



AKENERJİ ELEKTRİK ÜRETİM A.Ş.

2018





AKENERJI



COMPANY OVERVIEW



➤ Private Energy Company

1.224 MW active power capacity (Natural gas, Hydro and wind)
198 MW hydro at development stage
904 MW CCGT launched in 2014

➤ Role in Market

- Established in 1989, one of the largest and most experienced players in the market.
- Single-handedly has the capability to generate 3 % of energy need of Turkey and is one of the market leaders among private generation companies. (2,2 % of private generators)

➤ Ranking in the Major 500

- Ranked in the list of “500 Major Industrial Enterprises of Turkey Research” by Istanbul Chamber of Industry consequently in the last 8 years *

➤ Ownership Structure

- IPO-ed in June 2000

| | |
|--------|---------|
| Akkök | 37,36 % |
| CEZ | 37,36 % |
| Public | 25,28 % |



* Except 2014

STRONG SHAREHOLDER SYNERGY



AKKÖK GROUP

- One of the biggest industrial groups in Turkey
- Active in several sectors with main focus on Chemicals, Energy, Real Estate, Port Operations, IT and Insurance
- The group with over 5,000 employees, consolidated revenues amounting to TL 3,8 billion in 2017.
- Sectoral Breakdown of Group's Turnover in 2017:
 - Chemicals : 36%
 - Energy : 58%
 - Others : 6%

www.akkok.com.tr



CEZ GROUP

- CEZ is the largest Czech corporation, and the largest corporation among 10 new EU member states
- 8th largest Power Utility company in terms of market capitalization in Europe
- Vertically integrated in the Czech Republic – from mining through generation to distribution and supply
- Expertise in distribution and supply in Bulgaria and Romania
- Growing in renewables, with asset in Germany, Poland, Romania and Czech Republic
- Generation know-how in lignite, coal, hydro and nuclear energy
- CEZ 2017 EBITDA exceeded 2.1 billion EUR with consolidated revenues amounting to 7.9 billion EUR

www.cez.cz



AKENERJI HIGHLIGHTS



- **Diversified and flexible portfolio mix**
- **Experienced trading staff**
- **Profitability Margins have been expanding thanks to renewables in the portfolio**
- **The total capacity of 320 MW renewable portfolio enables Akenerji to avoid ~1 million tons of CO2 release.**
Akenerji completed its validation process for voluntary emission trading certificates for ALL of its renewable projects
- **All of Akenerji's renewable projects are eligible to benefit from the Renewable Energy Law (YEKDEM)- i.e. a purchasing guarantee for 10 years at a price to be determined by EMRA on annual basis. (Currently 7,3 \$ cent/kwh)**
- **Akenerji applies 30% equity-70% debt structure to its investments.**



OPERATIONS and INVESTMENTS

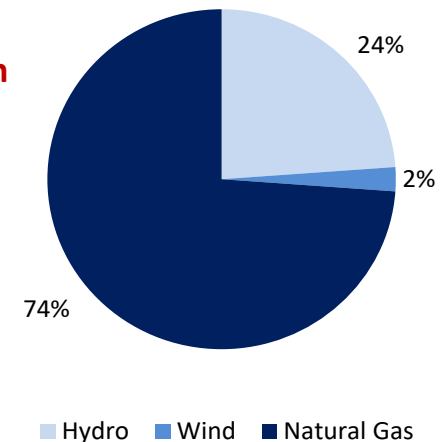


• Ongoing project

Kemah HPP project with a capacity of 198 MW is in the development phase.
Ayyıldız Extention WPP with a capacity of 13 MW has started to operate in Jan 2017.

| Operational Power Plants | Capacity [MW] |
|--------------------------|---------------|
| Egemer CCGT | 904 |
| Ayyıldız WPP | 28 |
| Bulam HPP | 7 |
| Uluabat HPP | 100 |
| Burç HPP | 28 |
| Feke I HES | 30 |
| Feke II HPP | 70 |
| Himmetli HPP | 27 |
| Gökkaya HPP | 30 |
| TOTAL | 1.224 |

Capacity Diversification by 2018



SALES & PRICING ASSUMPTIONS

Akenerji has 4 main types of sales channels : eligibles, wholesale customers, YEKDEM and DUY system.



ELIGIBLE SALES

➤ Tariff for Eligible customers is set as a function of the government's tariff. Akenerji applies a discount rate for eligible customers.

WHOLESALE CONTRACTS

➤ Akenerji is selling to the wholesale players in the market with the bilateral contracts with fixed prices.

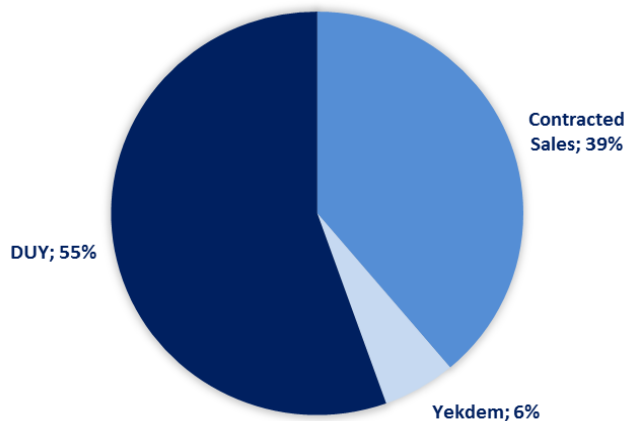
DUY SALES

➤ In the DUY Market, since the price is set by the generation company according to the supply and demand dynamics, and is not limited by the official tariff. Approximately 80% of sales in Turkey are sold with bilateral contracts with regulated tariff and the remaining take place in the DUY Market.

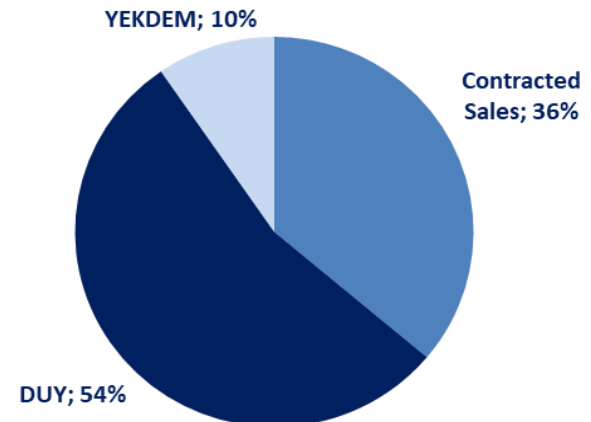
YEKDEM SALES

➤ Renewable energy sources participating in YEKDEM guarantee USD based feed-in tariffs, based on the type of facility and ratio of local parts in utilized in facility.

