



Monthly Energy Bulletin

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#1

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TSKB Economic Research

Application date for Turkey's first off-shore wind RESA was announced

The deadline for applications to bid for the right to operate Turkey's first off-shore wind RESA was announced as October 23, 2018. The off-shore wind farm, which will be built by the Ministry of Energy and Natural Resources, will have an installed capacity of 1,200 MW. The ceiling tariff has been set at US\$0.08 /kWh and applicants will compete for the lowest bid in a reverse auction at the tender. The tender date has not yet been determined. The winning bidder will sign an energy purchase agreement which will include the first 50 TWh of electricity generation, starting from the initial commissioning of the plant .



Installed Capacity Analysis

Turkey's total installed capacity increased from 85,200 MW at the end of 2017 to 87,041 MW by the end of May 2018. Solar power accounted for the bulk of the 1,840 MW of new capacity added in the first five months of 2018, with the newly commissioned solar power plants having a total installed capacity of 1,282 MW.

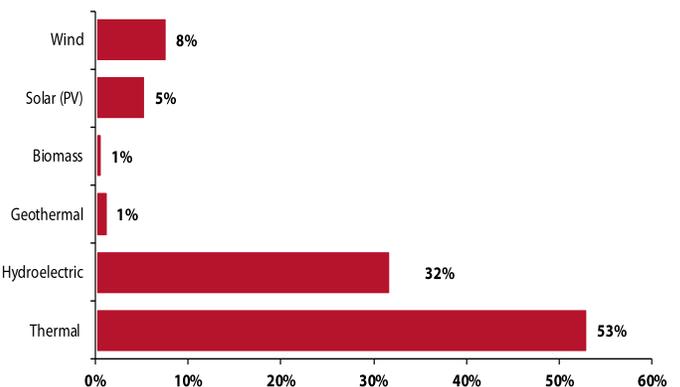
An increase of 111 MW was realized in the month of May. The total installed capacity of commissioned thermal power plants decreased in May, while there were significant increases in the total installed capacity of hydroelectric power plants, biomass power plants and solar power plants.

Approximately 47% of the power plants operational in May generated electricity from renewable resources, with hydroelectric power plants accounting for 32% of the total installed capacity, with wind power comprising 8% and solar power accounting for 5%.

Plant Type (MW)	2017	Apr-18	May-18
Thermal	46,352	46,416	46,203
Hydroelectric	27,273	27,509	27,722
Geothermal	1,064	1,129	1,129
Biomass	575	583	616
Solar (PV)	3,421	4,628	4,703
Wind	6,516	6,665	6,667
Total	85,200	86,930	87,041

Source: Electricity Transmission Company (TEİAŞ) Monthly Installed Capacity Report

May-18 Intalled Capacity Breakdown



Source: TEİAŞ, TSKB Economic Research

Electricity Generation Analysis

A total of 121,582 gigawatt-hours (GWh) of electricity was generated in the first five months of 2018, while the total generation in June had reached 22,100 GWh as of June 28*. Thermal power plants accounted for 65% of the total electricity generated in June, followed by hydroelectric power plants, with a 24% share. Wind provided 5% of the total electricity generated.

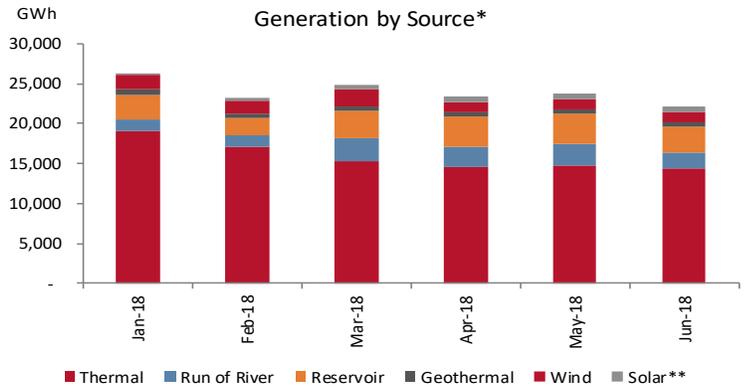
In January and February, thermal power plants accounted for 73% of the total electricity generation compared to 62% in March, April and May. One cause for this decline was the increased proportion of electricity generated by hydroelectric power plants, whose share in the generation mix rose from 15% in the first two months of the year to 25% in March, April and May.

