9. The Central Energy System (CES) supplies energy to the capital city and 13 Aimags in central Mongolia. It covers over 90 per cent of the country's total energy consumption. In the CES there are five generation, one transmission and four distribution companies.

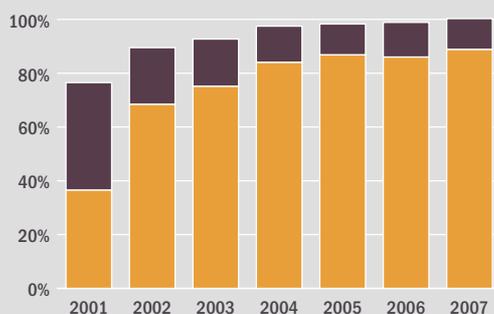
10. The single buyer model is the market through which electricity is sold from generators to one buyer, which then sells that electricity on to distributors.

11. The spot market is based on the differences between the amount of electricity determined by the generation dispatching plan and the amount of electricity supplied in reality.

12. The competitive market is an auction among the generators of their offered generation tariffs based on the growth of electricity demand.

13. The 100 per cent collection rate means that fees for billed electricity were collected fully in 2007. Any additional percentage above 100 per cent refers to revenue that could not be collected fully in the previous year. In this case, the additional 0.3 per cent represents the amount received from the consumers to reduce the previous year's receivable, which was recorded in the balance sheet of the distribution companies. This means that a distribution company was able to collect the unpaid payments from consumers one year on.

Chart 2: Single buyer model – collection rates and structure in Mongolia



Source: ERA, 2008

Note: The structure of collection rates comprises the account and offset. The account is held at a commercial bank and contains electricity payments collected from consumers. The offset is the total amount of hedging transactions between participants of the SBM.

In 2007, about 6.8 million kilowatt-hours (kWh) of electricity, valued at MNT 54.7 million (€29,700),¹⁶ was traded on the spot market in Mongolia. This level was 3.6 per cent less than the amount traded in 2006, and an 18.3 per cent decrease on 2005. This fall indicates an improvement in the reliability and stabilisation of the generation operations in following the dispatching graph more strictly.

The amount of electricity traded through the spot market between 2005 and 2007 is shown in Chart 3 below.

A market that sells generated electricity by auction is defined as a competitive or auction market. On other markets in the world, the right to supply electricity is usually awarded to the generation company offering the lowest price. However, in Mongolia it is the generation company that offers to reduce its generation tariff by the largest percentage. This gives power companies with significantly different tariffs the chance to participate equally in the auction. In addition, because of the characteristics of the Mongolian electricity market, the auction is organised only on the generation tariffs that are based on the growth of electricity demand.

The independence of the regulatory body, the ERA, is guaranteed through the following principles, set out by law.

- The appointment of the regulatory board is made by the president of Mongolia, the parliament or the prime minister.
- The term of service of the regulator is staggered; in many countries regulators are appointed for a fixed term but in Mongolia the appointment is staggered so that it does not coincide with the parliamentary election cycle.
- The regulatory board can only be dismissed in conformity with law.
- The regulatory authority is funded by licensing fees and charges for regulatory services provided to licensees.

The Energy Law of Mongolia confirms the independence of the ERA. In particular, Article 8.3 states that “The Chairman and Regulators of the Board shall be appointed by the Prime Minister based on a proposal of the Cabinet Member in charge of the energy sector. They shall be appointed initially for two, four, and six years, respectively, and thereafter for six years, so that expiration of their terms of service have intervals of two years”. Article 8.6 states that “The Regulatory Authority shall be funded by licensing fees and charges for regulatory services provided to licensees”.

In addition, according to the Energy Law, if licensees or consumers disagree with decisions of the regulatory authority or its officials, they may appeal those decisions in court.

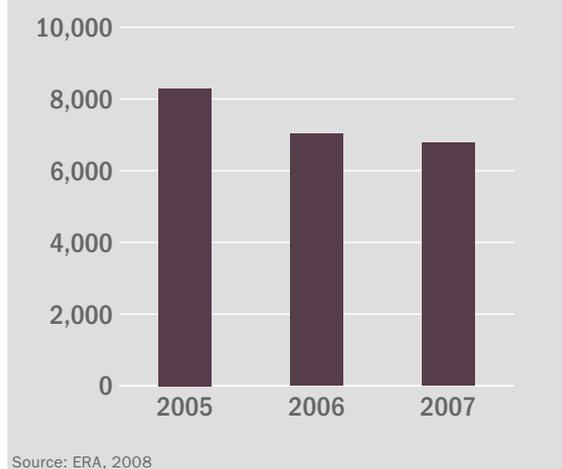
Law on Renewable Energy

Renewable energy is a priority for the energy industry, as set out by the government in policy documents such as the Government Action Plan,¹⁷ Millennium Development Goals¹⁸ and Mongolia’s Strategy for Sustainable Development of the Energy Sector 2002-10.¹⁹

14. In the fourth quarter of each year, electricity distribution companies receive orders from their customers for the next year’s electricity. Based on this demand survey and the electricity consumption records of the previous 10-20 years, and considering the expected annual electricity demand growth percentage, the National Dispatching Centre calculates the approximate draft plan for generation of electricity in the next year. In addition, the generating companies also develop their business plans for the next year at this time and submit their plans to the National Dispatching Centre. Taking into account the plans submitted by the generators and considering the factors related to the working regime and specific features (own use of thermal power plants, transmission and distribution losses, quantity of electricity to be imported and exported, and so on) of the energy grid system, the National Dispatching Centre makes some necessary changes and adjustments and develops the final generation plan which is used as the dispatching graph for the next year’s generation. The final version of the plan also has to be submitted by the National Dispatching Centre to the Energy Regulatory Authority for final approval since it is required to decide tariffs of licensees for next year’s activity.

