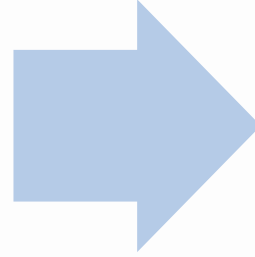


General Outlook of Turkish Market

Avni ÇEBİ
Strategy Development Director
EPIAŞ

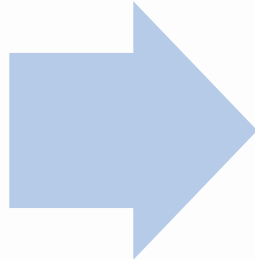
MISSION AND VISION

VISION



Bring out the national and international potential of Turkey in terms of energy trade; actualize attractive, transparent and competitive conditions for both domestic and foreign investors; create a regional and strong energy market integrated with global energy markets.

MISSION



Lead development of energy market through managing it in an effective, transparent and reliable manner; provide reliable reference price formation by means of sharing the market knowledge fair-and-square; create added value to national economy through maximizing the trading volume.

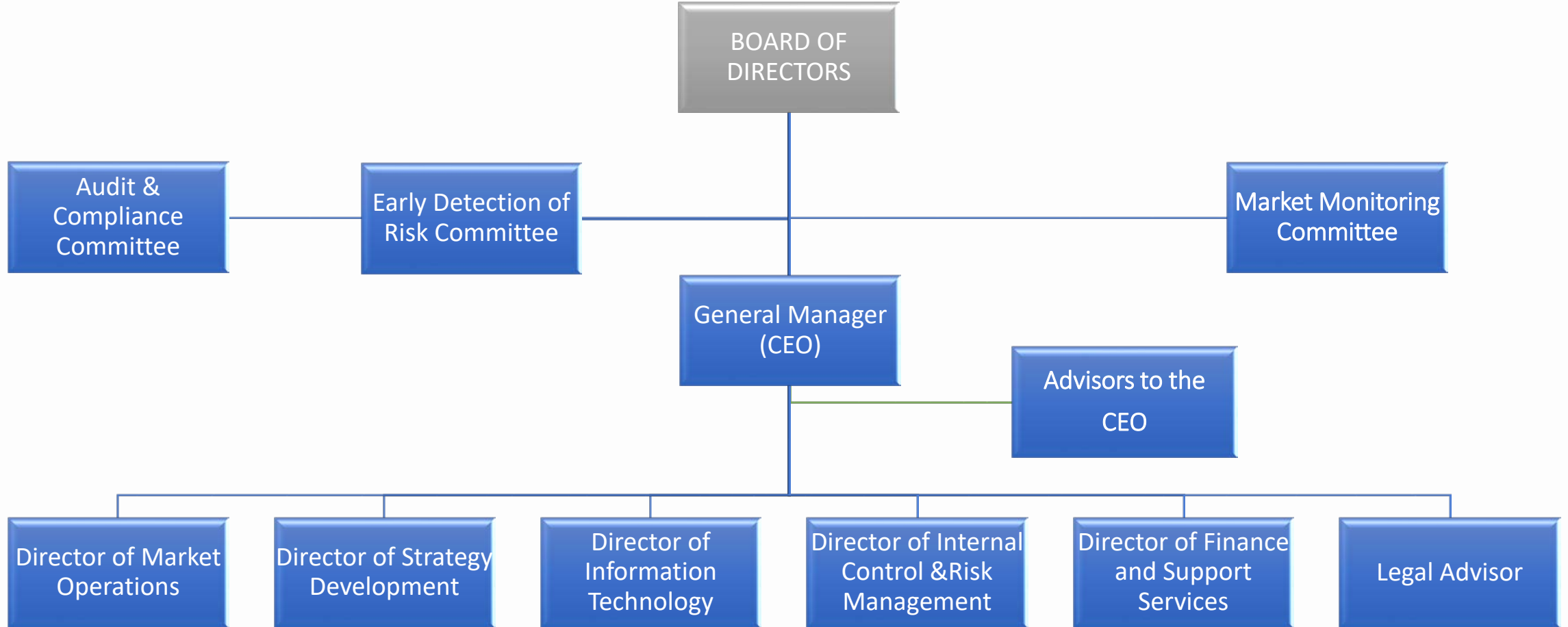
**STRATEGIC
PLAN**

PROJECTS

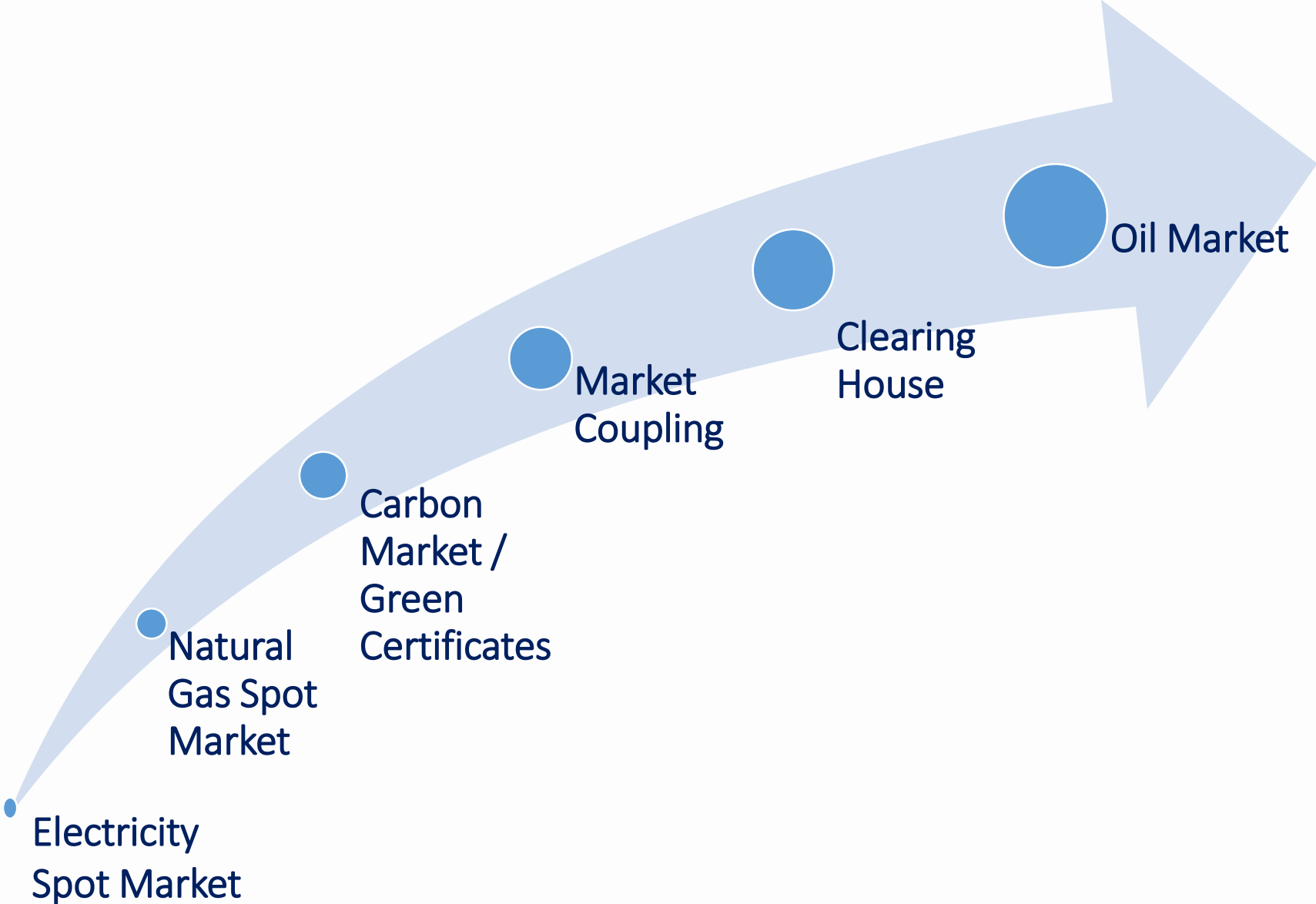
- Transparency
- Reliability
- Liquidity
- Equality
- Simplicity
- Progress
- Collaboration



