



Competitiveness & challenges of Turkish energy market

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Agenda

1. E.ON – Global Player in the Energy Sector
2. Investment Opportunities in Turkish Energy Market
3. Challenges for Investors in Turkish Energy Market

1. E.ON – Global Player in the Energy Sector

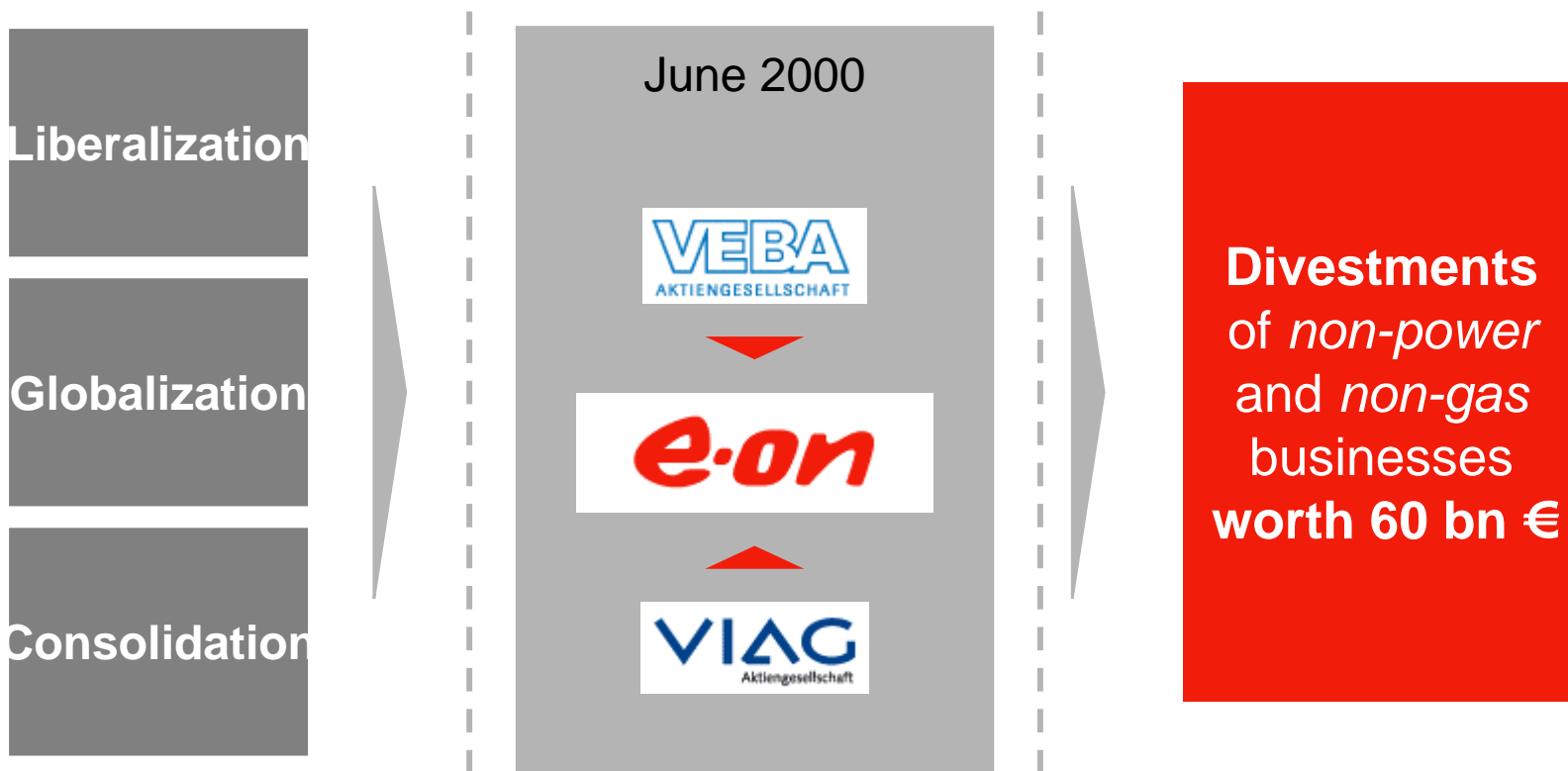
E.ON's Origin

Market Presence & Key Figures

Portfolio Development

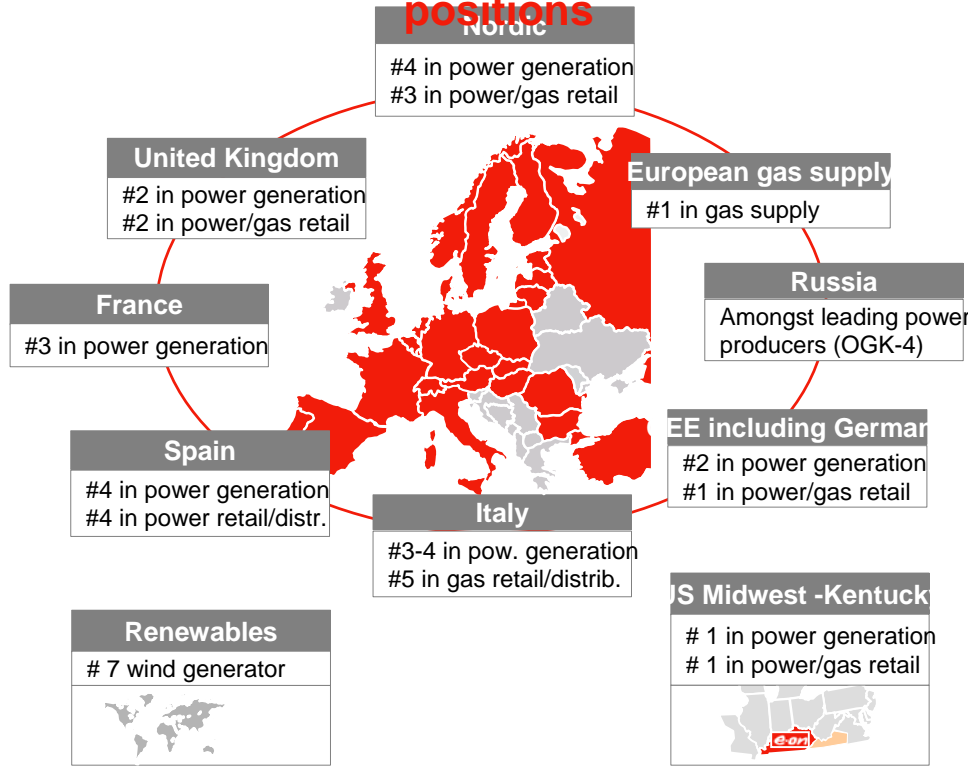