15. The breach of a given dispatching graph means that a power plant would not be able to generate the amount of electricity according to its plan owing to technical problems, such as emergency stoppage of main equipment, and so on. For instance, if Darkhan Thermal Power Plant planned to have a load of 30 MWT but due to a sudden stoppage of its boiler, the actual load was 20 MWT instead, then 10 MWT would be generated by one of the other thermal power plants working in the energy system. The National Dispatching Centre would decide which plant would provide the additional 10 MWT of load, by considering the availability of reserve capacity or by increasing the load of fully operational steam turbine generators at the other power plants. At the end of each quarter the power plant which was unable to generate the planned electricity has to pay the difference of generation tariff to the other power plant that accepted the additional load to generate more electricity at that time. As the generation tariffs of thermal power plants are at different levels, each generation company has to try to work in a steady and stable manner without any interruptions or stoppages and to increase its responsibility to participate in the energy system’s operation to fulfil its tasks according to the dispatching plan settled in advance.

Chart 3: Amount of electricity traded on the spot market of Mongolia



The Law also sets out the tariffs for energy generated and delivered from renewable energy sources. The tariffs must be within the following limits:

- 8-9.5 US cents per kWh for electricity generated and delivered by a wind power source
- 4.5-6 US cents per kWh for electricity generated and delivered from a hydropower plant with a capacity of less than 5,000 kWh
- 15-18 US cents per kWh for electricity generated and delivered from a solar power source.

The difference in tariffs for the various renewable energy sources are made up by the tariffs of other generating licensees connected to the grid.

Also under the new Law, a generator using a stand-alone power source shall be compensated for any price difference resulting from sales of renewable energy to consumers of respective areas specified in their licences from the Renewable Energy Fund. The relations concerning the Renewable Energy Fund shall be regulated by the Law on Government's Special Funds.

On the basis of this Law, the ERA issued a licence to Newcom for the construction of a wind farm with a capacity of 50 MW, and approved a power purchase agreement between Newcom as generator and the Central Regional Transmission Network. In addition, the ERA granted licences for the construction of hydropower plants on the Taishir and Durgun rivers, the latter having recently started operations with a capacity of 11 MW.

For the government, the use of renewable energy is vital for improving and securing a sustainable energy supply, and it attaches great importance to the research and exploitation of new energy sources, particularly for the benefit of rural households which are not fully provided with power.

The Renewable Energy Law of Mongolia came into force on 11 January 2007 and will regulate the generation and supply of energy from renewable energy sources. The Law should be applied to the legal entities that generate and supply electricity and heat by using renewable energy sources within Mongolia.

Under the Law the ERA has the power to:

- review tariff applications by generating licensees that use a renewable energy power source connected to the grid
- approve a sample agreement to be concluded between a transmitter and generator that uses a renewable energy power source
- monitor the contract implementation.

16. Mongolian Tugrik (local currency). Exchange rate of €1 to approximately MNT 1,634 (5th September 2008).

17. Approved by the parliament in November 2004, the plan defines the main objectives of the Cabinet.

18. These goals endorse the Millennium Declaration that was adopted at the Millennium Development Summit organised by the United Nations in 2000.

19. This strategy was approved by the cabinet in July 2002. Its aim is the sustainable development of the energy sector, reduced poverty and increased involvement of the private sector and public interest in the sector through a more secure energy supply.

Box 2 - How the EBRD is supporting Mongolian energy reform

The EBRD is providing technical assistance to the Energy Regulatory Authority (ERA) of Mongolia for the implementation of energy sector reforms.

The project aims to improve the current feed-in tariff regime for electricity generated from renewable sources, examine least-cost options for developing renewable energy in Mongolia and assess the affordability of renewable energy in the country. The project will also formulate and implement a roadmap for regulatory development until 2020 that will optimise the financial benefits for investors and economic benefits for the country. The project is consistent with the EBRD's Energy Policy, Environment and Social Policy and country strategy for Mongolia.

Responding to the enactment of the Renewable Energy Law in 2007, private sector investors are expected to favour the formation of commercial, large-scale renewable energy operations in Mongolia. However, there is a concern that the cumulative impact of increased uptake of pricy renewable energy may undermine the financial sustainability of the Mongolian power sector and thus the affordability of end-use electricity, if certain adjustment mechanisms or mitigation measures are not put in place.

The EBRD has therefore engaged a consulting team to advise the ERA on:

- reviewing the current renewable energy feed-in tariff
- proposing a plan to balance the effectiveness of the renewable energy regulatory framework to attract investments and the affordability of electricity for end-users
- implementing the plan by improving the ERA's institutional capacity.

The technical cooperation assignment began in June 2008 and is expected to continue until June 2009.

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Reform of the Russian electricity industry

Doran Doeh, Charles Wood, Alexander Popov, Serguei Fominykh and Natalia Mouratova, Denton Wilde Sapte

The Russian electricity industry has undergone major reforms over the past few years targeted at introducing competition, promoting market liberalisation and decreasing state control in the sector's competitive areas. Aware of the need for private investment, the state has abolished any legislative restrictions on the participation of foreign companies in the Russian electricity sector. However, the supply sector is still largely controlled by the state and prices for domestic consumers are not yet fully liberalised. The article further highlights the main aspects of the legal and regulatory framework and outlines state priorities in the sector.



In the past few years the Russian electricity industry has undergone reform on an unprecedented scale.

