



ENERGY MARKET
REGULATORY AUTHORITY

10th Anniversary

Overview of Turkey's Energy Market

Policies – Projections - Targets

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Turkish Economy- A Snapshot

Policy Aspects & Prospects

Main Features of Electricity Market

The Regulator – EPDK / EMRA

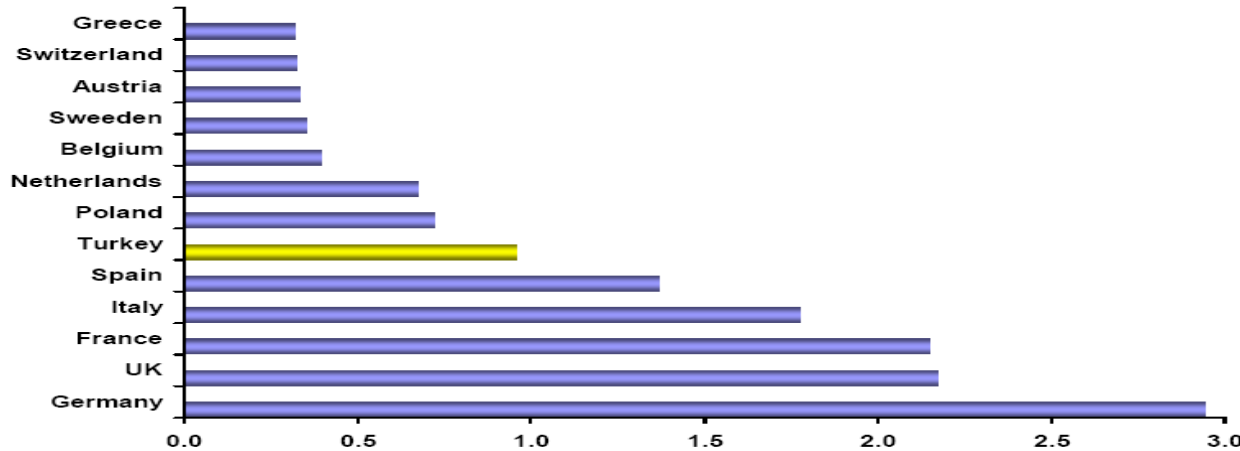
Market Model

Market Indicators

Investment Opportunities

Conclusion

Europe's Biggest Economies
(GDP based on Purchasing Power Parity, Trillion Dolar, 2010)



➤ **Sixth largest economy in Europe,**

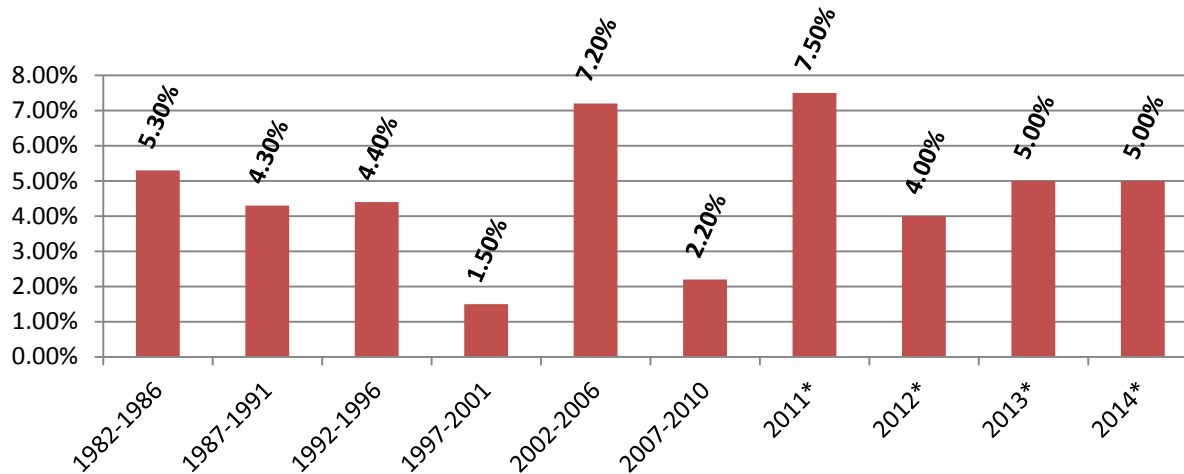
➤ **Steadily growing economy,**

➤ **Faster recovery from the global crisis,**

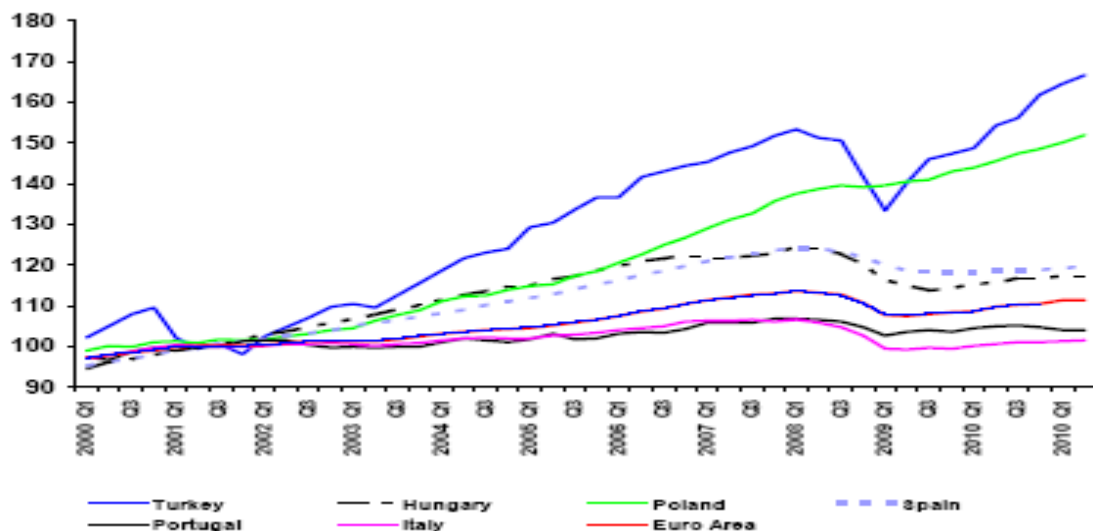
➤ **Continuing future prospects for growth,**

➤ **Goal of being tenth largest economy worldwide in 2023.**

Growth Rate (Source: OVP)



**Comparison of Europe and Turkey:
Real GDP Growth (2001=100)**



Source: OECD, 2010

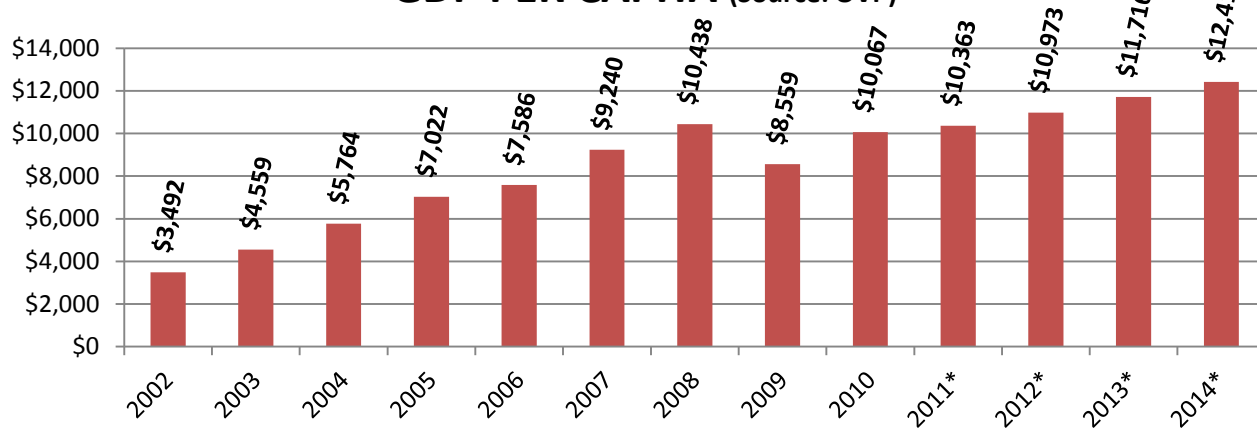
➤ **Faster growth compared to Europe who is the largest trade partner,**