Investment Initiative

E.ON was established in 2000 with the ambition to become a focused power and gas company



E.ON is the world largest private energy service provider with appr. 40 mn. customers & excellent market positions

E.ON market positions



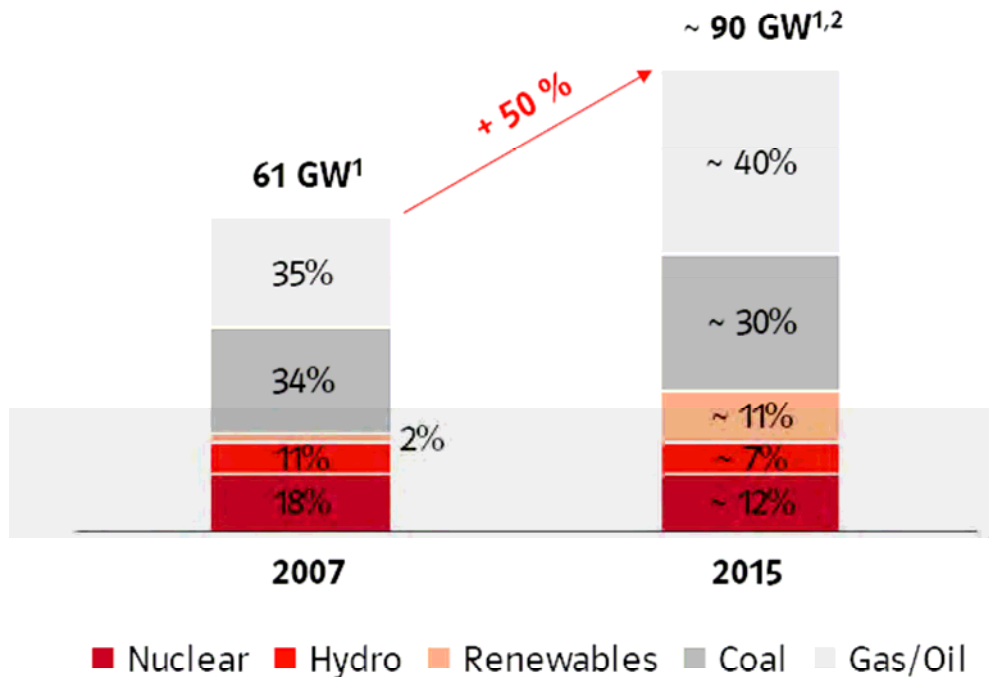
Key figures 2007²

Customers	40 mn.
Inst. capacity	54,000 MW
Power Sales	471 bn. kWh
Gas Sales	1,212 bn. kWh
Sales	68.7 bn. €
Adjusted EBIT	9.2 bn. €
Employers	87,800