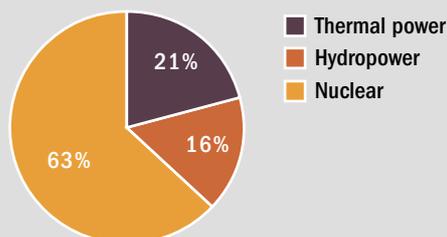
Russia has one of the world's largest electricity markets. It boasts an extensive power industry that was principally developed in the Soviet era. In the 1990s electricity production in Russia declined significantly because of the shut-down of several nuclear reactors, the fall in demand following the 1998 financial crisis and consequent drop in the country's power generating capacity. However, subsequent economic recovery contributed to an increase in total electricity consumption from approximately 809 TeraWatt hours (TWh)¹ in 1998 to approximately 1,001 TWh² in 2007.³ Today, thermal power (oil, natural gas and coal) accounts for roughly 63 per cent of

Russia's electricity generation, followed by hydropower (21 per cent) and nuclear (16 per cent) (see Chart 1).

In the past few years the Russian electricity industry has undergone reform on an unprecedented scale. This consists mainly of the reorganisation of the joint stock company United Energy Systems of Russia (RAO UES). RAO UES was established in 1992. The restructuring of Russia's power sector was completed on 1 July 2008, when RAO UES was dissolved.

The electricity industry consists of four parts: generation, transmission, distribution and supply. The reforms aim to introduce competition into the industry, liberalise electricity markets and move away from state ownership in competitive areas – initially generation and subsequently supply. Such changes are expected to have a positive effect on the sector as a whole and result in improved efficiency. The reforms also address inefficiencies in the current tariff-setting regime and aim to create conditions for attracting foreign strategic investors into the sector.

Chart 1: Electricity generation fuel sources in Russia



Source: Denton Wilde Sapte, 2008

1. Source: <http://tartass.spb.ru/?url=publications>

2. Source: <http://minprom.gov.ru/activity/light/stat/8>

3. By way of comparison, in the United Kingdom approximately 317 TWh were consumed in 1998, which increased to approximately 343 TWh in 2007 (source: http://stats.berr.gov.uk/energystats/dukes5_1_2.xls).

Structure of the industry

Pre-restructuring, privatisation and unbundling⁴

Before the establishment of RAO UES the electricity industry in Russia was state owned and operated by the USSR Ministry of Power and Electrification (Minenergo). The structure of Minenergo comprised wholly state-owned regional energy companies (including electricity and hydropower plants), a central dispatching authority, high-voltage transmission lines and so on.

In 1992 RAO UES was established as a state holding company by the state obtaining controlling stakes in the companies formerly held by Minenergo and basically maintaining the state monopoly over the electricity industry. RAO UES was partially privatised and then unbundled so that, as of 1 July 2008, RAO UES ceased to exist.

The reforms so far have separated the ownership of electricity generation from that of transmission and distribution, with thermal generation plants privatised, nuclear and most hydro plants constituting separate state-owned generation companies, the high voltage grid owned and controlled by a separate, state-owned Federal Grid Company (FSK) and distribution grids controlled by separate Interregional Distribution Grid Companies (IDGCs) owned by FSK.

Supply has also been separated. Some of the supply companies are wholly or partially privatised at present; others remain under state control.

Wholesale power markets

In the wholesale power market electricity is sold by the generators and purchased by suppliers and large-volume consumers. This electricity is then sold on the retail market to consumers.

Before reforms to the electricity industry began, RAO UES was a national monopoly and electricity prices were regulated by the

Russian government. Market restructuring started in 2006. During the reorganisation of RAO UES and market reform, the Federal Law on the Functioning of the Electricity Industry in the Transitional Period, dated 26 March 2003, applied. The first step of the reform process was to establish a two-tier market in which most electricity was bought and sold under regulated bilateral contracts and the remainder was traded in the “free market”, which consists of the Day Ahead market and the Balancing market.⁵

Trading in the wholesale power market is centralised and mandatory for all participants.

In the very initial stage of reform, 95 per cent of the electricity was bought and sold under bilateral contracts and only 5 per cent was traded in the free market. Every six months going forward, the volumes in the Day Ahead and Balancing markets must increase by 5 per cent; and from 1 January 2011 all the volumes will be traded at market prices. These volumes are determined in accordance with the Rules of the Wholesale Electricity (Power) Market in the Transition Period, adopted by the Russian government on 24 October 2003 (as amended).

Regulated bilateral contracts apply the “take-or-pay” principle, which means that the buyer must pay for the volume stipulated in the contract, regardless of actual consumption. The tariffs of the regulated contracts are set by the Federal Tariff Service (FTS). The seller under the contract must supply this volume by producing it or buying it from other suppliers in the Day Ahead market or Balancing market.

In the Day Ahead market, the participants compete to sell or purchase electricity on the basis of bids submitted by them. Every hour the price determined as the result of bidding for electrical energy (the clearing price in the auction) is set by the commercial operator of the wholesale power market (currently open joint stock company Administrator of the Trading System (ATS)).

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From 1 January 2011 all the volumes will be traded at market prices.

4. In the context of electricity reform, unbundling refers to the separation of the natural monopoly into generation, transmission, distribution and/or supply activities, with a view to some, if not all, of these activities being privatised.

5. To see how the wholesale market transitions to the target market model, please see www.rao-ees.ru/en/reforming/market/show.cgi?market.htm.

6. In the context of the electricity industry, capacity usually relates to the capacity to generate electricity output. In a reformed electricity industry, generators may be compensated for making capacity available.



Wholesale generating companies are the biggest players in Russia's generation market.

The Balancing market provides a real-time mechanism:

- to maintain a balanced electricity transmission system so that the physical volumes of electricity generated and consumed are in balance and all electricity put into the system is taken out of it
- to settle deviations from scheduled generation or consumption.

Capacity⁶ trading, as a separate sector of the Russian electricity market, is regulated by the same rules. Before 2008 all capacity was traded based on regulated prices (tariffs). From 2008, the volume of capacity traded based on non-regulated prices will increase by 5 per cent every six months. From 1 January 2011, all capacity will be traded based on non-regulated prices.