➤ **Steady increase in GDP per capita,**

➤ **\$10.000 target already met by 2008,**

➤ **Continuing future prospects for growth.**

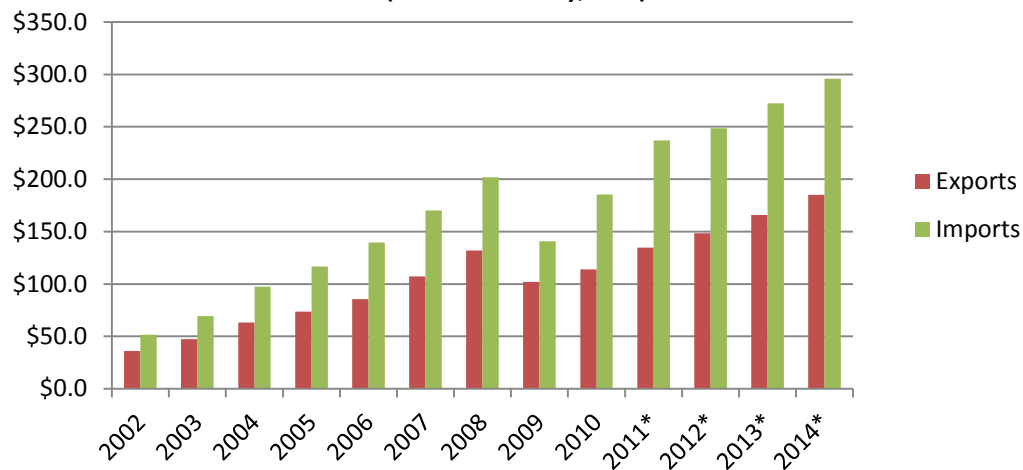
GDP PER CAPITA (Source: OVP)



TURKISH ECONOMY-A SNAPSHOT

EXPORTS-IMPORTS

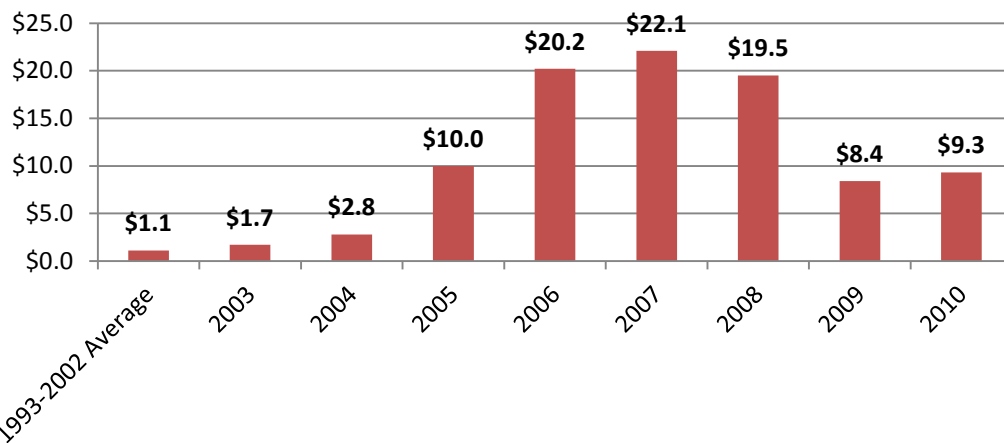
(Source: Treasury; OVP)



- Increasing foreign trade volume,
- Moderate FDI due to global financial crisis after a sustained scale up since 2004,
- Unprecedented pace in privatization during the last decade,
- Role of energy privatizations including electricity distribution companies, TUPRAS etc.
- More on the way: Remaining Distco's and the production facilities.

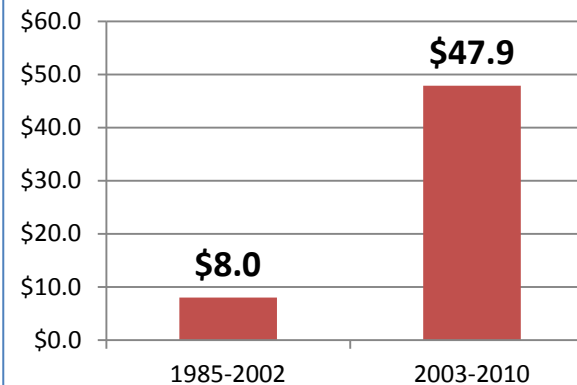
FOREIGN DIRECT INVESTMENT INFLOWS (Billion USD)

(Source: Treasury)



PRIVATIZATION IMPLEMENTATIONS

(Billion USD) (Source: Treasury)



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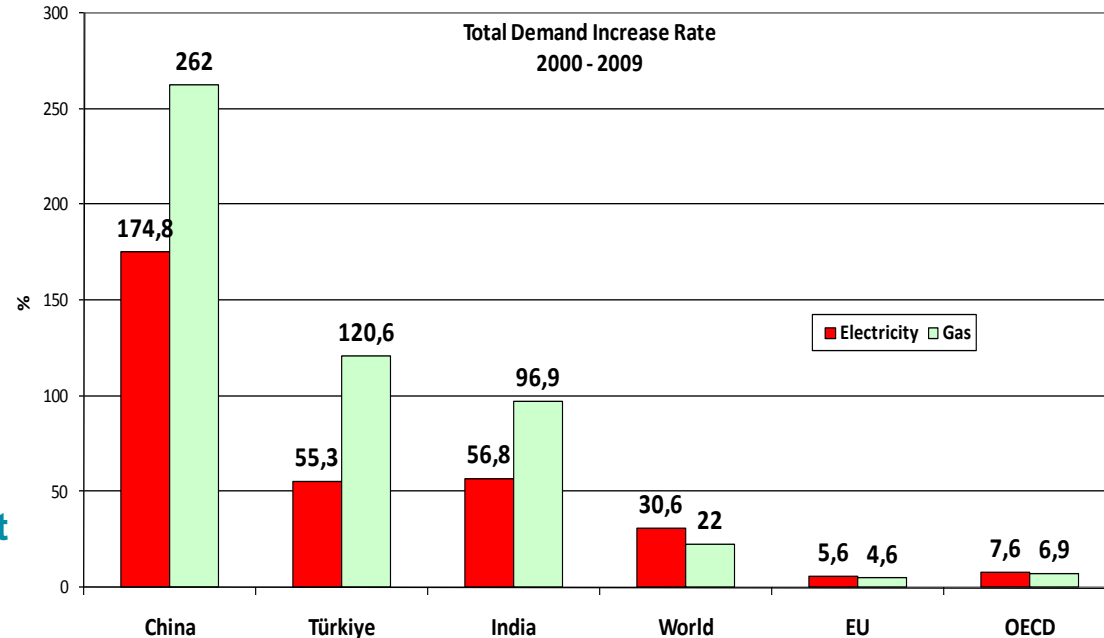
Mission

- **To ensure efficient, effective, safe and environmentally-friendly use of energy and natural resources in a way that reduces import dependency of our country and makes the greatest contribution to our country's welfare.**

Vision

- **To make our country the leader of its region in energy and natural resources.**

- **Rapid growth in demand:**
 - investment challenges and opportunities
 - Per capita consumption is **2 890 kWh/year** which is well behind the EU average.
 - Despite the economic crises in 1994, 1998, 2001 and 2008, the installed electricity generation capacity has **quadrupled** in the last 25 years.