2. According to the 2007 financial statements.

Acquisitions & new build program till 2015 and E.ON's target portfolio in 2030

Development of E.ON's portfolio 2007-2015

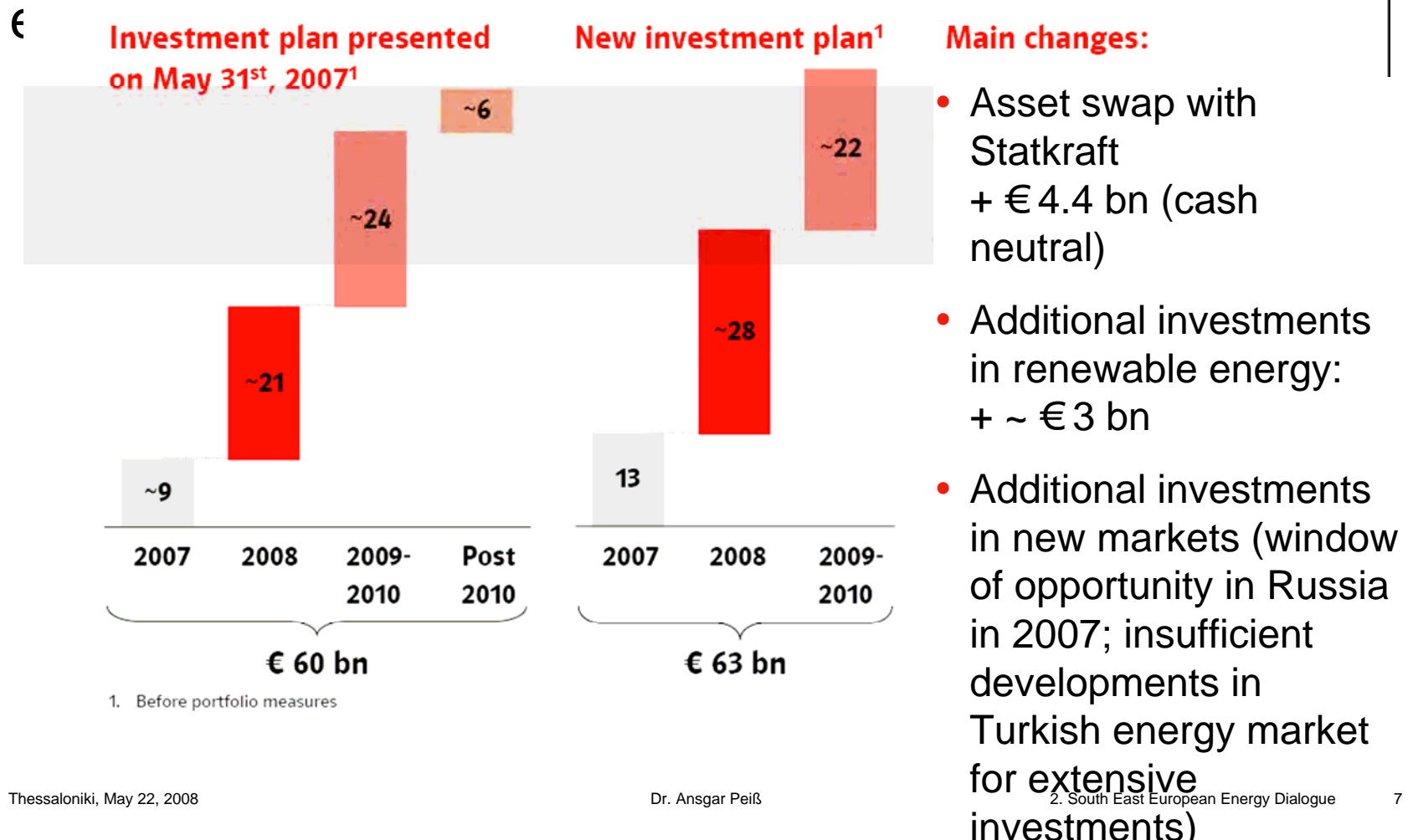


1. All figures calculated pro-rata ownership
2. Including Endesa assets/ Viesgo

E.ON's target portfolio in 2030

- ~ **50%** of E.ON's energy mix will be **carbon free** (nuclear, hydro, renewables)
- ~ **50%** will be produced by **low carbon technologies** (gas & CCS coal)

Huge investment initiative of 60bn. € for growth & diversification started in May 2007 and was further