Generation

The reforms have created a generating sector divided into multiple wholesale generating companies (OGKs), which participate in the new competitive wholesale market. The OGKs own and operate thermal power plants and HydroOGK (recently renamed RusHydro) owns and operates hydroelectric power plants. The creation of these seven companies was completed in 2006. Fourteen territorial generating companies (TGKs) have also been created. Most of the OGKs and TGKs were wholly or partially privatised before RAO UES was dissolved.

The remaining state holdings in the OGKs and TGKs were transferred to two companies, FSK and RusHydro, which remain state controlled. The goal is for the market to become completely liberalised by transferring the remaining state shares in the generating companies to the private sector and by changing price regulation before 2011.

OGKs are the biggest players in Russia's generation market. They comprise power stations producing electricity for the wholesale market and are made up of generation assets from various regions in Russia. Thermal

OGKs will become the largest wholesale market competitors. Private control of thermal OGKs that have not been wholly privatised will increase and there may be anti-monopoly issues to be dealt with if any particular individual, entity or group should seek to control more than one OGK. Russian legislation provides for state control of RusHydro and 100 per cent federal ownership for all nuclear power plants.

TGKs contain power plants not owned by OGKs and are located in several neighbouring regions. These are predominantly combined heat and power plants, generating both heat and electricity. The TGKs sell electricity in the wholesale power market to retailers as well as supplying regional consumers with heat energy.

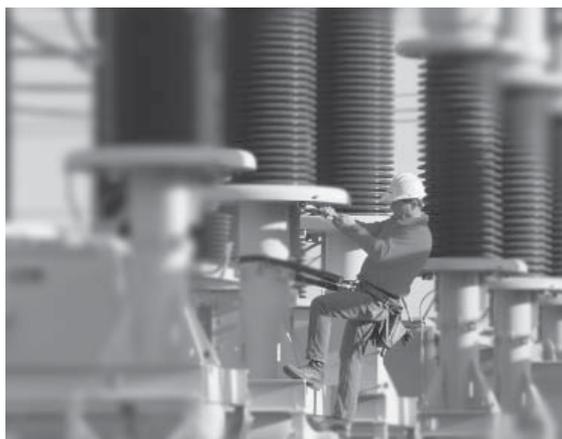
The combination of power plants by territories and reduced state control over generation were basic principles behind the establishment of TGKs.

Transmission and distribution

Since April 2006 it has not been possible for the same entity to transmit electricity as well as purchase or sell it. Purchase of electricity by transmission companies is only permitted if those purchases compensate for transmission losses.

Following the industry reforms, ownership of all high voltage electricity networks belonging to the Unified National (All-Russian) Power Grid – an integrated legal entity of RAO UES that maintained electric grid facilities and provided services of electricity transmission through high voltage grids – was transferred to FSK, which will remain under state control. Interregional distribution grid companies (IDGCs) own and operate high voltage transmission grids. In 2005 RAO UES concluded an agreement with FSK for the transfer of shares of IDGCs to FSK. Having the distribution and transmission systems controlled by the same entity aims to centralise management of the whole grid, leading to reliable and efficient functioning and development.

If a supplier applies for the transmission and distribution of electricity, FSK and IDGCs must enter into a contract with that supplier, as long as the supplier complies with certain rules and criteria. The Rules of Non-discriminatory Access to the Power Transmission Services and Rendering of such Services, dated 27 December 2004, provide that before entering into a contract with a power grid company, customers have to first enter into a contract for the connection of energy consuming or generating equipment to the grid. The connection process is regulated by the Rules of Technical Connection of Energy-consuming Facilities (Power Plants) to Grids, dated 27 December 2004.



Supply

Electricity suppliers are responsible for selling to consumers electricity bought on the wholesale power market.

Following the restructuring of the power industry, supply businesses have been spun off from RAO UES to be established as competitive entities with independent pricing. The new structure consists of “suppliers of the last resort” (also called “guaranteeing suppliers”)⁷ and competitive sales companies.

Electricity may be supplied to consumers either by a supplier of the last resort or by a competitive sales company. The choice of supplier is at the discretion of each consumer. However, unless and until prices for domestic consumers are liberalised, in practice they will

only buy electricity from their regional supplier of the last resort.

Unlike a competitive sales company, a supplier of the last resort is obliged to enter into an electricity supply contract with any potential consumer in the territory of its commercial activity. The territory of commercial activity, that is, the region a supplier covers, is determined by Russian regional regulatory authorities.

The status of supplier of the last resort has already been granted to 69 existing electricity supply companies. This status gives those companies an extended period in which to bring their accounting systems into line with the requirements of the wholesale market trade system, as well as releasing them from any quantitative restrictions. In future the status of a supplier of the last resort will be granted based on the results of an open tender organised by Russian regional authorities. These tenders are expected to be held no less than once every three years.

During the power industry’s restructuring period (and possibly for some time afterwards) the state will have the controlling interest in many supply companies. This is mainly because:

- most of the supply companies spun off during the restructuring process have become suppliers of the last resort (which is a state-controlled business line for the transition period);
- in the near future, the state wishes to retain a considerable level of control over the sales business (specifically through supply companies).

Tariffs

Special rules and regulations of the government and the FTS detail the principles and procedures for setting tariffs, and define the categories of customers and their corresponding tariffs. The FTS establishes tariffs for wholesale market participants and minimum and maximum tariff levels for

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Supply businesses have been spun off from RAO UES to be established as competitive entities with independent pricing.

7. Suppliers of the last resort must enter into a power supply or delivery contract with any consumer who applies to them for power. Such contracts are referred to as “public contracts”. They are regulated by Article 426 of the Civil Code of the Russian Federation and must apply the same terms and conditions equally to all consumers. Suppliers of the last resort are chosen every three years through a competition run by the regional regulatory authority. All other suppliers may enter into energy supply contracts with customers of their choice.

electricity and its transmission for consumers in the retail market for each one-year period. Tariff regulation in the retail power markets is carried out by regional authorities within the limits stated by FTS. Generally, the period of a tariff's validity cannot be less than one year.

