



Turkish Power Market

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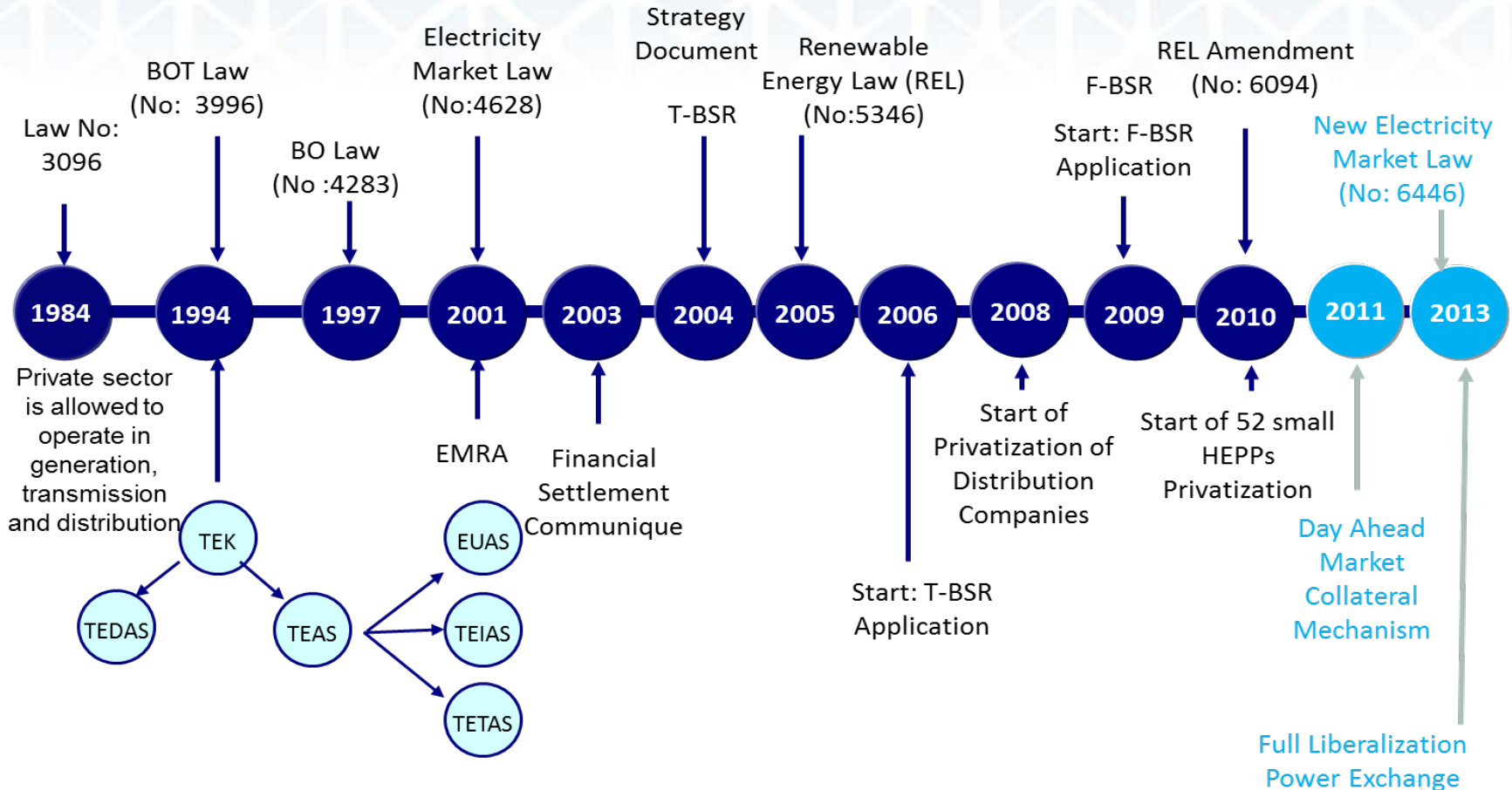




- Sole regulator of Electricity, Gas, Petroleum and LPG markets,
- Autonomous authority
- Monitors, supervises and audits markets & market players
- Approves tariffs
- Main objectives are to provide;
 - Financially viable, stable and competitive energy market
 - Sustainable energy at good quality and low cost, in a reliable and environment friendly manner



History of Liberalization



Effective Liberalization

Independent and Accountable

- Transparent, consistent, predictable regulatory decisions to achieve certain regulatory objectives

Independence from...

- Industry
- Political control

Independence in...

- Budget
- Appointment
- Decision making procedure

Accountable to...

- Downwards → consumers
- Upwards → government

...leading to...

- Increased legitimacy
- Avoiding implementation problems
- Increased public trust