2. Investment Opportunities in Turkish Energy Market

Rising Electricity Demand

Demand & Supply Gap

Recent & Future Milestones

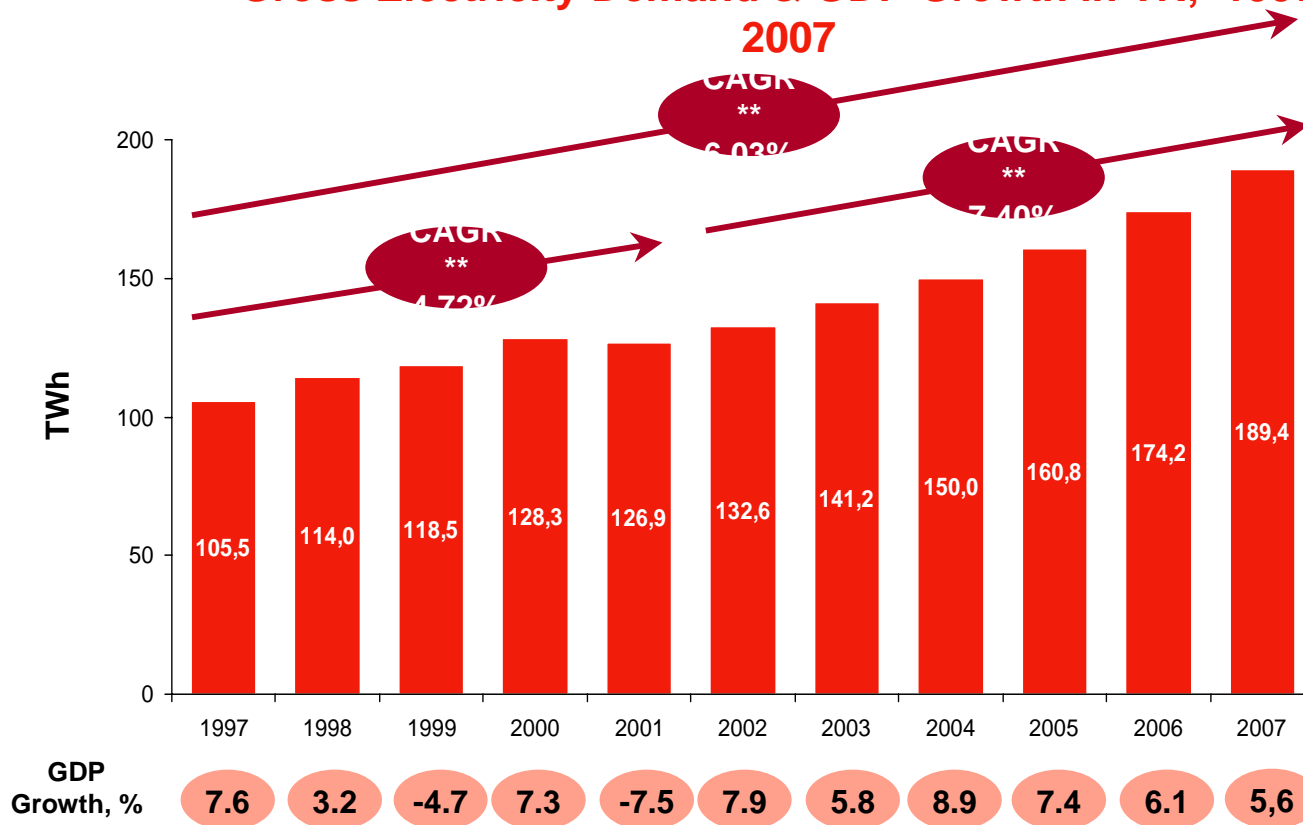
Full Market Liberalization

Electricity Market Reform and Regulatory Environment

Investment Opportunities

6-9% annual demand increase due to strong economic growth

Gross Electricity Demand & GDP Growth in TR, 1997-2007

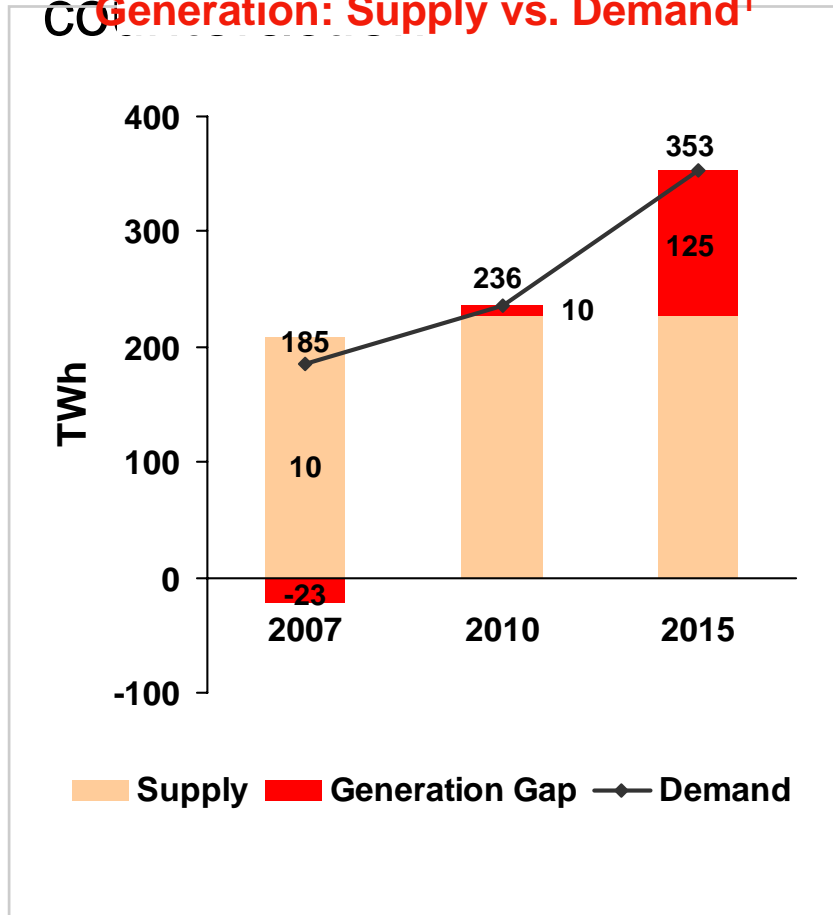


- Tremendous rise in demand for electricity **growing population, rapid urbanization & strong economic growth**
- **During '02-'07, GDP increased by 6.95% (CAGR) while electricity demand increased around 7.40% (CAGR)**
- **'06 to '07 electricity demand growth was 8.7% where GDP growth is only 5.85%**

* CAGR: Compound Annual Growth Rate (of gross electricity demand)
Source: TEİAŞ, TUIK

Latest 2009, Turkey will face black-outs due to insufficient generation capacities – Privatization initiated as