The power tariffs in the retail market are calculated separately for each of three groups of consumers: basic consumers, the general population and other electricity consumers. Starting on 1 January 2011 the power tariffs will be applied only to the general population. Tariffs for transmission and distribution services are differentiated for each region of the country and are set by the authorised regional bodies for one year within the limits of maximum and minimum rates fixed by the FTS.

Tariffs for transmission and distribution services are divided into four levels of voltage (groups of consumers): high voltage (110kiloWatts and more), first medium (35kW), second medium (20-1kW) and low voltage (0.4kW and lower).

The regulatory framework

Legislation

The principles and goals of the state's electricity policy and the power sector's institutional structure are contained in the Federal Law on the Electricity Industry (the Electricity Law), dated 26 March 2003.

On 4 November 2007 the Russian president signed the Amendment Law.⁸ Changes to existing legislation were introduced to complete the reforms in the power industry, further develop market relations in the sector and optimise the structure and management functions of the power industry after the reorganisation of RAO UES. The Amendment Law set the date for the completion of the transition period of reforms as 1 July 2008, which corresponds to the end of the restructuring of RAO UES.

Regulatory authorities

The Ministry of Energy⁹ is the governmental authority in charge of the Russian energy sector. Its functions are to:

- develop state energy policy and establish the legal framework of the energy sector
- make proposals for programmes and investment projects to develop the energy sector
- provide energy security
- coordinate the activities of the organisations forecasting the development of electricity and heat
- implement state policy on the development and realisation of agreements regarding production.

At the regional level, several executive bodies have been vested with regulatory functions under Section 4, Article 20 of the Electricity Law. Such functions include the establishment and application of tariffs as outlined above.

Licensing as an instrument of regulation

Licensing in the electricity industry is carried out by the Federal Service on Ecological, Technological and Nuclear Supervision.

Generation

Generation companies are not required to obtain special commercial licences in order to conduct their activities. General construction licences as well as normal permissions for industrial projects and construction are required.

Transmission

No special licence for power transmission or distribution activity is needed.

Supply

The supply of electricity to consumers in the Russian power sector is subject to licensing. However, a special licence is needed only for sale of electricity to individuals (that is, to the general population) under Article 17 of the Federal Law on Licensing Activities. The licence is issued for five years. The term of the licence may be extended on application from the licensee.



8. The Federal Law On the Introduction of Amendments to Certain Legislative Acts of the Russian Federation in connection with the Accomplishment of Measures for the Reforming of the Unified Energy System of Russia.

9. After dissolution of the Soviet Union, the Ministry of Power and Electrification (Minenergo) was replaced in Russia with the Russian Ministry of Industry and Energy (Minpromenergo). The Ministry of Energy was spun off from Minpromenergo in May 2008.



Investment in the nuclear sector is expected to double to US\$ 960 million in 2008.

Investment opportunities

In accordance with Russian government estimates, Russian GDP loses approximately 5 per cent of its potential every year because of insufficient development of energy capacities. The government is trying to attract private investment, since the expected future energy deficit is becoming an obstacle to Russian economic growth. Today, there are no special legislative restrictions on the participation of foreign companies in the Russian electricity sector.

The bulk of financing is intended to come from private investment in generating assets while the government will allocate funds for developing distribution companies. The following mechanisms are expected to be used: share issues (including private placements and IPOs), direct sale of assets at competitive tenders and auctions, bond issues, corporate loans and direct investment into generation development projects.

Nuclear and hydropower

The government intends to expand the role of nuclear and hydropower generation to allow for greater export of fossil fuels. Russia has an installed nuclear capacity of 21.2 million

kW, distributed across 31 operational nuclear reactors at 10 locations. Investment in the nuclear sector is expected to double to US\$ 960 million in 2008. Gazprom has also expressed interest in building nuclear stations to free up natural gas for export. The Russian government has also made hydroelectric generation a priority, particularly in Russia's Far East, where provision and delivery of electricity supply can be problematic.

Renewables

There is a growing trend to develop renewable energy (including hydropower) in Russia. This is supported by long-term governmental policy and reflected in Russia's energy strategy until 2020.

The Amendment Law also encourages the use of power from renewable sources of fuel. It places obligations on grid companies to purchase electricity from such generators to compensate for grid losses, and on wholesale power market participants to purchase a certain volume of power from renewable sources of fuel. It also provides for funding from the federal budget to compensate generators with a generating capacity of less than 25 megawatts.

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The reform of Ukraine's wholesale electricity market

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This article explains the reform of the Ukrainian electricity market that has been implemented over the last decade. While the early part of the period was characterised by an ineffective legislative framework for the energy sector and lack of strong political will to stimulate a competitive wholesale electricity market in the country, recent years show positive changes in government policies. At present, a working group consisting of stakeholders' representatives is deliberating a draft Electricity Market Act aimed at introducing a new balanced wholesale electricity market model allowing participants to negotiate and agree the terms of the contracts among themselves. The new set of reforms envisages shifting more powers into the hands of the regulator and improving electricity market's overall efficiency, competitiveness and reliability.



Ukraine's current wholesale electricity market is ... an integrated system of relationships between economic agents involved in buying and selling electricity.

Ukraine's electricity industry developed as part of the USSR's unified energy system. It had a vertically integrated structure and a centralised dispatch management system. As a state organisation, it reported to the USSR Ministry of Power Engineering. Following Ukraine's independence in 1991, the electricity sector continued to function according to the old organisational system for several years, there being no electricity industry act in place.

When the reform of Ukraine's energy sector began more than 10 years ago it was a root and branch approach that led to the reorganisation of the vertically integrated companies – power generation associations made up of generating, transmission and supply companies – that had existed since Soviet times. Under the reform, they were separated out into their different specialities:

- electricity generation
- transmission
- supply.