*June data consist of data up to June 29.

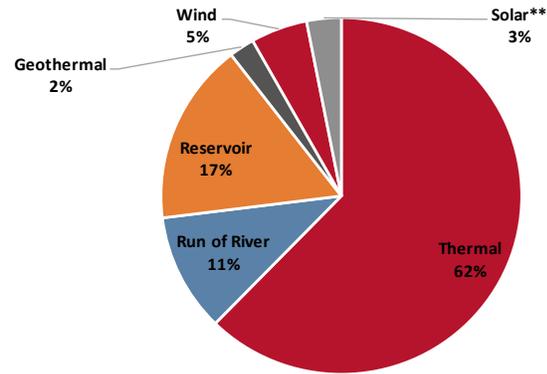
**Since the unlicensed solar power plant generation data has not yet been released by TEİAŞ, the total energy generation by solar power plants was accepted as 738 GWh by June 28.

In June, daily generation from licensed power plants averaged 763,068 megawatt-hours (MWh), an increase of 1.4% when compared to June of last year. Approximately 76% of this electricity was generated by thermal power plants and 24% from renewable energy sources, with hydroelectric power accounting for just over three quarters of the electricity generated from renewable sources.

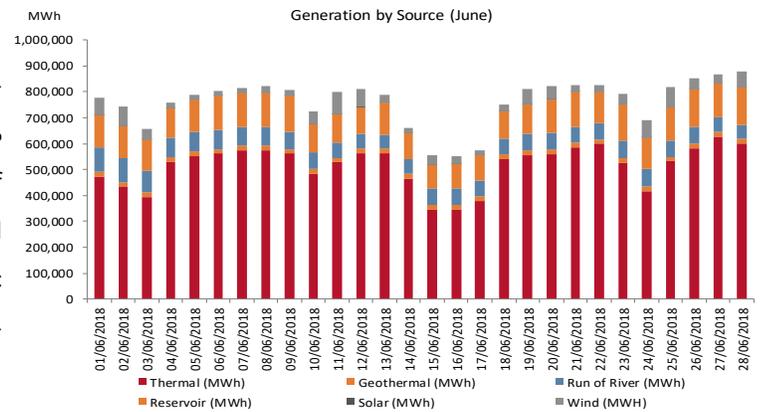
The average daily consumption in June was approximately 760,924 MWh, the holiday period from June 14-17 reducing the average. The highest daily consumption in June was recorded on Thursday, June 28, at 874,102 MWh – with the highest electricity generation, of 877,193 MWh, also recorded on the same day. The lowest consumption of the month was recorded on Saturday, June 16, with consumption of 543,908 MWh of consumption and 552,697 MWh of generation.



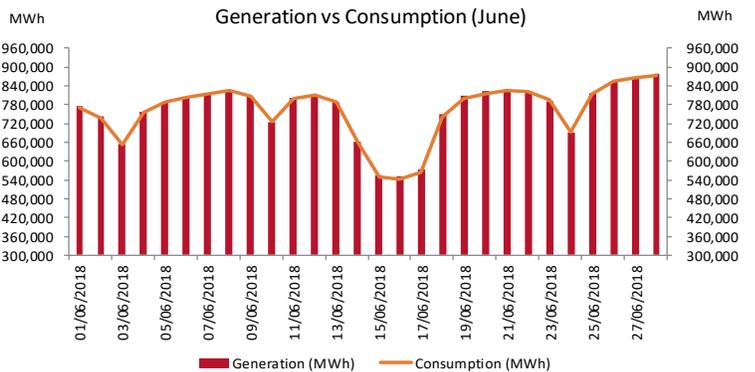
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