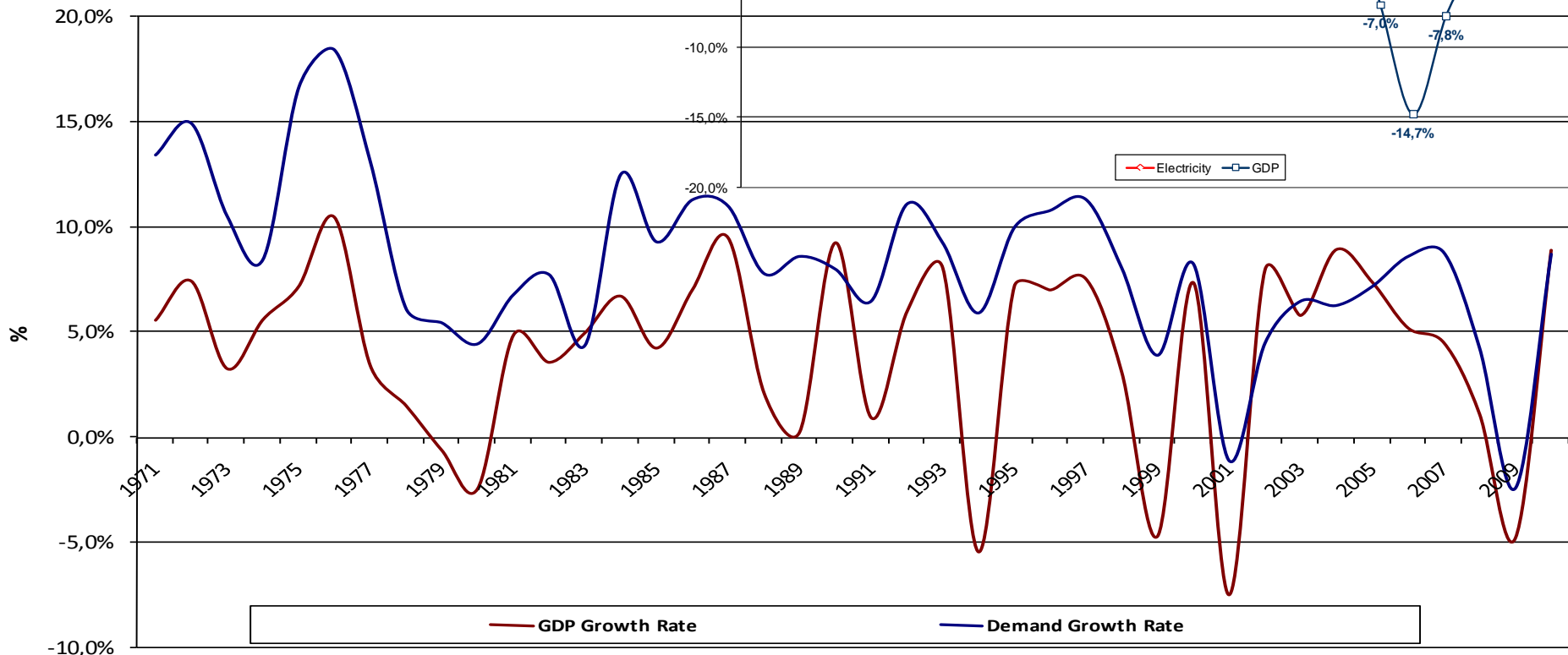
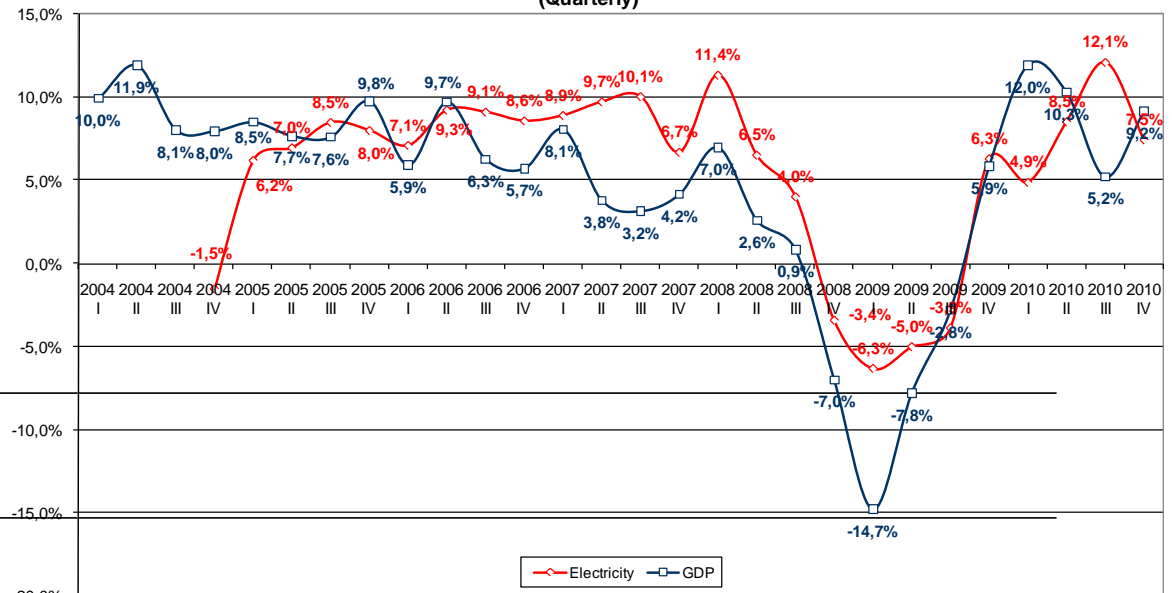


- **High level of import dependency:**
 - Need for more domestic resources, in particular the renewables
 - Need for diversification of resources
- **Relatively high figures for energy intensity:**
 - Potential for improvement of energy efficiency (but also linked to the structural issues related to economy)

Economic Growth vs. Electricity Demand

•GDP growth rate was 4.2% and electricity demand growth rate was 8.4% on average between 1970 and 2010

GDP Growth Rate vs. Demand Growth Rate (Quarterly)



- **All non-residential consumers will be eligible by the end of 2011.**
- **Full market opening until 2015: All consumers will be eligible to choose their suppliers.**
- **Legal unbundling of distribution companies will be completed by the end of 2012.**
- **Completion of distribution privatization in 2012.**
- **Commencement of generation privatization in 2012.**
- **Source diversification.**

2023 Targets in Electricity Market

- **Ensure security of supply**
- **Keep the costs & prices at a level suitable to support economical growth**
- **Decrease the environmental effects to the lowest possible level**
- **Exploitation of known lignite and charcoal reserves**
- **Decreasing share of gas in generation mix**
- **Introduction of nuclear energy**
- **Achieving 30% share for renewables in generation mix**
 - **Full utilization of economically and technically feasible hydroelectric potential**
 - **Reaching 20.000 MW wind capacity**
 - **Commissioning all of geothermal potential**
 - **Introduction of solar power plants**

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Goals in Electricity Market

- More private sector presence,
- Increase in foreign capital investments,
- Decrease in public sector investment,
- Increasing responsibility in the protection of environment,
- Formation of the energy prices in a competitive environment (Competition in the Market),
- Increase in efficiency,
- Increase in service quality,
- Improvement in availability,
- Decrease in technical & non-technical loss levels.

Fundamentals of Electricity Market

- **Electricity Market Law:** From a vertically integrated state monopoly to a liberal market environment
- **EPDK:** An autonomous regulator in charge of issuing secondary legislation, granting licensing, approving tariffs, monitoring, auditing, etc.
- **Unbundling:** Legal unbundling regime among market activities supplemented by privatization of distribution and generation assets.
- **Third Party Access:** Regulated TPA regime. Transmission and distribution companies should allow open, guaranteed, and non-discriminatory access to their networks, which is backed by Regulator's oversight.
- **Wholesale Market Design:** Bilateral contracts market complemented by a residual balancing mechanism. Introduction of a day-ahead market and an exchange.
- **Mitigating Market Power:** Static precautions in terms of limiting market share. Generation 20 percent, wholesale market 10 percent.