Major Challenges in Reform

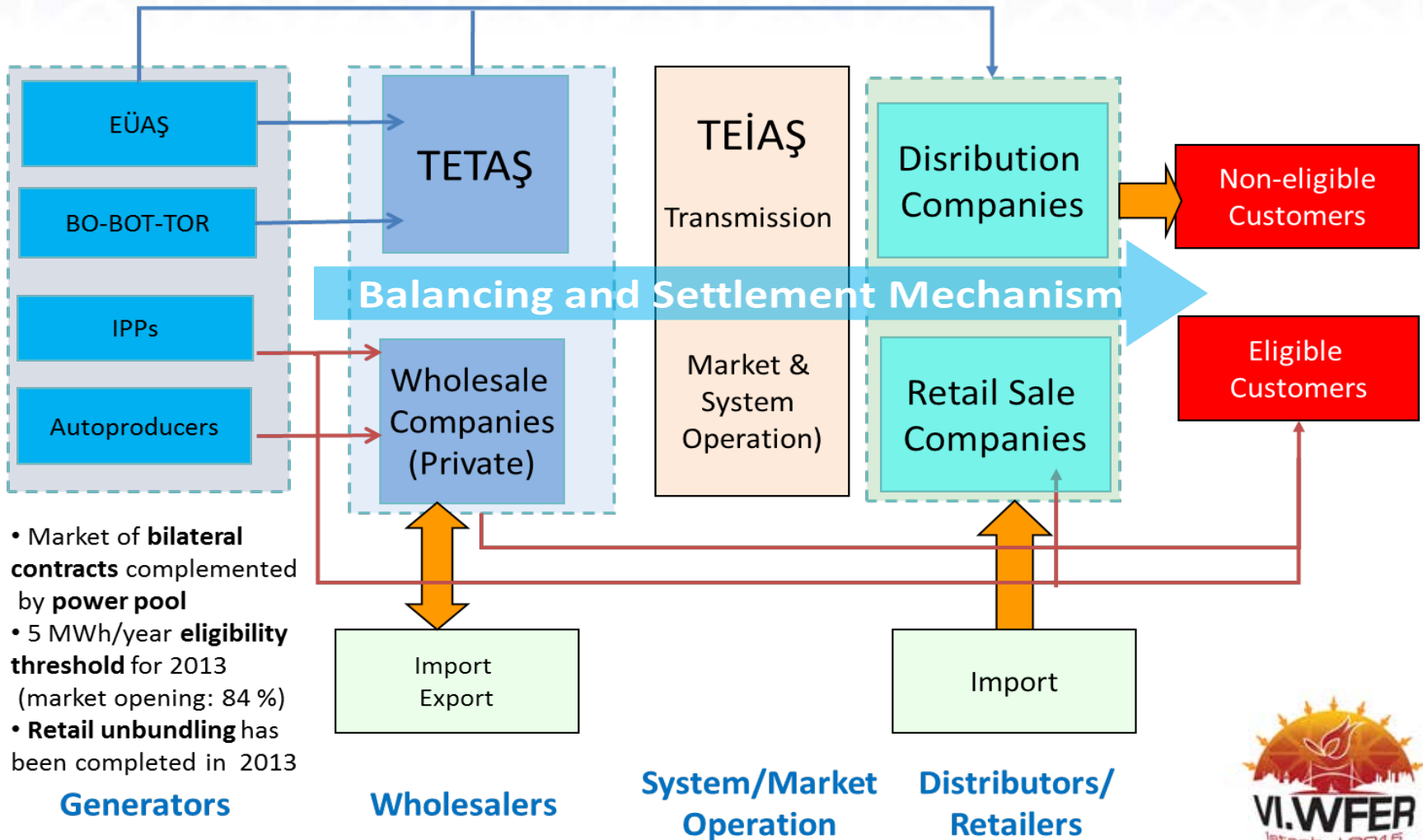
Problem

- Differences between regions and consumer groups
- High technical and non-technical losses
- Fast increasing demand & high investment requirement
- Lack of competition in market activities
- Reliance on imported fuels in the fuel-mix

Remedy

- Price equalization mechanism for a smooth transition
- Loss targets and incentive-based regulation
- Enhanced trade opportunities for generators, long-term tariff setting with satisfactory returns for network operators
- Unbundled market activities, privatization & enabling supplier switching
- Encouraging diversity via incentives, increasing utilization of renewables and distributed generation

Electricity Market Structure

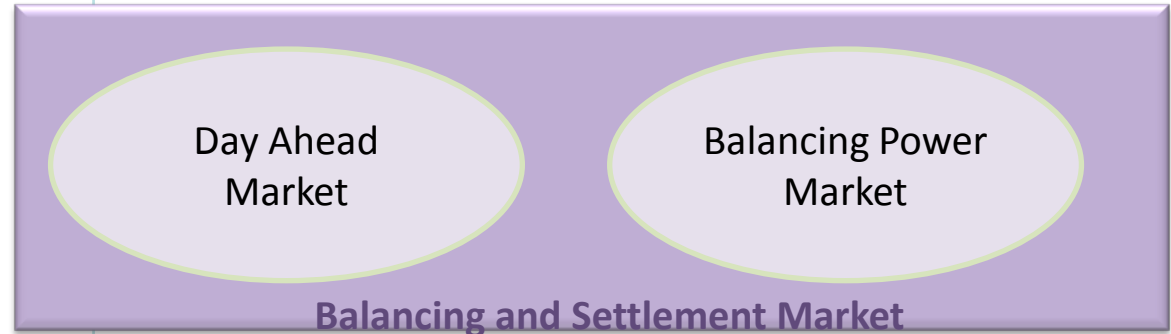


Balancing & Settlement Market

Final Phase

- Day Ahead Market
- Balancing Power Market
- Hourly Settlement
- Demand side participation
- Enables market splitting
- Base-load futures offered
- Intra-day market underway

Since Dec 2011 – present



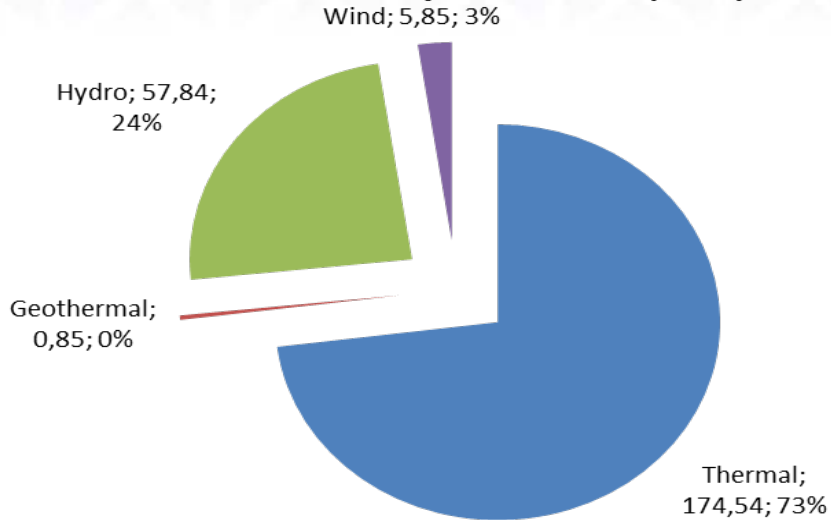
➤ Day Ahead Market provides;