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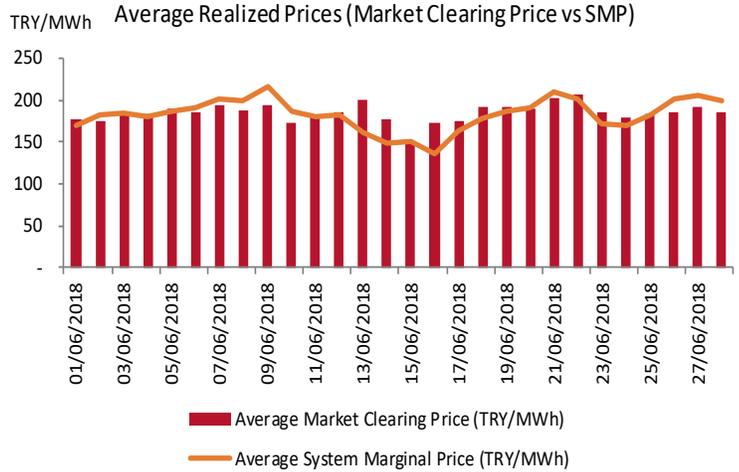
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Electricity Price Analysis

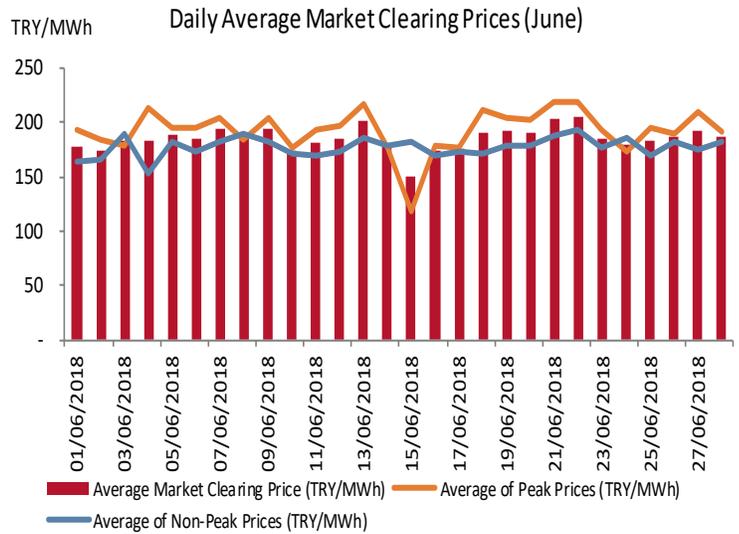
The average market clearing price (MCP) and system marginal price (SMP) fluctuated between TRY150 /MWh and TRY220 /MWh between June 1-28. The average MCP in the first 28 days of June was TRY185.13 /MWh while the SMP averaged TRY182.76 /MWh. The lowest average MCP was recorded as TRY150 /MWh on Friday, June 15, and the lowest average SMP was TRY135.42 /MWh on Saturday, June 16.

When the analysis June's daily average MCP was carried out, the average tariff for peak hours (from 8AM to 8PM) was calculated as TRY192.95 /MWh – some 4.22% higher than the daily average value. The highest peak-hour average was calculated as TRY219.00 /MWh on Thursday, June 21. The lowest peak-hour average was calculated as TRY117.75 /MWh on Friday, June 15. The average pricing in off-peak periods (from 8PM to 8AM) was calculated as TRY177.42 /MWh between June 1-28.

The highest recorded MCP in June was TRY 228.07/MWh, on Friday, June 22 at 4PM. The highest SMP was recorded at 7PM on Saturday, June 19, at TRY 245.00 /MWh.