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■ Who is EPDK?

- EMRA is the sole regulator of electricity, gas & petroleum markets

■ What does EPDK do?

- EPDK;
 - Issues secondary legislation
 - Grants licenses to market players
 - Approves tariffs
 - Monitors, supervises and audits markets and market players

■ What are EPDK's objectives?

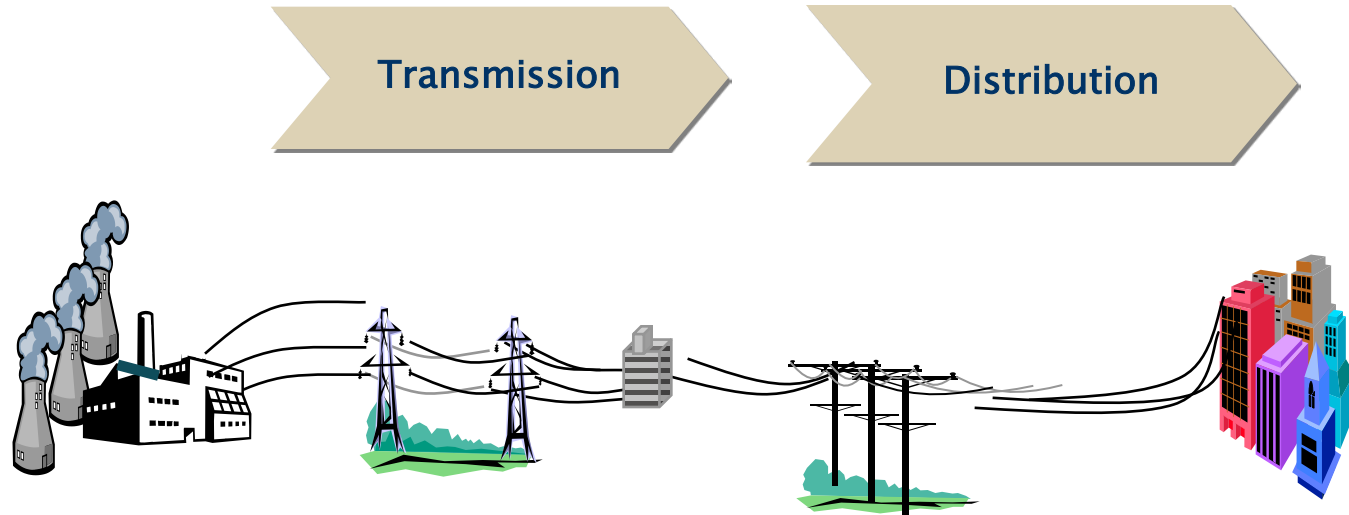
- EPDK's main objective is to provide;
 - Financially viable, stable and competitive energy market
 - Sufficient energy at good quality
 - Low cost
 - Reliable and environmental friendly manner



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Electricity Market Structure

Regulated Activities



Competitive Activities



Old Structure vs. New Market Model

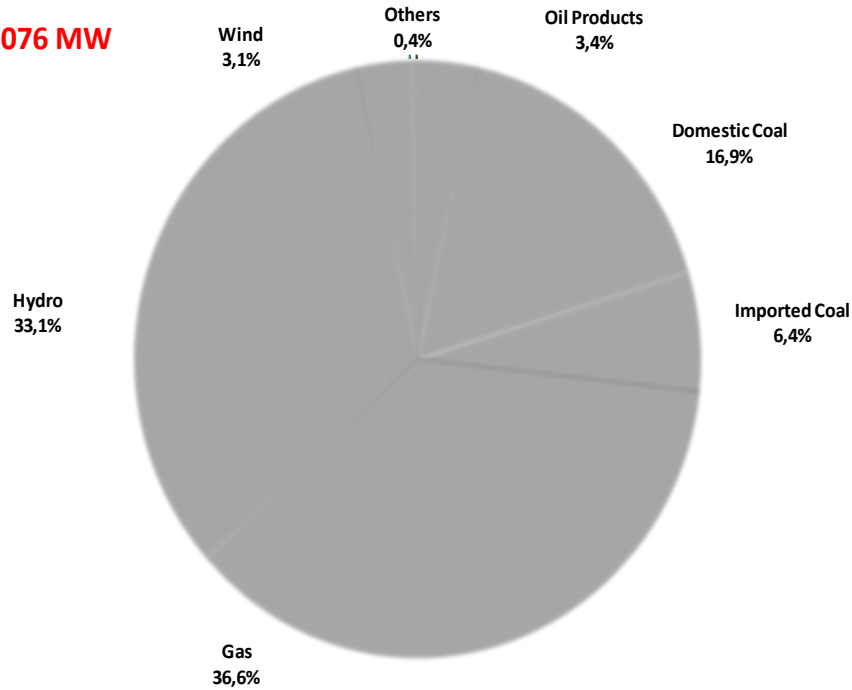
Subject	Old Structure	New Structure
Structure	Monopolistic	Competitive
Tariff structure	Not cost-reflective	Cost-reflective
Market entrance	Bidding / submission of feasibility studies	Licensing
Regulation	By the Ministry and related organizations	By the independent regulator - EPDK
Role of state	Investment & Operation & Auditing	Auditing
Market risks borne by	The State	Market participants
Private participation	BOO, BOT and TOOR with state guarantees	Privatization and new entrants

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Turkish Electricity Market

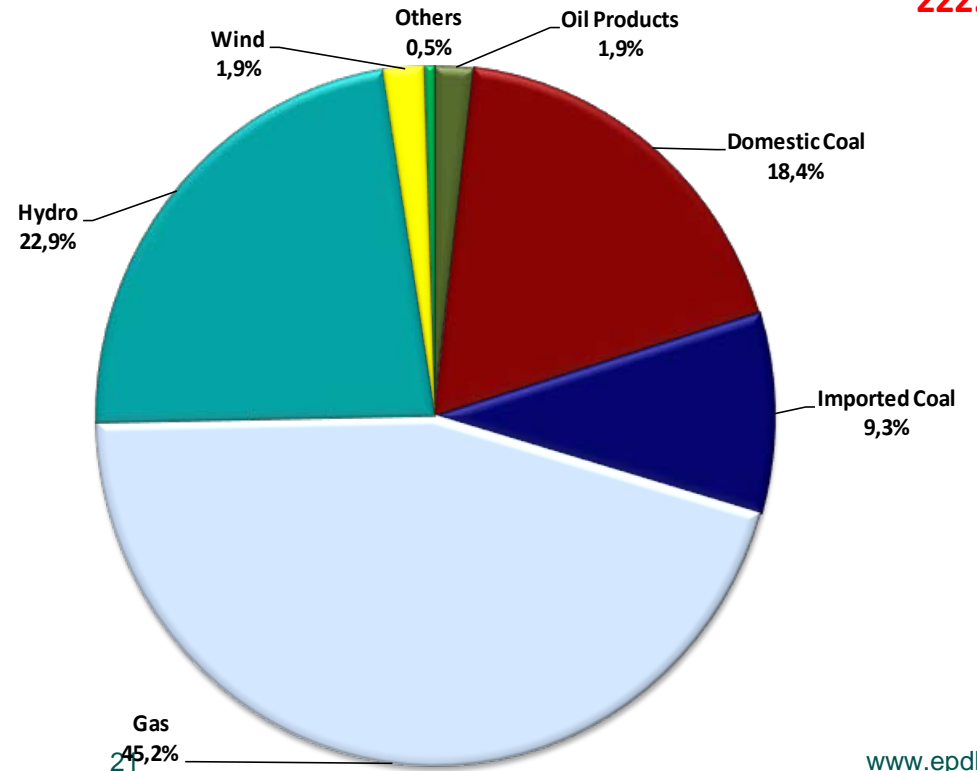
**Breakdown of Installed Capacity
(as of Sept.30)**