2017 Sales Breakdown



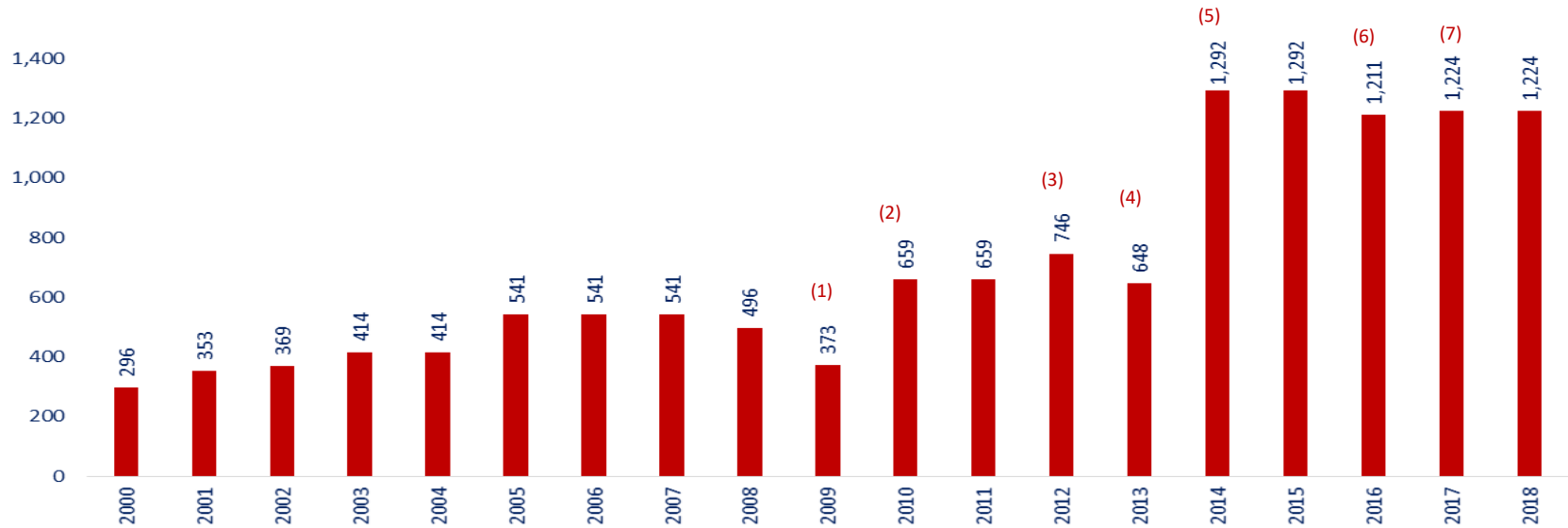
9M2018 Sales Breakdown



CAPACITY & SALES DEVELOPMENT



- With the completion of Egemer Project and Ayyıldız WPP Extension, Akenerji's power generation capacity has increased to 1.224 MW.
- In 2013 (an average year in terms of precipitation), average capacity utilisation rate calculated as 32 % for hydros and 35% for wind power plants.



- (1) : Ayyıldız WPP (15MW) became operational
Yalova NG PP (70MW) was sold to Aksa (Akkök Group Company).
69MW installed capacity in various locations of Turkey was sold
- (2) : Five HPPs commenced operations with a total capacity of 286MW
- (3) : 3 HPPs, total capacity of 87 MW, became operational
- (4) : Çerkezköy NG PP (98MW) operations ended
- (5) : 904MW Egemer NGPP project became operational
Bozüyük NGPP(132 MW) and Kemalpaşa (127,6 MW) licences cancelled.
- (6) : Akocak HPP (81MW) was sold
- (7) : 13MW Ayyıldız Extension WPP became operational.



EGEMER HIGHLIGHTS



- Egemer is a 904 MW, natural gas Combined Cycle Power Plant
 - The plant is the largest investment of Akenerji
 - One of the most efficient plant in Turkey with a desirable coastal location, located in Erzin/Hatay, in the south of the country
 - The plant has been operational in July 2014
 - Designed to be as an eco-friendly and contemporary power plant with annual generation capacity of 7,4 billion kWh of electricity
 - The power plant employs around 50 people during operation
 - Flexible source for auxiliary services (Services with value added)
-
- Turnkey EPC Agreement (Engineering/Procurement/Construction) was signed with GE&Gama
 - The plant employed more than 500 people during construction
 - The plant financed with 70:30 debt:equity structure
 - Sizeable savings achieved from the project cost





TRENDS & EXPECTATIONS IN ENERGY MARKET



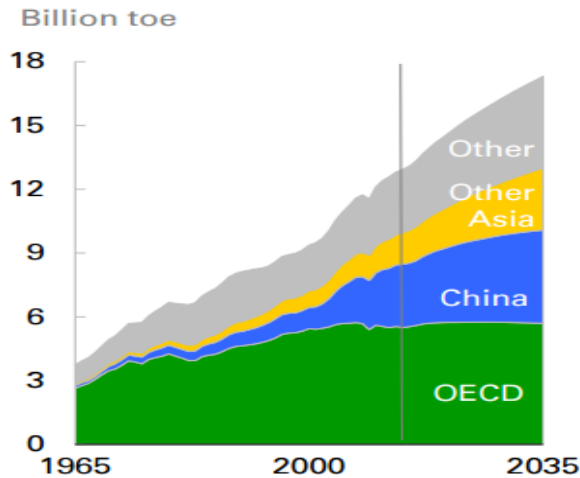
DEMAND FOR ENERGY IS DRIVEN BY EMERGING MARKETS



- According to BP World Energy Outlook Report 2016, growth in the world economy means more energy is required;
- Energy consumption is projected to increase by 34% between 2014 and 2035.
- 90% of the projected growth will come from non-OECD economies;
 - China contributes less than 30% of global energy growth, compared with nearly 60% over the past decade.
 - Demand in other Asia is faster than in China. India double its contribution over the past decade
- It is forecasted that the increased need in baseload capacity will be primarily met through coal and renewable sources.

Consumption by region forecast

Growth in primary energy demand by region (Billion toe)

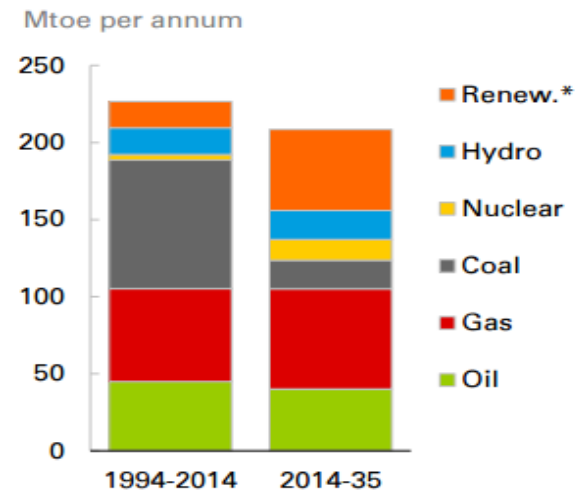


Source: BP, World Energy Outlook Report, 2016



Production Breakdown Forecast

World's net Electricity Generation by Energy Source (Mtoe by year)

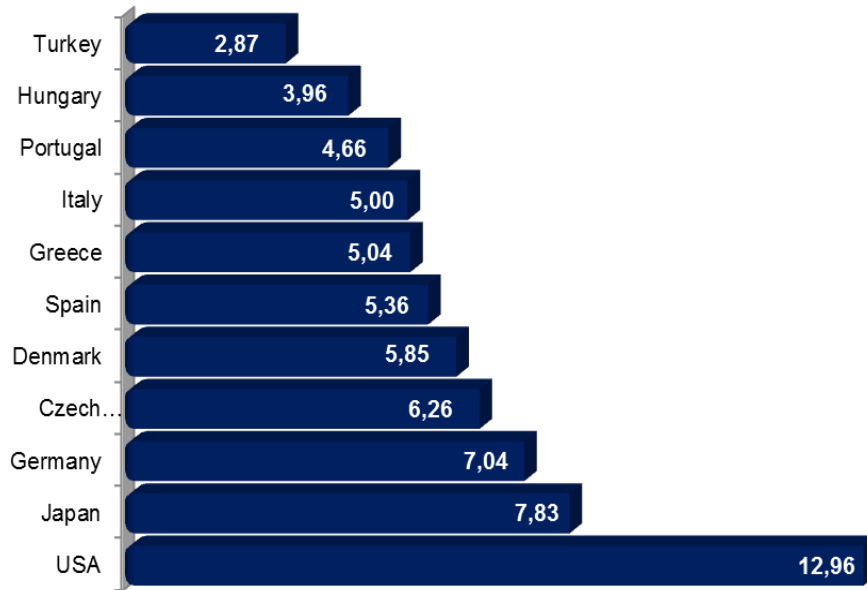


* Renewables includes biofuels.