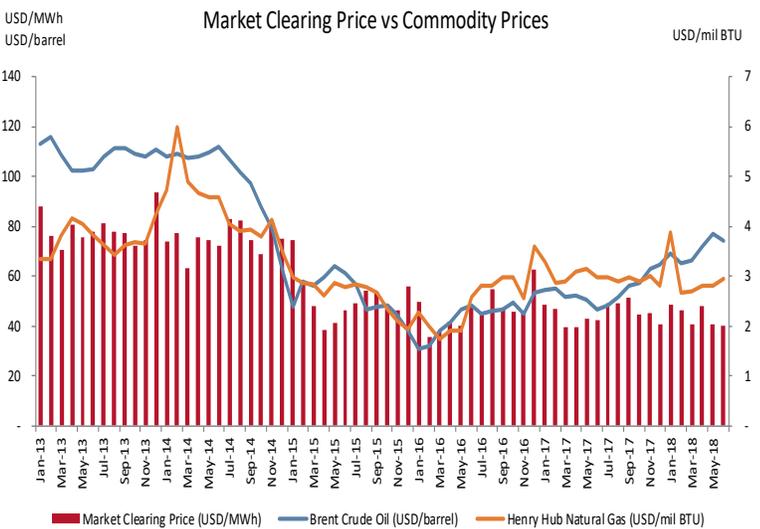
Source: EXIST, TSKB Economic Research



Source: EXIST, TSKB Economic Research

The annual average market clearing price in 2013 was US\$78.80 /MWh while the annual average MCP in 2017 was US\$45.02 /MWh. As presented in the figure, electricity tariffs have been moving in line with Henry Hub natural gas prices and Brent crude oil prices in the global markets. The average electricity price, which declined to US\$50.99 /MWh in 2015, increased back to US\$56.26 /MWh in 2016 before declining to US\$45.02 /MWh in 2017 on the back of movements in the USD/TRY exchange rate.

Electricity prices averaged US\$44.05 /MWh for the first six months in 2018.

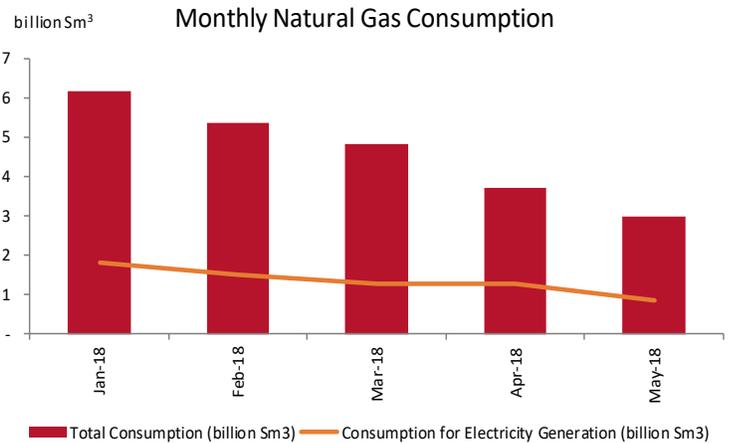


Source: EXIST, CBRT, International Energy Agency (IEA), TSKB Economic Research

*June data consist of data up to June 29.

Natural Gas Consumption

A total of 23.1 billion cubic meters (bcm) of natural gas was consumed in the first five months of 2018, while the total natural gas consumption for the 2017 full year stood at 53.9 bcm. The natural gas consumption for the first five moments of 2018 marks an 8% decrease when compared to the same period of 2017. In terms of the breakdown of the consumption of natural gas in the first five months of the year, 6.8 bcm of natural gas was consumed for electricity generation. The share of natural gas consumption directed to electricity generation was 27% in March, 35% in April and 29% in May.