CO₂ Generation: Supply vs. Demand¹



Opportunities in Generation

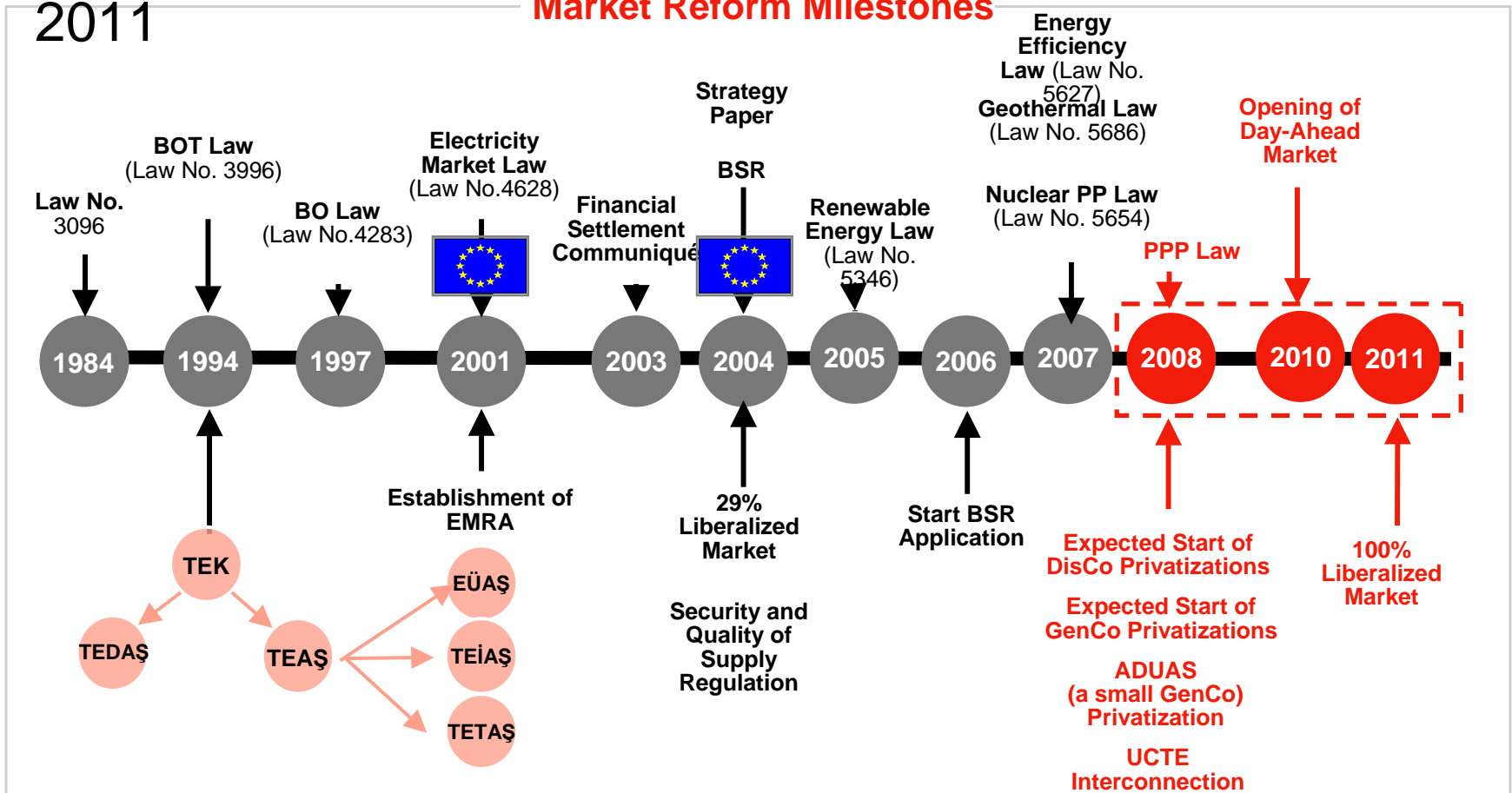
- **Strong increase of electricity demand**
 - 2007: 8.4%
 - 2003 – 2007: 7.4% CAGR
 - 1997 – 2007: 6.3% CAGR
- Latest in **2009** generation **demand** will **exceed Turkish generation output**
- **Economic growth and wealth** can only be **secured** through **massive new investments** in

Liberalization & privatization of energy sector to meet future needs

Since '94, major milestones for privatization & liberalization successfully realized, fully liberalized market expected for

2011

Market Reform Milestones

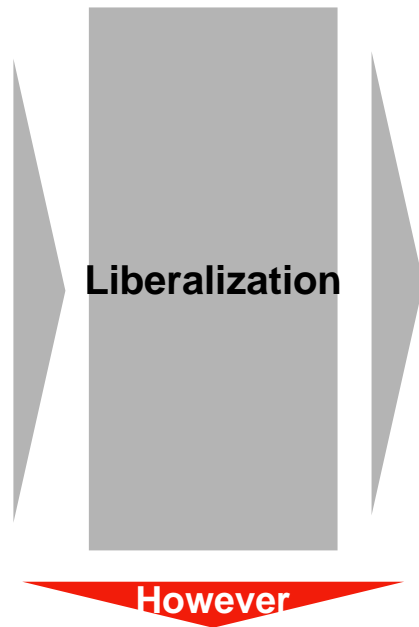


The proclaimed strategic goal of the Government is to fully liberalize the Turkish energy market, delays could occur

Reasons

- **Growing demand**
- **Insufficient State Budget**
- Increasing **pressure** from **EU, IMF, World Bank** etc.
- **Commitment of government**, only **private sector** to solve problems in energy sector

Must



Target

- Financially sound & **transparent electricity market**
- **Competitive environment** under provisions of civil law
- **Autonomous regulation** and supervision