In 1997 Ukraine passed the Act that provided the legislative and legal framework for the reforms and established the legal context for the further development of regulatory mechanisms. The Electricity Industry Act, which the Supreme Council of Ukraine adopted on 16 October 1997, defined electricity as a product, rather than a service, as had been the case previously.

The model chosen for the wholesale electricity market was based on the Electricity Pool of England and Wales, in other words it was a market with a single wholesale electricity buyer and seller. The Ukrainian market differed in that contractual relationships between the generation and supply of electricity were based on the principle not only of a single wholesale electricity buyer and seller but also of a centralised settlement system using special accounts. In contrast to the England and Wales model, generators and suppliers of electricity were not permitted to enter into direct long-term contracts.

Ukraine's current wholesale electricity market is first and foremost an integrated system of relationships between economic agents involved in buying and selling electricity. The legal and organisational framework that determines the conditions of this market model is defined by:

- the Constitution of Ukraine
- the Electricity Industry Act (as amended)
- Constitutional Court Ruling No. 3-pr/2002 of 12 February 2002 (a case involving electric power)
- decrees and regulations issued by the President of Ukraine, the Cabinet of Ministers and the National Energy Industry Regulating Committee (the Regulator).

Under Article 92.5 of the Constitution the principles governing the organisation and operation of energy systems may only be determined by Ukrainian laws. The legal basis of the operation of the wholesale electricity market is the Electricity Industry Act (the Act), which has played a key role in the regulation of wholesale electricity market relationships. It established the general provisions for its operation and formalised the status of its participants. It also defined the powers of government authorities with respect to relations between wholesale electricity market participants.

In particular, the Act states that the buying and selling of all electric power that is generated by power plants whose capacity or output is greater than the maximum values set by the Regulator must take place through Ukraine's wholesale electricity market. At present these values are up to 20 Megawatt and a total output to Ukraine's energy system in the previous year of less than 100 million kilowatt hours. In addition, electricity may be sold directly to consumers by wind power plants irrespective of their installed capacity or electricity output, and by heat and power stations operating as part of energy suppliers for use on a licensed site. No other wholesale electricity markets may operate in Ukraine.

Since the purchase and sale of electricity in the wholesale electricity market takes place within the framework of Ukraine's unified energy (that is, centralised dispatch) system and in conditions of continuous and uninterrupted balancing of electricity generation and consumption, the wholesale electricity market uses a special method for calculating the wholesale market price of electricity and a special settlement procedure for the electricity bought and sold. In practice, this means that all payments by electricity users are made into a single account held at an authorised bank. These funds are then distributed according to a scheme established by the regulator and based on the principle that each generator is paid an equal percentage of the total funds received for the electricity sold.

The Act Amending the Electricity Industry Act (the Amending Act) was adopted on 22 June 2001 and had a significant impact on relations in the wholesale electricity market. The Amending Act formalised the wholesale electricity market settlement procedure, introducing a clearing account (special account) mechanism and reintroducing a solely monetary form of settlement. This was done because of the low level of collection of electricity payments and the practice of barter between, for example, coal mines, electricity suppliers and generators. The new procedure required users to pay exclusively into these special accounts, which were consolidated into a single account that was, and is, in effect administered by the Regulator. Using the approved allocation scheme, the Regulator determines the percentage due to each market participant on the basis of both the amount of funds collected and the amount of electricity sold on the wholesale electricity market (WEM). For example, under this allocation scheme a supplier that obtained 100 per cent of its electricity from the WEM but collected only 50 per cent from consumers would receive only 50 per cent of the amount collected.

The Electricity Industry Act provides the statutory framework for Ukraine's WEM, basing it on a contract specifying:



The Act Amending the Electricity Industry Act was adopted on 22 June 2001 and had a significant impact on relations in the wholesale electricity market.



The 2002 concept ... envisaged a reform of the electricity market model itself, with a step-by-step introduction of that reform.

- its purpose and the conditions of its operation
- the rights, duties and liabilities of participants.

In November 1996, WEM participants had signed a contract (the WEMP Contract) defining:

- terminology
- the general rights and duties of WEM participants
- WEM bodies and their establishment and operating procedures
- the market infrastructure
- the WEMP Contract amendment procedure.

However, the Electricity Industry Act did not define the legal status of the WEMP Contract, which led to conflicts between market participants and differences in case law. In addition, there were major obstacles impeding the development of the market.

- The market had incomplete rules and regulations (for example those relating to credit cover).
- The new market envisaged the introduction of many technical and economic measures, some of which were in fact not introduced, such as:
 - metering
 - market operator and system operator software
 - an increase in the operating flexibility of heat and power plants.
- The political and economic situation in the country and energy sector made it impossible to move on to more competitive wholesale market pricing, which would have provided a basis for its proper operation.

- The wholesale market payments crisis caused by the barter system that prevailed up to 2001 produced a major shortfall in the financing of generation and compromised the sector's competitiveness.

From 2000 the situation gradually stabilised and debt was reduced, but there was still no dynamic growth in the power industry, particularly in heat generation, with its obsolete facilities and lack of new investment. The aims of electricity market liberalisation were simply not being achieved.

In response to this, on 16 November 2002 the Ukrainian government adopted Resolution No.1789 approving the Concept of Wholesale Electricity Market Reform (the Concept). The Concept not only recognised the need to address existing problems, it also envisaged a reform of the electricity market model itself, with a step-by-step introduction of that reform.