51,076 MW

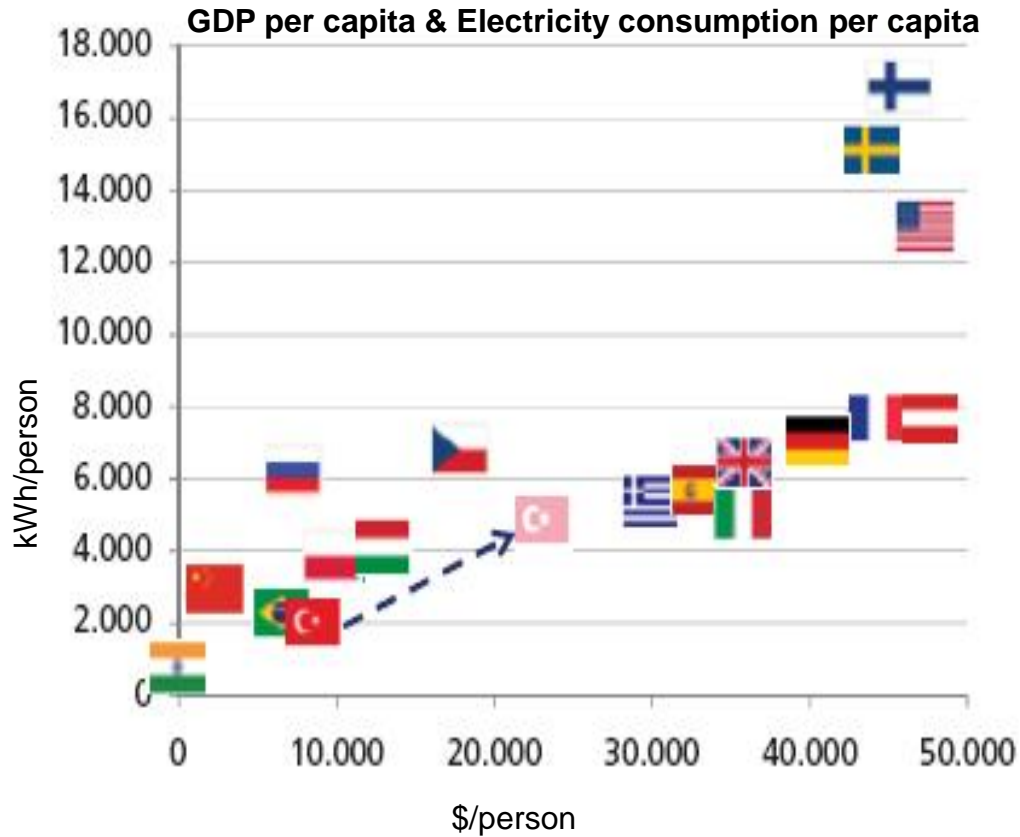


**Breakdown of Electricity Generation
(Last 12 Months - as of Sept.30)**

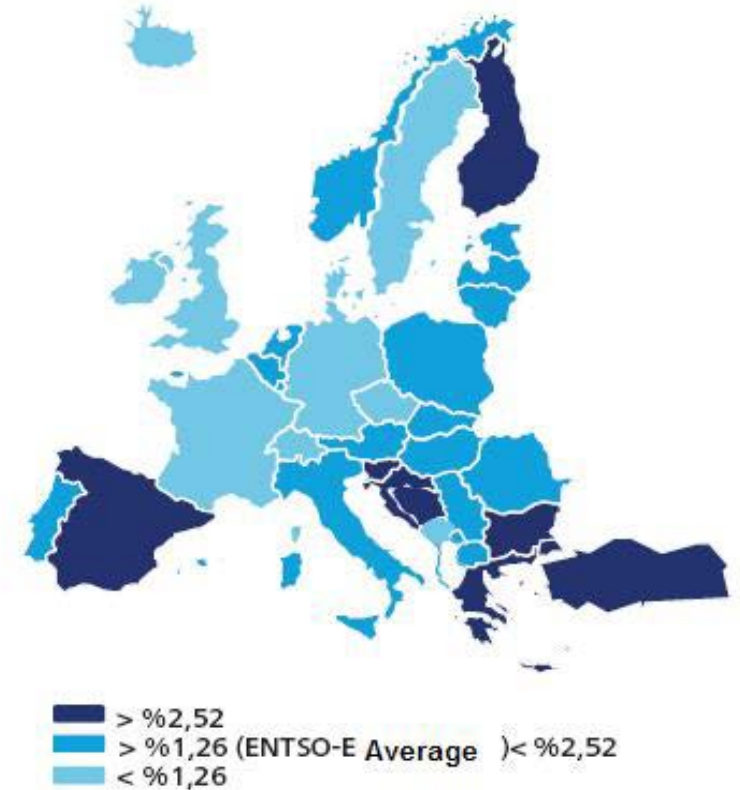
222.1 TWh



Turkish Electricity Market

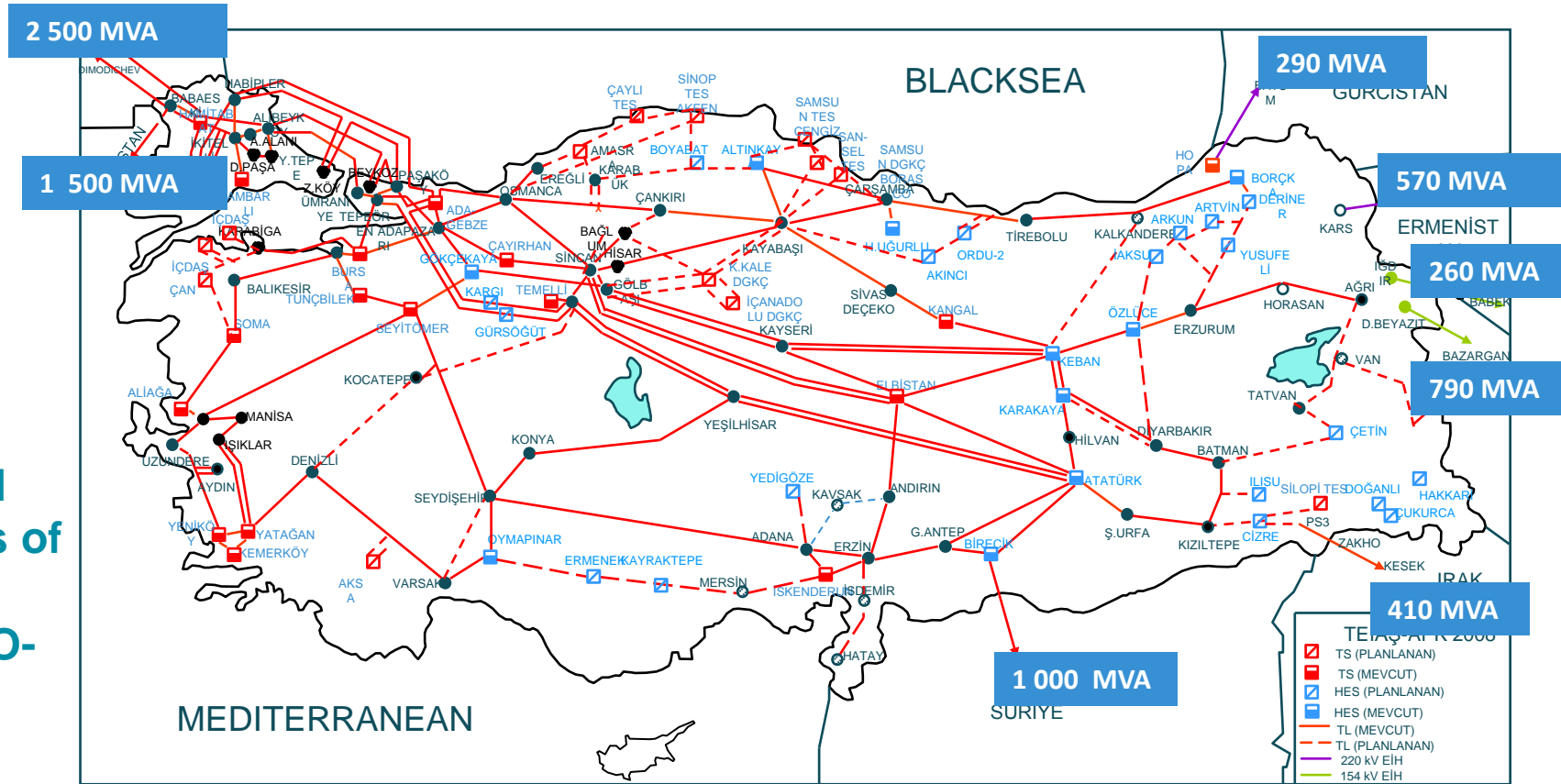


Electricity Consumption Increase Rate 2010-2015



Transmission Network & Interconnections

