



August 2018

#3

Monthly Energy Bulletin

As of 29/08/2018

Can Hakyemez | hakyemez@tskb.com.tr

TSKB Economic Research



Monthly Energy Bulletin

August 2018

#3

Can Hakyemez | hakyemez@tskb.com.tr

TSKB Economic Research

The Natural Gas Continuous Trading Platform will begin operations on September 1

The Natural Gas Continuous Trading Platform (CTP), the so-called Natural Gas Exchange, will officially begin operations on September 1. Within the scope of Organized Wholesale Natural Gas Sale Market Platform, the Energy Market Regulatory Authority (EMRA) determined the maximum and minimum limits of the price offer and the prices that will be applied in exceptional cases in the CTP. In accordance with EMRA’s decision, the minimum price offer in the CTP will be TRY0/1,000 Sm³ while the maximum price offer will be TRY2,000/1,000 Sm³. In addition, in about excluding the point/regional transactions of the transmission company; as “Additional Equalizer” the minimum price of the matchup to be realized was determined as TRY1,000/1,000 Sm³ for purchase transactions and the maximum price of the matchup to be realized was determined as TRY1,800/1,000 Sm³ for sale transactions. The Natural Gas Continuous Trading Platform, which will officially enter operation on September 1, will be open 24 hours a day 365 days a year, and will provide the formation of the Daily Reference Price (DRF).

Installed Capacity Analysis

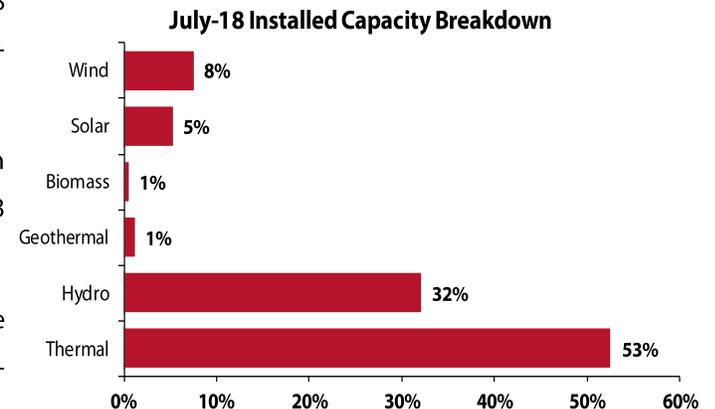
After reaching 85,200 megawatts (MW) at the end of 2017 and 87,139 MW at the end of June 2018, Turkey’s total installed capacity had increased to 87,294 MW by the end of July. A total increase of 2,094 MW was realized in the first seven months of the year, with renewable power plants accounting for most of the increase. During the period, unlicensed solar power plants with a total installed capacity of 1,323 MW were commissioned while hydroelectric power plants, with a total capacity of 838 MW, were commissioned. A total reduction of 393 MW was recorded in the combined capacity of thermal power plants.

While Turkey’s total installed capacity increased by 155 MW in July, the country’s thermal power plants saw a decrease of 103 MW in their total installed capacity.

47% of the power plants which were in operation in July were renewable electricity generating power plants, with hydroelectric power plants accounting for 32% of the total installed renewables capacity and the share of solar power plants increasing to 5% in July, from 4% at the end of 2017.

Plant Type (MW)	2017	Jun-18	Jul-18
Thermal	46.352	46.061	45.958
Hydro	27.273	27.912	28.112
Geothermal	1.064	1.144	1.164
Biomass	575	624	624
Solar	3.421	4.726	4.744
Wind	6.516	6.671	6.693
Total	85.200	87.139	87.294

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



Source: TEİAŞ, TSKB Economic Research

Electricity Generation Analysis

Approximately 200 gigawatt-hours (GWh) was generated in 2018, while the total generation in August had reached 25.78 GWh as of August 29.

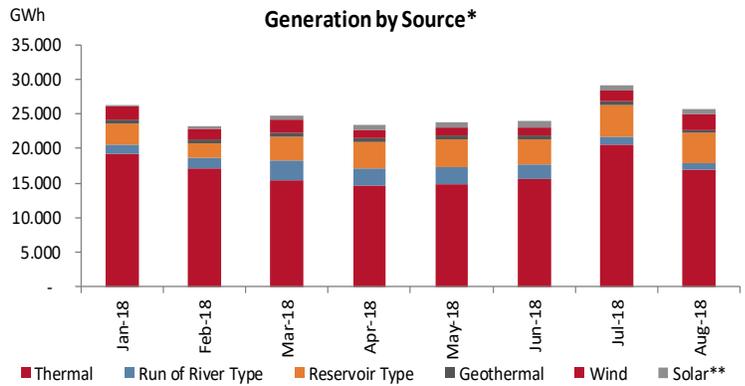
There was an 11.5% decrease in electricity generation in August when compared to July, which can be attributed to the longer Eid holiday in the third week of August.

Thermal power plants, which had supplied 70% of the total electricity generated in July, generated 66% of the total electricity generated in August with the 49.5% increase in tariffs of natural gas used for electricity generation likely to have been the main reason for the 4 point decline. This was compensated by the increased generation from wind power plants. Accounting for 5% of electricity generation in July, wind provided 9% of the total electricity generated in August. Another noteworthy point is that run-of-river type power plants, which had an 8% share in June, saw a decline in their share to 4% due to the decrease in rainfall in July and August.