- Opportunity for the market participants to purchase/sell energy for the following day in addition to their bilateral agreements
- Balanced system to the system operator for the following day

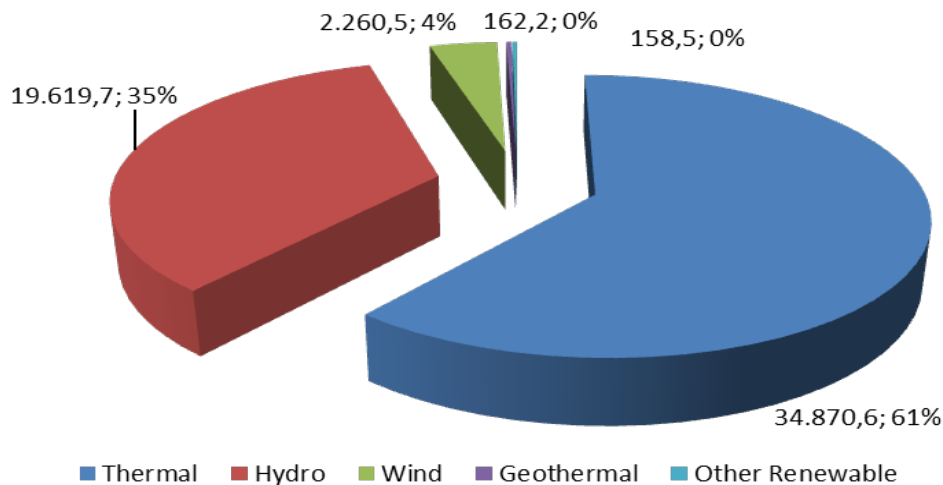
➤ Balancing Power Market is used for real-time balancing of demand & supply

Market Figures

2012 Electricity Generation (TWh)



2012 Installed Capacity (MW)



- Installed Capacity
Renewable 39 %
Thermal 61 %
(by Dec '12)
- Consumption (2012) 242 TWh
- Generation (2012)
Renewable 27 %
Thermal 73 %
- Peak Load (2012) 39.045 MW

Aggregate Figures:

- Consumption (2012) 242 TWh
- Generation (2012) 239.1 TWh
- Import (2012) 4.363 TWh
- Export (2012) 1.489 TWh

As of Nov'13;

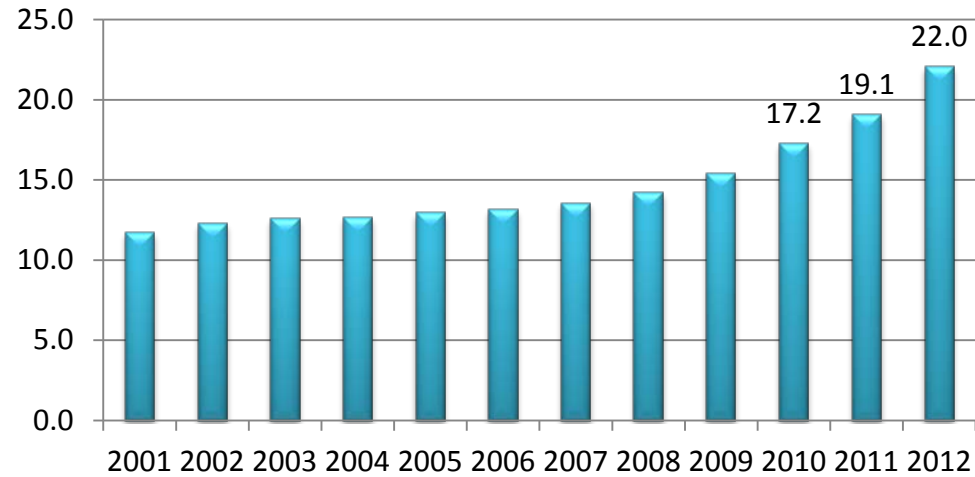
- Total installed capacity : 61.984 MW
- Installed **RES-E** capacity : 24.947 MW
- Share of **RES-E** in capacity : 40,2 %
- Installed Wind Capacity : 2.689 MW
- Installed Hydro Capacity : 21.724 MW

RES – E Development

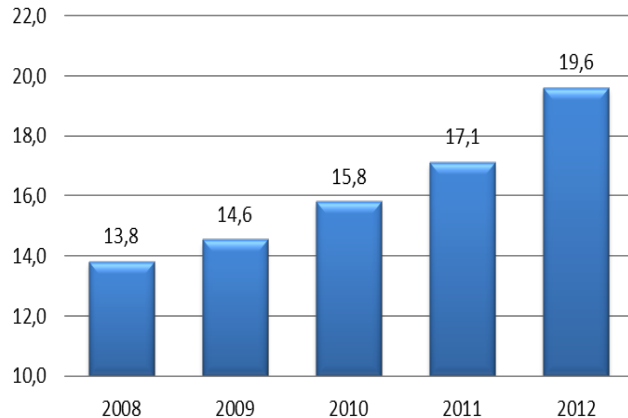
Res – E Potential (2012)

Resource	Potential	Installed
Hydro	45 GW	19.6 GW
Wind	48 GW	2.3 GW
Geothermal	0.6 GW	0.16 GW
Solar	380 TWh	-