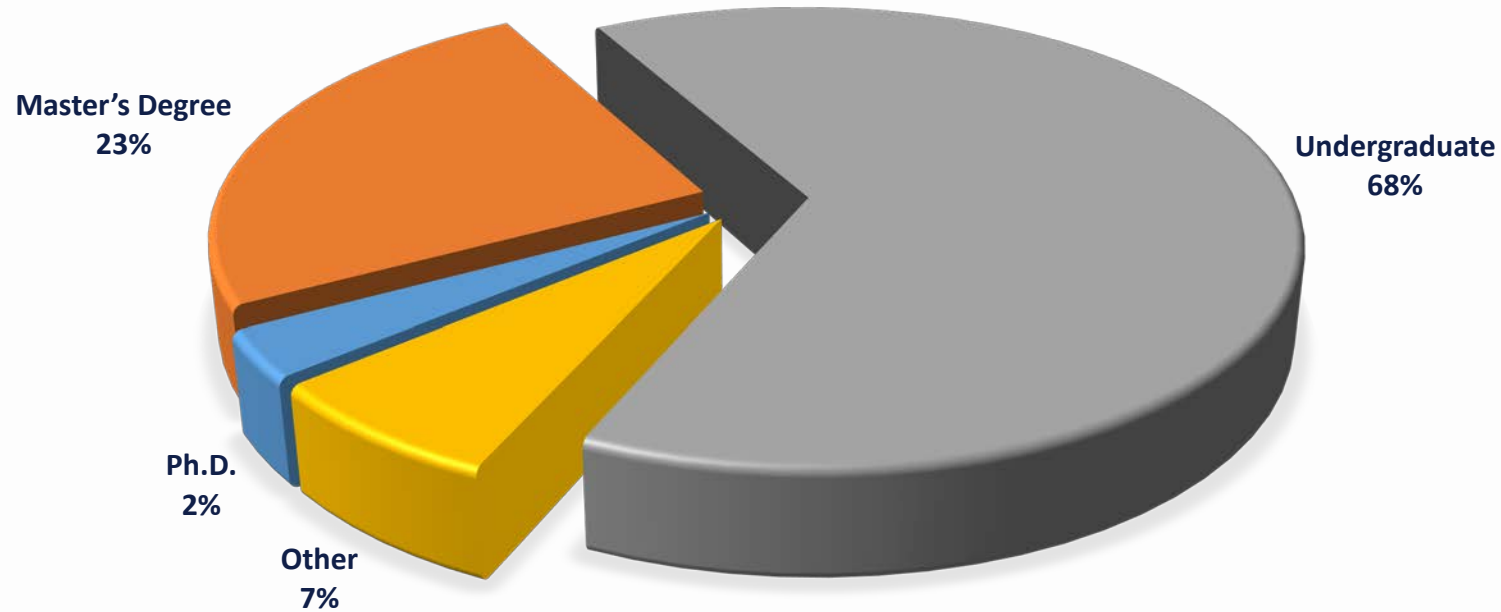
Organizational Chart



Strategic Goals

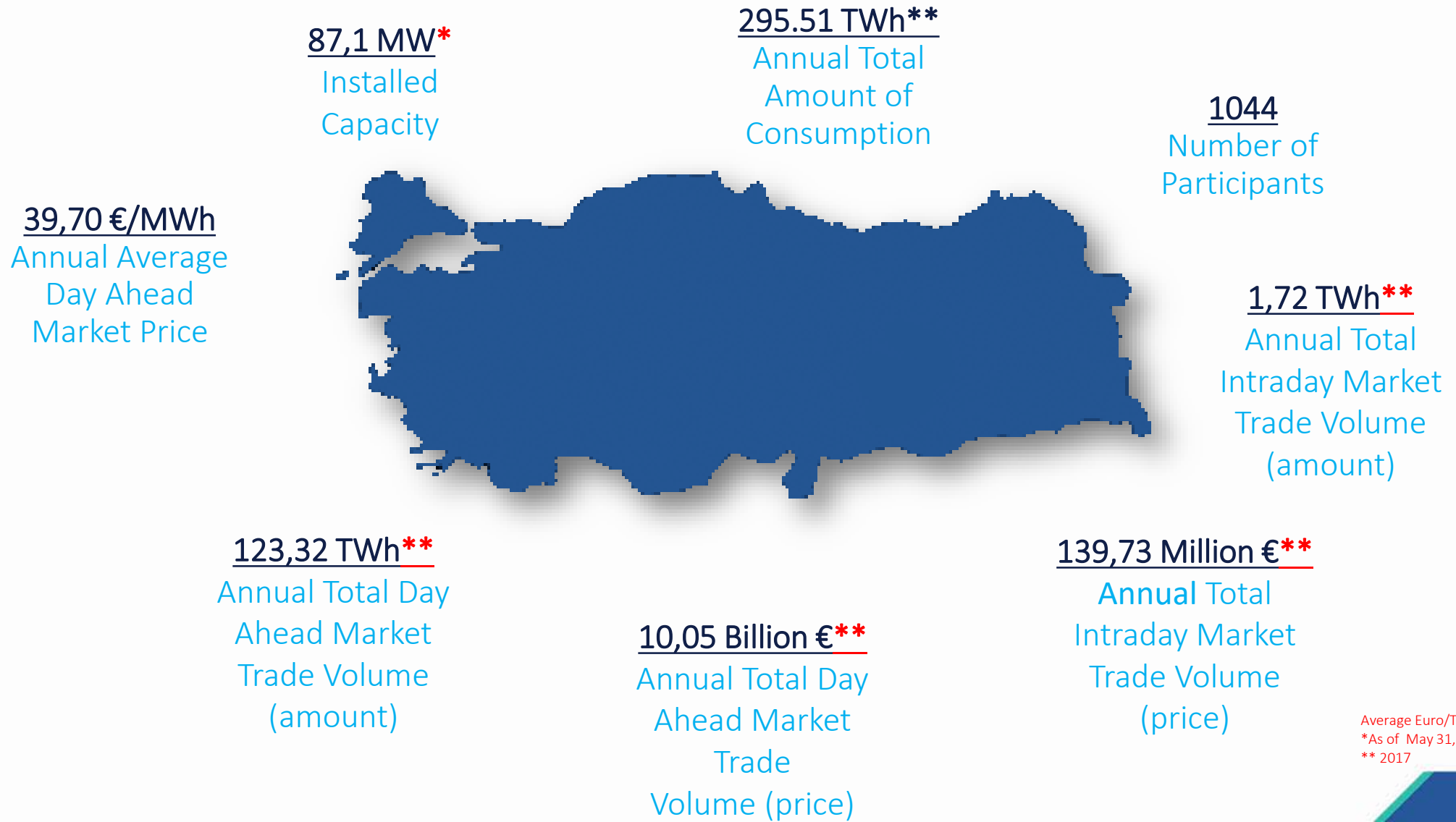


LEVEL OF EDUCATION



- A total of 184 employees are working at EPIAŞ as of July 4, 2018

General Outlook of Turkey's Electricity Market

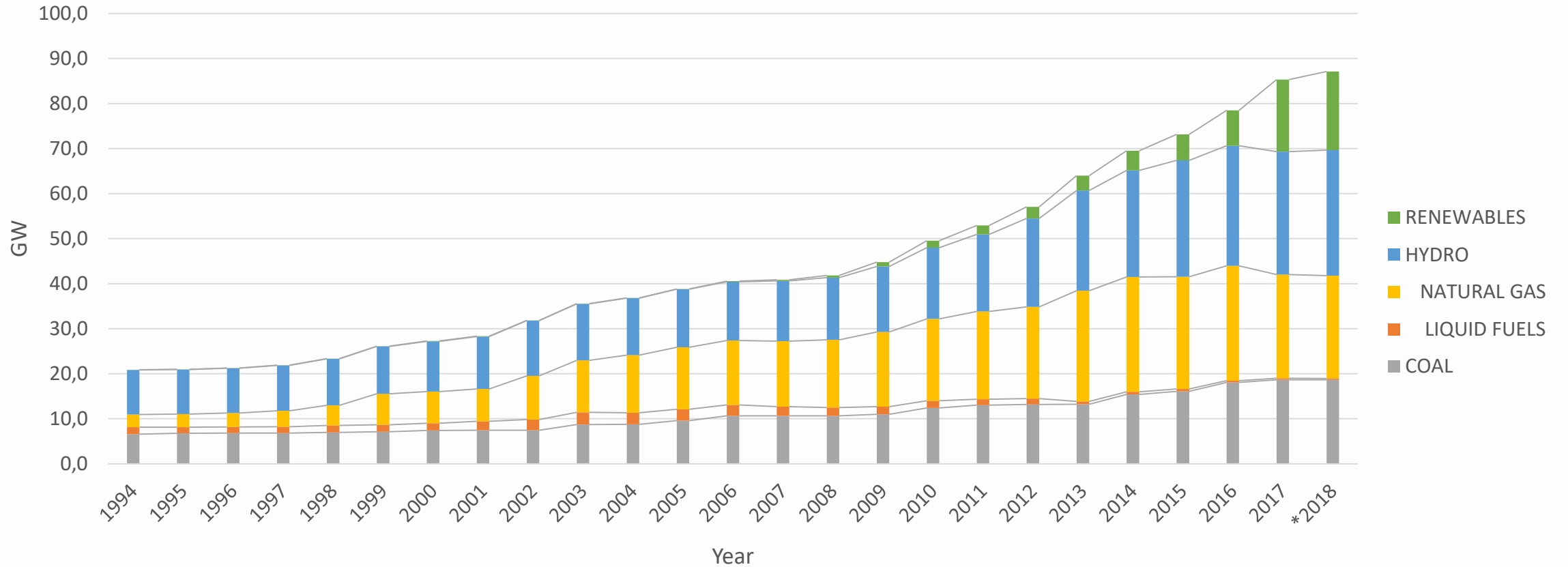


Average Euro/TL currency rate in 2017: 4,1273
*As of May 31, 2018; source: TEİAŞ
** 2017

- Sixth biggest electricity market in Europe.
- Annual demand increase of Turkey : **4,6% since 1990**
- (Annual demand increase of the EU: **1,6%**)
- Primary energy demand is expected to increase around **4% / annum.**
- Electricity demand to increase annually around **5,5%** until 2023
- Investment required more than **\$ 120 billion** for the next **10** years