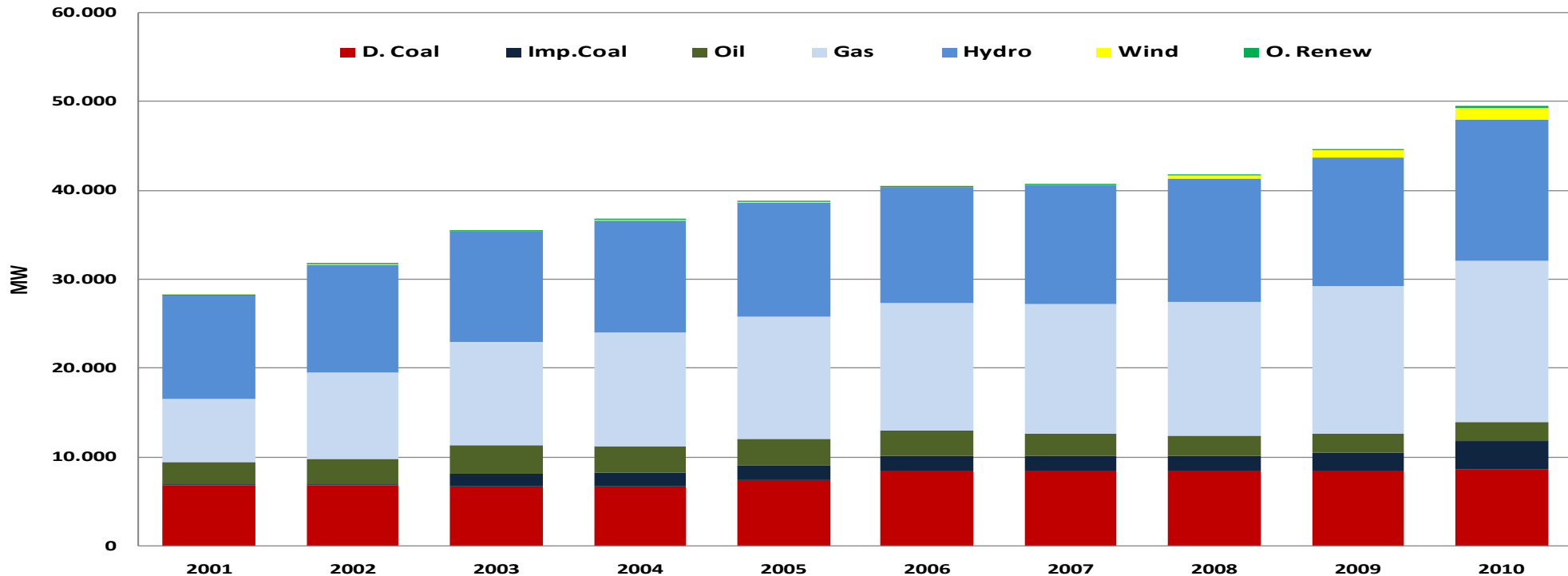
Turkish power system was synchronized with the interconnected power systems of Continental Europe (ENTSO-E)



The parallel operation within the Continental European Synchronous Area will increase the quality and security of the electricity supply in Turkey, and is foreseen to eventually provide access to the European Electricity Market.