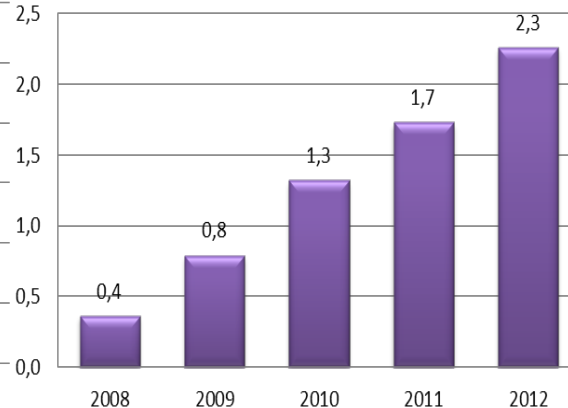
Installed Res-E Capacity (GW)



Installed Hydro (GW)



Installed Wind (GW)



As of Nov'13;

- Installed Capacity : 61.984 MW
- Share of Thermal : 59,8 %
- Wind Capacity : 2.689 MW
- Hydro Capacity : 21.724 MW

Recent Solar Applications

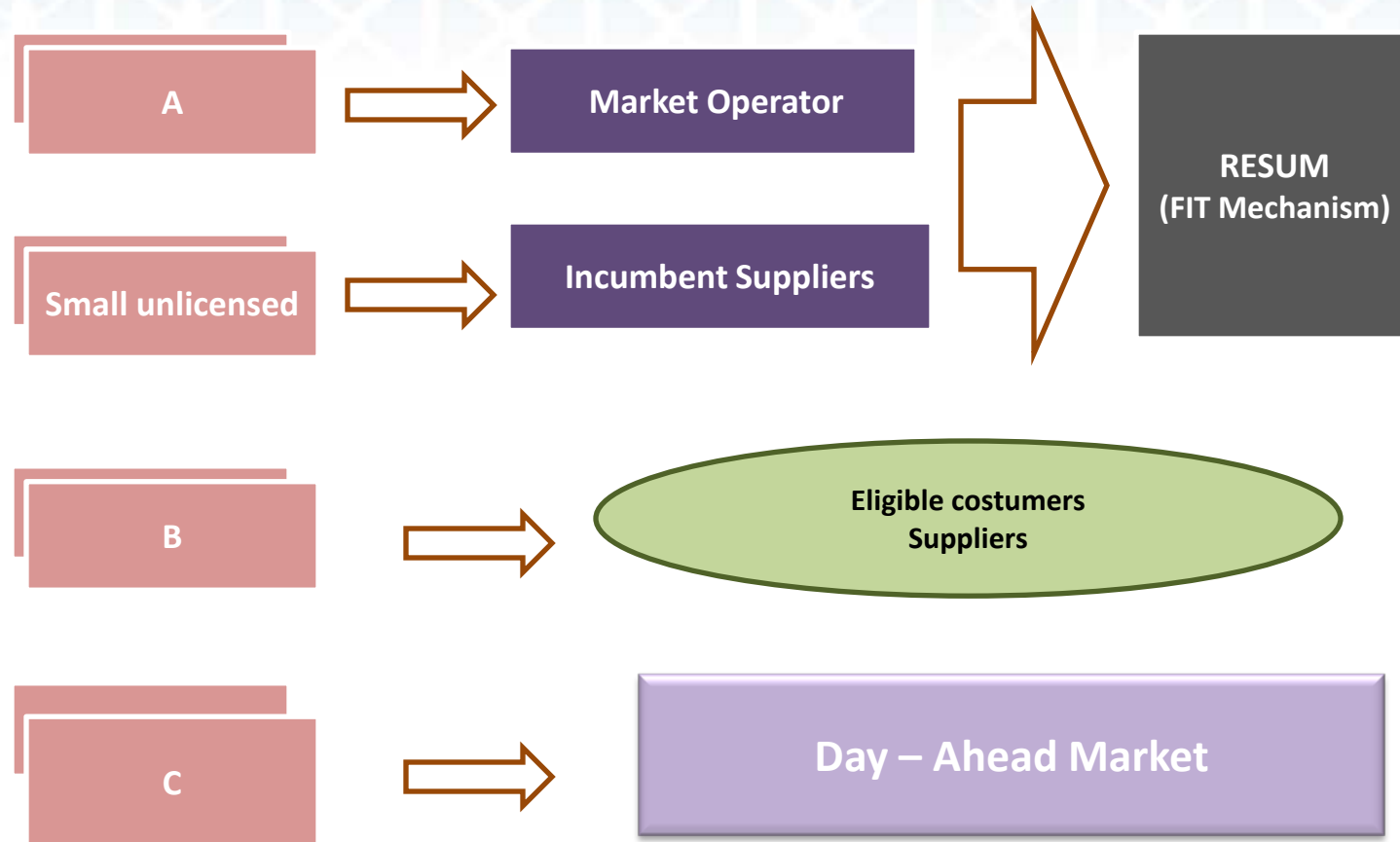
Licensed Solar Integration

- EMRA announced that solar license applications to be opened in June'13 for a total capacity of 600 MW as the first step
- License applications for available 600 MW connection capacity received (Total capacity of applications reached ~ 9.000 MW)
- TSO to make auctions (based on contribution margin) among the applications for same grid capacity/project site