DEMAND GROWTH & POTENTIAL



Consumption per person (MWh)



➤ Turkey represents a significant potential in terms of consumption per capita compared to the other countries on the back of its increasing young population and economic growth potential.

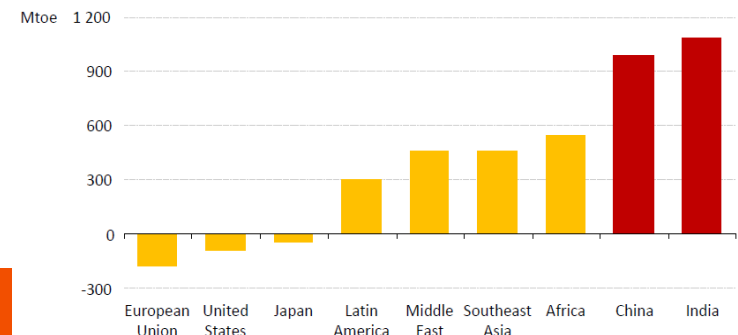
➤ Electricity consumption is mainly effected by GDP growth, population growth, urbanization, climate change and efficiency applications.

| GDP | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------|--------|------|------|------|------|
| Turkey | 4.2% | 2.9% | 6.1% | 2.9% | 7.4% |
| EU | -0.3 % | 1.8% | 2.3% | 2.0% | 2.4% |

➤ Global energy demand increase comes from non-OECD countries. In OECD countries according to energy efficiency and structural shifts in economy, less energy is required to generate economic growth.

| Between 2014-2040 | Ave. GDP Growth | Energy Demand Increase |
|-------------------|-----------------|------------------------|
| Non-OECD | 4,2 % p.a. | 71 % |
| OECD | 2,0 % p.a. | 18 % |

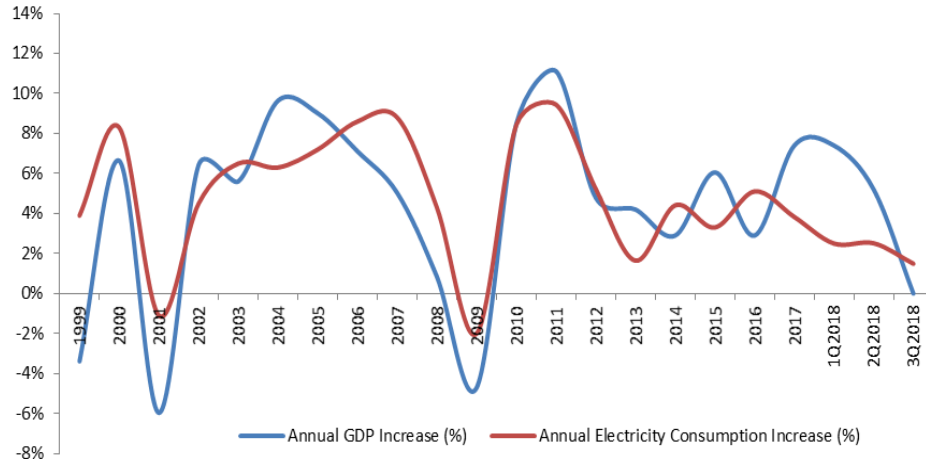
Change in energy demand in selected regions, 2014-2040



TURKEY CONSUMPTION DYNAMICS



Electricity Consumption Trend



➤ Electricity consumption proved to be resilient to the downturns in the economy. Increase in electricity demand has mostly been much higher than the increase in national income in booms, while residing in the positive territory during recession years:

| | Years : Financial Crises | |
|-------------------|--------------------------|-------|
| | 2001 | 2009 |
| GDP in Turkey | -6,0% | -4,7% |
| Elec. Consumption | -1,1% | -2,0% |

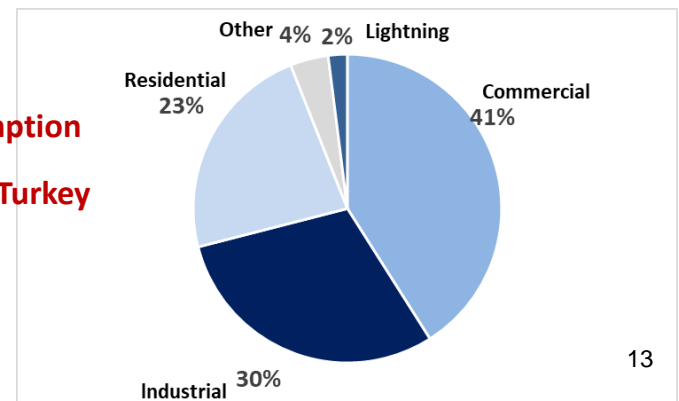
➤ In the last 20 years, electricity consumption increased remarkably, pointing to a CAGR of ~5%.

➤ TEİAŞ forecasts an average annual consumption growth of 4,7% per year for 2018 to 2027 Period. As consumption growth is susceptible to global downturns, the imbalance stands out as a major problem.

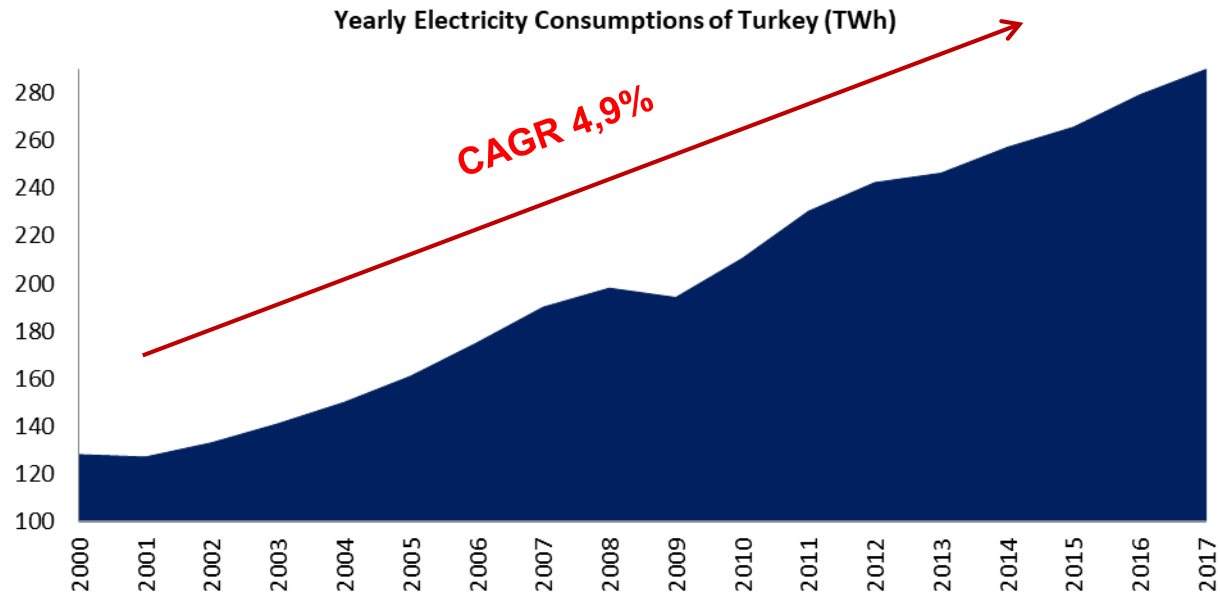
➤ Prior to 2013, GDP growth was generally realized parallel to yet below the electricity demand growth. This trend reversed in 2013, when GDP growth rate surpassed the electricity demand growth. This trend change mainly stemmed from the sources of GDP growth. While GDP growth was mainly driven by production and investment prior to 2013, consumption has become the main driver of growth between 2013-2017 Period.