The option that is currently under consideration is a four-stage transition. This involves:

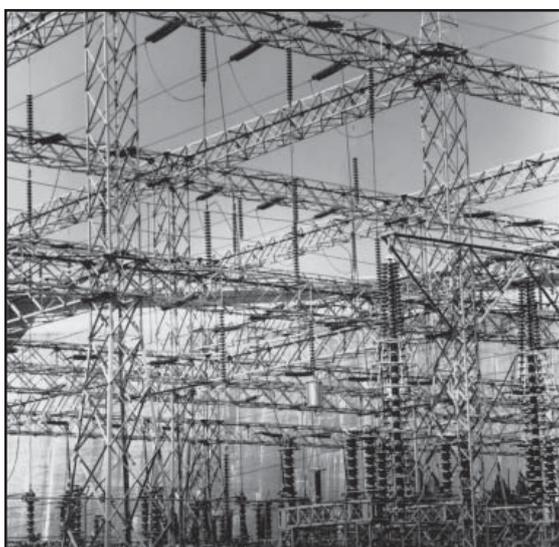
- the introduction of bilateral contracts between some generators (heat and power plants and nuclear power plants; hydro plants will participate in balancing supply and demand because of their high operating flexibility) and suppliers (and/or eligible consumers)
- the partial opening up of a balancing market
- the introduction of an exchange trading mechanism as a component of an organised electricity trading market operating in real time (day-ahead)
- full introduction of balancing, day-ahead exchange trading and bilateral contract mechanisms, as well as export-import opportunities through competitive access to a section of long-distance and international grids.

This new electricity market model, consisting of a bilateral contracts market and a balancing market (BCBM), is intended to:

- resolve the principal difficulties experienced by the existing market
- enable it to pass through stages of gradual reform so that it is regulated in such a way as to avoid the repetition of past errors.

The Concept states that the purpose of developing a wholesale electricity market is to improve its organisational and legal framework, with a view to making the generators, transmitters, distributors and suppliers more efficient and more reliable. It also aims to guarantee the quality of supply and the continuing development of a competitive environment.

However, transition to the new BCBM market model is not possible without changes in Ukrainian law. As we have seen, the Electricity Industry Act established a single wholesale electricity market (the Pool), and banned the operation of all other markets. The lawmakers also included a provision in the Act requiring a separate wholesale electricity market act to be passed. In 1998-2000 there were attempts to do so, but this was never implemented.



The executive and regulatory authorities have discussed at length how to adopt this new model. Two options were proposed: amending the existing Electricity Industry Act or adopting a new Act. Option one was rejected since it was decided that the issue demanded a complex legislative solution. This would consist of the adoption of three laws:

- the framework law (the Electricity Industry Act)
- an Act to consolidate the legal status of the National Energy Industry Regulating Committee as the independent energy regulator (a special-status government authority)
- a third to regulate the electricity market – this would be a special-purpose Act within the scope of the framework Act.

This approach was endorsed by Council of Ministers Resolution No. 1056-r of 28 November 2007 on the Approval of the Wholesale Electricity Market Concept Implementation Plan (the Resolution), which included a section on the preparation of draft legislation. The Resolution provided for the preparation of the three draft Acts and their submission to Ukraine's Supreme Council in 2008-09. These draft Acts cover:

- Government Regulation of Natural Monopolies in the Energy Sector
- Ukraine's Electricity Market (with transitional provisions)
- Amending the Electricity Industry Act, the Natural Monopolies Act and other energy industry legislation.

Since the preparation of these draft laws and the drafts of other regulatory instruments will govern the operation of the BCBM market, it is essential that the lawmakers take into consideration the approach already used in the introduction of the existing wholesale electricity market, what is current in European practice, and the approach envisaged in the conceptual document.

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Transition to the new BCBM market model is not possible without changes in Ukrainian law.

The proposed new Electricity Market Act (the New Act) would lead to the need to restrict the scope of the Electricity Industry Act, by excluding regulation of the operation of the existing wholesale energy market from its jurisdiction. At the same time, the New Act would need to define the stages of transition to the new market, the extent to which it would be open, and the point at which it would become a fully open market.

The existing WEM legislative and regulatory framework consists of the following:

- the Electricity Industry Act and the Natural Monopolies Act
- Presidential Decrees on the Energy Industry Regulating Committee
- the Regulator's Resolutions approving the terms and conditions of operating in the market for business entities engaged in electricity generation, transmission and supply (licence conditions), as well as model electricity sale and purchase contracts, and network access contracts.

There is also the so-called internal contract framework envisaged by the Electricity Industry Act and by the Regulator's Resolutions. It includes the WEMP Contract and its annexes, the sale and purchase contracts between WEM participants and a series of other contracts.

As noted above, this electricity market reform is not intended to result in a root and branch change of the form of laws and regulations but to amend and amplify, creating a consistent and interrelated legal framework that promotes the efficient operation of the new BCBM market. The legal framework of the BCBM market will evolve in two ways, through:

- amendments to existing legislation, and
- adoption of new laws and the signing of new agreements.

It will also be regulated by the following legal instruments.

- Legislative instruments issued by the Supreme Council:

- the Electricity Industry Act
- the Electricity Market Act
- the Government Regulation of the Electricity Industry Act.

- Presidential Decrees:

on Measures to Support the Operation of the National Energy Industry Regulating Committee

on Matters Relating to the National Energy Industry Regulating Committee.

These Decrees will remain in effect until the Government Regulation of the Electricity Industry Act is passed and comes into effect.

The main focus of the new BCBM legal framework will shift towards the Regulator. The Regulator will be granted the power to adopt regulatory instruments, including:

- The Long-Distance (International) Transmission Network Code
- The Local Transmission Network Code
- Rules on Commercial Electricity Metering.

The Long-Distance (International) Transmission Network Code will define:

- the requirements and procedures for obtaining market participant status and the registration procedure
- the rights, duties and liabilities of market participants and the nature of their relationships



The Market Code ... will be a compilation of rules covering both technical and economic interactions between participants in the balancing market.