License Exempted Solar Integration

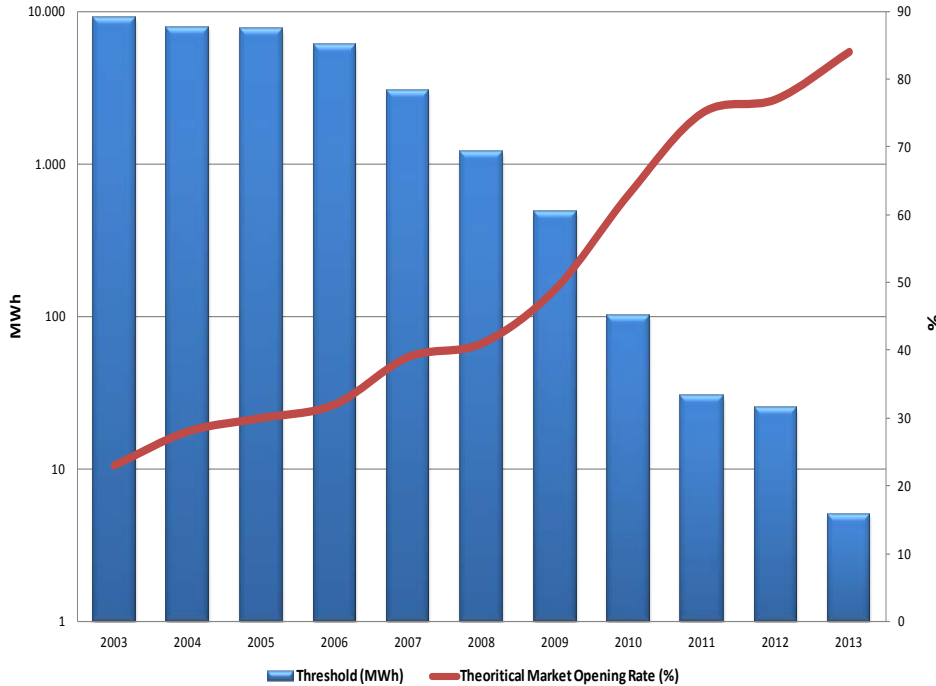
- Limit for renewable energy increased from 0.5 MW to 1 MW to encourage distributed generation and utilize renewable resources further (FITs still applicable)