Installed Capacity By Source

Installed Capacity by Source




General Outlook of Turkey's Electricity Market


2017 Gross Electricity Generation by The Resources


 River Type
%6

 Wind
%6


 Geothermal
%2


 Solar
%1


 Other
%2

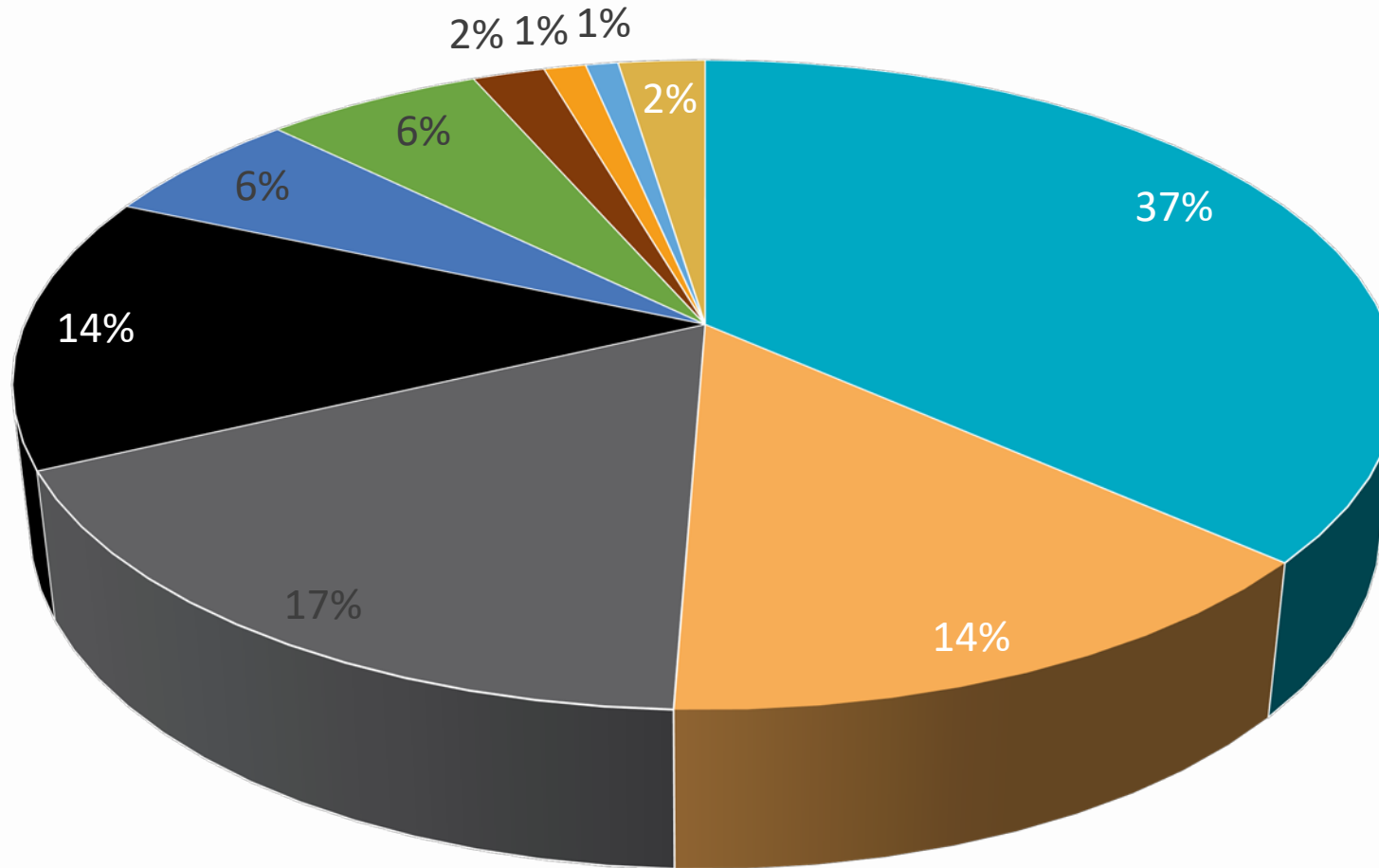
 Natural Gas
%37

 Dammed Hydro
%14

 Lignite
%17

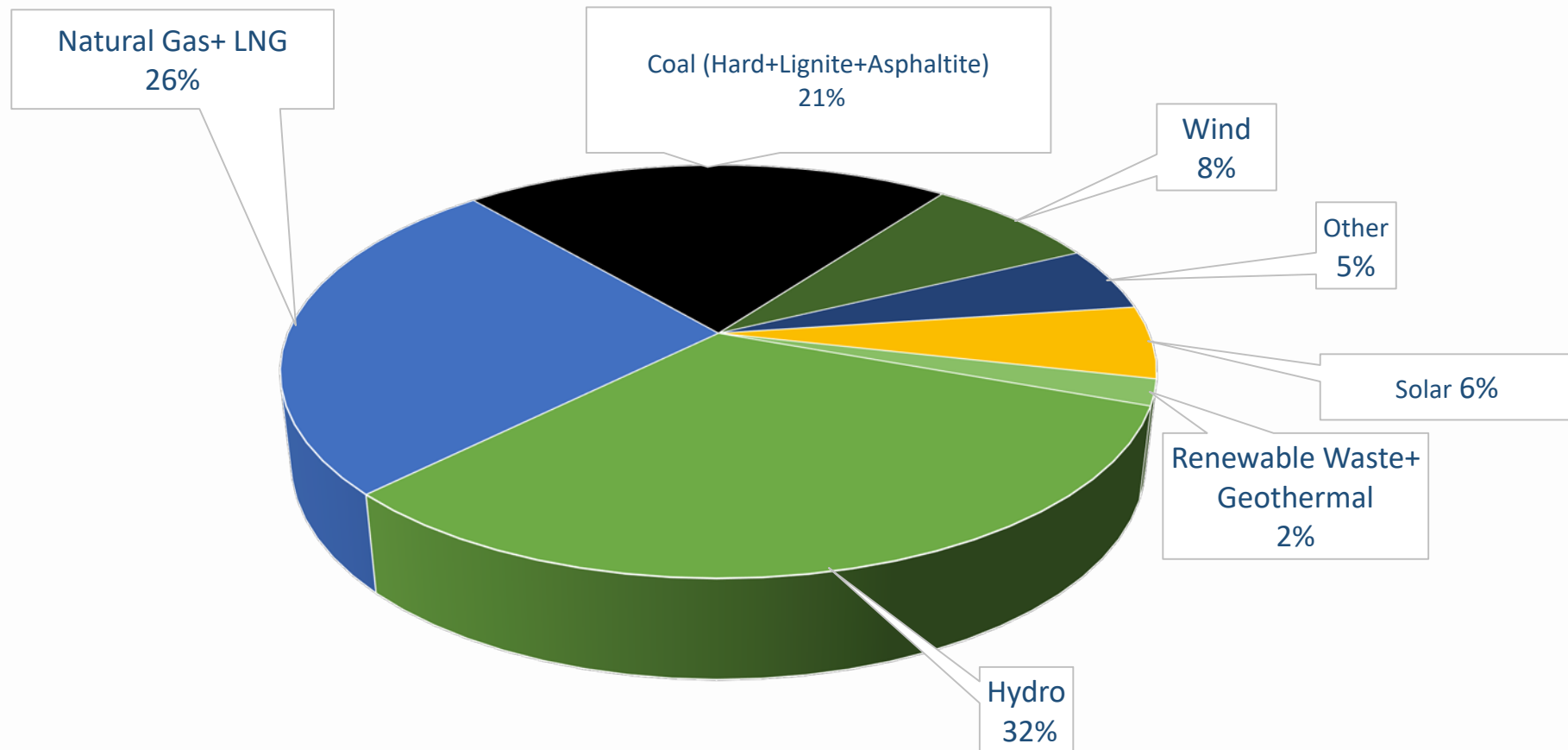
 Imported Coal
%14

 Hard Coal
%1



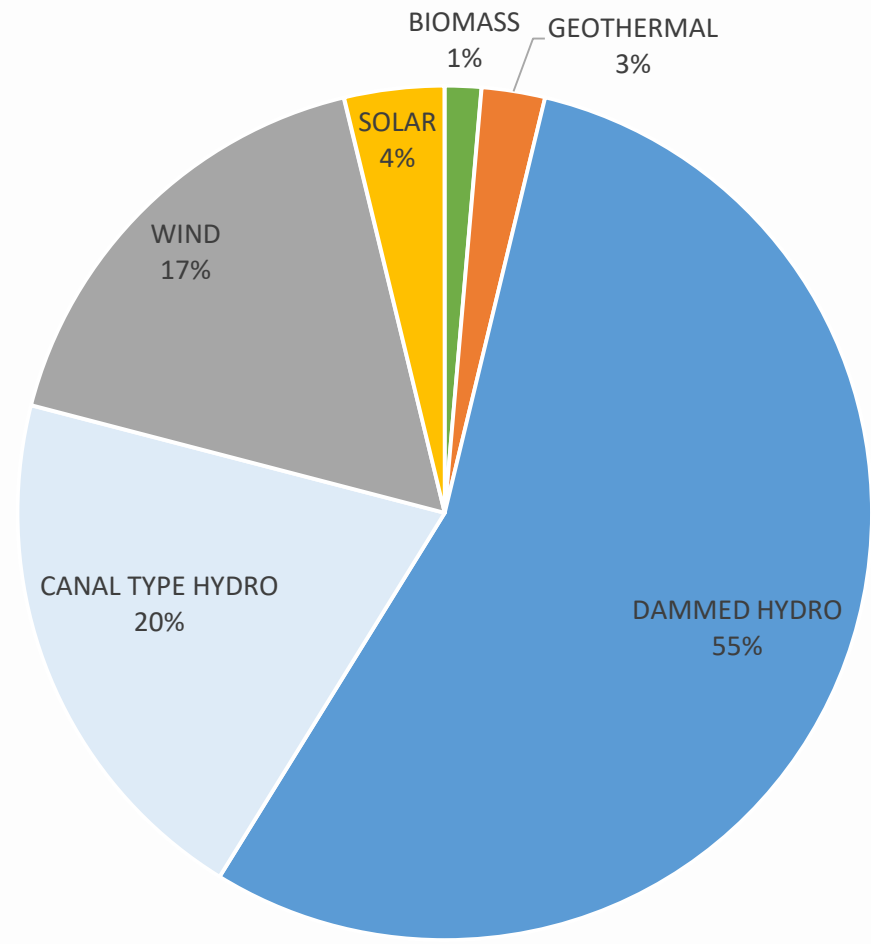
General Outlook of Turkey's Electricity Market