➤ GDP growth rate for 9M2018 was announced as 1,6%, whereas electricity demand was 1,5%.

Power Consumption Breakdown in Turkey



TURKEY GROWTH TRENDS



| TWh | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 9M2018 |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Turkey | 128 | 127 | 133 | 141 | 150 | 161 | 175 | 190 | 198 | 194 | 210 | 230 | 242 | 246 | 257 | 266 | 279 | 71 | 221 |

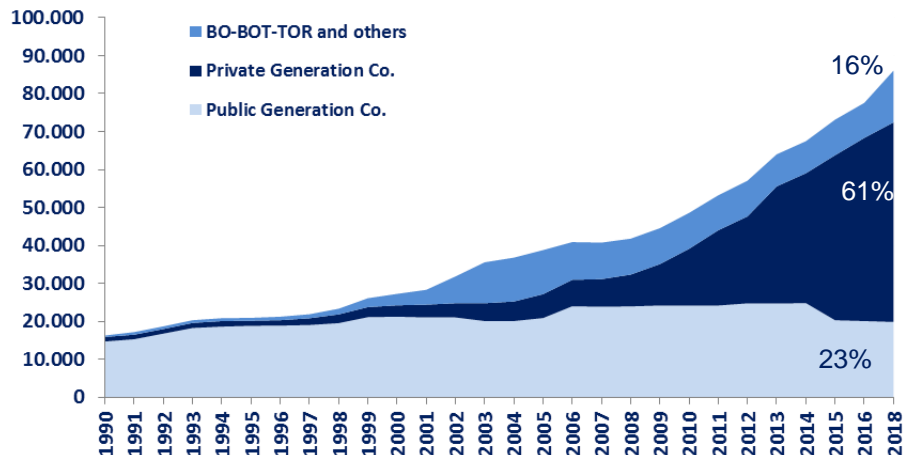
➤ Electricity consumption in Turkey realized as 221 TWh in 9M2018.



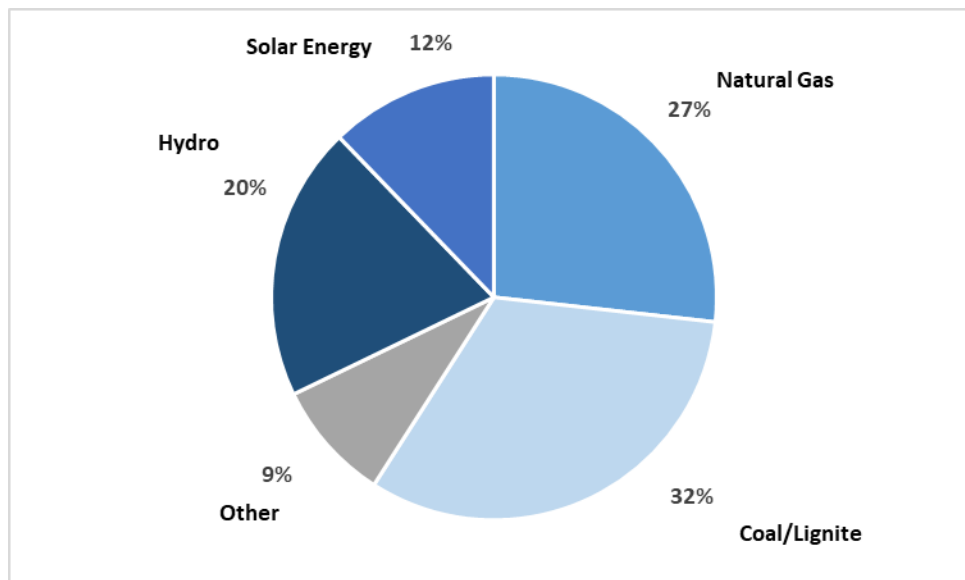
GENERATION CHARACTERISTICS



Turkey's Installed Capacity by Generation Companies (MW)



Fuel Sources of Electricity Generation 1H2018



➤ Today, substantial amount of the electricity produced in Turkey is generated through state-owned/operated power plants.

➤ Import and Export of electricity depend on governmental permits. Due to technical infrastructure, capacity for trade is very limited.

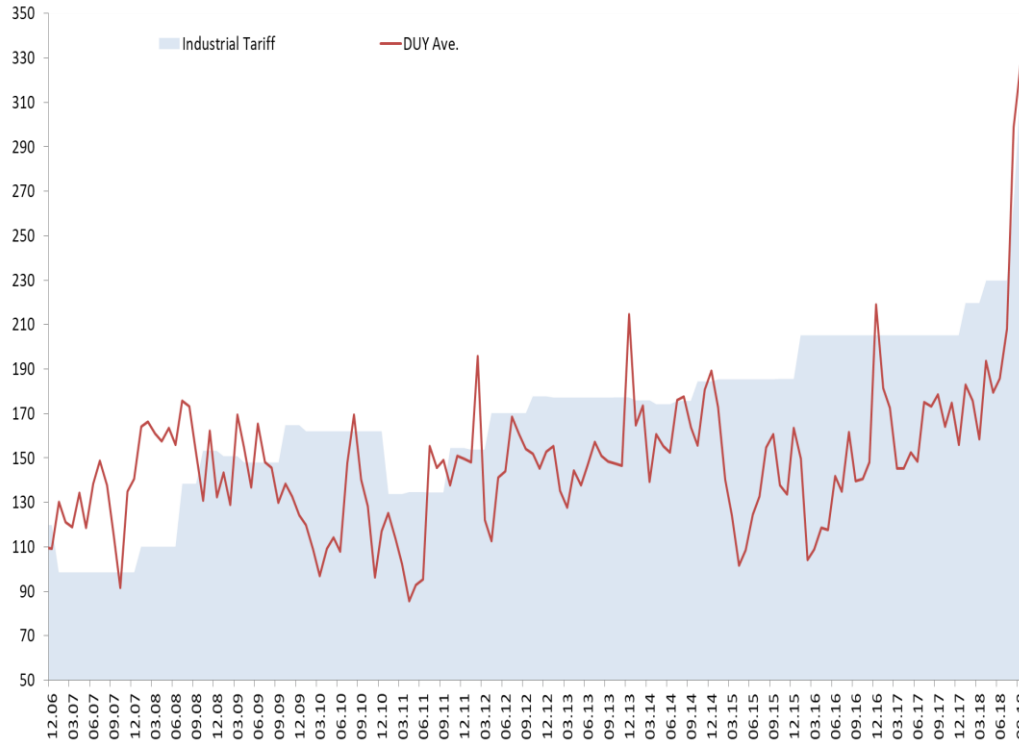
➤ Currently, the majority (90%) of natural gas is being imported by the government, limited alternative for supply and competition in the market. As a result, the electricity price is mainly sensitive to the NG price trend.



MARKET MECHANISM



TRY/MWh



➤ The official electricity tariffs (for residential /commercial/industrial use) are set by the government every 3 months. Most of the consumption can be contracted outside of the official markets based on the DUY ** prices different from the tariffs.

➤ NG tariffs are determined by the government and adjusted quarterly. The NG prices affect electricity prices because NG fueled plants are working as marginal producers.

➤ The amount of imbalance in the market drives the price since the marginal producers are predominantly NG/ fuel-oil plants → increasing electricity shortage forecasts indicate higher prices to come.

Private sector generation companies have the following sales platforms:

- 1) Contract the customer directly and provide them a discount rate from the official tariff
- 2) Selling to DUY system by quoting generation price/power plant and per the specific time-segment of the day (price, that the company itself announces per its own power plants)
- 3) Bilateral contracts with other players in the market with fixed prices

**DUY : Clearing house system was initiated in Aug.2006, and provides an “open-market platform” for the power generation companies, since the price is set by the generation company according to the supply and demand dynamics, and is not limited by the official tariff. Sales to the DUY(Electricity Market Balancing and Settlement Regulation) system are exempt from TRT/Energy fund and transmission losses.



