



May 2019

#12

Monthly Energy Bulletin

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TSKB Economic Research



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The second Renewable Energy Source Zone for Wind Power Plants (YEKA RES-2) was completed

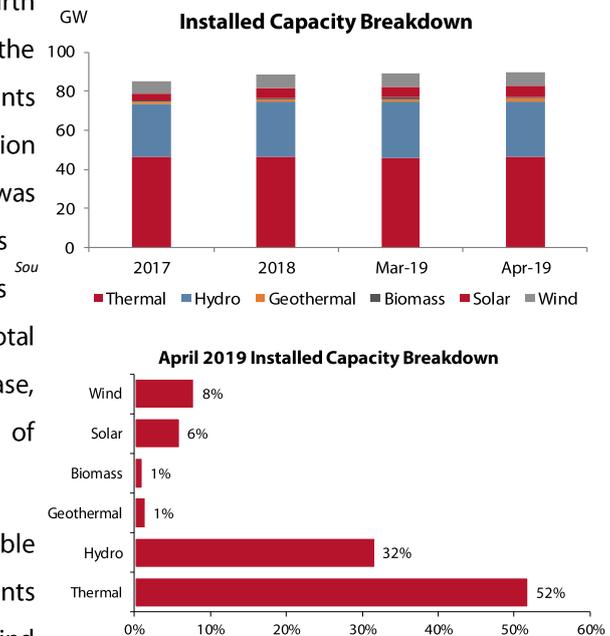
The tenders, which started at 10.30 am on Thursday, May 30, included the allocation of 250-megawatt capacity for four regions. A total of nine companies competed for the distributed capacity for Aydın, Muğla, Balıkesir and Çanakkale. As a result of the tenders, EnerjiSA and Enercon won two 250 megawatt tenders and each company had 500 megawatt capacities in total. Whole tenders had a ceiling price of 55 USD/MWh where; EnerjiSA won Aydın tender with 45.6 USD/MWh, Enercon won Muğla tender with 40 USD/MWh, Enercon won Balıkesir tender with 35.3 USD/MWh and EnerjiSa won Çanakkale with 36.7 USD/MWh.

After the tenders, the Minister of Energy and Natural Resources, Fatih Dönmez, stated that, companies will use the wind turbines with minimum of 65% local content. Dönmez also had statements regarding the solar YEKA. Dönmez said "Currently we are planning to have smaller solar YEKA tenders with 40-50 megawatt capacities with high solar potential from east to west. We will make a disclosure about the calendar in the coming days."

Installed Capacity Analysis

After reaching 88,551 megawatts (MW) at the end of 2018, Turkey's total installed capacity increased further to 89,681 MW by the end of April 2019. A 0.6% increase was realized in the fourth month of the year, with natural gas plants mostly accounting for the increase. During this period, licensed and unlicensed solar power plants with a total installed capacity of 59 MW were commissioned, in addition to hydroelectric power plants with a total capacity of 12 MW. There was no recorded change in the total installed capacity of coal power plants during the month, compared to March 2019. Natural gas plants recorded an increase of 460 MW in their installed capacity. The total Installed capacity of wind farms increased posted a slight 7 MW increase, while there was no significant increase in the installed capacity of geothermal power plants.

Of all the power plants in operation during April, 48% were renewable electricity generating power plants, with hydro-electric power plants accounting for 32% of the total installed renewables capacity. Wind farms and solar power plants, which had a 13.5% of total share in capacity at the end of 2018, raised their share to 13.9% at the end of April 2019.



Source: TEİAŞ, TSKB Economic Research

Electricity Generation Analysis

Approximately 23.74 terawatt-hours (TWh) was generated in the first 30 days of May 2019, while the total generation in April reached 24.42 TWh. There was an increase of approximately 1.4% in the average daily electricity generation in May 2019 when compared to April.