Total Installed Capacity in 2018: 87,1 MW*

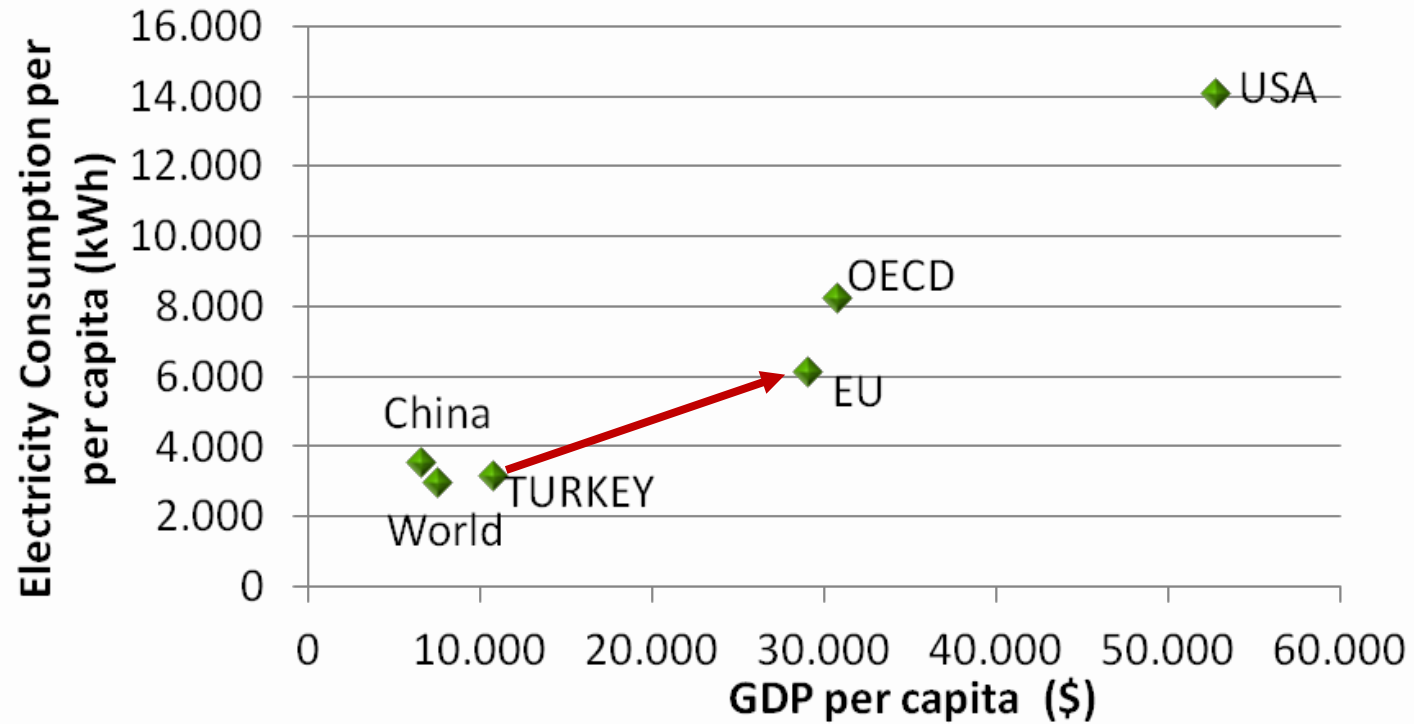


*As of June 30, 2018

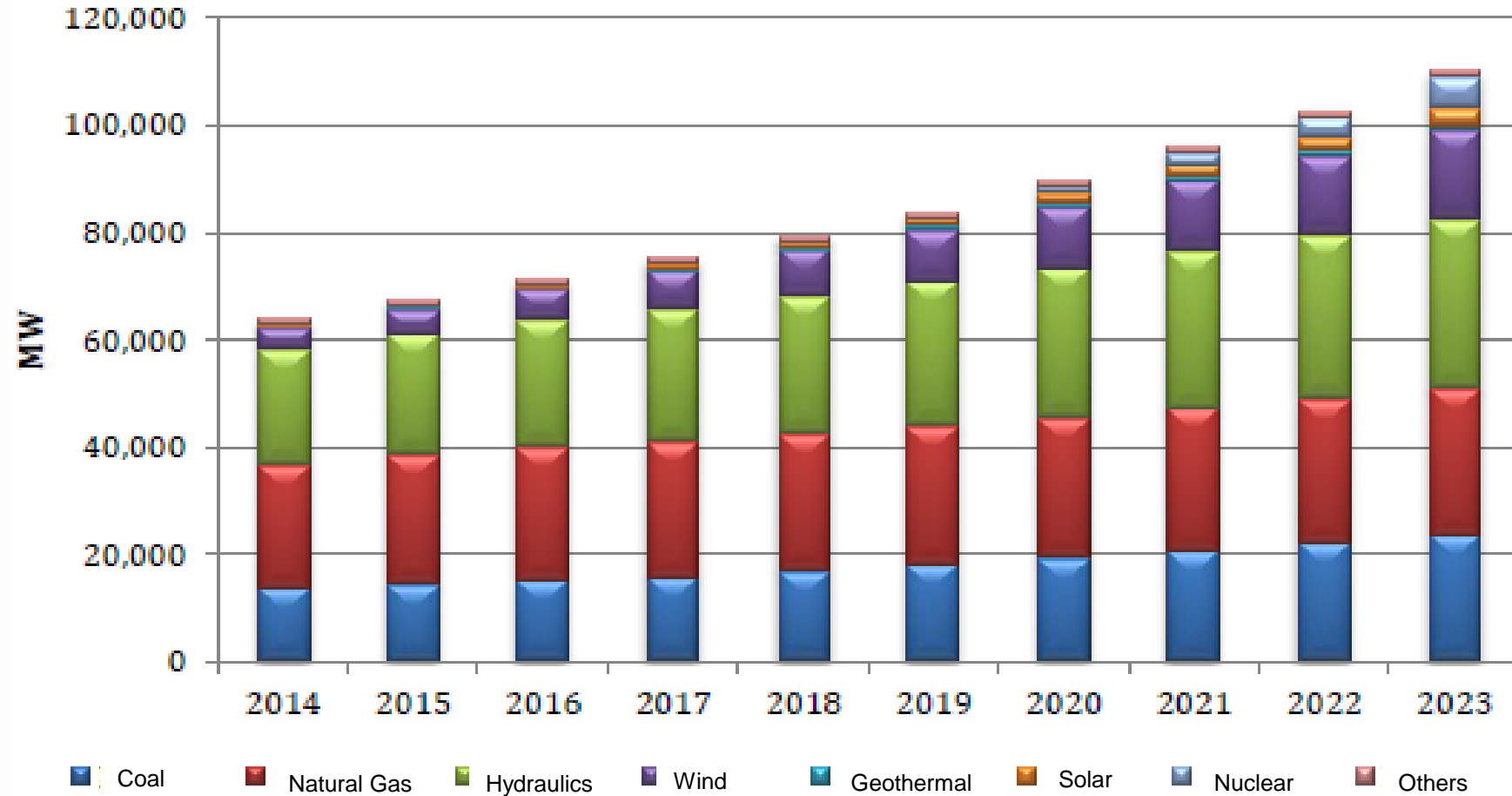
RES Installed Capacity



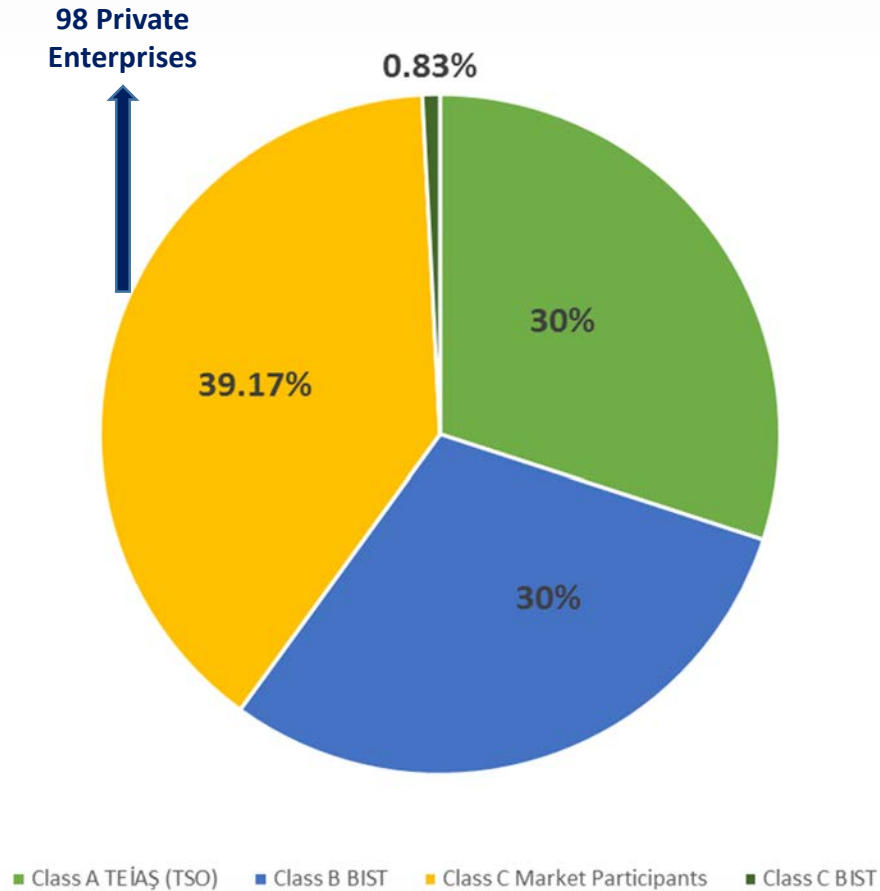
Target by 2023 Electricity Consumption



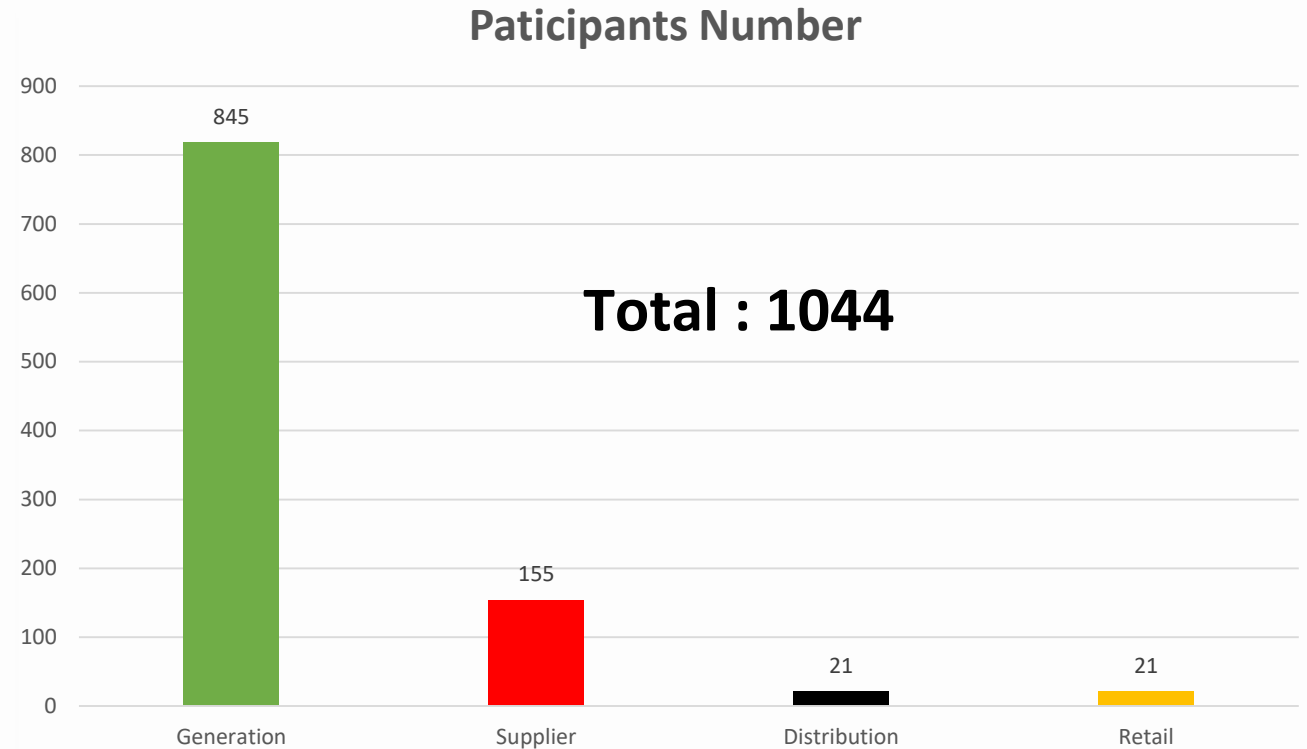
Installed Capacity Projection (2023)



Shareholder Structure



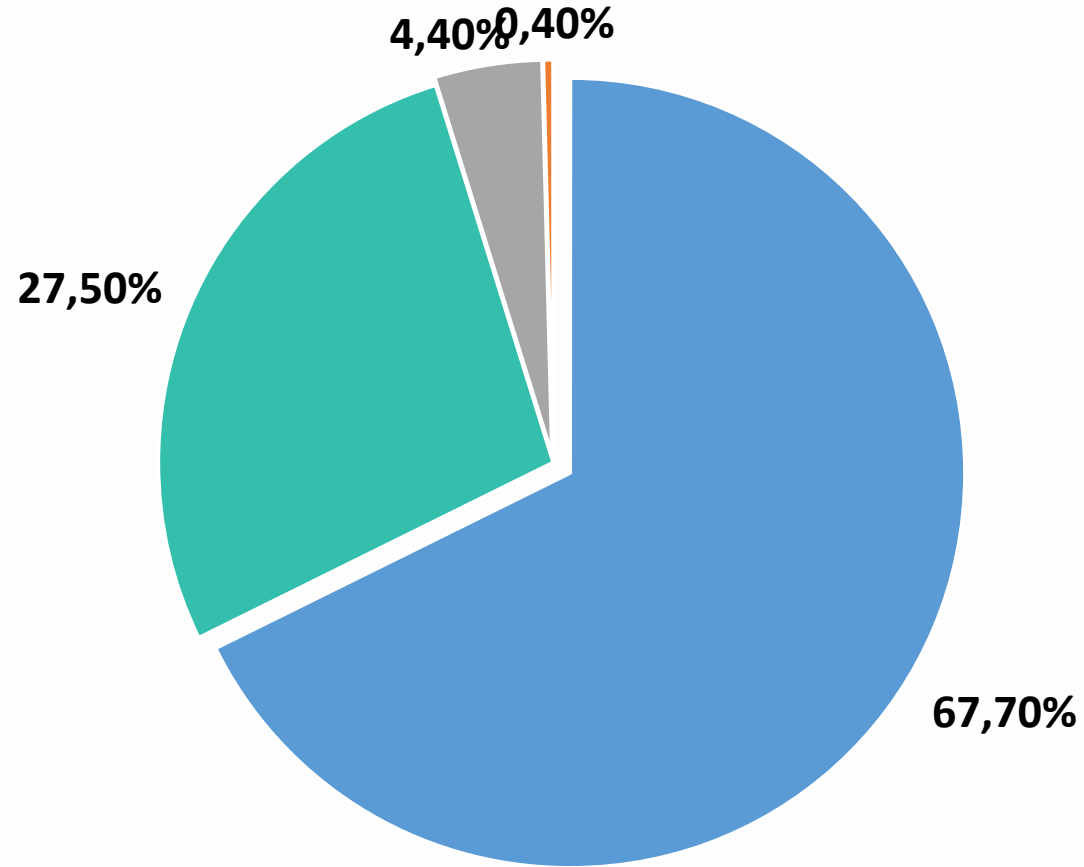
Number of Registered Market Participants (Activity Based)*



***Total 1044 (1042+TSO+Organized Industrial Zone) Participants**

*As of July 04, 2017

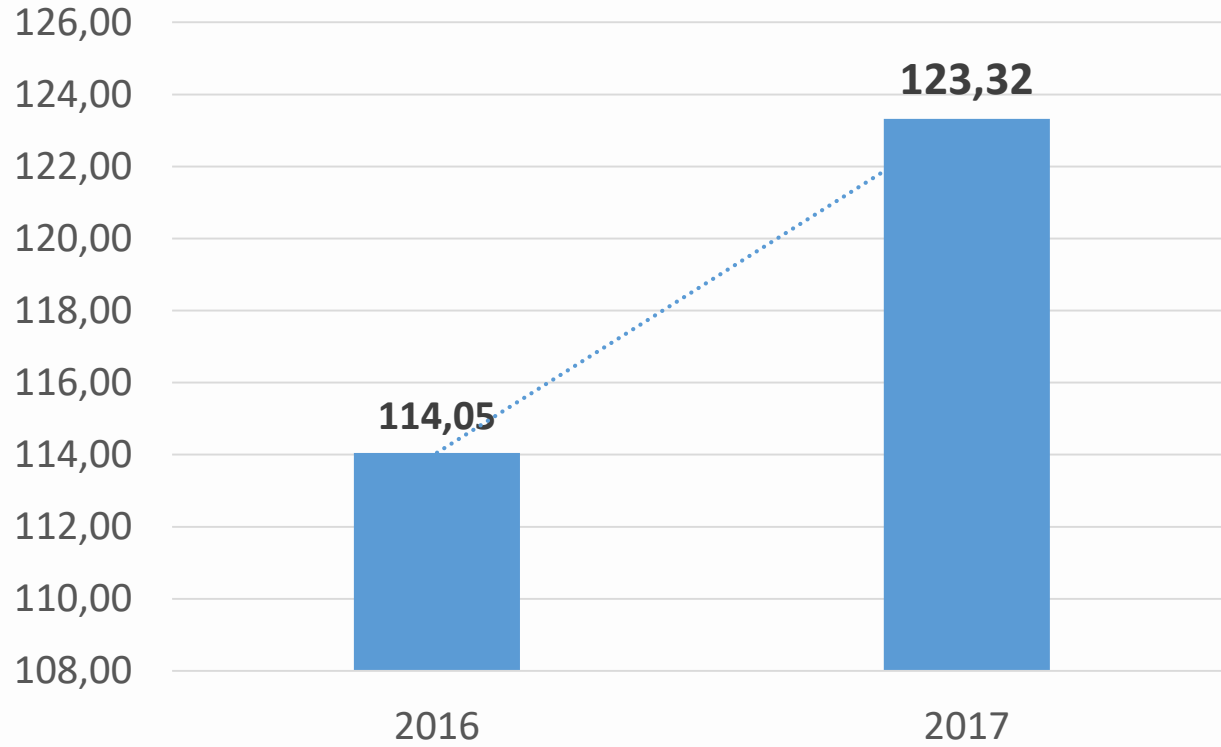
Electricity Markets Trade Ratio



- Bilateral Contract
- Day Ahead Market
- Balancing Power Market
- Intraday Market

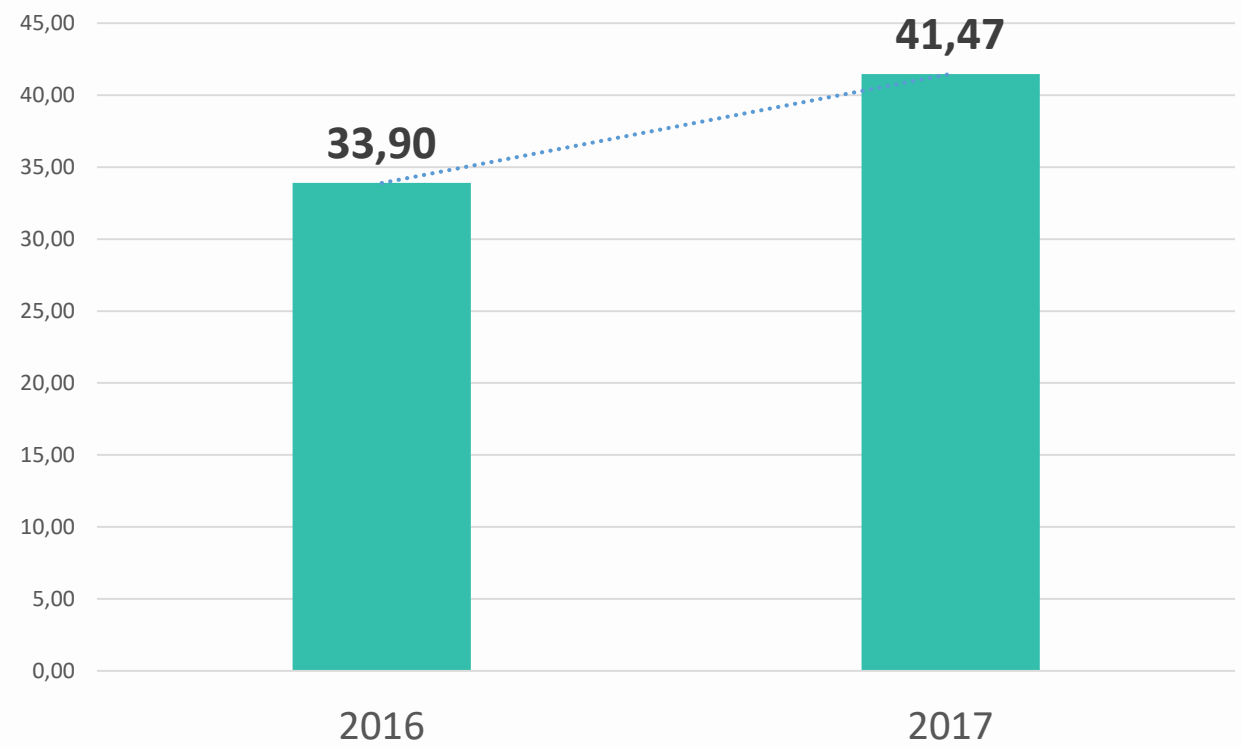
Annual Total Day Ahead Market Trade Volume (amount)