Source: EMRA Natural Gas Sector Monthly Reports, TSKB Economic Research

Industry News

- The Italian energy giant, Eni, discovered one of the world's largest natural gas fields off the Egyptian coast.** Reports in Egyptian Media put the amount of reserves at the Noor field at 2.55 billion cubic meters – three times as large as the Zohr gas field in the Eastern Mediterranean, five times bigger than Leviathan field in Israel and ten times the reserves of the Tamar field. Depending on the seismic observations, Eni will start drilling work in August. (29 June 2018)
- As Tesla ramps up production of its Model 3s, Panasonic is warning of battery cell shortages.** Speaking in the company's AGM on June 28. Yoshio Ito, head of Panasonic's automotive business, commented there had been a "sharp improvement in production" that was leading to occasional battery (cell) shortages. (29 June 2018)
- Turkey has secured US\$1.2 billion in financing from the World Bank and the Asian Infrastructure Investment Bank (AIIB) to expand the Tuz Gölü Natural Gas Storage Facility.** During the press conference, the Energy Minister Berat Albayrak said the government aimed at raising this capacity to 5.4 bcm before 2023. Albayrak mentioned that the first phase of the project with 550 million cubicmeters capacity was commissioned in 2017. He said that "We will reach our 10 billion cubic meter storage target with the expansion of our Silivri gas storage facility ". Summing up, Albayrak said that Turkey had a national energy and mining policy with a vision of the future. (28 June 2018)
- The Competition Authority has approved the takeover of OMV Samsun Electricity Generation Industry and Trade Inc. from OMV, an international oil and gas company based in Vienna, by Yapısan Elektrik Üretim A.Ş., a subsidiary of Bilgin Enerji.** OMV Samsun Electricity Generation Industry and Trade Co. Inc. started to operate a natural gas combined cycle power plant with a license capacity of 896.69 MW_m / 886.92 MW_e in Samsun in 2013. (27 June 2018)

- **Pioneering Spirit began construction on the second TürkAkım pipeline.** According to a statement from TürkAkım, Pioneering Spirit entered the Black Sea on June 20. In the meantime, the construction ship completed preparatory work including the installation of the stringer and the testing works of the pipeline laying equipment. After the reveal of the second pipeline from 2,170 meter depth, which was furnished until the Exclusive Economic Zone between Russia and Turkey, the pipeline laying works started. (27 June 2018)
- **Natural gas import prices in Germany increased by 8.9% when compared to the same period of the previous year.** Germany's natural gas import prices increased to an average of EUR18 /MWh in April 2018, but the official natural gas import prices were 9.2% lower than in March 2018. The volume of imports was recorded as 110.2 TWh (up 3.5% YoY). In the first four months of the year, natural gas import increased by 12.8% to 507.3 TWh. (27 June 2018)
- **Tax regulations for electric and hybrid vehicles were revised.** To encourage energy savings, import duties on inverters were set at 0.8% on the condition that the inverters were used for the production of motor land vehicles. The decision taken by the Council of Ministers on the issue was published in the Official Gazette, which stated that the decision would enter effect on July 1. The written statement issued by Ministry of the Economy stated that the automotive sector, which serves as a key driver of Turkey's exports, was also developing electric/hybrid vehicles in line with technological advancements, adding that that in view of the reduction in carbon emissions from motor vehicles in Turkey, the market for electric/hybrid vehicles in Turkey has been evaluated as having positive effects on the economy. The decision was taken to add footnote number 5 to the inverter, which is listed in the Annex II of the Additional Decision of Import Regime Decision, and to apply an import duty of 0.8% on condition that inverters were used in the production of motor vehicles listed in the 87th chapter. (27 June 2018)
- **During the OPEC meeting in Vienna, member states agreed to increase the supply of oil by 1 million barrels a day, with effect from July 1.** It was also agreed in principle that OPEC member countries and non-member nations should bring lower compliance rate to the global supply-side agreement from 130-150% to 100%. (25 June 2018)
- **The amendment to the decision enabling the Electricity Generation Inc. (EÜAŞ) to establish a company abroad was published in the Official Gazette on June 24.** Accordingly, EÜAŞ will establish a company abroad within the framework of international agreements within the country, under the legislation of the relevant country in order to perform activities such as the establishment, operation, maintenance, repair and rehabilitation of a power plant, electricity trading fuel and waste management. The nominal capital of the company, which is determined as US\$50 million, will not exceed US\$150 million. The nominal capital of the company may be increased in accordance with the decision of the Company's General Assembly and the approval of the Minister responsible for EÜAŞ. (25 June 2018)
- **Chinese oil companies are planning to reduce their crude oil purchases from the US with effect from September amid speculation that the Chinese government will impose import duties on US oil.** Companies in China, which is the second largest buyer of US oil after Canada, complete their orders of US crude three months ahead of delivery because of the geographical distance. (25 June 2018)