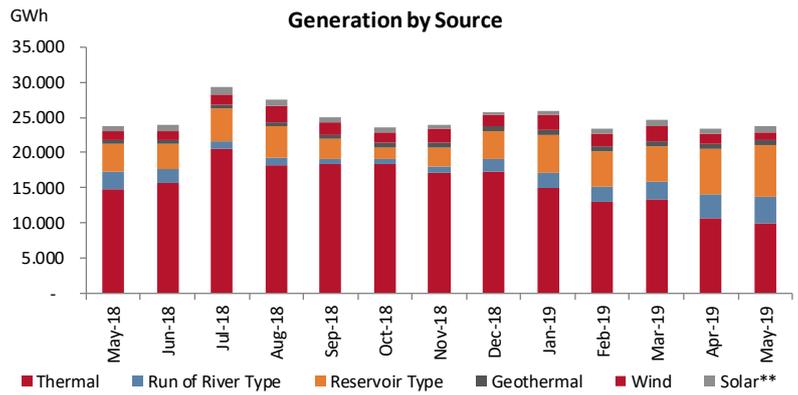
Thermal power plants, which had supplied 45.4% of the total electricity in April, generated 41.9% of the total electricity generated in May 2019, with the increase in the electricity generation through hydropower likely to have been the main reason for the 3.6 point decline.

Accounting for 6.3% of electricity generation in April, wind farms provided 4.7% of the total electricity generated in May. Another noteworthy development was that hydro-electric power plants, which had a 30.7% share in February, saw an increase in their share in the fourth and fifth months of 2019, to 42.6% in April and 47.2% in May.

The average daily generation of licensed plants in May 2019 slightly decreased to 764,571 megawatt-hours (MWh), marking a 0.7% increase compared to April.

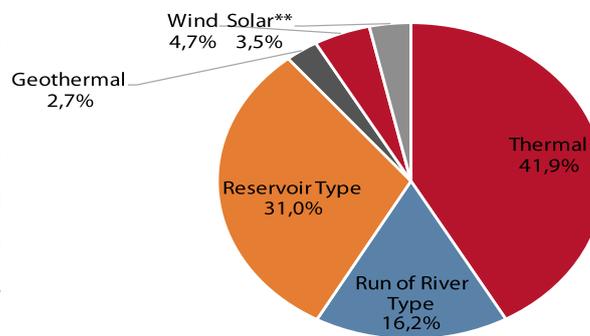
The highest electricity generation from licensed power plants was realized on Thursday, May 30, with 847,631 MWh and the lowest was realized on Sunday, May 5 at 655,855 MWh.

Daily consumption averaged 758,270 MWh in May 2019, peaking at 843,473 MWh on Thursday, May 30, while the lowest electricity consumption, of 648,859 MWh, was recorded on Sunday, May 5.



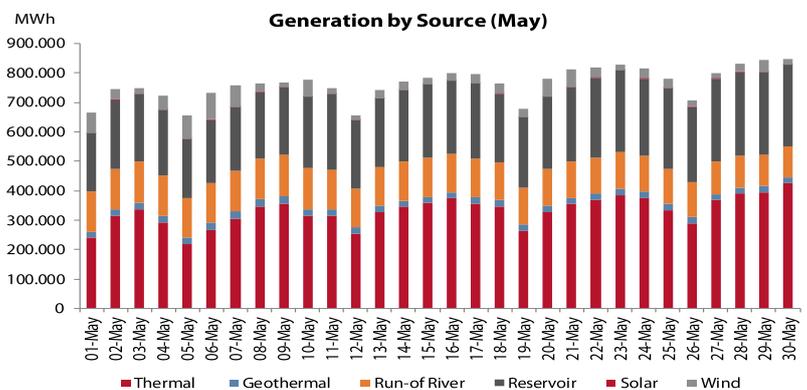
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

**Since May unlicensed solar power plant generation data has not yet been released by TEİAŞ, the total energy generation by unlicensed solar power plants in May was accepted as same as the total generation of April 2019.