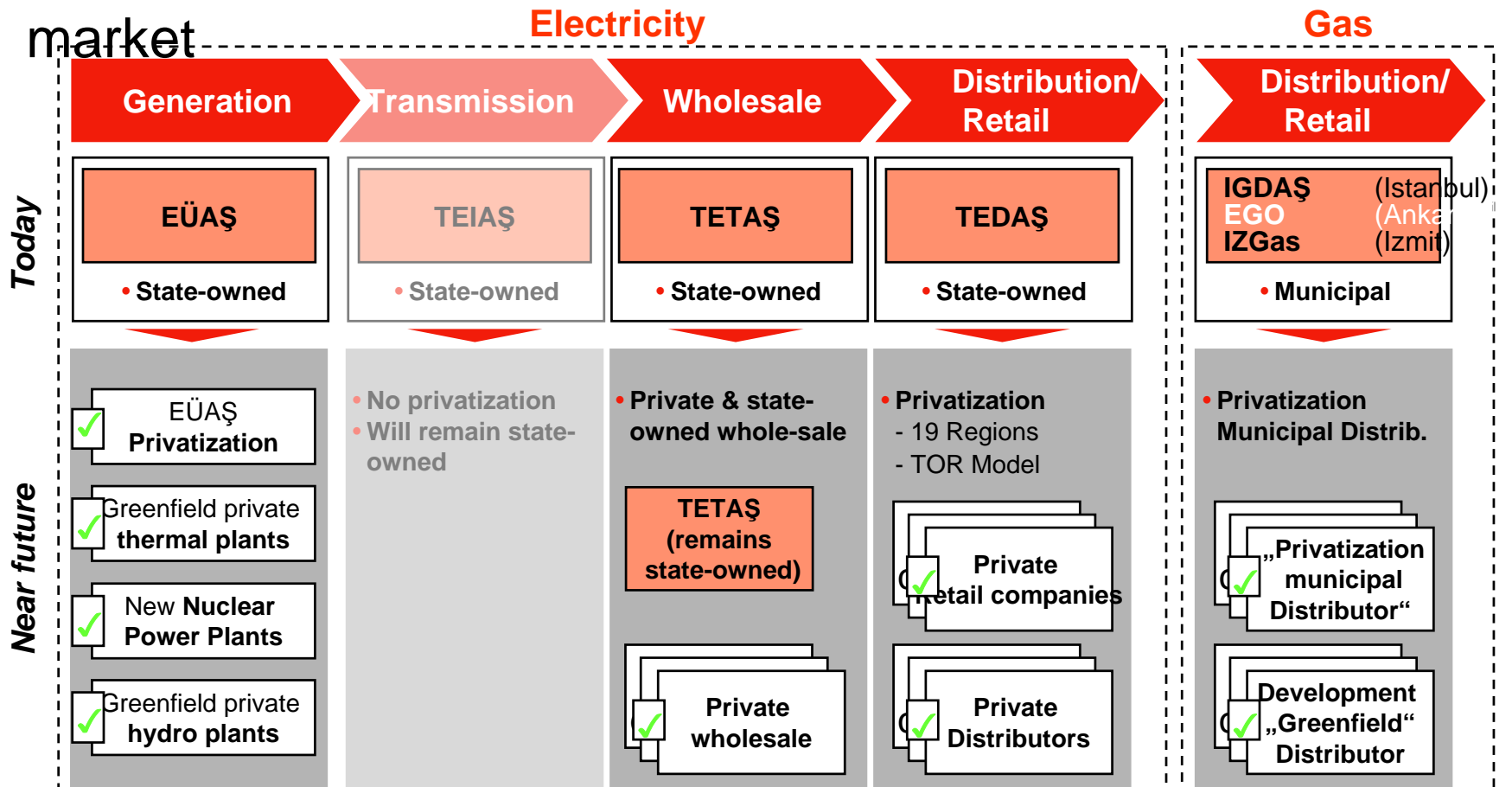
Slow Progress in privatization & liberalization, expected to speed up in '08-'10.

Difficulties in Transition to compet. Market Structure expected to be improved.

Most of the major goals towards a liberalized energy market dictated by the Electricity Market Law have been

Major Goal	Achievement
<p>Autonomous Energy Market Regulatory Authority</p>	<p>✓ Established in 2001</p>
<p>New licensing framework for market participants</p>	<p>✓ Licensing started in 2002</p>
<p>Energy market, based on bilateral contracts</p>	<p>✓ Bilateral contract based market complemented by balancing mechanism achieved (2006)</p>
<p>Eligible consumer concept</p>	<p>✓ Established in 2004, current limit 3 GWh p.a.</p>
<p>Transition mechanism to be implemented over a two year program</p>	<p>✗ Full liberalization not achieved yet (still ongoing work!)</p>

Opportunities for private investors along value chain as result of liberalization & privatization of the Turkish energy market



✓ Opportunities for private investments
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¹ Successful privatization on 13.03.2008 for 1.6 bn US \$ to Turkish Company (Global Invest)
Dr. Ansgar Peiß