TWh



Annual Total Day Ahead Market Trade Volume (TRY)*

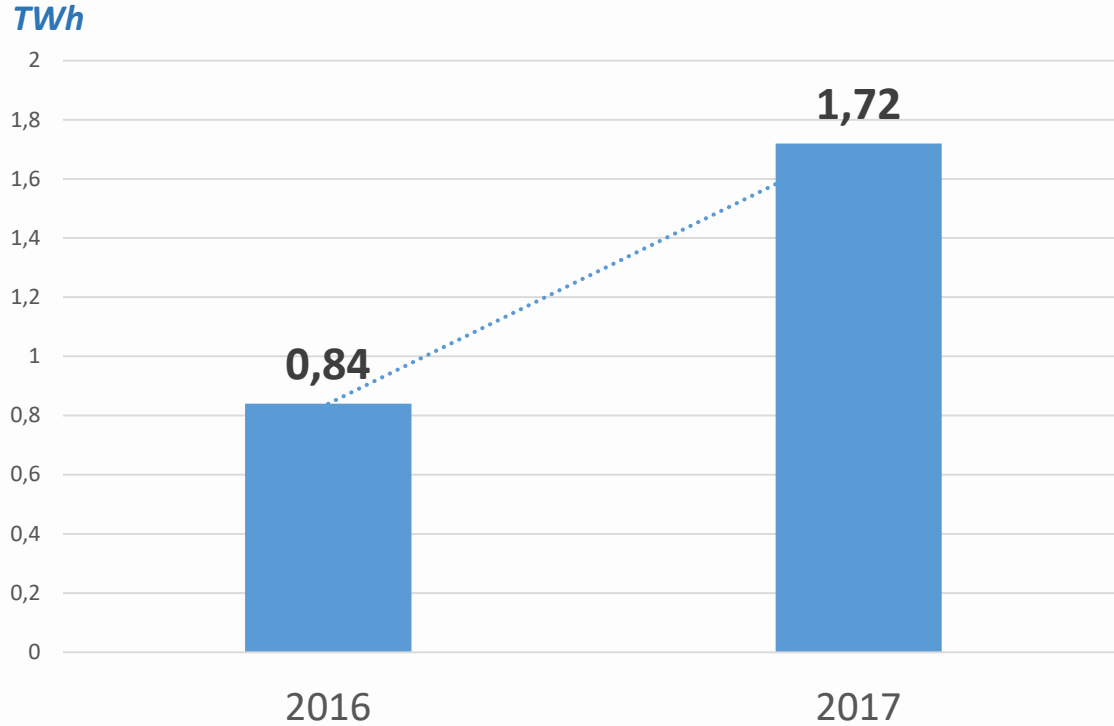
Billion TRY



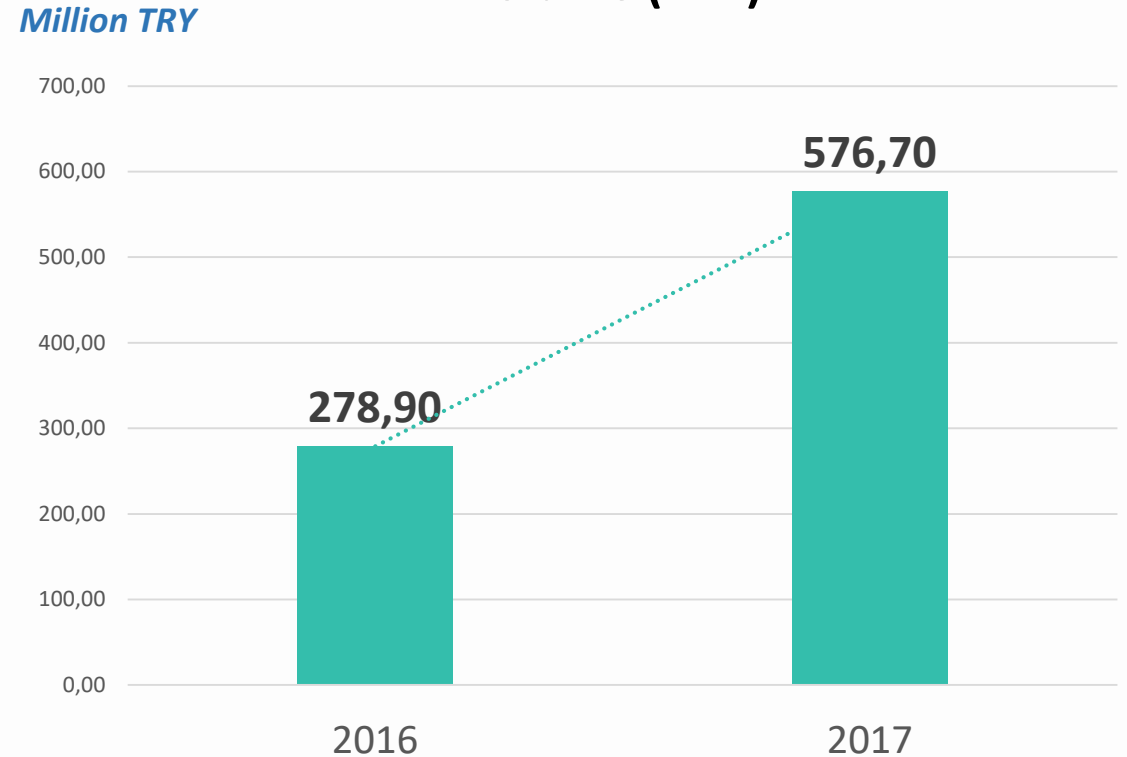
*Average Euro/TRY currency rate: 4,1273 in 2017

*Average Euro/TRY currency rate: 3,3471 in 2016

Annual Total Intraday Market Trade Volume (amount)



Annual Total Intraday Market Trade Volume (TRY)*



*Average Euro/TRY currency rate: 4,1273 in 2017

*Average Euro/TRY currency rate: 3,3471 in 2016

- Transparency Platform
- Transparency Principles
 - Predictability
 - Reliability
 - Sustainability
 - Accessibility
 - Equal Opportunity
 - Data Quality
 - Information Asymmetry Prevention

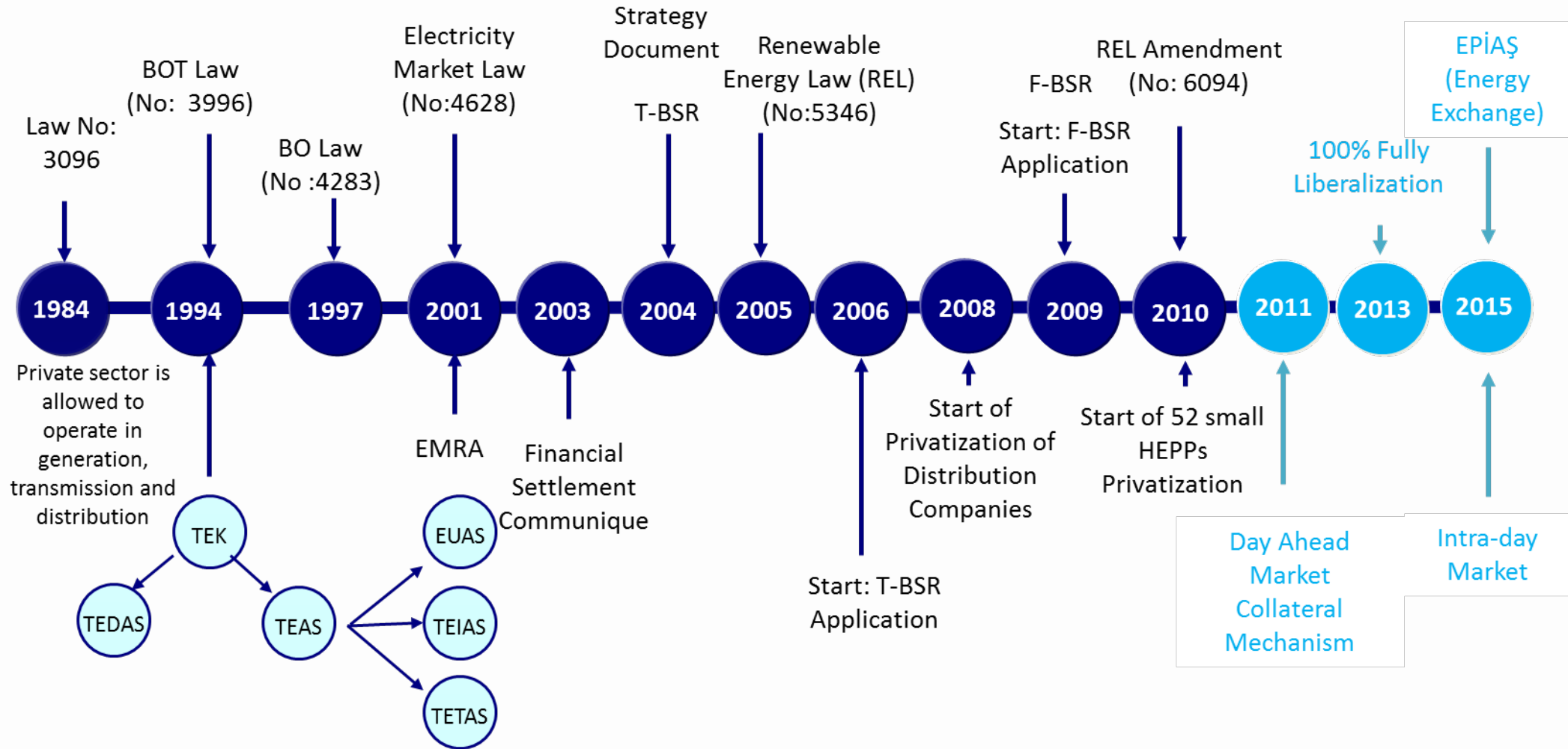


58 data are published in Transparency Platform. Some of them are following;

- Market Clearing Price
- Trade Value
- Bilateral Contracts Bid-Offer Quantity
- Final Daily Production Program
- Real Time Generation
- Load Forecast Plan
- Consumption
- Natural Gas
- Virtual Trade
- Gas Input/Output Amounts

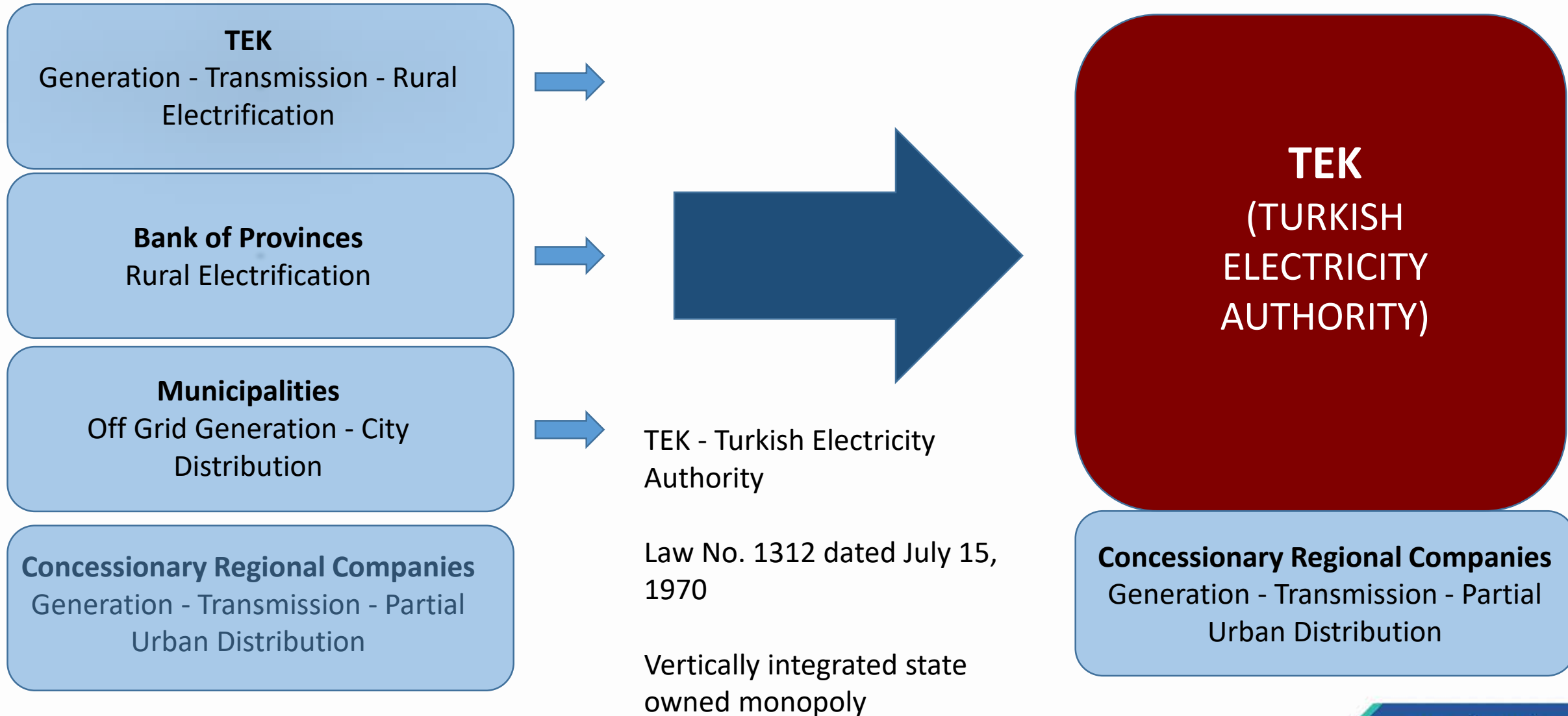
Evolution of the Competitive Market in Turkey