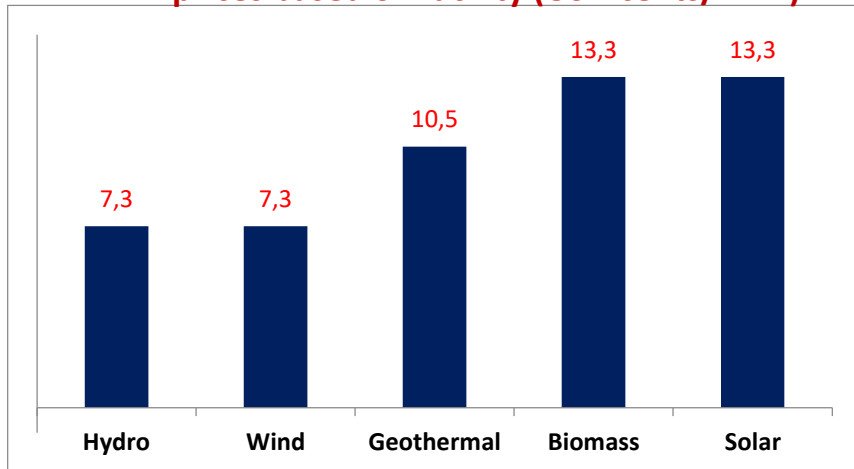
YEKDEM MECHANISM

YEKDEM: Turkish Renewable Energy Resources Support Mechanism



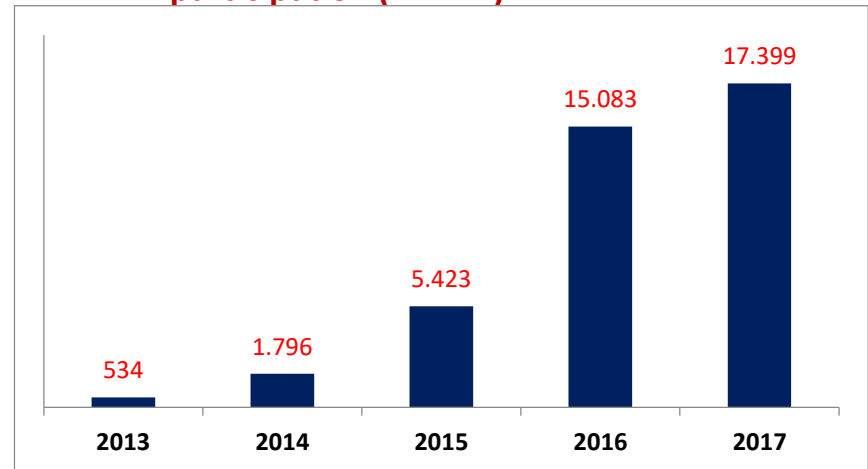
- Predictable returns on renewable energy investments thanks to YEKDEM Law, offering guaranteed prices for 10 years after commissioning.
- Legislation deploys a differentiated feed-in tariff scheme to plants participating in YEKDEM based on the type of production facility.
- Incentive scheme, first introduced in 2010, attracts more and more attention from investors with stagnating reference electricity prices in DUY market and appreciating US Dollar against the Turkish Lira, which widen the spread between the YEKDEM and the DUY prices.
- Guaranteed prices are applied to production facilities that are or will be commissioned as from 2005 to 2020YE and qualified to operate within the scope of the renewable law.

YEKDEM prices based on facility (USD cents/kWh)



➤ Qualified plants are also eligible for an add-on feed-in tariffs if certain equipments used in the plants are manufactured in Turkey, for a duration of 5 years after commissioning, raising the guaranteed tariffs upto 9,6 UScents/kWh for hydro; 11,0 UScents/kWh for wind; 16,1 UScents/kWh for geothermal; 22,5 UScents/kWh for solar power plants.

YEKDEM participation (in MW)



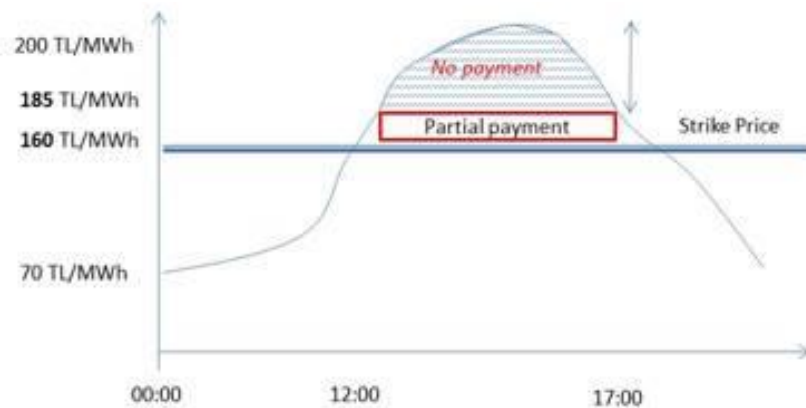
NEW CAPACITY MECHANISM



- The purpose of the mechanism is to establish the necessary and sufficient installed power capacity for the provision of security of supply in the market and to safeguard the installed power capacity for the purpose of ensuring long-term system security.
- Only 27 Power Plants (11 CCGTs-inc.Egemer, remaining coal fired) are eligible to benefit from the incentive for 10 years after commissioning.

Product Design:

- **One-way Contract for Difference (CfD), with a Strike Price (SP) and a DUY Market Price (DUY).**
 - Option fee payable hourly for Availability, no payment when in maintenance
 - If $DUY > SP$, then if $(DUY - SP) \leq \text{Option fee}$; $\text{Option Fee} = \text{Option Fee} - (DUY - SP)$
 - If $DUY > SP$, then if $(DUY - SP) \geq \text{Option fee}$; $\text{Option Fee} = 0$
- **There will be strong incentive for CCGTs to be available at all times, and keep their maintenance at a minimum.**
- **In general, the SP should be set sufficiently high that when all available capacity is required (most expensive CCGTs can receive Option Fee).**
- **The mechanism can be seen as a minimum insurance in case the DUY market prices are too low.**
- **Capacity payments are not fixed payments, if the prices are high enough the proceeds from the mechanism will be lower.**