- the rules governing:
 - the exchange of information on the volumes of electricity bought or sold in the market and electricity imbalance volumes
 - the operation of the bilateral contract market
 - compilation of the day-by-day hourly generation and consumption schedules and the procedure for their approval by the system operator
 - operation of the balancing market
 - the determination of electricity imbalance volumes and the calculation of the internal price of the imbalance and its payment
 - the operation of the ancillary services market
 - access to international transmission networks for the purpose of electricity export and import
- the performance guarantee system backing up the market contracts
- the fines for violations of market regulations and the fine imposition procedure
- electricity market monitoring principles
- dispute resolution procedure and other provisions.

The Local Transmission Network Code will share some of these provisions but will also regulate the rights, duties and liabilities of network users and transmission companies, as well as rules on:

- network access, including the connection of facilities
- network planning, functioning and operation
- equipment testing and monitoring

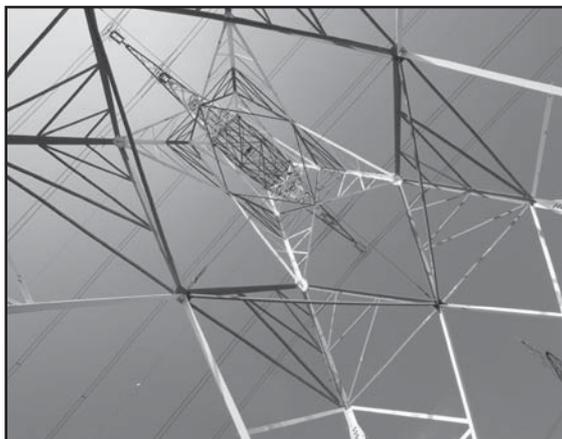
- day-to-day dispatch (technological) management of the system
- breakdown prevention and management and other issues.

The Rules on Commercial Electricity Metering will cover:

- electricity metering system requirements
- electricity volume measurement and meter reading procedures
- commercial metering system equipment operating procedures
- procedures for the transmission of commercial metering data from each supply point and other issues.

The Regulator's Resolutions approving the requirements and rules for electricity generation; wholesale supply; transmission via long-distance and local networks; and supply at regulated and unregulated tariffs will remain in force until the end of the transition period. Thereafter, the Regulation on the Wholesale Supply of Electricity will be repealed, and the remaining requirements will be amended. It is proposed that new rules (licences) are introduced for "eligible consumers" and "guaranteed suppliers" of electricity. "Eligible consumers" are end users who have the technical ability and expertise to choose their generator independently. "Guaranteed suppliers" are suppliers who, under Ukrainian conditions, will supply electricity primarily to the general public and to the public sector, subject to government regulation of tariffs.

The Regulator will also adopt a framework document regulating relations between all participants in the new BCBM market. This document – the Market Code – is currently being drafted and will be a compilation of rules covering both technical and economic interactions between participants in the balancing market.



In addition to the Market Code, the Regulator will be responsible for approving the formats of:

- bilateral (long-term) contracts between electricity generators and suppliers (including eligible consumers)
- a regulated contract between electricity suppliers (baseline or guaranteed) and the so-called ineligible consumers, including the general public
- network connection and access contracts
- ancillary (system) service provision contracts
- contracts between market participants and the system operator
- contracts relating to payment for electricity transit through distribution company networks.

There will also be separate documents, including the Statutes of the Electricity Exchange and Exchange Trading Rules. To date, no decision has been taken on who the founders of the Electricity Exchange will be, but most experts lean towards the view that it should be based on the existing state company, GP Energorynok, which currently acts as the wholesale electricity buyer and seller. However, the participation of other

WEM participants such as generators or suppliers has not been ruled out.

A working group has already started work on the draft of the Electricity Market Act (the Draft Act), which will define the legal, organisational and economic principles governing the operation of Ukraine's electricity market. The working group consists of representatives from the Regulator, the Ministry of Fuel and Energy of Ukraine, the Supreme Council Secretariat, GP Energorynok, NEK Ukrenergo, power industry companies, suppliers and generators, and the consultants KEMA, ECA and TransEnergyConsulting.

An early version of the Draft Act is scheduled to be discussed at a workshop in Kiev on 29 September 2008. It opens with a glossary, together with the main operating principles of Ukraine's electricity market. The opening articles also provide a definition of the energy market and its components. The working group has encountered some difficulties in preparing the Draft Act, since – in addition to defining the new market – it must also specify the limits of the existing wholesale market, and the timetable and procedure for the transition from the existing to the new market.

According to the authors of the Draft Act, Ukraine's electricity market will consist of the following components.

- A wholesale electricity market that will operate in accordance with the current Electricity Industry Act.
- A bilateral electricity sale and purchase contracts market whose participants will agree the prices and terms of their contracts among themselves. It is anticipated that quarterly, six-monthly or annual auctions will be held during the transition period in the event that no contracts have been signed.
- An organised electricity market, with sale and purchase taking place on the Electricity Exchange.

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The Electricity Market Act will define the legal, organisational and economic principles governing the operation of Ukraine's electricity market.

- A balancing market operating in real time to balance the system and to ensure physical and financial settlement of hourly electricity imbalances.
- An ancillary services market to ensure steady and reliable operation of Ukraine's unified energy system and the transmission and supply of electric power of the required quality.
- An export-import market based on the principle of electricity buyers' competitive (auction-based) access to a section of international networks and of direct long-term export-import contracts between generators and consumers (suppliers).
- A retail electricity market whose operation will be regulated both by the existing Electricity Industry Act and by the New Act.

The Draft Act will define the organisational and legal framework of the new market, the pricing system, the powers of the regulatory authorities and the rights, duties and liabilities of market participants. In a separate section there are transitional provisions reflecting the gradual switch from the existing wholesale electricity market to the BCBM system.

If the Supreme Council passes the New Act in the first half of 2009, the transition period should be completed within 5 years. This means that, by 2015, Ukraine will have an electricity market similar to those operating in most European countries, one that will contribute both to the system's technical upgrading and to further integration into the European Community.

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