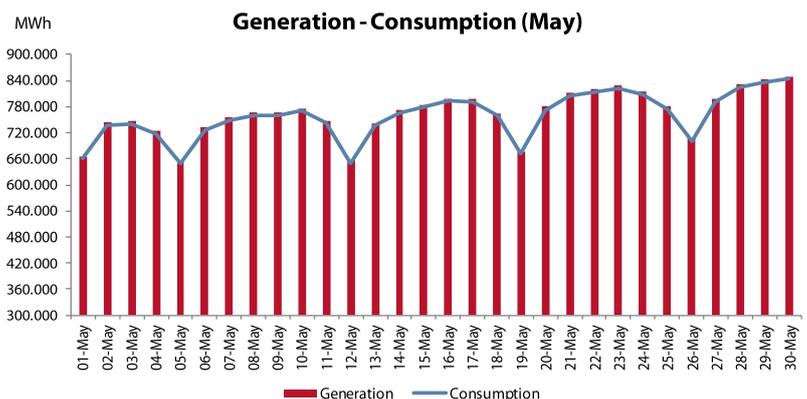


Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

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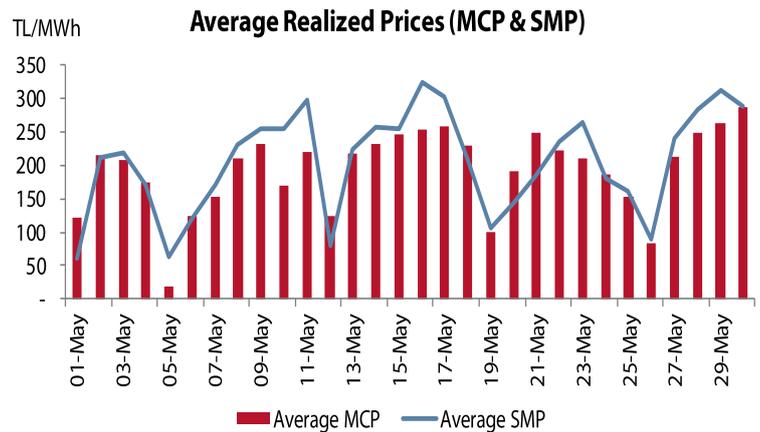
Electricity Price Analysis

The average market-clearing prices (MCP) and system marginal price (SMP) fluctuated between 19 TL/MWh and 325 TL/MWh in May 2019. In May 2019, the average MCP stood at 193.55 TL/MWh, while SMP averaged 206.59 TL/MWh. The lowest average MCP, of 19.08 TL/MWh was recorded on Sunday, May 5, and the lowest average SMP, of 59.76 TL/MWh was recorded on Wednesday, May 1.

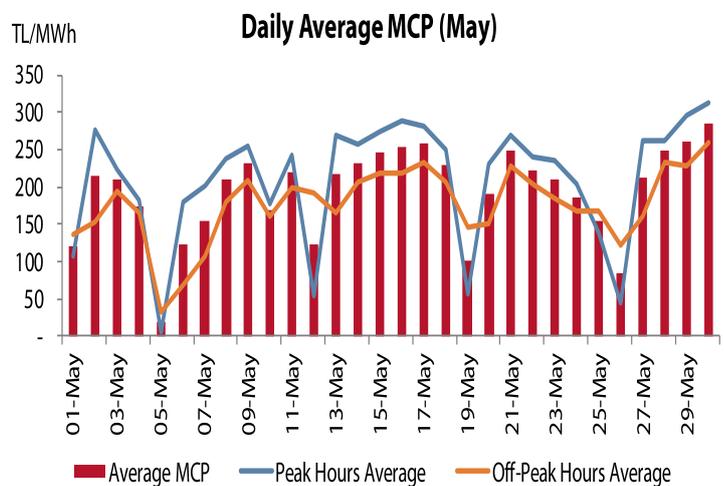
Compared to April 2019 average, the May 2019 MCP average was 4.8% higher.

An analysis of May's daily average MCP reveals an average tariff of 210.41 TL/MWh for peak hours (from 8AM to 8PM), 8.8% higher than the daily average value. The highest peak-hour average recorded was 311.77 TL/MWh on Thursday, May 30, whereas the lowest peak-hour average was 5.08 TL/MWh on Sunday, May 5.

The average pricing in off-peak hours (from 8PM to 8AM) for the same period was calculated as 176.68 TL/MWh. The highest off-peak hour average was recorded as 260.77 TL/MWh on Thursday, May 30, while the lowest off-peak average was 33.08 TL/MWh on Sunday, May 5. A noteworthy point in terms of the hourly SMP's was that on Sunday, May 5, the price was not determined for 18 hours.