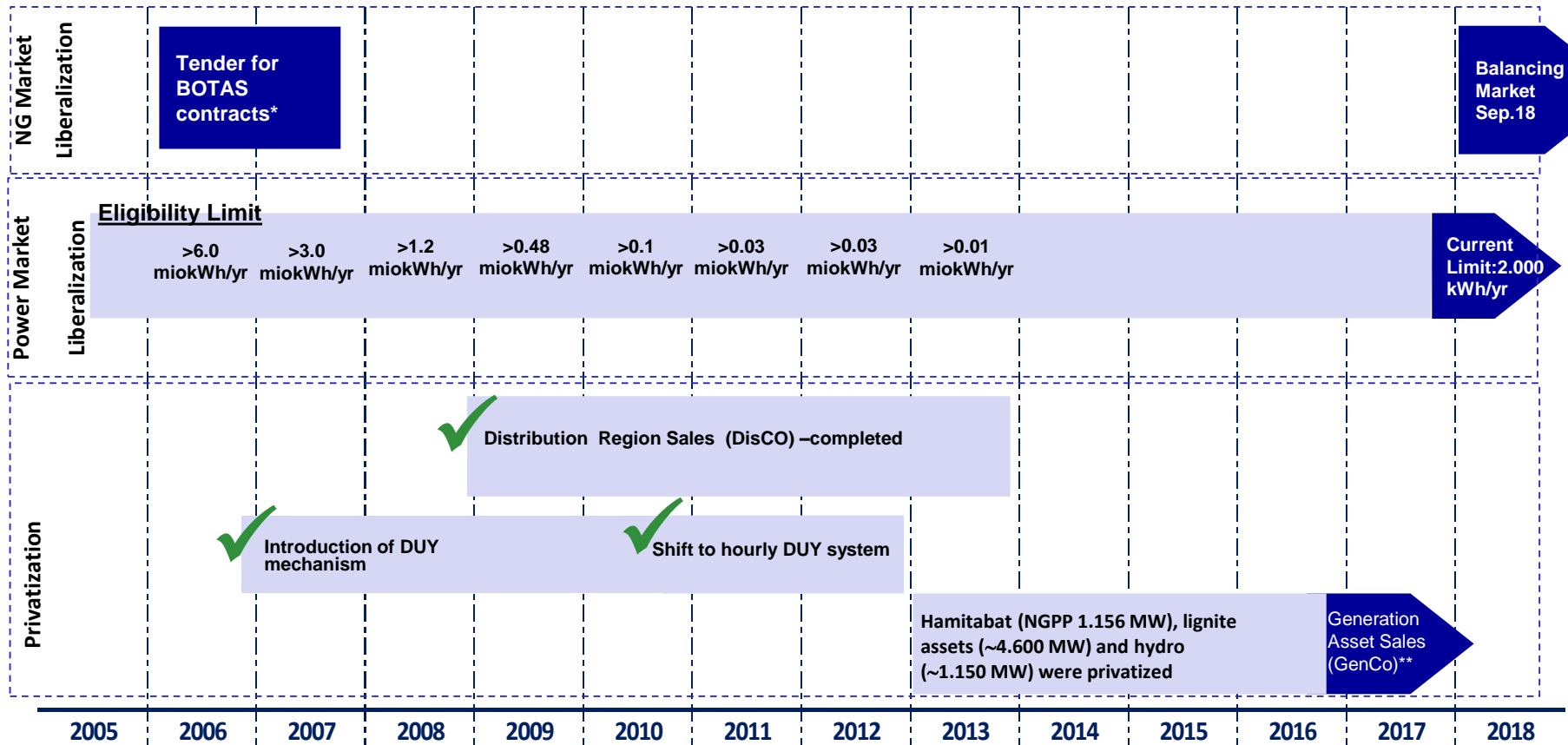


Prices are not real, just for illustration.

MARKET LIBERALIZATION SCHEDULE



Turkish Energy Market deregulation is developed after the UK Model and has been proceeding as per below schedule. Privatization & Liberalization should be expected to start to help create a transparent & competitive market environment.



➤ The delays in the liberalization result in prolonging of regulated period.

*The privatization tenders for NG will continue until the market share of BOTAŞ will be reduced to 20%. 4 billion m3 has been privatized at 2006.

**Plants will be brought to market in stages.

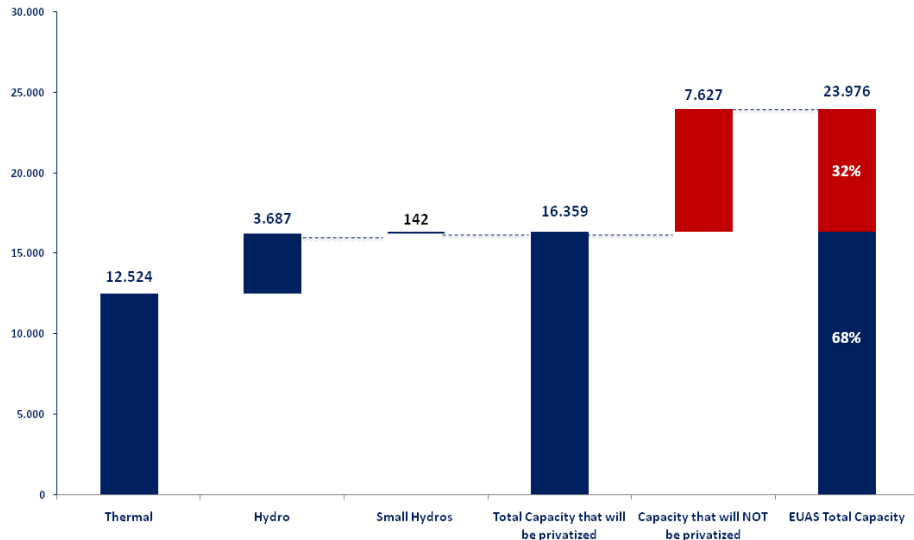


CURRENT PRIVATIZATION OVERVIEW



The aim of the GenCo privatizations is to increase the efficiency in the market and provide cheap electricity to the end-user.

GenCO



DisCO



- 37% of Turkey's capacity should be offered to the private sector.
- The Government has started to privatize 97 of its power plants with a total capacity of 16.359 MW. Hamitabat (NGPP 1.156 MW), lignite assets (~4.600 MW) and hydro (~1.150 MW) were privatized. Other GenCo tenders remain unannounced.

- Privatization of 21 DisCos were completed.





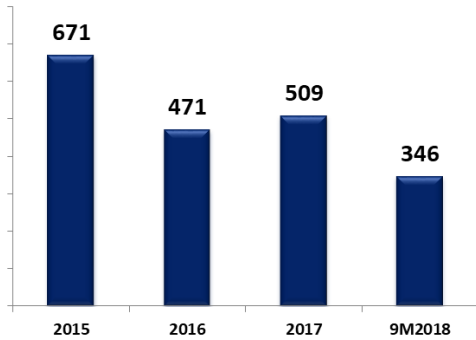
AKENERJI FINANCIAL INFORMATION



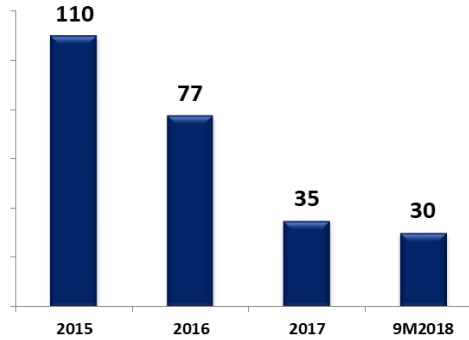
FINANCIAL PERFORMANCE



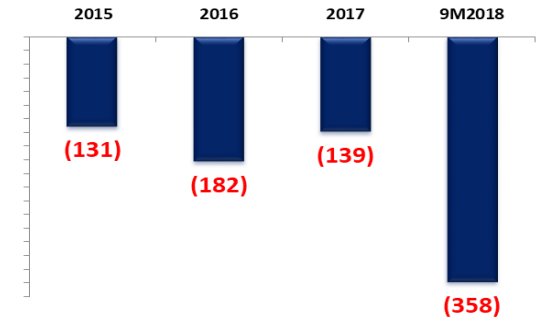
Net Sales (mio USD)



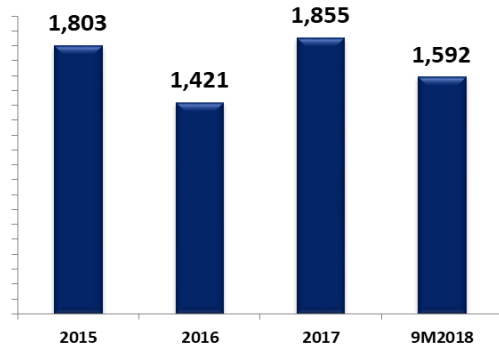
Ebitda (mio USD)