Trade for RES-E Generators

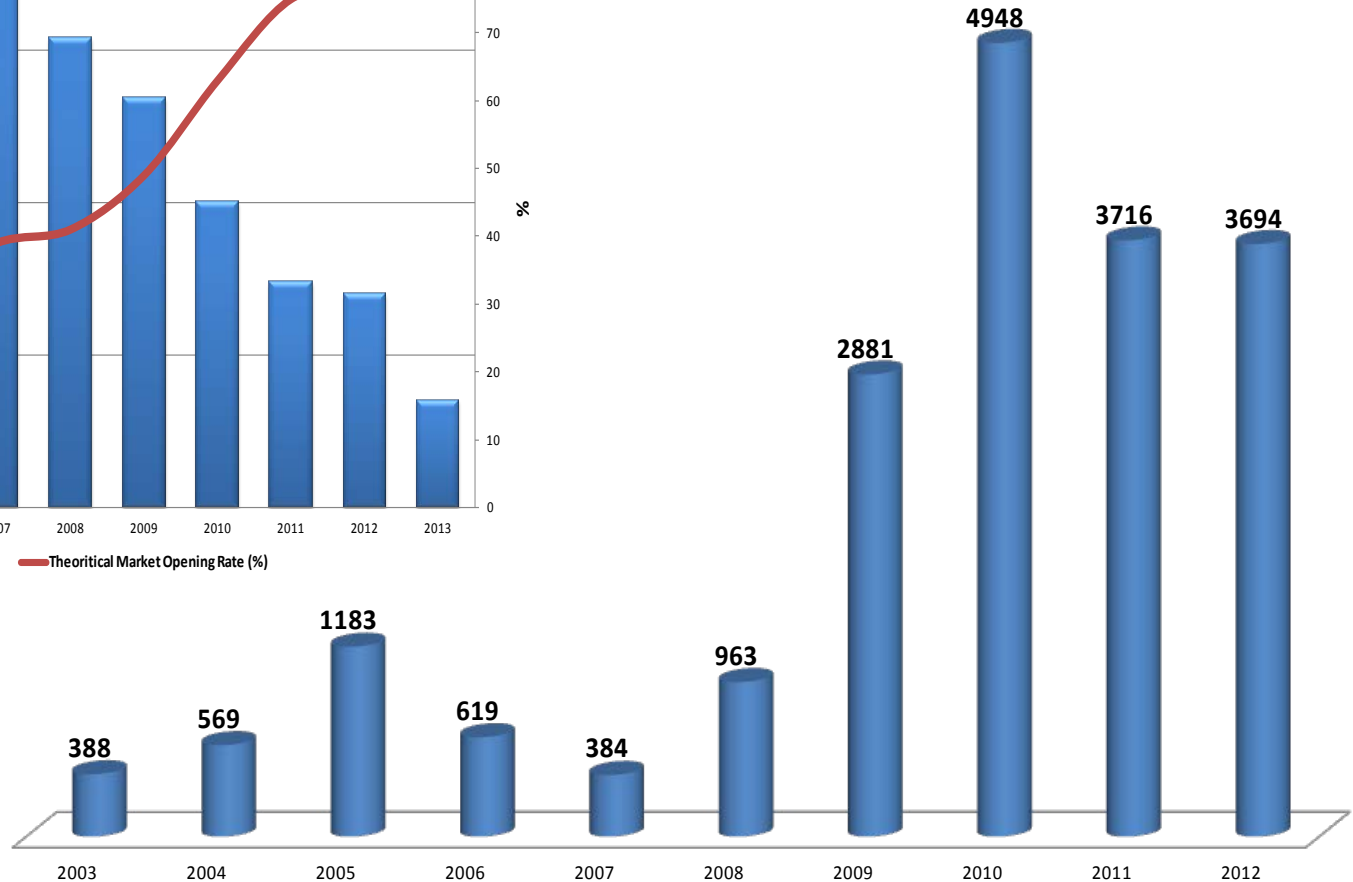


Increasing Suppliers & Eligible Customers

Market Opening

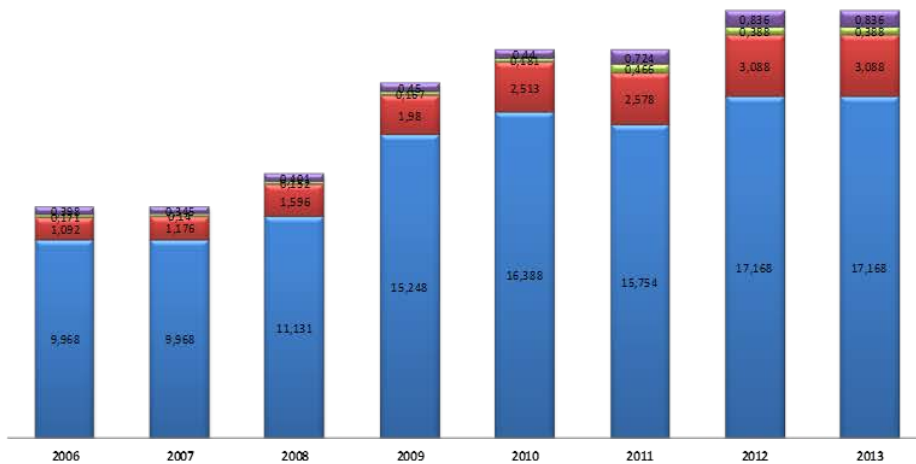


MWs added by IPPs



Increasing Cost Reflectivity

Tariffs ↑



Industrial (LV) Increase in rates btw 2006-13

Retail : 72.2 %
Distribution : 182.8 %
Services : 126.9 %
Transmission: 110.1 %
Overall : 84,71 %

Household

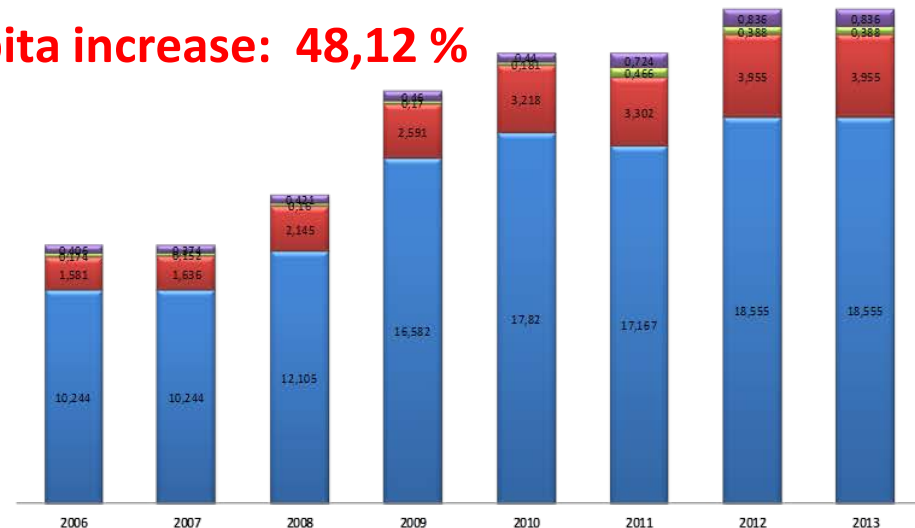
■ Retail ■ Distribution ■ Services ■ Transmission

GDP/capita increase: 48,12 %

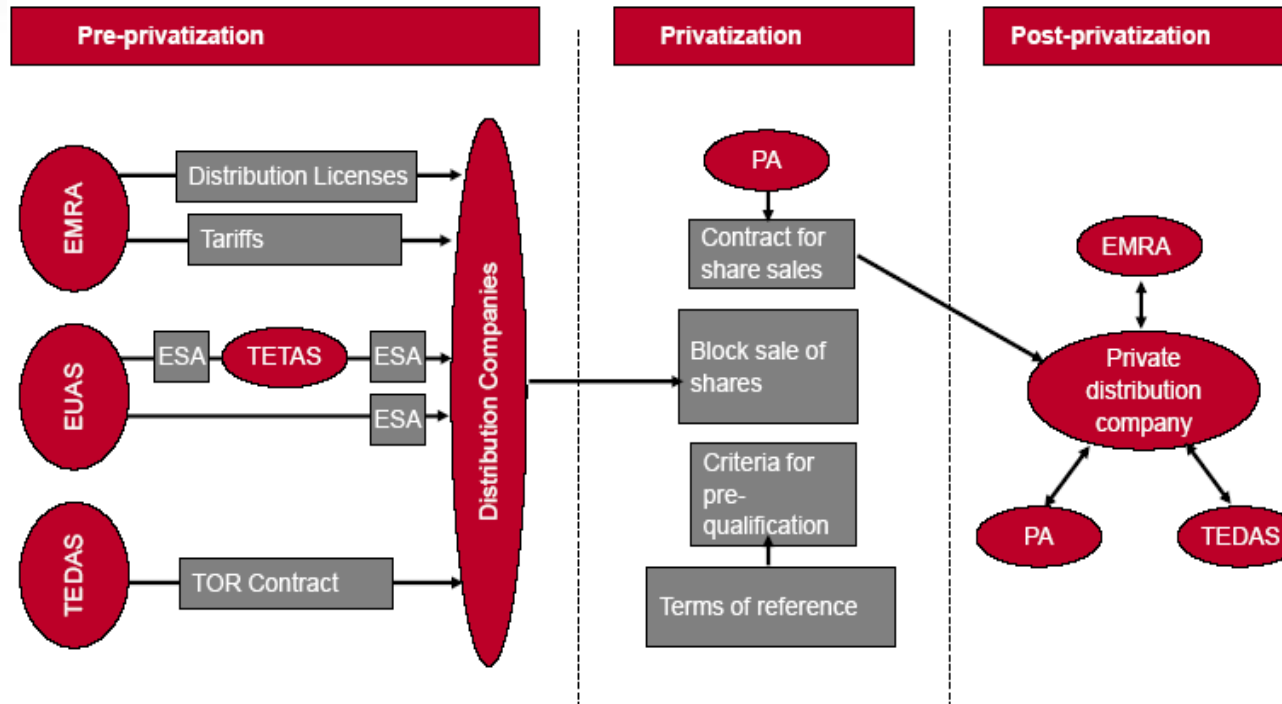
Household

Increase in rates btw 2006-13

Retail : 81.1%
Distribution : 150.2 %
Services : 123.0 %
Transmission: 105.9 %,
Overall : 91,33 %