Source: EXIST, TSKB Economic Research

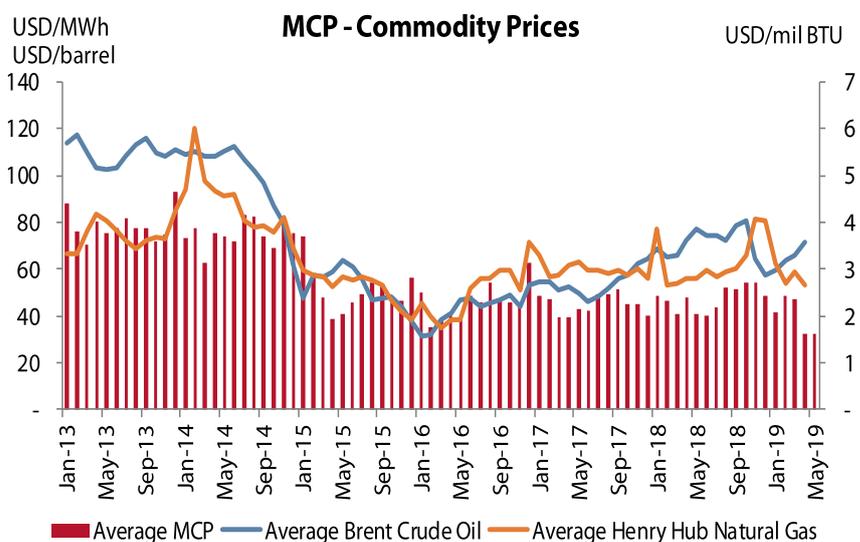


Source: EXIST, TSKB Economic Research

The annual average MCP in 2018 was 47.39 USD/MWh, while the average MCP in April and May 2019 stood at 32.63 USD/MWh and 32.43 USD/MWh, respectively.

The MCP declined by 0.6% in dollar terms in May when compared to April, mainly because the appreciation of the dollar against the Turkish lira was higher than the increase in the MCP in Turkish lira terms.

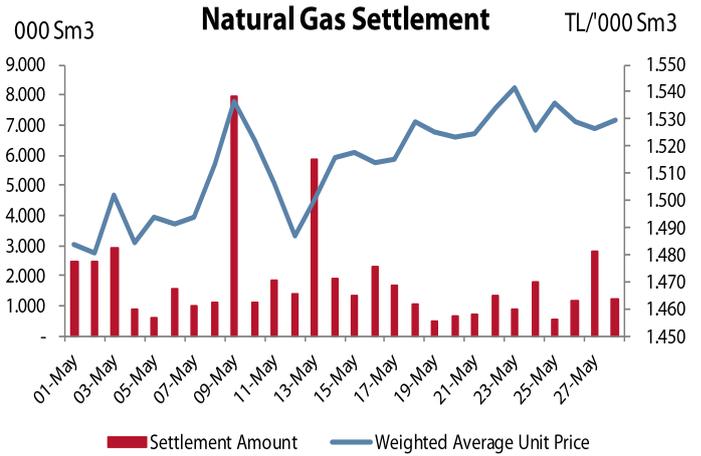
Brent crude oil prices averaged USD 57.36 per barrel in December 2018. In April 2019, the price of Brent oil averaged USD 71.23 per barrel, up by 7.7% compared to the previous month. In the period, average Henry Hub natural gas was USD 2.65 per mBTU.



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

Natural Gas Settlements

According to natural gas coupling data published by the Organized Wholesale Natural Gas Market operated by EXIST, the daily average natural gas settlement was 53.86 million Sm³ in May. On Sunday, May 19th settlements for a total of 466,000 Sm³ of natural gas settlements were recorded, while on Thursday, May 9th settlements totaled 7.99 million Sm³. In May, the weighted average settlement unit price was calculated as 1,513.47 TL/000 Sm³.