Electricity Market Reform



1970 Monopoly of TEK

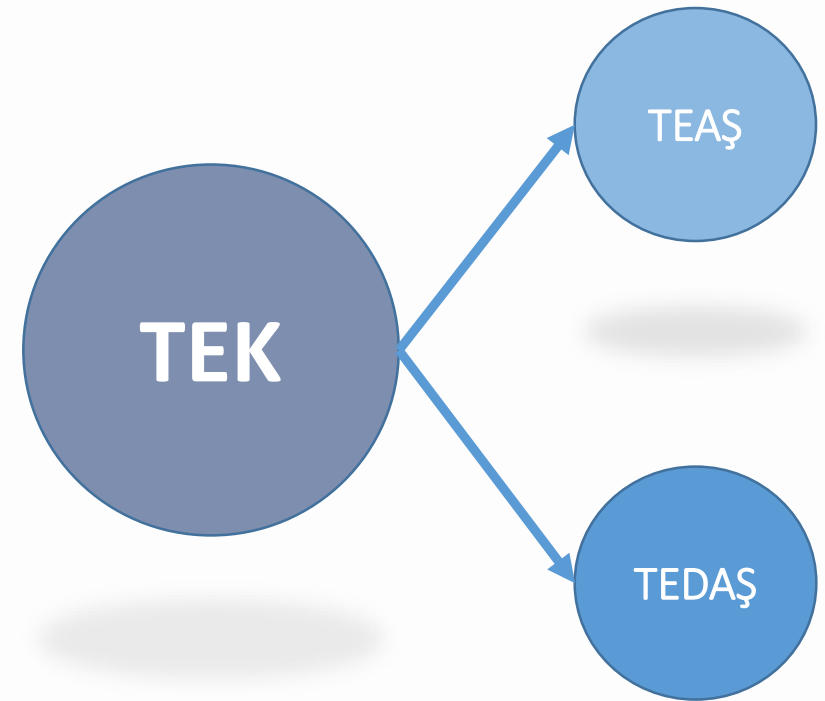
Municipal distribution activities consolidation



- **Turkish Electricity Authority (TEK)**
 - Electricity Generation,
 - Transmission,
 - Rural Electrification
 - 100% State Owned

- **The consolidation of all electricity sector activities was completed**
 - after transferring the urban distribution activities from municipalities to TEK in 1982

- **PSP Model**
- **TEAŞ (The Turkish Electricity Generation and Transmission Company)**
 - Generation
 - Transmission
 - 100% State Owned
- **TEDAŞ (The Turkish Electricity Distribution Company)**
 - Distribution
 - 100% State Owned
- Most of generation belongs to TEAŞ
- BO, BOT and TOR power plants available
- Generation dispatch by TEAŞ



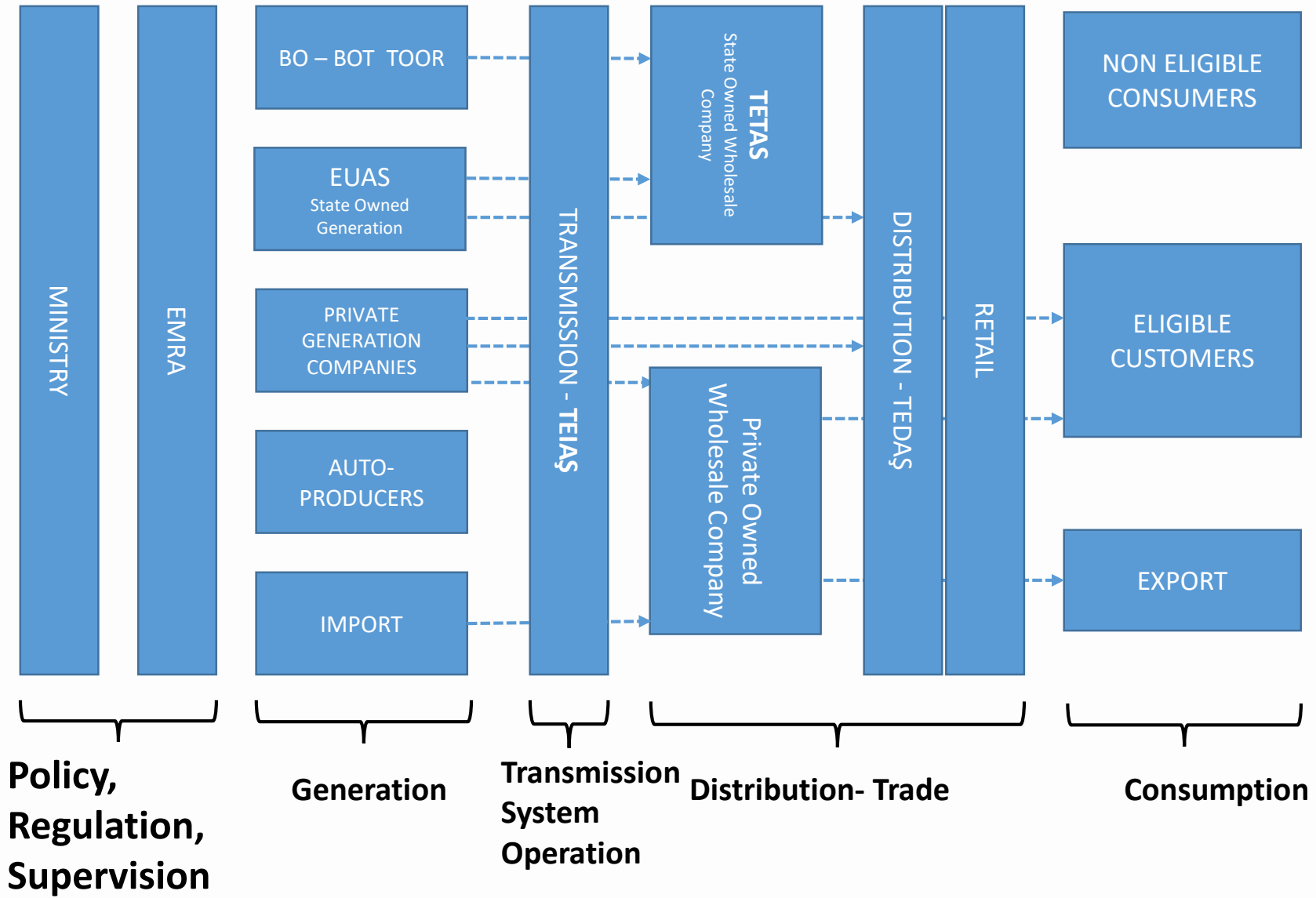
- Single Buyer model
- Long-term contracts with TEAŞ
- Pricing depends on contract
- General pricing scheme:
- Capacity payment (constant)
- Energy payment (depends on fuel cost)
- Autoproducers & Autoproducer Groups available
- Large (generally industrial) consumers can become shareholder of an autoproducer group
- Quasi eligible consumers
- Energy imbalance price determined by TEAŞ

- Establishment of Energy Market Regulatory Authority (EMRA)

One of the major steps in the reform process was the establishment of EMRA to ensure the autonomous regulation and supervision of the market.

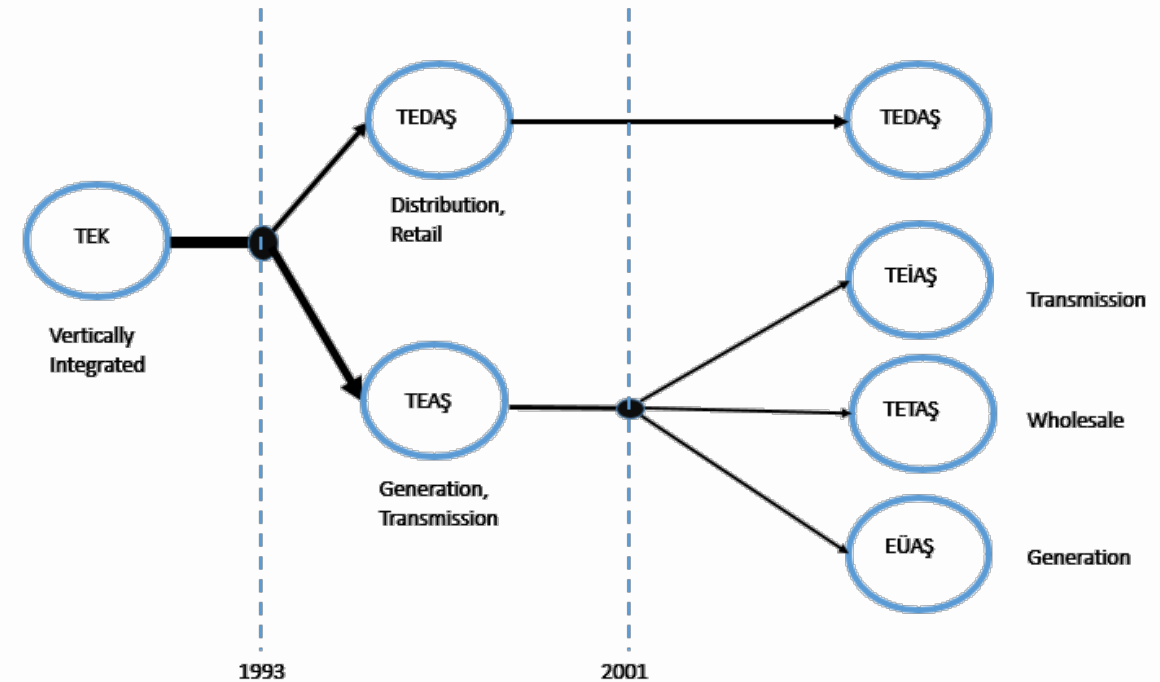
- Licensing Regulation (LR)
- Transmission and distribution Grid Code
- Electricity Market Distribution Regulation (EMDR)
- Transitional Balancing and Settlement Regulation (BSR)
- Ancillary Services Regulation
- Tariff Regulation

Market-Based Reforms Since 2001



Market-Based Reforms: Early 2000s

- Turkish Electricity Generation and Transmission Company (TEAŞ) was split into three parts;
- **The Turkish Electricity Transmission Company (TEİAŞ)**; electricity transmission, system and market operations
- **The Electricity Generation Company (EÜAŞ)**; electricity generation