Growing Electricity Sector

Capacity Build-up



• Installed Capacity

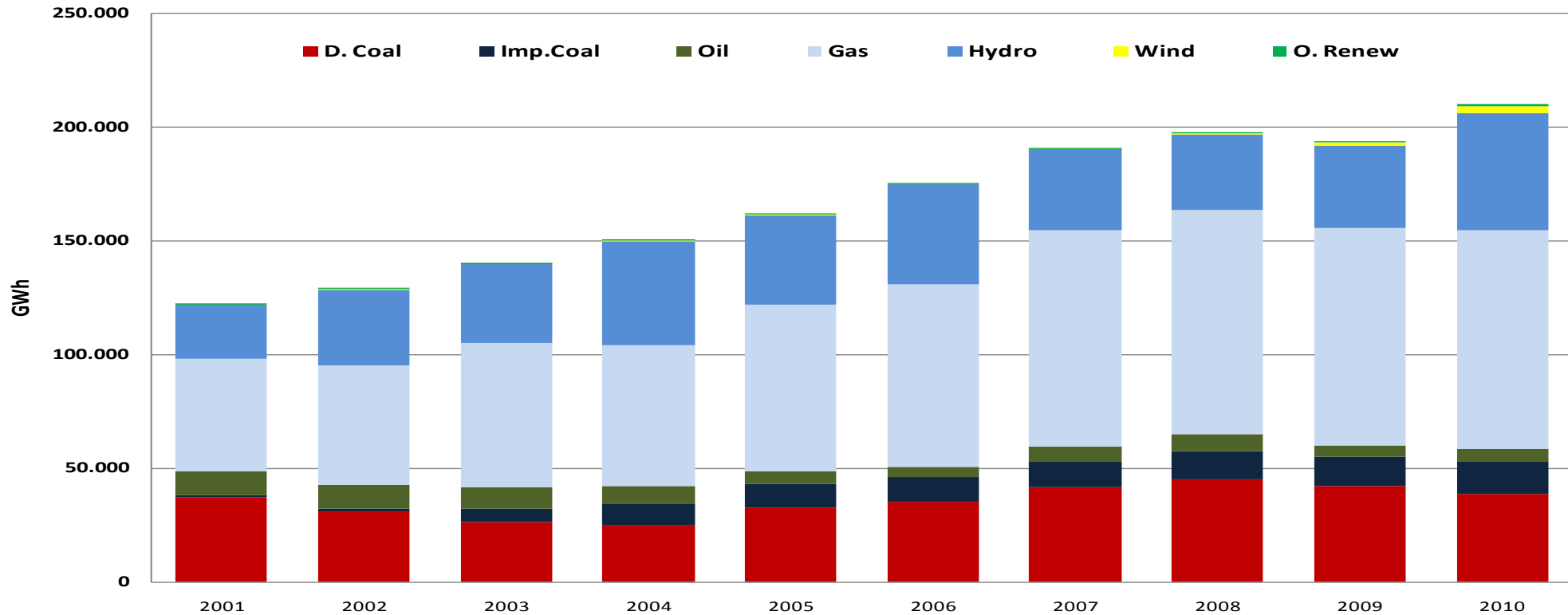
- 28 332 MW in 2001
- 51 076 MW in 2011

• Breakdown of added capacity

- 27% renewables
- 35% renewables + domestic sources

Growing Electricity Sector

Electricity Generation



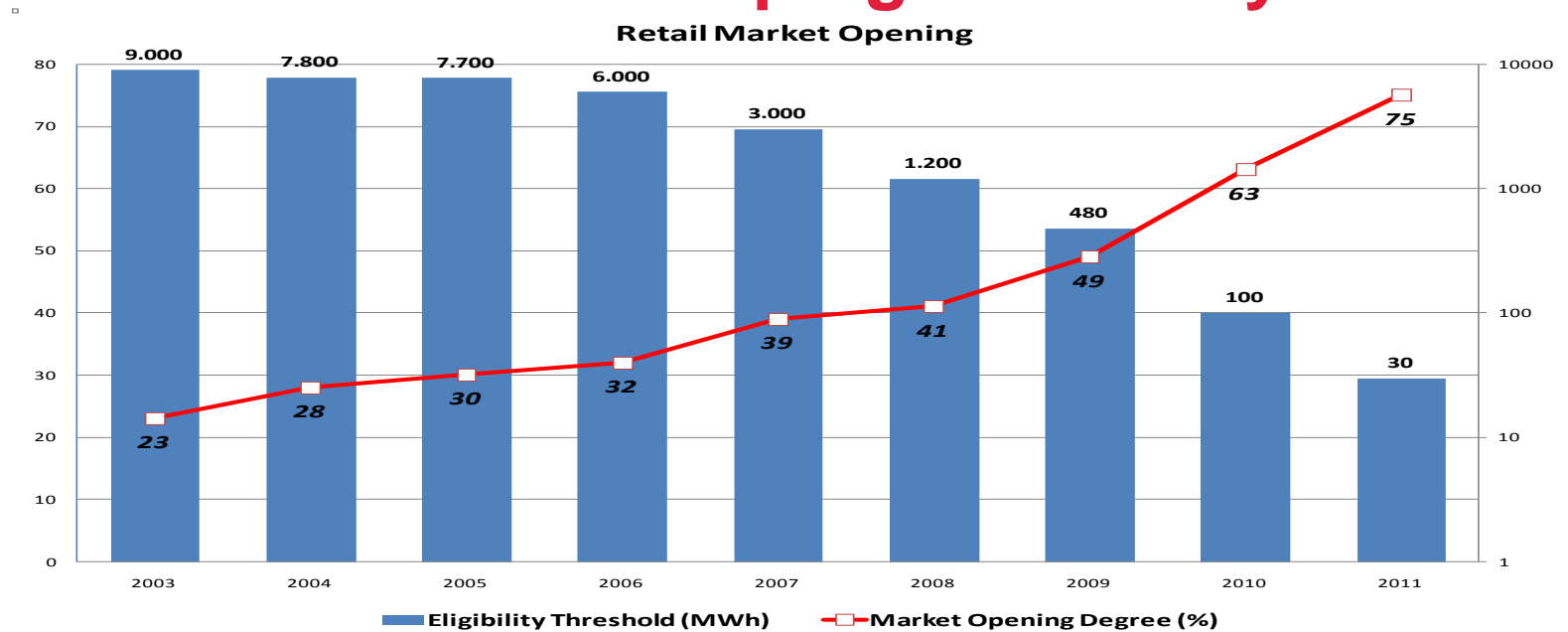
• **Generation increased 71% between 2001 and 2010**

Breakdown of generation increase

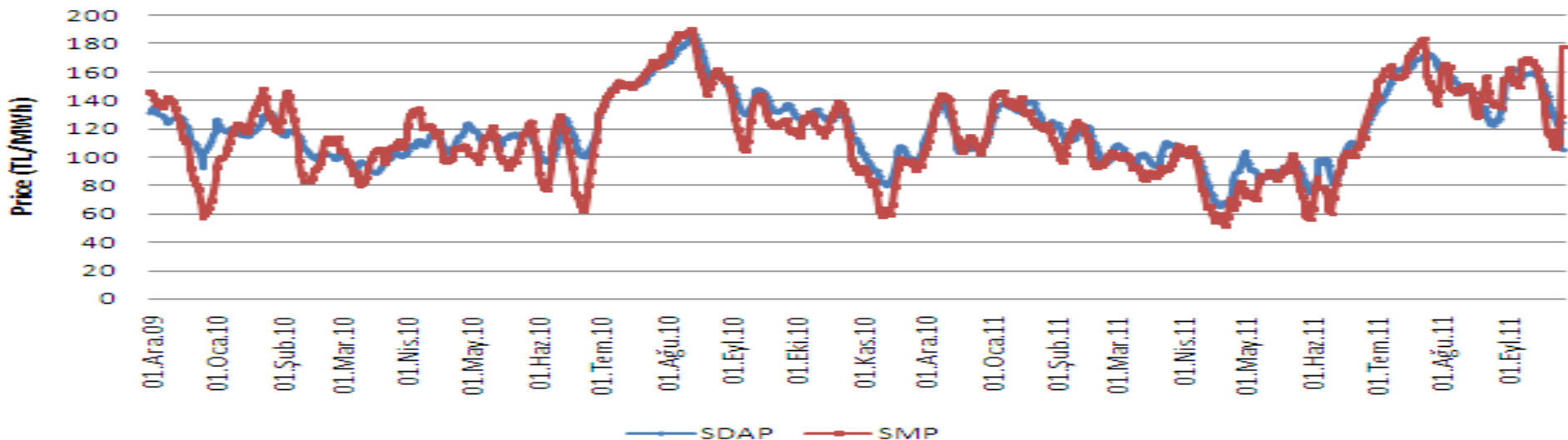
- 28% renewables
- 30% renewables + domestic sources

Developing Electricity Market

- Market is functioning along its dynamics
- Market is continuously enlarging



Day Ahead Market and Balancing Power Market Prices (7 days Moving Average)

