TURKISH ENERGY SECTOR OUTLOOK & SECTORAL REFORMS

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## Global Outlook - From Past to Present

<table>
<thead>
<tr>
<th>Indicators and Developments</th>
<th>1800</th>
<th>2000</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Populations (Billion)</td>
<td>1</td>
<td>6</td>
<td>X6</td>
</tr>
<tr>
<td>Gross GDP (Trillion $)</td>
<td>0.5</td>
<td>36</td>
<td>X72</td>
</tr>
<tr>
<td>Primary Energy Consumption (Hexajules)</td>
<td>13</td>
<td>440</td>
<td>X34</td>
</tr>
<tr>
<td>CO2 Emission (gigaton)</td>
<td>0.3</td>
<td>6.4</td>
<td>X21</td>
</tr>
<tr>
<td>Mobility (km/person/day)</td>
<td>0.04</td>
<td>40</td>
<td>X1000</td>
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</tbody>
</table>
Economy / Energy Demand Relation

Electricity Demand Growth  GDP Growth

-10.0% -5.0% 0.0% 5.0% 10.0% 15.0%

Global Outlook- Future Expectations

55% of increase in total primary energy demand until 2030.
Turkey has one of the lowest energy consumption per capita in Europe.

Source: Eurostat Energy Transport and Environment Indicators, 2010
Turkey meets increasing energy demand by imported energy.

Utilizing indigenous resources is essential for the Energy Independence.

Source: Eurostat
Turkey - Installed Capacity & Generation

Source: TEIAS
Turkey- Future Projections (High Demand)

**Peak Capacity Projections:**

To meet peak capacity demand after 2016, public sources alone will not be sufficient.

“Private Sector contribution is inevitable.”

Starting from 2016, despite peak demand is met by Public and Private investments, total reliable generation will not fullfil total electricity demand.

Source: TEIAS 2010-2019 Demand Projections
Turkey - Future Projections (Low Demand)

Even Low Demand scenario case, deficit in supply demand balance by 2017.

Decreasing Reserve Margin

Source: TEIAS 2010-2019 Demand Projections
Turkey-Distribution of Installed Capacity

Installed Capacity (48,591 MW Current)

Private 32%
Public 50%
EÜAS 50%

Autoproducers 7%
IPPs 24%
Mobile 1%
BOO 13%
BOT 5%
TOR 1%
Contracted to Public 19%

Source: TEIAŞ
Targets of Sectoral Reforms & Privatization:

- Reducing electricity price by more effective and efficient operation of existing power plants
- Securing electricity energy supply and increasing supply quality.
- Reducing technical losses and thefts in distribution to OECD average level
- Pave the way for private sector to complete necessary investments without any further obligation to public entities
- Reflecting additional earnings obtained through increased market competitiveness and regulated service quality in electricity generation and trading operations to end consumers.

The establishment of "Energy Market Regulatory Authority" (EMRA)

"The Electricity Law" enacted which is a major step to privatization

"The Balancing & Settlement Code" issued by the EMRA

Strategy paper on Electricity Market Reform & Privatisation

Renewable Energy Act enacted in May 2005

Privatization of "Distribution Assets" resumed


Privatisation of "Generation Assets" bundled into several portfolios (thermal and hydro mix) (Approx. 16,000MW Capacity)

Introduction of "Automatic Pricing Mechanism" for Electricity & Natural Gas

Introduction of new regulations on Balancing and Settlement (DUY) Mechanism as of Dec. 2009

Introduction of Day-Ahead Market as of Jan. 2011

Market Opening
Eligibility threshold for consumers to freely choose their suppliers
Initial limit set at:
>9GW/year 30%
>7.8GW/year 62%
>6.0GW/year
>1.2GW/year
>0.48GW/year
>0.1GW/year
All consumers except residences

FULLY OPEN
In January 2011, total electricity generation increased by 12% compared to same month of previous year.

Increased demand is met by private generation companies.
Equity vs Long Term Financing  2010 – 2020

- New Investment: 60 billion USD
- Privatization: 25 billion USD
- Total 85 Billion USD
- Debt to Equity Ratio: 60%
- Equity: 34 Billion USD
- Debt: 51 Billion USD

EQUITY is LIMITED
COST OF FUNDING is IMPORTANT
Indegenous Resources- Wind

Source: General Directorate of Electrical Power Resources Survey and Development Administration
Turkey has a 600 MW Geothermal Power Capacity
Indegenous Resources- Solar
Epilogue

- The cheapest energy is the energy you can **SAVE**, 
- The most expensive energy is the energy needed, but **NOT SUPPLIED**.
Thank you