- **Siemens Gamesa is purchasing a wind energy generator from Turkey.** Siemens Gamesa Renewable Energy signed a cooperation agreement with the Turkish generator manufacturer, EMS Electronics, for the production of wind turbine components. Hakan Yıldırım, the CEO of Siemens Gamesa Renewable Energy, said that the generators produced in Turkey would also be used in the RESA Project. In his statement, Yıldırım said “the generators built here today are the generators to be used in the 10 turbine Yamaçtepe Wind Farm Project that we will build before the RESA. However, a larger version may be used in the RESA. Therefore, to have reached this capability has increased our confidence, even though there is another year and a half to go to set up the factory and commence work on the RESA project. (22 June 2018)
- **Socar Turkey plans to invest up to USD 2.2 billion in the petrochemicals sector.** The Chairman of Foreign Relations at Socar Turkey, Murat Lecompte, stated that the petrochemicals investment in Aliğa is planned to be completed in 2022 after approval of the feasibility study. The new facility will increase Petkim’s capacity, which currently stands at 1 million tonnes per year. Construction work on the new facility is expected to get underway in 2019. (22 June 2018)
- **The application date for Turkey’s first off-shore wind farm has been announced.** The tender for the offshore wind farm is scheduled to take place in October. The Ministry of Energy and Natural Resources will accept applications for the wind farm until 23 October 2018. The final tender date will be decided in due course. The ceiling price has been set as USD0.08/kWh and applicants will compete for the lowest bid in a reverse auction. With the abovementioned tender, renewable energy source areas (RESA) will be allocated for off-shore wind farms which will be connected to the electricity grid and will be within the specified connection zones in the specification. Candidate regions are Saros, Kiyıköy and Gallipoli. The winning bidder will sign an energy purchase agreement which will include the first 50 TWh of electricity production, starting from the first commissioning of the plant. The Energy Minister, Berat Albayrak, added that the tender specifications required that 60% of equipment be manufactured locally and that 80% of the engineers be Turkish. (21 June 2018)
- **The transfer of Gazdaş shares to Zorlu Enerji has been approved.** In its statement on the Public Disclosure Platform, Zorlu Enerji Elektrik Üretim A.Ş. announced that the transfer of shares in Gazdaş Gaziantep Doğalgaz Dağıtım A.Ş. to Zorlu Enerji Dağıtım A.Ş., one of its subsidiaries, had been approved by the Energy Market Regulatory Authority (EMRA). In addition, the share transfer approval process of Trakya Bölgesi Doğalgaz Dağıtım A.Ş. was still ongoing. (20 June 2018)
- **The European Union (EU) is raising the bar in renewable energy.** The European Commission has announced that political consensus has been reached on talks between the European Council and the European Parliament on the renewal of renewable energy targets. Accordingly, the EU’s 2030 renewable energy resource utilization target has been increased from 27% to 32%. Legislation requires the formal approval of the European Council and the European Parliament. (19 June 2018)
- **The US Energy Information Administration (EIA) announced a revision of its oil price forecasts for 2018 and 2019.** The EIA left its forecast for Brent Crude Oil prices unchanged at USD 71/bbl for 2018, while its 2019 projection was raised from USD66/bbl to USD68/bbl. (14 June 2018)