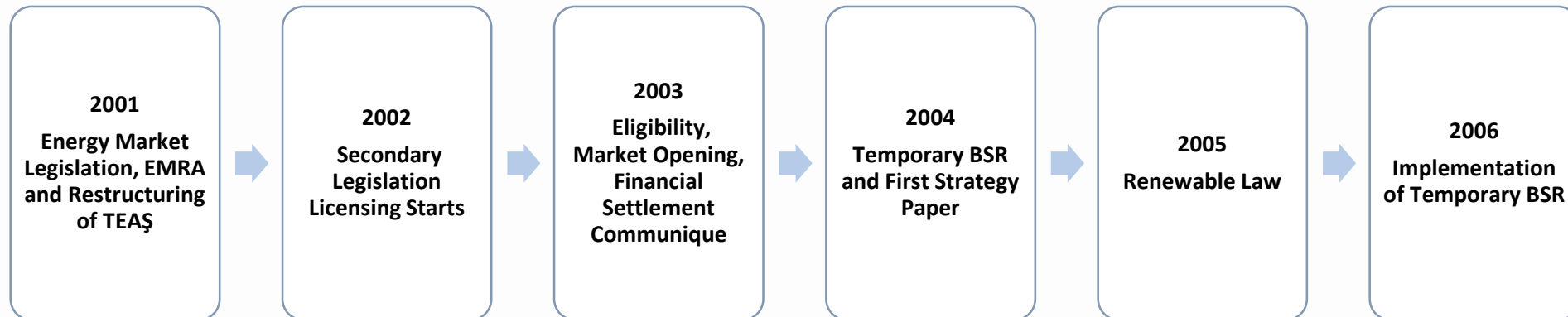


- **The Turkish Electricity Trading and Contracting Company (TETAŞ)**; electricity wholesale activities – including handling the long-term PPAs (with BOO, BOT, and TOOR companies) left over from the previous regime

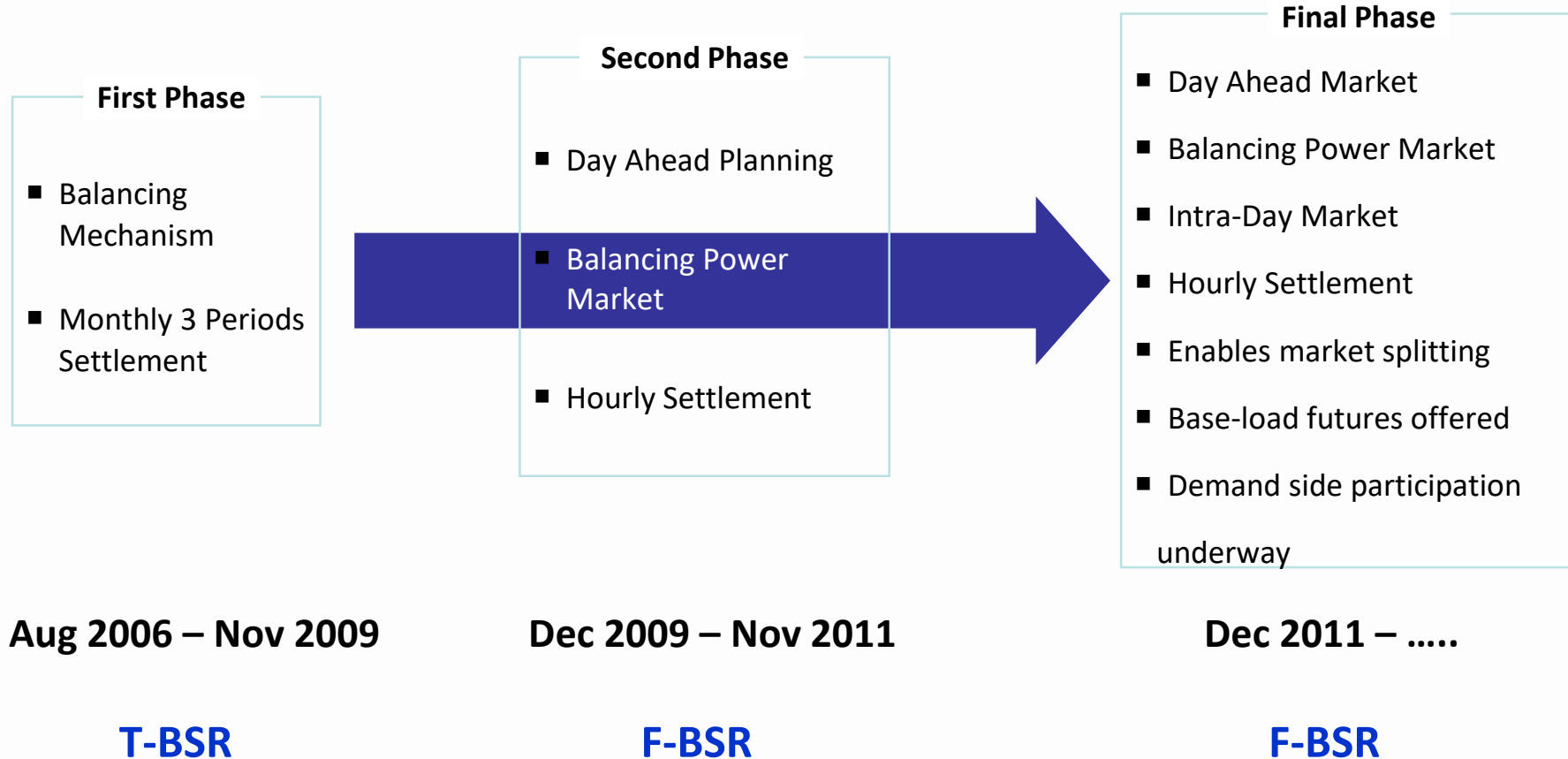
- **T-BSR (2006): Start of market based pricing**
- Financial Settlement Cominiqué (2003)
- 3 term settlement
- Bilateral contracts & bilateral agreements
- Producers sell directly to eligible consumers
- Regulated imbalance & real time balancing price
- **Electricity Market Financial Settlement Center (PMUM): 2006**
- Operating spot market
- Settlement
- Clearing
- Transparency

Major Implementation Steps between 2001 and 2006

- Between 2001 and 2006 the basic legal and regulatory arrangements were developed and the market structure was changed – but at the same time transitional problems were experienced.



History of Balancing & Settlement Mechanism



- Distribution privatization was adopted as the best available means to raise required investments and achieve a sustainable long-term solution to satisfactory bill collection and distribution network efficiency.
- The approval of the cost-based energy pricing mechanism helped build private sector confidence to the extent that the government was able to launch the delayed implementation of the program to privatize electricity distribution.
- 21 distribution area were privatized and the privatization program was completed in 2013, a total of about \$12.7 billion.

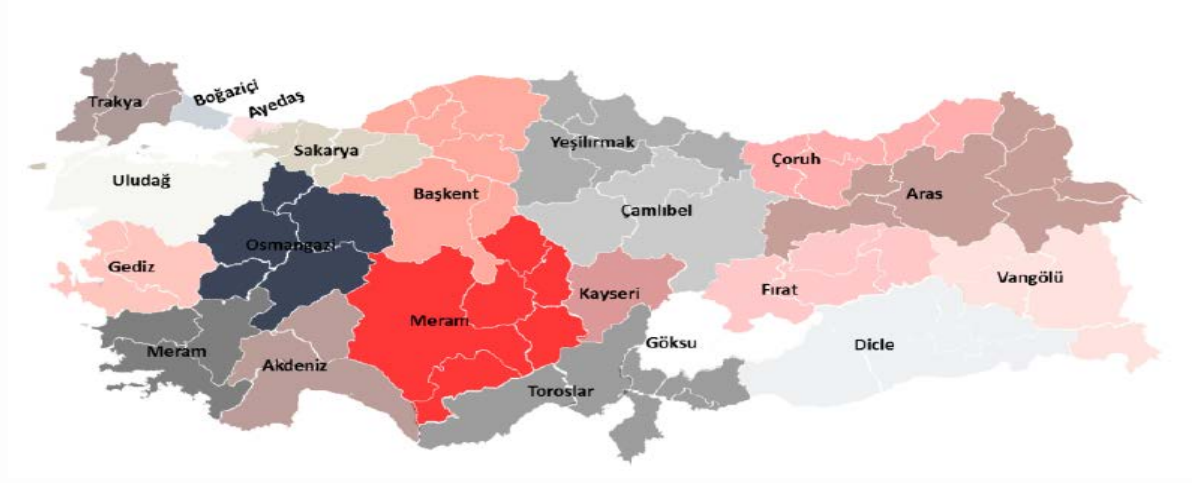
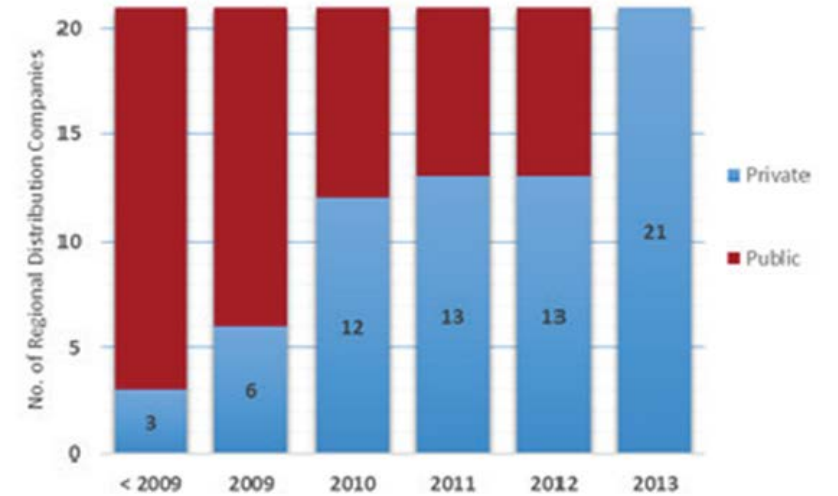


Figure 33. Development of Privatization of Distribution Regions

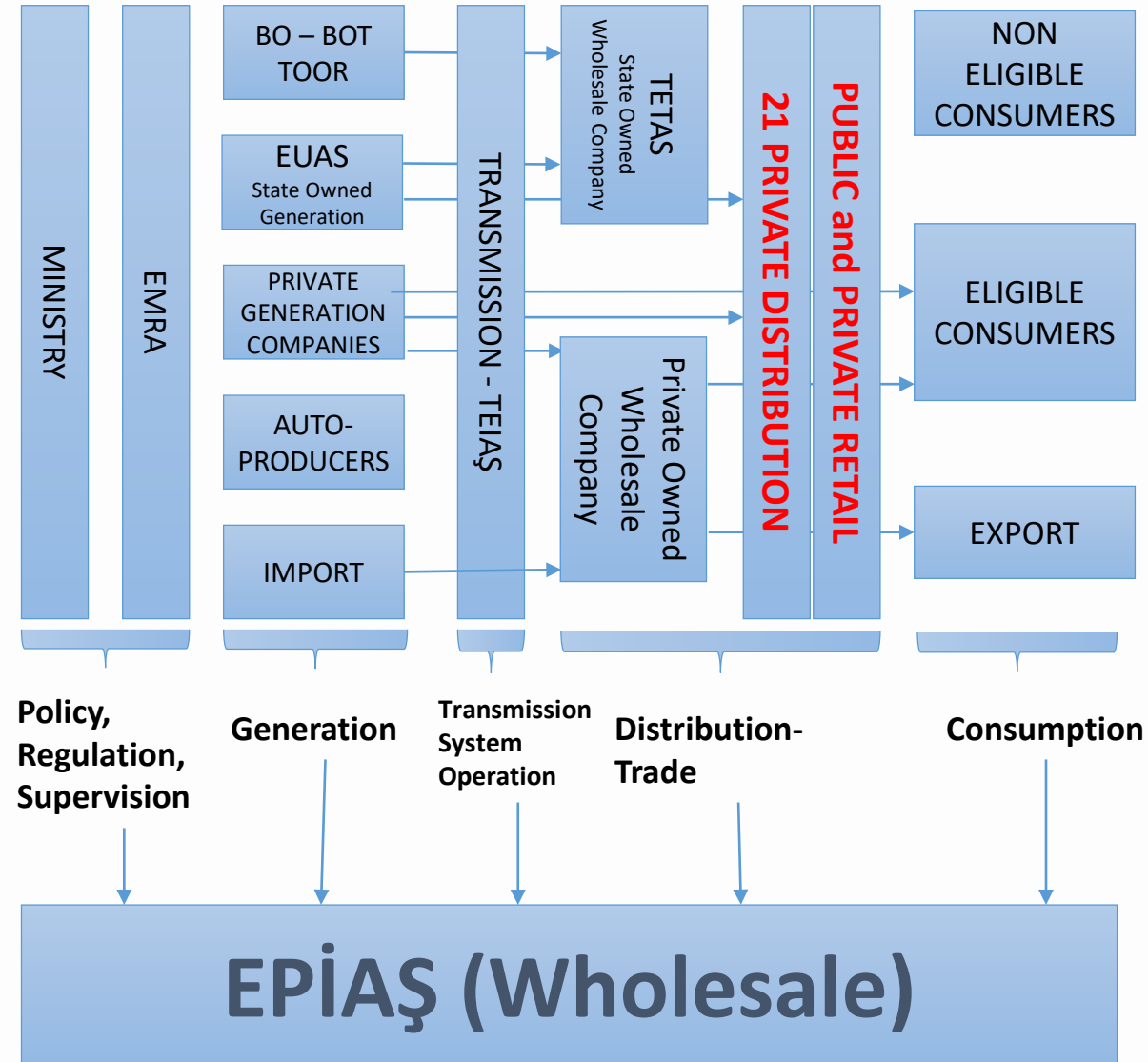


- Total revenue from privatization reached 13 billion USD
- Privatization complemented by unbundling of distribution and retail sale activities