Source: EXIST Natural Gas Platform, TSKB Economic Research

Sector News

Local News

- Privatization tender of Adularya Energy to be held on July 10, 2019.** The Head of the Savings Deposit Insurance Fund (SDIF), Muhiddin Güral, stated that the tender for the sale of the Adularya Energy Yunus Emre Thermal Power Plant with an installed capacity of 2x145 megawatt, which was transferred to the SDIF in 2016, would be held on July 10th. Güral added that the tender's estimated total price was 1.1 billion TL. The Yunus Emre Thermal Power Plant has a capacity of 2.2 million tonnes of coal processing and can generate 2.4 billion kilowatthours of electricity per year. (May 30, 2019)
- SOCAR's EWE acquisition scheduled to be completed on June 17, 2019.** The acquisition, which received approval from the Competition Authority, the Energy Market Regulatory Authority (EMRA) and the Information Technologies and Communications Authority, will be completed on June 17, 2019. On that date, SOCAR Turkey will hold 80% of the shares in Kayserigaz and Bursagaz, which are operating in the gas distribution sector in the Kayseri and Bursa provinces, 100% of the shares of the electricity distribution and trade company, EWE Energy, the energy services company Enervis and the telecommunication company Millenicom. (May 30, 2019)
- Nearly half of energy investments made to low-carbon resources.** The preliminary findings of the "Energy Financing Report" which will be published by SHURA Energy Conversion Center were shared in the ICCI 2019 - International Energy and Environment Fair and Conference. According to the report, more than 45% of the USD 110 billion of investment in the energy sector between 2002-2018 was directed to low carbon and domestic energy resources such as electricity generation from renewable energy and energy efficiency. In 2018, the total credit debt of the Turkish energy sector was reported to have risen to USD 45.4 billion. While half of the debt was comprised of domestic loans, the other half consisted of 50% direct external debt while 50% of the resources were provided through domestic institutions. (May 30, 2019)

- **Söke industrial zone to meet its electricity needs through a solar power plant.** The Directorate of the Söke Organized Industrial Zone is planning to establish a 9.12 MW capacity solar power plant on the water tank building and transformer building, transformer and water tank building roofs and water canal in its privately-registered land. Within the scope of the project, which has a value of 45 million TL, 25,272 panels will be installed, with each panel having a power capacity of 380 watts, on an area of approximately 100,600 m². A total of 15.51 terawatt-hours of electricity will be generated from the power plant every year, which will prevent greenhouse gas emissions of approximately 10,749 metric tonnes of CO₂. (May 24, 2019)
- **EMRA updated monthly supplied anticipated YEKDEM incremental unit cost for second half of the year.** EMRA amended the monthly supplied anticipated YEKDEM incremental unit costs for the June-December 2019 period in accordance with Law No. 8592, dated 16/5/2019. The Predicted YEKDEM incremental unit costs per megawatt-hour for the June-December 2019 period were announced as 111.72 TL/MWh (June), 72.74 TL/MWh (July), 88.61 TL/MWh (August), 73.77 TL/MWh (September), 72.82 TL/MWh (October), 75.52 TL/MWh (November) and 76.34 TL/MWh (December). (May 23, 2019)
- **Zorlu Energy sells Çumra Inc. to KHM Energy.** Cumra Solar Energy and Generation Inc., 100% owned by Zorlu Energy Electricity Generation Inc., was sold for USD 6.4 million to KHM Energy Tourism Trade Industry Inc. Zorlu Energy stated that there was no explanation before the transaction took place because the transaction is subject to a number of prerequisites, such as permission to be taken from relevant official and administrative institutions, with uncertainty over whether or not transaction would take place at the stage of signing of a contract between the parties. (May 22, 2019)
- **SOCAR's investments in Turkey expected to continue.** The General Manager of the Star Refinery, Mesut İlder, said the following; "SOCAR is one of the largest investor in Turkey. Up until now, USD 15 billion investment had completed and total investment will increase to USD 19.5 billion in the first stage. We have an implicit trust in the Turkish economy." Mr. İlder pointed that the Company aimed for the peninsula where SOCAR Turkey Companies are located to become one of the world's leading chemical hubs. He also added that the Star Refinery used Iranian oil and would comply with international rules which Turkey is obliged to comply with. (May 22, 2019)
- **List of information and documents for applying for unlicensed electricity production published in the Official Gazette.** Any party seeking to generate unlicensed electricity is required to submit an unlicensed generation connection application form and accreditations of the covered person or persons which are authorized to represent the legal entity and shareholder structure of the legal entity to EMRA. For projects exceeding the threshold values, with the exception of rooftop applications, a construction license is expected to be provided along with approved electrical project cover for the consumption facilities and documents within the scope of the Environmental Impact Assessment Regulation. According to the regulation, no documents will be required for wind, solar, biomass and gas obtained from biomass (including landfill gas). (May 21, 2019)