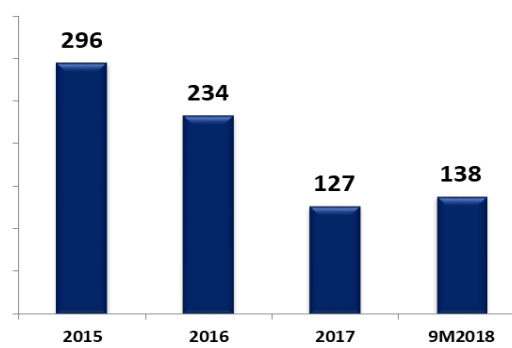
Net Profit (mio USD)



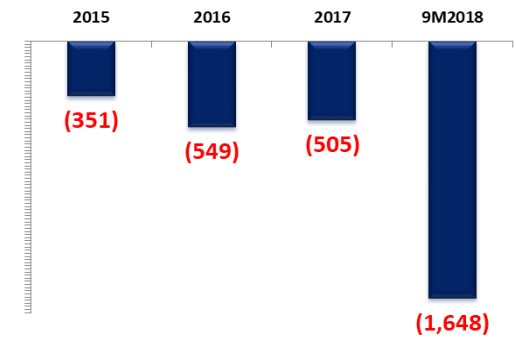
Net Sales (mio TRY)



Ebitda (mio TRY)



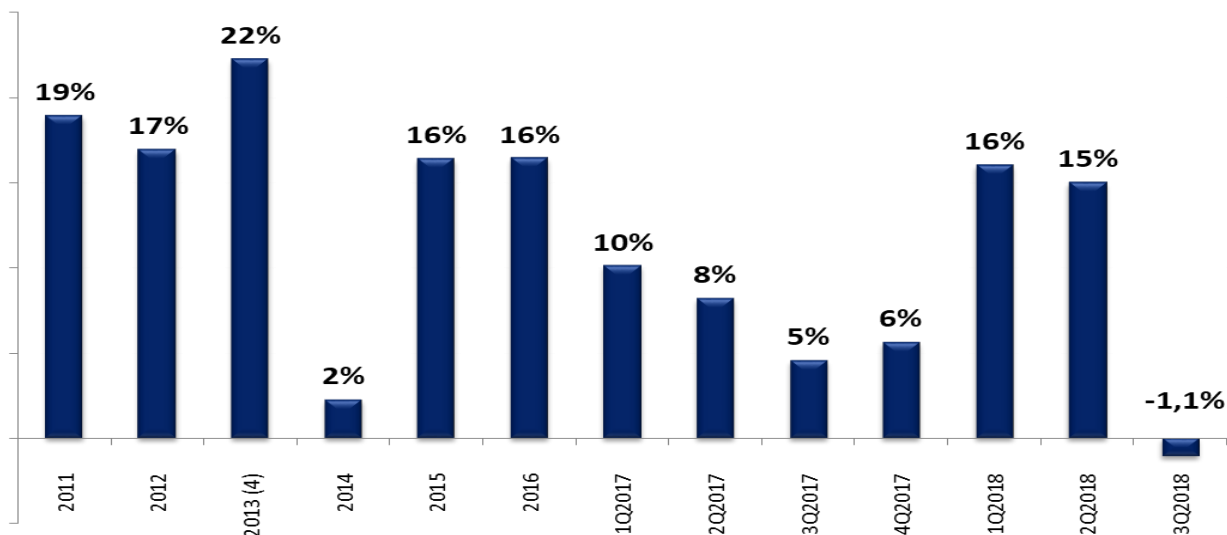
Net Profit (mio TRY)



PROFITABILITY PERFORMANCE



EBITDA Margin



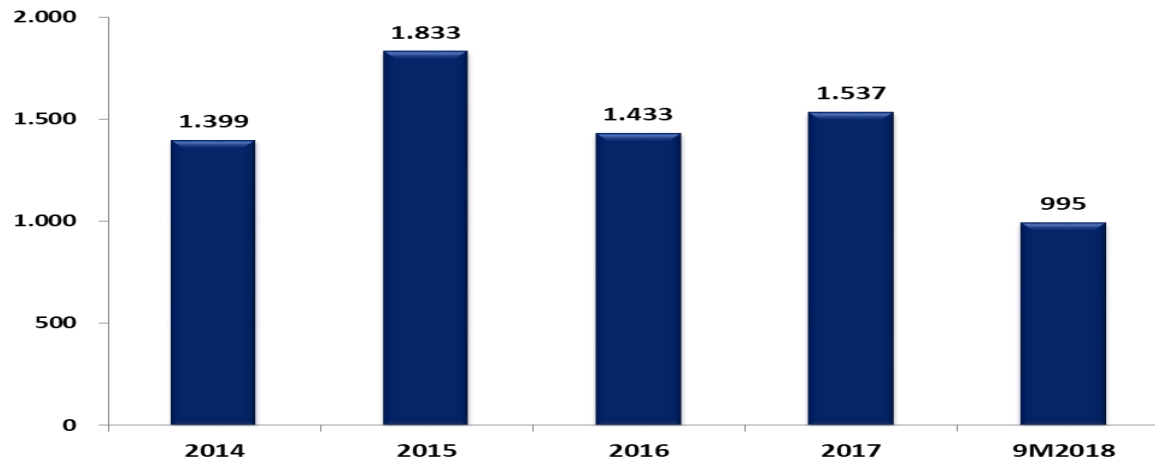
- In the last three years, Akenerji incurred min 7% and max 16% Ebitda Margin with its diversified portfolio.
- In 2014, Egemer started its operations and the drought in Turkey effected EBITDA margins negatively. Because of the wet year conditions and contracted sales in 2015 and 2016, company has incurred higher EBITDA margins.
- Inflow coming to reservoirs in 2017 was lower than the long term average, Akenerji could succeed 7% Ebitda Margin.

(4) : As Kemalpaşa plant has been shut down due to the market conditions, the provision for impairment is booked in 2013. TRY 35,5 mio is added to above calculations to better reveal operational performance.

CONSOLIDATED BALANCE SHEET



Size of Balance Sheet (mio USD)



| Debt Structure (mio USD) | 2014 | 2015 | 2016 | 2017 | 9M2018 |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Cash | 38 | 164 | 123 | 12 | 3 |
| Short-term Financial Debt | 15 | 65 | 103 | 101 | 110 |
| Long-term Financial Debt | 212 | 1003 | 827 | 751 | 678 |
| Net Debt | -189 | -904 | -807 | -841 | -785 |