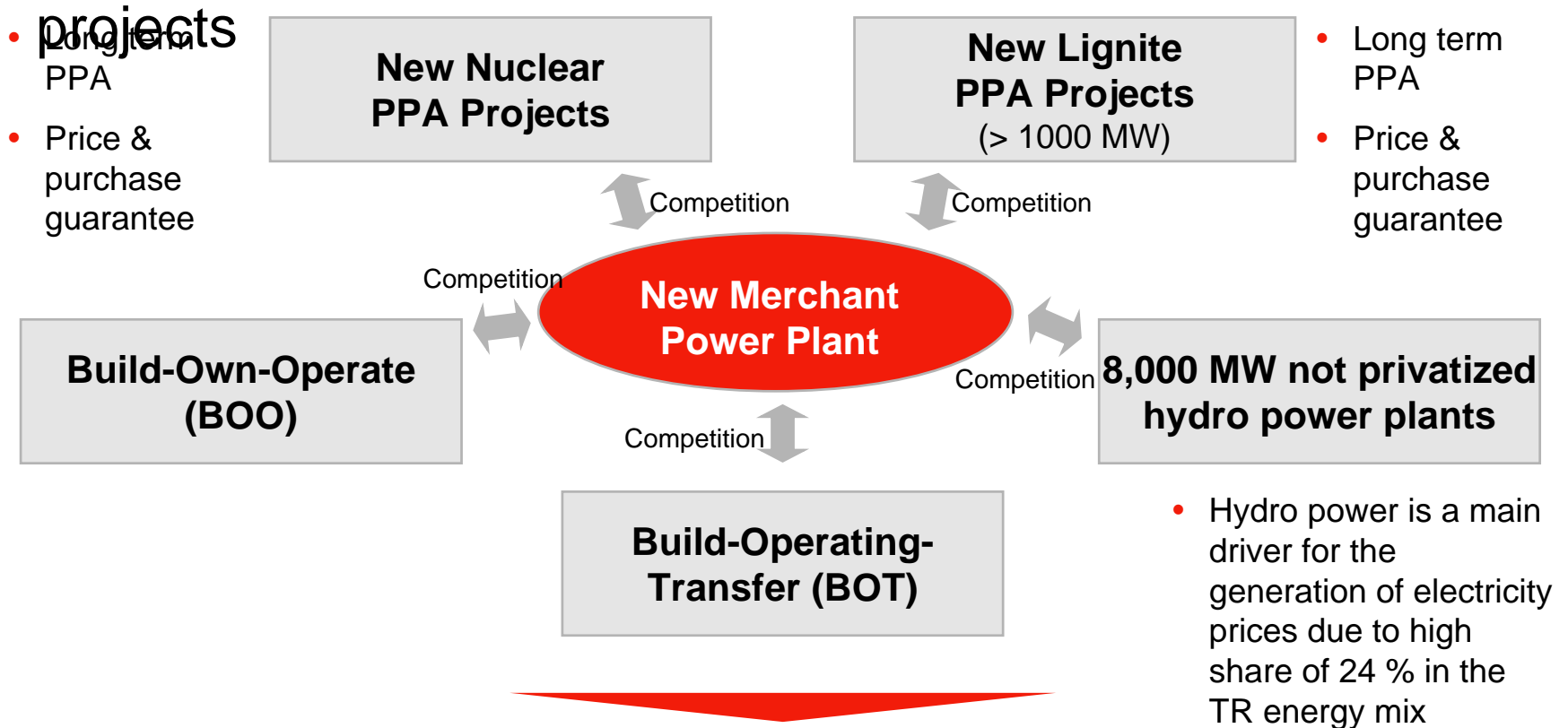
3. Challenges for Investors in Turkish Energy Market