- April 2019 YEKDEM cost per megawatt hour announced by EPIAŞ.** According to announcement, the YEKDEM cost was 141,687 TL/MWh in April, reflecting the additional effect of the payments to power plants under the YEKDEM mechanism on electricity costs. The calculations based on EPIAŞ data found that the Energy Market Regulatory Authority (EMRA) had deviated by approximately 90% from the cost estimate previously announced by YEKDEM, indicating that the cost was almost double what had been expected. Industrial electricity subscribers also added the estimated cost of YEKDEM on the market-clearing price (PTF) in the day-ahead electricity market in order to calculate the estimated electricity cost in the relevant month. The difference, which is approximately TL 67, is billed to industrial users as an unexpected additional cost of electricity. (21 May 2019)
- Wind Power Association expects YEKDEM to be continue.** The President of the Turkish Wind Energy Association, Hakan Yıldırım, stated that guaranteed purchase price for wind power projects should be 5.22 USD cents per kilowatt-hour within YEKDEM after 2020. For access to long term and reasonable sources of financing, the term of guaranteed purchase prices should be for fifteen years and local equipment usage should guaranteed, at least for ten years and/or in euro terms. (May 17, 2019)
- Boru Hatları ile Petrol Taşıma A.Ş. (BOTAŞ) set a the cap of TL 643.75 million on investments for 2019.** The Energy Market Regulatory Authority (EMRA) approved the natural gas distribution investment plan drawn up by BOTAŞ for 2019. BOTAŞ will not exceed the cap on investments for projects in 2019 and will not make payments for projects which are included in the program. Project payments will be only made for investment purposes. (May 15, 2019)
- Tekfen Holding buys Gönen Energy through its affiliate, Toros Tarım.** Tekfen Holding A.Ş. has purchased the shares in Gönen Yenilenebilir Enerji Üretim A.Ş. through its affiliate, Toros Tarım Sanayi A.Ş. According to a statement from Tekfen Holding, both parties reached an agreement and signed a contract and applied to EMRA for permission to purchase the shares. The purchasing transaction will be completed upon EMRA's approval. (May 15, 2019)
- Turkey ranked first in Europe in terms of new hydro-electric power and fourth in the world.** According to the "2019 Hydro-Electric Power Status Report" released by the International Hydro-Electric Power Association (IHA), hydro-electric power constituted 15.9% of total global electricity generation last year. 48 countries added 21,800 MW of hydro-electric power to their capacity. Turkey ranked highest among Europe in terms of new capacity additions, with 1,085 MW of capacity added, ranking fourth in the world. Previously, Turkey had been ranked 6th in the world with 592 MW of hydro-electric capacity additions. (May 15, 2019)
- Monthly netting regulations released for unlicensed electricity generation plants.** Under the new regulation, everyone will be able to generate electricity without having to acquire license or establish a firm. Natural and legal entities will be able to transfer excess electricity to the network. Electricity transferred to the network will be considered under the YEKDEM scheme. The regulation will require generation and consumption plants to be located in the same distribution district. Electricity transferred to the network and run from the network will be netted out on the 6th day of each month. (May 13, 2019)