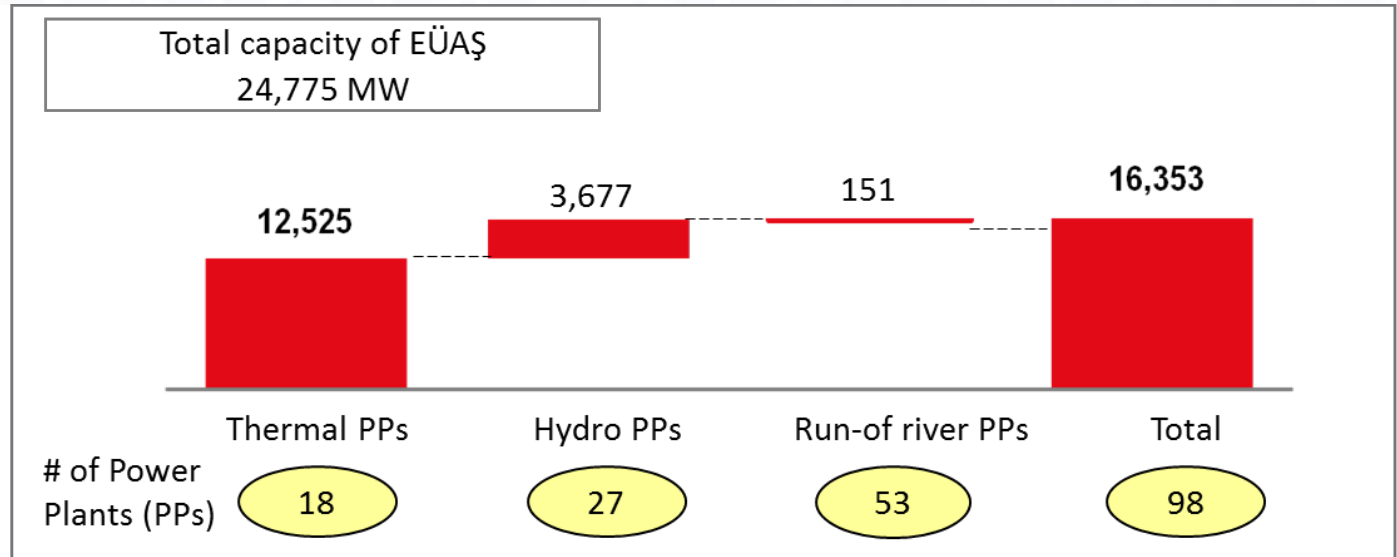
Distribution Privatization



- Distribution assets are owned by state (TEDAS) and operated by private companies for 30 years
- 21 distribution regions are served by private companies. Retail competition enabled.
- Total revenue from privatization reached 13 billion USD
- Private companies obtain satisfactory returns from network investments

Generation Privatization

Assets



Privatization method

- 9 PP portfolios were formed ranging from 356 MW to 2,795 MW in size
- Separate privatization of 4 thermal PPs: Hamitabat, Seyitömer, Soma and Kangal

Timing

- As a pilot project, ADUAS (9 small PPs) with a total capacity of 140 MW were privatized for 510 million USD in 2008
- 52 run-of river PPs were tendered in 19 groups for 440 million USD
- Remaining assets to be privatized as **priority assets** (4 thermal above – total 3.247 MW) and **portfolios**
- 3 priority assets privatized in 2013 (2.213 MW - 3,35 billion USD)

Continuing Market Reform

New EML (# 6446) ratified in Mar'13

- Announcing available grid connection capacity more than 1 year in advance for solar & wind projects
 - TEİAŞ (TSO) informs EMRA about available capacity for the next 5 & 10 years
- Licensing exemption increased to 1 MW from 0.5 to encourage distributed generation
- An independent market operator (EPIAŞ) to be established
- Increasing import-export and trade opportunities
(supplier license for trade, direct export opportunity for generators)
- Market deepening towards a regional energy hub

Regulations on cross-border trade

- The purchase/sales agreements between governments (which are managed by TETAŞ) have a priority in the allocation of the cross-border transmission capacity.
- Having allocated the required capacity to TETAŞ, the remaining capacity is allocated by the method of “**Explicit Auction**” in case of congestion.
- ENTSO-E interconnection capacity is auctioned via TCAT (online) and OTC trade is allowed.
- The revenues obtained from congestion are mainly used for;
 - Establishment of new interconnection lines,
 - Strengthening of transmission and distribution systems for increasing NTC values of existing interconnection lines,