- **The Ministry of Energy and Natural Resources have transferred the rights of Alaçatı Wind Farm, Turkey's first wind farm, to EÜAŞ.** The licensing period of the Alaçatı Wind Farm, which was granted a license period of 20 years under the contract signed with the Ministry of Energy and Natural Resources in 1998, will expire on November 28, 2018. On June 15, 2017, the Ministry of Energy took over the proceeds of the Alaçatı Wind Farm, as the wind farm did not generate the guaranteed amount of electricity set out in the contract for the year of 2017. Accordingly, the Alaçatı Wind Farm became the first wind power plant operated by EÜAŞ. (14 June 2018)
- **The Trans Anatolian Natural Gas Pipeline (TANAP), which will transmit natural gas from Azerbaijan to Europe via Turkey, was opened in Eskişehir on 12 June and natural gas started to flow through the pipeline.** TANAP's construction work was completed in three years. The opening ceremony was attended by President Recep Tayyip Erdogan, President of the Republic of Northern Cyprus Mustafa Akıncı, President of Azerbaijan Ilham Aliyev, President of Ukraine Petro Poroshenko, President of Serbia Aleksandar Vučić, the Minister of Energy and Natural Resources, Berat Albayrak, and the SOCAR President Rövnag Abdullayev. TANAP, the 1,850 kilometer-long natural gas pipeline with an annual transmission capacity of 16 billion cubic meters of natural gas, will meet approximately 12% of Turkey's natural gas demand. The pipeline capacity is planned to be increased to 22 billion cubic meters initially, followed by additional investments depending on natural gas demand, with the capacity of the pipeline aimed to reach 31 billion cubic meters. The pipeline, which is being built at a capital cost of US\$8 billion, is planned to be connected to another pipeline in Europe in order to reduce the EU's dependence on Russian natural gas. SOCAR has a 51% share in TANAP, with the other shareholders being BOTAŞ (30% stake), BP (12%) and SOCAR Turkey (7%). The natural gas produced in Azerbaijan's Shah Deniz 2 natural gas field and other natural gas fields in the southern Caspian Sea region will first be transferred to Turkey via TANAP, and then on into Europe. TANAP, which starts from the village of Türkgözü, in the Posof County in the Ardahan Province at Turkey-Georgia border, crosses 20 provinces and 67 counties, including the provinces of Kars, Erzurum, Erzincan, Bayburt, Gümüşhane, Giresun, Sivas, Yozgat, Kırşehir, Kırıkkale, Ankara, Eskişehir, Bilecik, Kütahya, Bursa, Balıkesir, Çanakkale, Tekirdağ and Edirne. The pipeline ends in the İpsala County of Edirne at the border with Greece, whereupon TANAP will be connected to another pipeline that will transmit natural gas to European countries. (13 June 2018)
- **The Minister of Energy and Natural Resources, Berat Albayrak said that Turkey could develop much higher value added products after processing boron.** He added in his statement that boron was even more significant than nuclear related matters, adding his view that Turkey had taken important steps in the energy sector and followed a clear policy on boron for the last two years. (13 June 2018)
- **The Petroleum Pipeline Corporation (BOTAŞ) ordered two ships from the shipyards of Hyundai Heavy Industries in South Korea.** BOTAŞ increased its investments in the floating storage regasification unit (FSRU), which is named as LNG storage and gasification, and ordered 2 FSRUs at a total cost of US\$450 million (approximately TRY2 billion). The FSRUs, which are planned to have a length of 295 meters and a breadth of 46 meters, are planned to have a storage capacity of 170,000 cubic meters. According to the agreement reached between Hyundai and BOTAŞ, the ships will be delivered in the first half of 2020. (13 June 2018)

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