- **15 turbines for Üçpınar Wind Farm accepted temporarily.** Derbent Enerji Üretim Pazarlama İthalat ve İhracat A.Ş., an affiliate of Akfen Renewable Energy Inc. received temporary approval from Ministry of Energy and Natural Resources for 15 turbines with 51 MW. (May 13, 2019)
- **Canadian Valeura to work on extraction of 286 billion cubic meters of natural gas in Trakya.** According to a statement from the company, the gas liquidity of the region will be tested in the second and third quarter of the year. The company will build production plants in order to test for natural gas in the region and trace out its characteristics. The Company also stated the following: "It is very important to determine the regions with permanent gas flow to ensure commercial reserves. We will be focusing on estimated natural gas reserves of 286 billion cubic meters that in the Trakya region." (May 10, 2019)
- **European Bank for Reconstruction and Development (EBRD) decides to allocate USD 100 million of funds to İÇTAŞ Sustainable Energy.** According to a statement from the EBRD, the company will invest in wind farms and solar power projects with a combined capacity of up to 250 MW. (May 9, 2019)
- **TÜPRAŞ total production capacity raised from 28.1 million to 30 million tonnes as part of modernization investments starting from 2017.** As part of the efforts, the refining capacity of the İzmir Refinery was raised from 11 million to 11.9 million tonnes, while the capacity of the İzmit Refinery was raised from 11 million to 11.3 million tonnes, the capacity of the Kırıkkale Refinery from 5 million to 5.4 million tonnes and the capacity of the Batman Refinery from 1.1 million to 1.4 million tonnes. (May 8, 2019)
- **TÜPRAŞ planning to cancel all oil imports from Iran, but BOTAŞ to continue importing natural gas, according to Habertürk.** TÜPRAŞ is expected to import crude oil from Iraq and Saudi Arabia. BOTAŞ, on the other hand, will continue importing natural gas as part of its "take or pay" agreement with Iran, since Turkey is obliged to pay even if it does not import natural gas. (May 8, 2019)
- **Natural gas was found in Trakya.** Canadian company Valeura Energy announced it had found "significant proof for of natural gas" in the Devepınar-1 bore. Sean Guest, the CEO of Valeura Energy said that high pressure gas and reserves are present 20 kilometers away from the Yamalık-1 and İnanlı-1 fields and that the Company would discover more details on the gas flow in the near future it started our production tests on the field. (May 6, 2019)
- **Bereket Energy planning to transfer shares of Akiş Energy to Kangal Elektrik and İş Asset Management.** Bereket Energy applied for permission from the Competition Authority to sell all of its shares in Akiş Energy to Kangal Elektrik Enerji and İş Asset Management. (May 6, 2019)
- **Regulation on energy efficiency precautions in transportation industry updated.** According to the new regulation, new investments will be carried out which will enable efficient energy usage and lower fuel consumption through integration between main transportation routes, logistic hubs, bridges, tunnels, high-speed trains and railways, ports and industrial zones. The Ministry of Transport and Infrastructure will introduce measures in coordination with other ministries, to remove inefficient cars from the roads and replace them with newer more fuel efficient vehicles. In order to relieve traffic conditions as well as achieve energy and time savings, the working hours of institutions will be rearranged and flexible working conditions will be considered. Municipalities with more than 100,000 residents will be able to prepare Urban Transportation Action Plans. Districts with high traffic and air pollution will be designated as low emission zones. (May 2, 2019)

- **260 million TL worth of electricity support in two months.** Speaking at the 12th Sectoral Meeting of Electricity Distribution Services Association (ELDER), the Minister for Energy and Natural Resources, Fatih Dönmez, said that a total of 260 million TL of electricity payment support had been allocated to households in need in March and April. Dönmez also announced a total investment of 7.17 billion TL in 2019 (5.17 billion TL for electricity distribution and 2 billion TL for electricity transmission). Speaking at the same meeting, ELDER's Chairman Serhat Çeçen said that electricity distribution sector would spend 250 million TL on technology and 316 million TL on R&D in 2019. Çeçen added that the association had guaranteed 28.5 billion TL of investment for the 2016-2020 period, and that 20 billion TL had already been invested as of 2018. The Chairman of the Energy Market Regulatory Authority (EMRA), Mustafa Yılmaz, said that the electricity transmission loss rate had dropped from 25% in 2013 to 11% in 2018, since the start of privatization of electricity distribution sector. (May 2, 2019)
- **Kangal Power Plant to produce fertilizer from exhaust gas.** The Kangal Power Plant signed a protocol with SBB Energy Inc. to build a waste gas refinement plant. As part of the protocol, the exhaust gas refinement plant will be built at a cost of EUR 100-150 million and be operated through the "Build-Operate-Transfer" model. SBB Energy Inc. will finance the project.
- **Energy efficiency now the hot topic in the energy sector.** The Chairman of the Energy Efficiency Association, Murat Kalsın, spoke at the 7th International İstanbul Smart Networks and Cities Summit. "We, as Energy Efficiency Association, are very hopeful about the future of energy since energy efficiency is the top of the energy sector's agenda", he said while adding that the Association was focusing its efficiency efforts on the industry, building and agriculture sectors. (April 26, 2019)