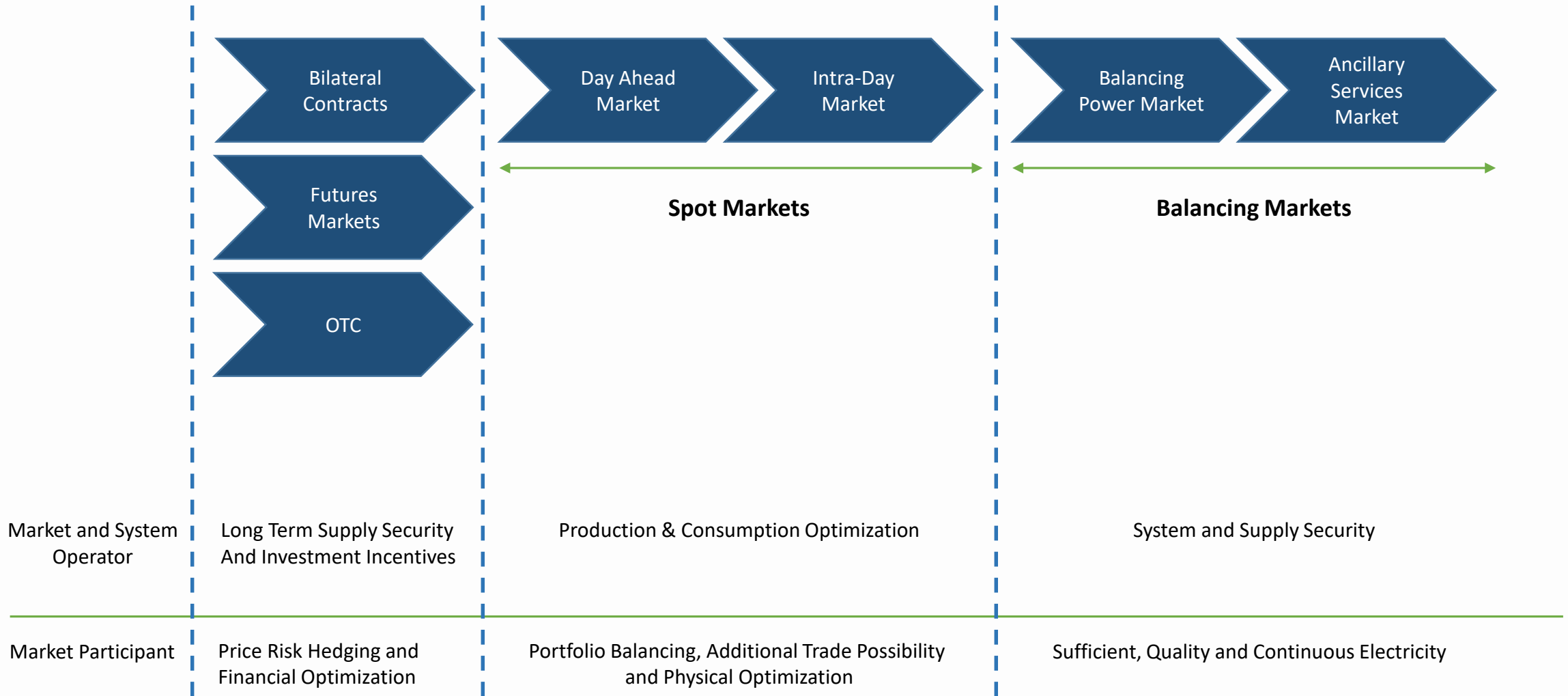
- **The one of the important steps of the energy sector liberalization period was the establishment of EPIAŞ.**

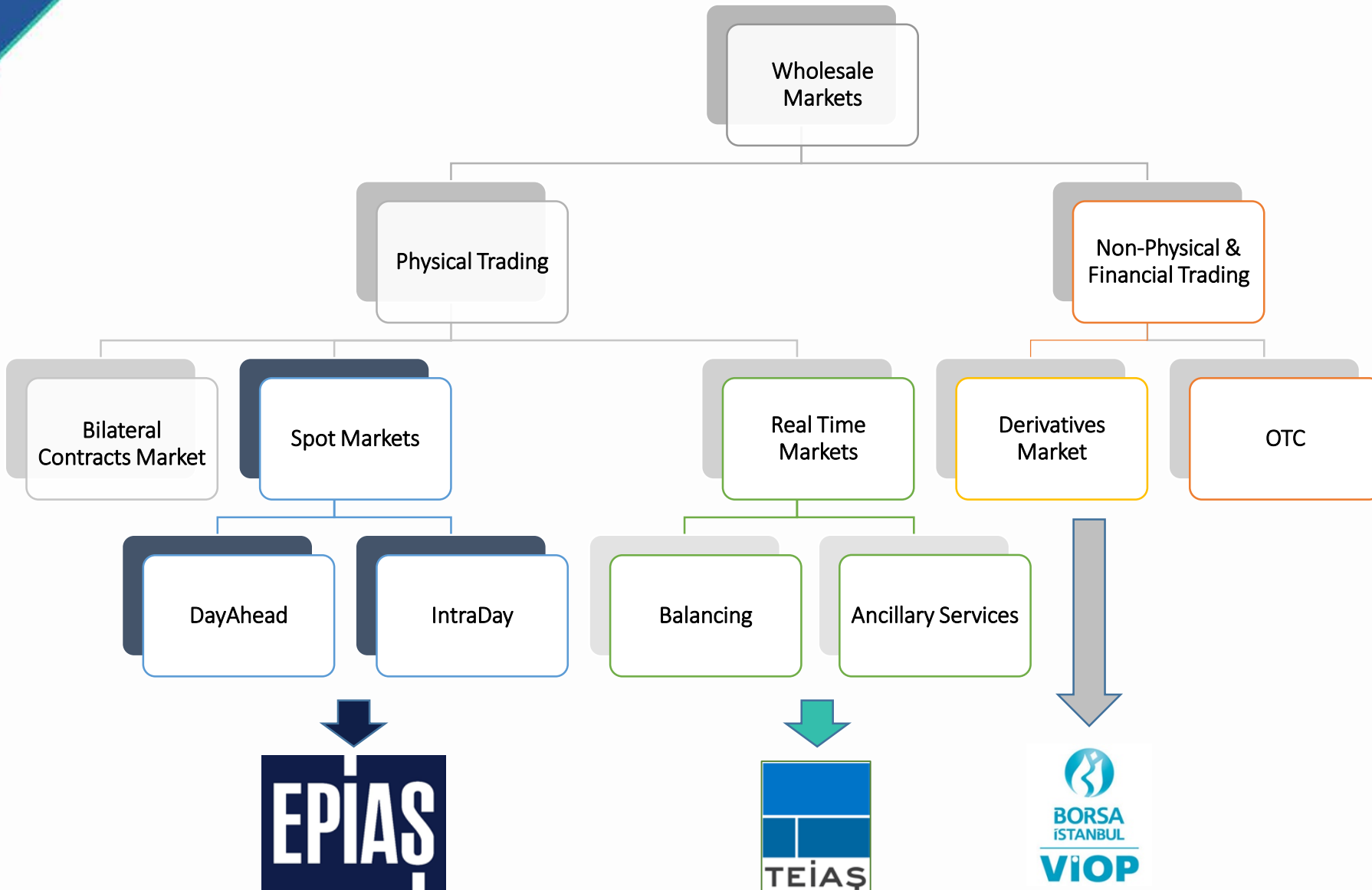
- **The duties of EPIAŞ;**
 - ❖ Operating electricity wholesale market,
 - ❖ Settlement
 - ❖ Clearing
 - ❖ Establishing of other energy markets
 - ❖ To innovate new products and services
 - ❖ Supporting Transmission System Operator (TSO) and providing infrastructure
 - ❖ Eligible Customer Operations (Registration, Supplier Switching)
 - ❖ To evolve system and infrastructure

Establishment of EPIAŞ as Market Operator



Principle Functions of the Markets





Day Ahead Market

EPIAŞ determines hourly electricity prices for the next day based on market supply and demand.

Intraday Market

Trade continues until 1 hour and 30 minutes before physical delivery in order to reduce imbalances.

Balancing & Settlement

Implementation of the settlement process, financial settlement, and preparation of payable and receivable notifications for market participants

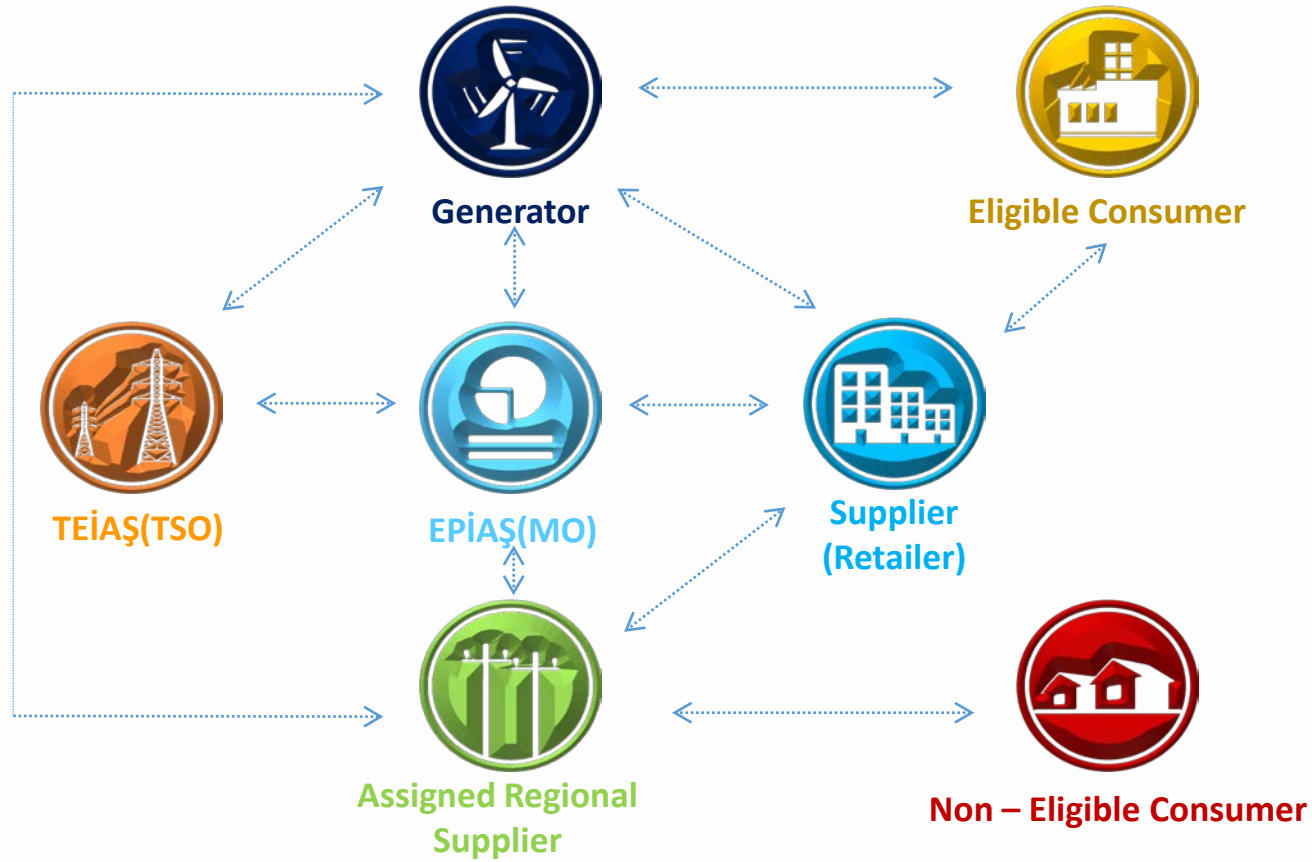
Customer Switching

Organizing and coordinating the process of Eligible costumers to switch suppliers throughout information flow within the scope of market participants



TRANSMISSION SYSTEM OPERATOR

Carries activities related to operation of Balancing Power Market, sustainment of supply quality via real time supply/demand balancing, formation of essential reserve capacity via ancillary services and Balancing Power Market



MARKET OPERATOR

Carries activities related to operation of Day Ahead and Intra Day Markets, financial settlement and preparation of payable and receivable notifications for market participants

THANK YOU