Competitors in Power Generation

Re-Active Handling of Improvement

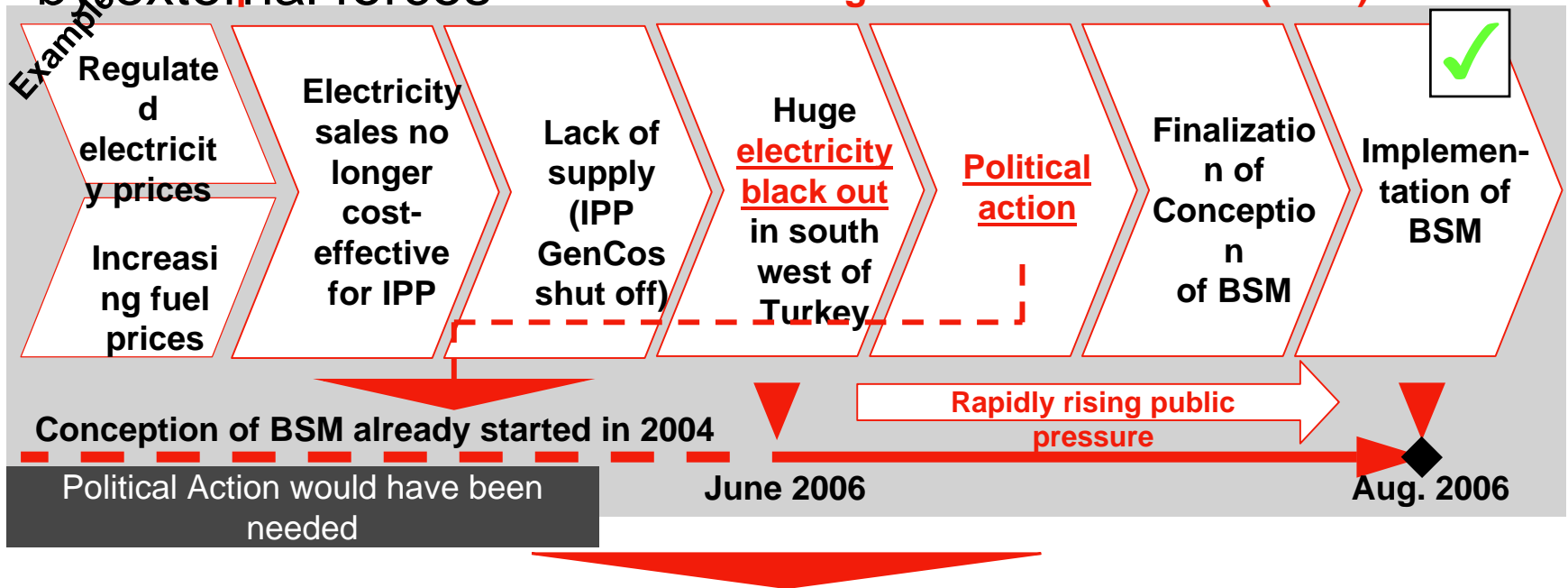
Insecure Market Developments

New merchant power plants could face severe competition by BOT/BOO projects and new PPA lignite and nuclear



How will new merchant power plants interact in competition with other power plants?

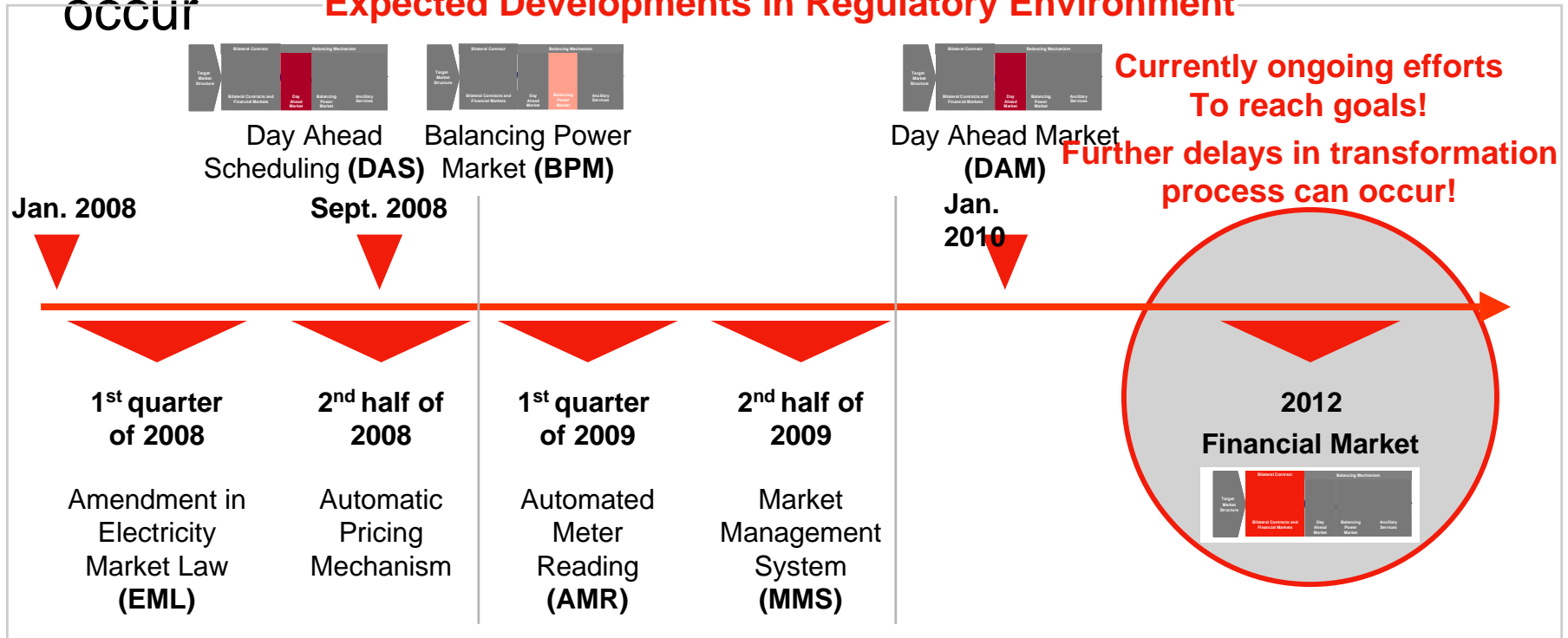
The implementation of necessary mechanism to strengthen the Turkish Electricity Market are mainly driven by external forces



The quick establishment of the BSM was mainly initiated by external forces & not by the strong will of improving the market conditions

Ongoing transition period towards fully functioning liberalized market model until 2012, further delays could occur

Expected Developments in Regulatory Environment



Ongoing transition period & insufficient market mechanism complicate cash-flow planning

Summary

Competition

BOT/BOO projects, new PPA lignite & nuclear projects and 8,000 MW state-owned hydro power plants could heavily effect and influence the competition

Re-active Improvements

The implementation of necessary mechanism to strengthen the Turkish Electricity Market are mainly driven by external forces

Market Development

Ongoing transition period towards fully functioning liberalized market model until 2012 leads to insecurity for market investors

Since the Turkish energy sector is in a transition period,
private investors will face uncertainties