News From Abroad

- **Gazprom announced exploration of 481.4 billion m³ of natural gas.** According to announcement, Gazprom has explored 481.3 billion m³ (17 trillion cubic feet) of natural gas is under two license areas (Rusanovsky and Narmeisky), which are located off the coast of the Russian Yamal Peninsula. (May 21, 2019)
- **OPEC countries intend to apply restrictions on petroleum supplies for the whole year.** It was reported on Bloomberg that while Saudi Arabia and OPEC member key producers intend to limit their oil production for the rest of 2019, they have offered assurance that there will not be any constraints on oil supply. According to an interview on Bloomberg given by Emmanuel Ibe Kachikwu, the Minister of State for Petroleum Resources of The Federal Republic of Nigeria, all ministers who join The Joint Ministerial Monitoring Committee (JMMC), which supervises deals between OPEC+ countries, have expressed their support for the oil supply cut. Moreover, Alexander Novak, the Minister of Energy in Russia, issued a statement regarding a potential loosening of the supply cut, stating that they would wait and see what would going to happen in the next month. (May 20, 2019)
- **Global oil supplies down by 300,000 barrels per day in April compared to previous month.** According to data from the International Energy Agency (IEA), global oil supplies stood at 99.3 million barrels per day in April, declining by 300,000 barrels/day compared to the previous month. Global oil supply was still up by 775,000 barrels/day compared to the same month last year, having peaked in November 2018 and declining by 3 million barrels per day since then. (May 16, 2018)
- **Azerbaijan posts average oil production of 685,000 barrels per day in April.** Azerbaijan decreased its oil production as part of the agreement among OPEC members to decrease their oil production by 1.2 million barrels per day. The daily average was 799,000 barrels in the January-March period. (May 14, 2019)

- **EU sees a 2.5% reduction in its carbon dioxide emissions in 2018.** According to data provided from Eurostat, the decline was due to only a couple of countries in the region with the steepest declines in emissions recorded in Portugal and Bulgaria, followed by Ireland, Germany, the Netherlands and Croatia. Conversely, Latvia, Malta, Estonia, Luxembourg, Poland, Slovakia, Finland and Lithuania recorded an increase in their carbon emissions last year. (May 13, 2019)
- **Russia plans to decrease oil production temporarily.** After European buyers discovered impurities in Russian crude oil, Russia announced that it would decrease oil production in the upcoming week. According to the announcement, Russia will decrease its oil production by 1 million barrels, corresponding to 10% of Russia's total oil production, for five days in the upcoming week. (May 9, 2019)
- **Iran announces it has revoked certain commitments in its nuclear deal, with 60 days allotted for revocation of sanctions on oil and banking.** Addressing the issue, Ruhani said "Once our enriched uranium levels reached 300 kilograms, we were selling it to two countries. We stopped selling it as of today. We have also halted sales of heavy water." said. Iran submitted its decision on revoking certain commitments to the leaders of Germany, the United Kingdom, France, China and Russia. (May 9, 2019)
- **USA Energy Information Association (EIA) revises projections for 2019 and 2020 upward.** According to the "Short Term Outlook" report released on 7 May 2019, the EIA expects crude oil production in the USA to be 12.45 million barrels/day on average, increasing by 1.45 million barrel/day. Oil production is expected to increase by 930,000 barrels per day in 2020 to reach 13.38 million barrels/day. The EIA also predicts that demand for oil will be 20.7 million barrel/day in 2019. The average price of Brent crude oil was revised upward by USD 5 per barrel to USD 70 per barrel in 2019 and USD 67 per barrel in 2020. (May 8, 2019)
- **Growth of renewable energy grinds to a halt in 2018, according to International Energy Agency (IEA).** According to the agency, the capacity of renewable energy did not record annual growth for the first time since 2001. The Net capacity of solar power, wind, hydropower, bioenergy and other renewable energy sources totaled 180 GW in 2018, almost the same level as the year before. According to the IEA, the main reason for the stagnation in renewable energy capacity was the slowdown in new capacity additions in China and the European Union. Declines in wind power capacity in India and the EU were also blamed for the stagnation in renewable energy. (May 7, 2019)
- **Warning from Iran's Minister of oil, Bijan Zangeneh, that OPEC could dissolve due to activities among some members at the expense of other members' interests.** Zangeneh warned that OPEC might dissolve following his meeting with Mohammed Barkindo, OPEC's Secretary General. (May 6, 2019)
- **Germany and France to invest EUR 5-6 billion in production of battery cells for electrical cars.** Germany's Minister of Economy and Energy, Peter Altmaier, and France's Minister of the Economy, Bruno Le Maire, jointly announced the details of the battery cell project. According to the project, EUR 5-6 billion will be invested, including EUR 1 billion of public investment. The first stage of the project involves building a plant in France which will employ 200 people. Afterwards, battery cell production plants will start operating both in Germany and France, each employing 1,500 people. (May 3, 2019)



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