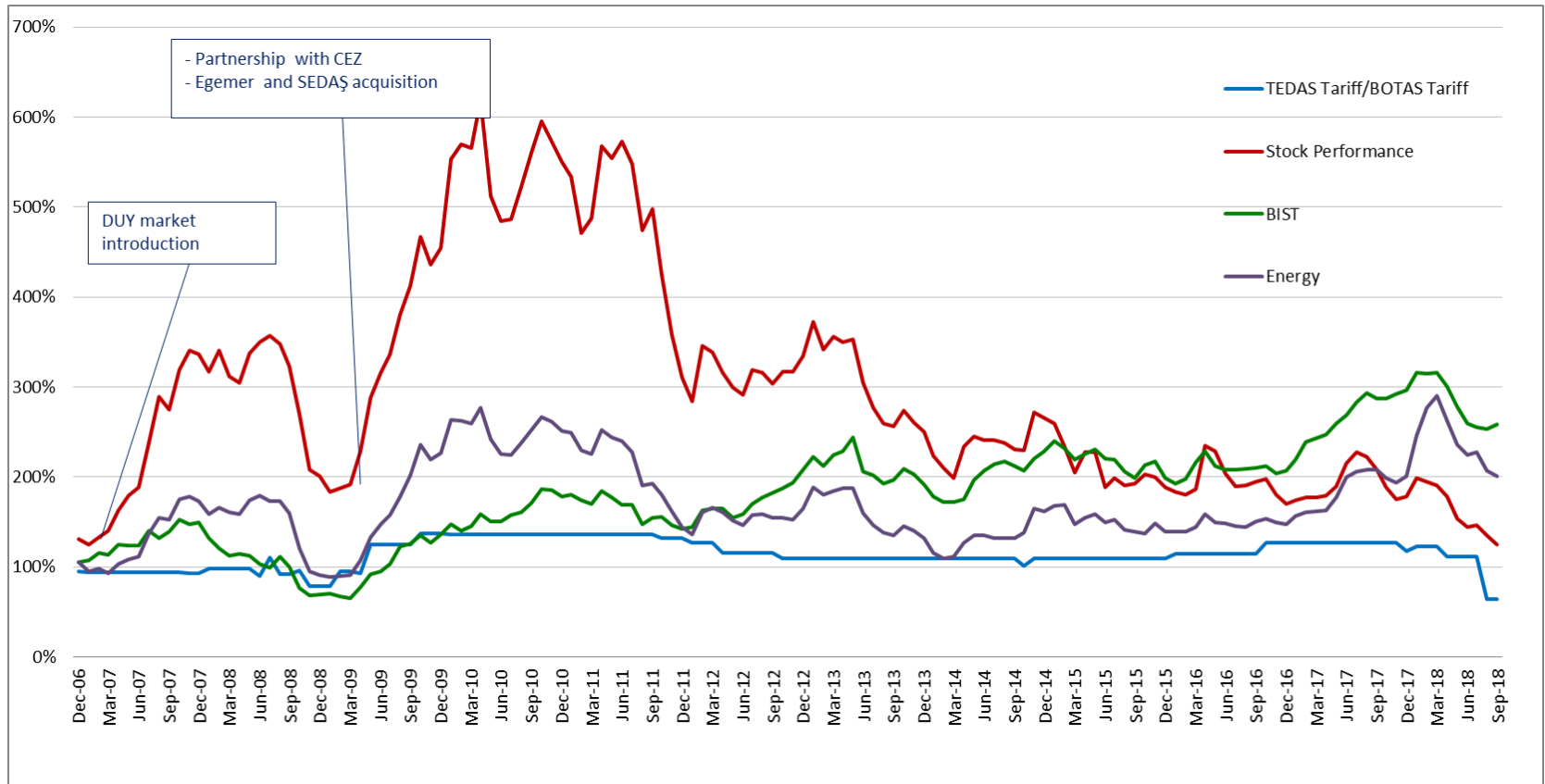
| Key Ratios | 2014 | 2015 | 2016 | 2017 | 9M2018 |
|--------------------------------|------|------|------|------|--------|
| Current Ratio | 0,5 | 2,5 | 1,1 | 0,3 | 0,2 |
| Leverage | 5,4 | 2,3 | 3,6 | 2,1 | 25,7 |
| Total Liabilities/Total Assets | 0,8 | 0,7 | 0,8 | 0,7 | 1,0 |

Leverage = Total Liabilities / Shareholders's Equity

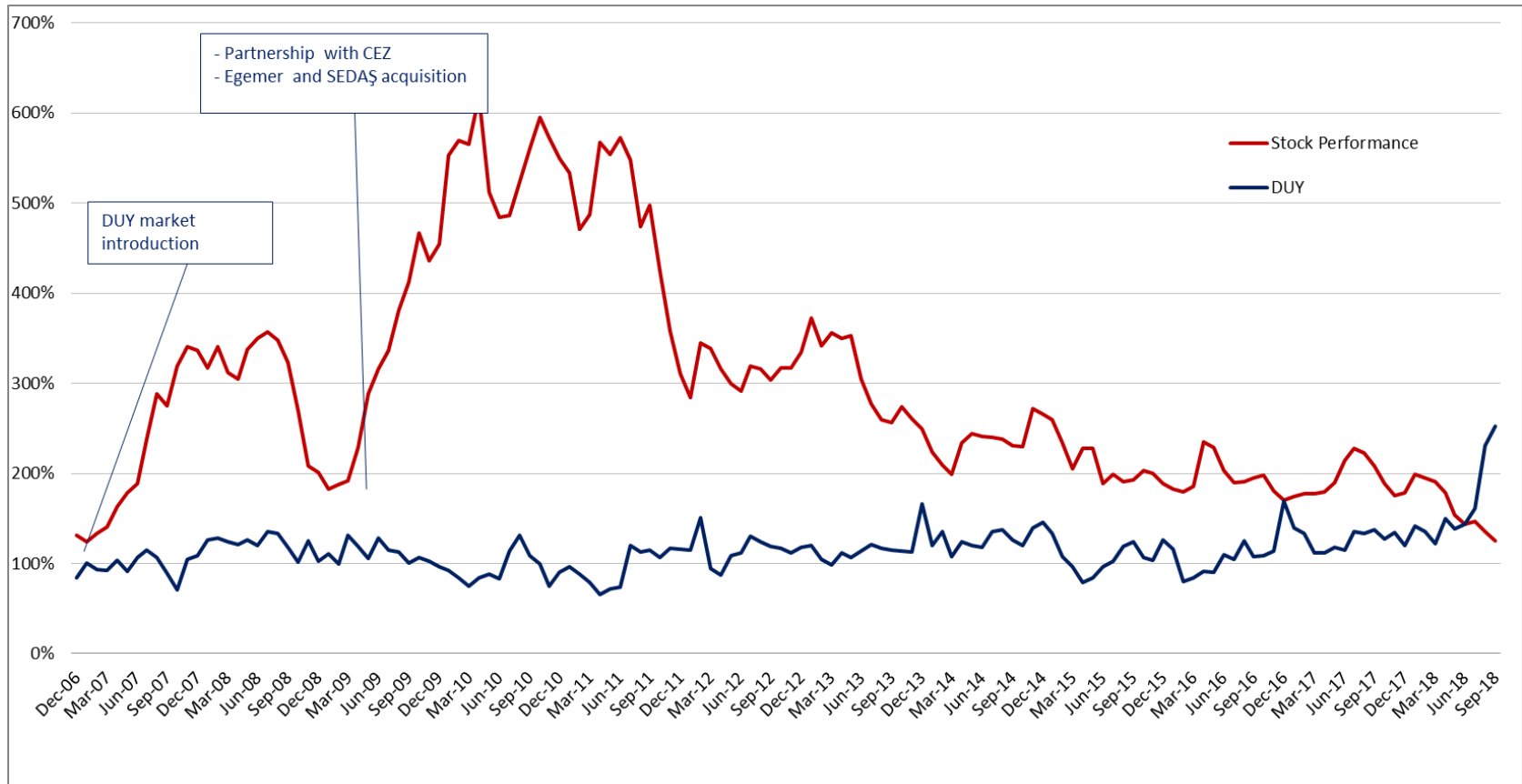
Current ratio = Current Assets / Short-term Liabilities



STOCK PERFORMANCE



STOCK PERFORMANCE vs DUY PRICES



ABBREVIATIONS



| | |
|---------------|---|
| MW | : Megawatt |
| TWh | : Terawatt hours |
| NG | : Natural Gas |
| GDP | : Gross Domestic Product |
| CAGR | : Compound Annual Growth Rate |
| DUY | : Electricity Market Balancing and Settlement Regulation System |
| DISCO | : Distribution Companies |
| TRT | : Turkish Radio - Television Corporation |
| HPP | : Hydroelectric Power Plant |
| WPP | : Wind Power Plant |
| CCGT | : Combine Cycle Power Plant |
| USD | : US Dollars |
| mio \$ | : Million Dollars |
| PP | : Power Plant |
| EMRA | : Electricity Market Regulatory Authority |
| EBITDA | : Earnings Before Interest, Tax, Depreciation & Amortisation |
| TRY | : Turkish Lira |



AKENERJI INVESTOR RELATIONS



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