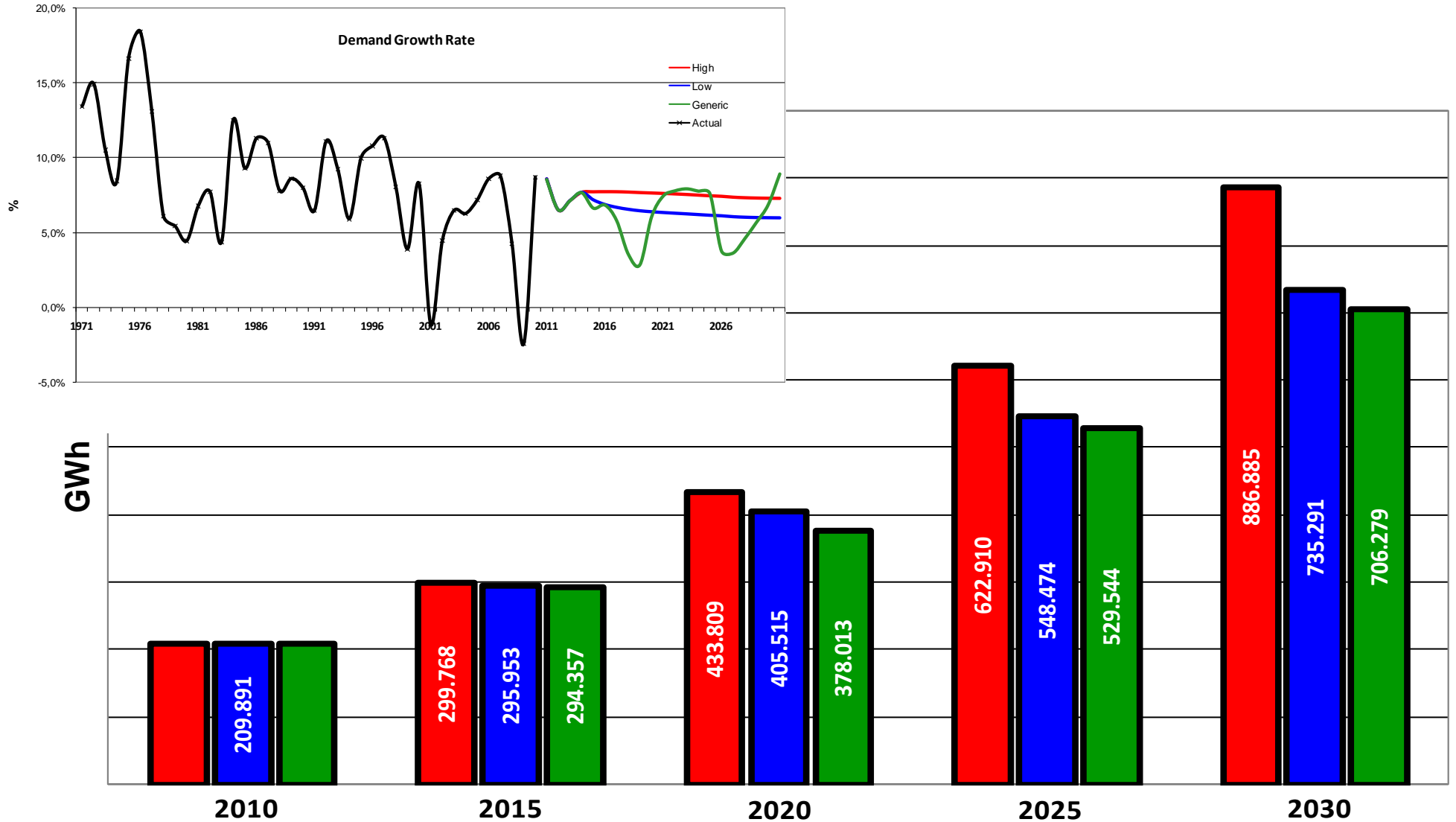


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Investment Opportunities

- **Greenfield investments**: to meet the growing demand,
- **Privatizations**: to let the private sector increase its share,
- **M&As**: to smooth out the obstacles against the efficient market.

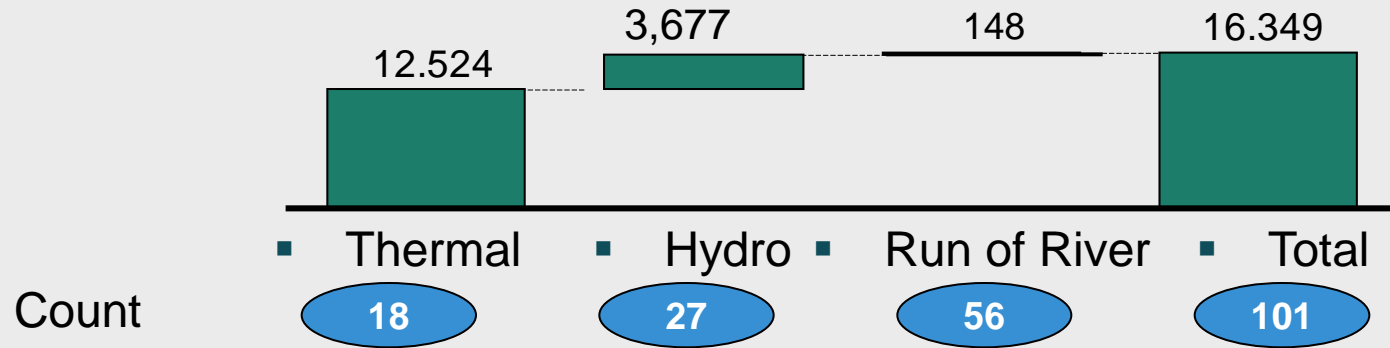
Electricity Demand Growth



Renewable Potential Power Generation

Source	Potential	Under Construction	In Operation
Hydro	45,000 MW	14,150 MW	16,926 MW
Wind	48,000 MW	3,293 MW	1,587 MW
Solar	32.6 MTOE	-	-
Geothermal	600 MW	148 MW	94 MW

Capacity (MW)



Assets

- Block asset sale of thermal power plants
- TOOR of hydropower plants

Privatization Model

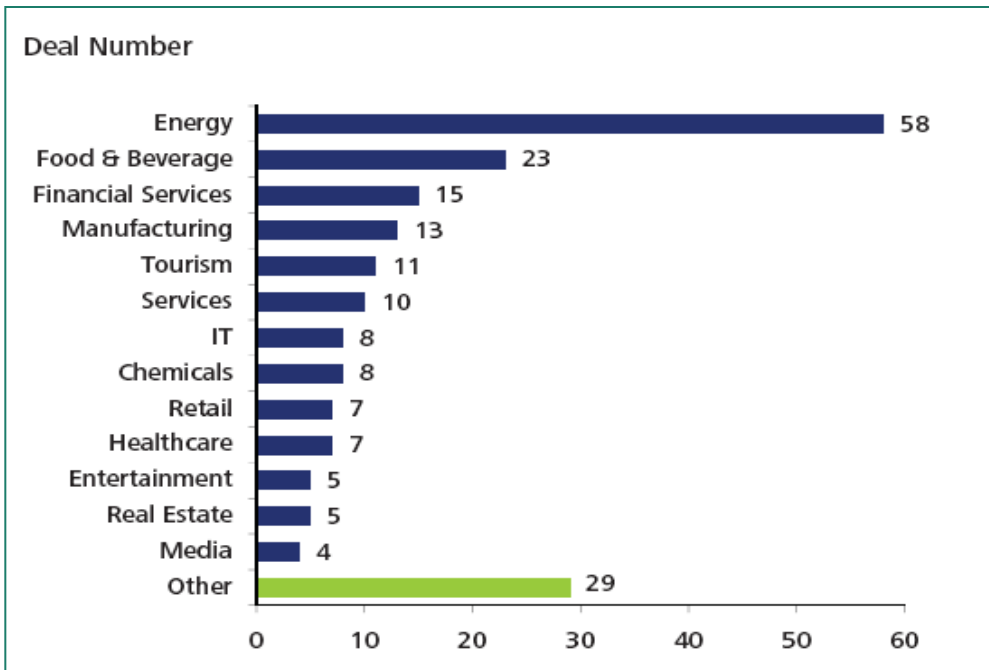
- Kicked-off in 2012

Timing

Largest in Europe

Year	2007	2008	2009	2010
Deal Number*	160	169	102	203
Deal Volume*	US\$19.3 billion	US\$16.2 billion	US\$5.8 billion	US\$29 billion
Privatizations / Share in Total	US\$2.3 billion / 12%	US\$5.2 billion / 32%	US\$1.8 billion / 32%	US\$14.6 billion / 50%
Foreign Investors*	70% of deal value	85% of deal value	38% of deal value	36% of deal value
Financial Investors*	13% of deal value	30% of deal value	12% of deal value	3% of deal value
Average Deal Size	c. US\$120 million	c. US\$100 million	c. US\$55 million	c. US\$140 million***
Largest Deal Value / Share in Total	US\$2.7 bn (Oyak Bank) / 14%	US\$3.1 bn (Migros Türk) / 19%	US\$606 mn (Sugar Factories)** / 10%	US\$5.8 bn (Garanti Bank) / 20%

“Energy deals make their mark!”



- US\$ 29 billion materialized through 203 deals in 2010,
- US\$ 70,3 billion realized between 2007-2011,
- Privatizations and energy sector deals were crucial in the deal value of 2010,
- 58 deals in the energy sector 33 of which were privatizations with a total value of US\$ 16.9 billion,
- Highest possible opportunities for M&A attempts,
- Foreign investors accounted for 36% in 2010,
- More than US\$ 20 billion deal volume is expected for 2011.

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Why Shall Invest in Turkish Energy Market ?

- **Sound legal framework (from constitutional level to secondary legislation level),**
- **Reliable member of international community,**
- **High and rapid growth in demand,**
- **Compliance with the European *Acquis*,**
- **Competitive, stable, financially reliable and transparent business environment,**
- **Non-discriminatory approach guaranteed by an independent regulator,**
- **Good governance principles,**
- **Cost-reflective tariff system.**
- **Many investment opportunities in energy business**

- Turkey pursues its goal of market liberalization in energy sector enthusiastically,
- Achievements made electricity sector is more than satisfactory vis-à-vis the EU directives.
- Regional cooperation and integration regards to the energy sector and participation in the energy-related international institutions are among the highest-priority of Turkish policymakers.
- M&A is a key opportunity area in Turkish power market.



**Turkish Energy Market:
An Investor's Guide**

2011



Available (in English) at www.epdk.gov.tr



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Thank you...
Q&A