Quick Snapshot

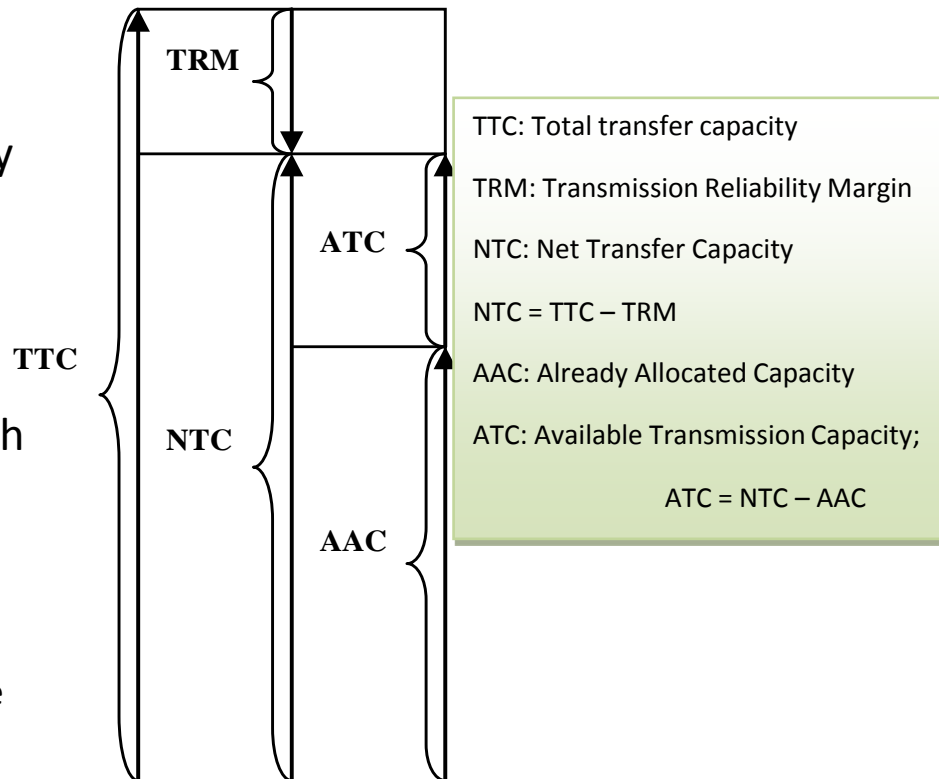
- Cross-border trade in place
(not monopolistic exchange)
- Non-discriminatory third party access
(except IGAs)
- Electrical systems of different countries are interconnected
(but markets are not integrated)

Congestion Management and Relief

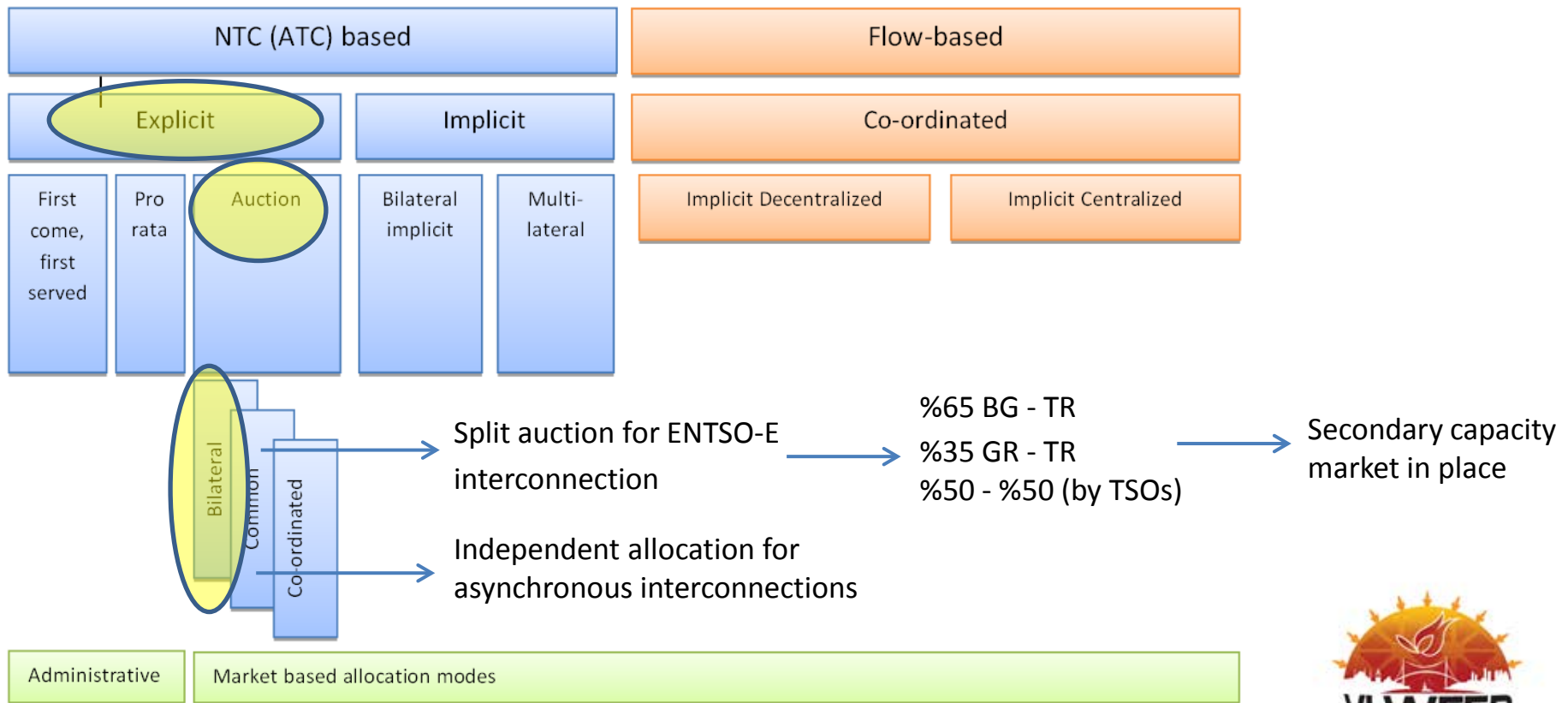
- Capacities are determined by TSO and approved by the regulator
- Ministry also makes evaluations upon capacity applications
- In case of excess demand in the applications, capacities are allocated via auctions
- Congestion relief measures are taken by TSO in real-time

Determining Transfer Capacity

- In case of ENTSO-E, capacities are jointly determined for monthly auctions
- For asynchronous interconnections, each TSO determines the corresponding import-export capacity
 - Subject to ENTSO-E approval (e.g island mode or DC operation)



Capacity Allocation



Thank you for your attention!

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