The average daily generation of licensed power plants in August stood at 859,236 megawatt-hours (MWh), marking a 5.9% decline when compared to July – again, attributable to the longer Eid holiday in August.

Daily consumption averaged 858,024 MWh in August, peaking at 979,215 MWh on Thursday, August 2, while the lowest electricity consumption, of 602,557 MWh, was recorded on Tuesday, August 21.

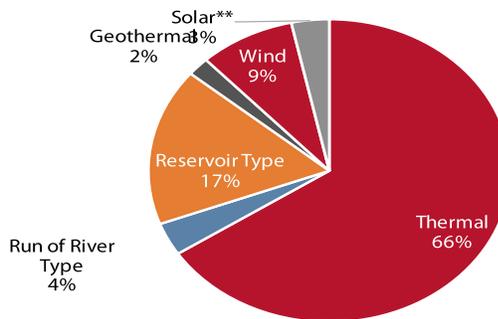
The daily volume of electricity generation from licensed power plants reached 975,198 MWh on Thursday, August 2; however, it is estimated that actual electricity generation on that day may have exceeded 1 terawatt-hours (TWh) due to the electricity generated from unlicensed solar power plants.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

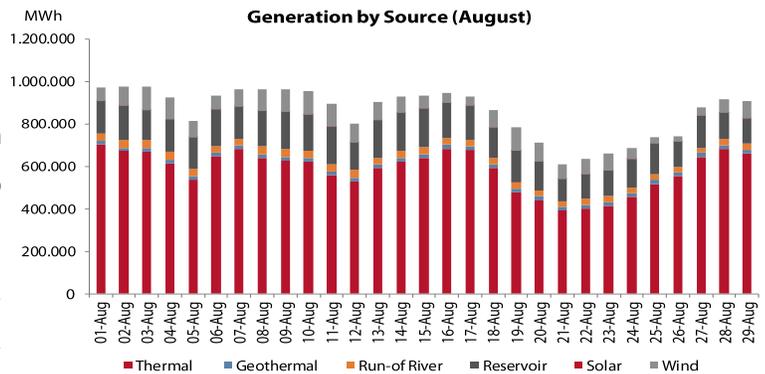
*June data consist of data up to June 29.

**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.

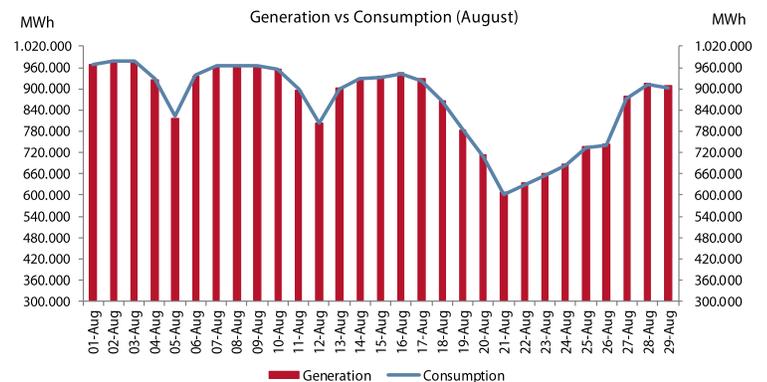


Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

**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.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Electricity Price Analysis

The average market clearing price (MCP) and system marginal price (SMP) fluctuated between TRY210/MWh and TRY350/MWh between 1-29 August. In the first 29 days of the month, the average MCP stood at TRY296.77/MWh while the SMP averaged TRY293.39/MWh. The lowest average MCP, of TRY258.18/MWh, was recorded on Wednesday, August 1, and the lowest average SMP was TRY213.96/MWh on Saturday, August 11.

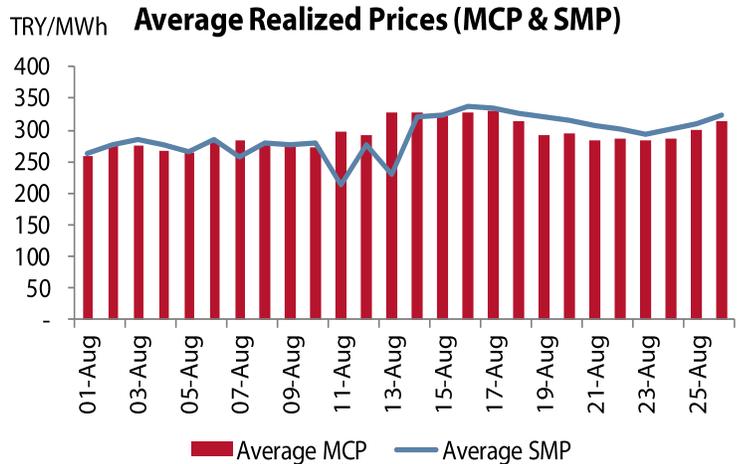
When compared to the July average, the August MCP average was 42.6% higher – and this can largely be put down to the 49.5% jump in tariffs of natural gas used for electricity generation.

An analysis of August’s daily average MCP finds an average tariff of TRY311.10/MWh for peak hours (from 8AM to 8PM) - 4.8% higher than the daily average value. The highest peak-hour average was recorded as TRY358.42/MWh on Wednesday, August 29, whereas the lowest peak-hour average was calculated as TRY257.77/MWh on Sunday, August 5.

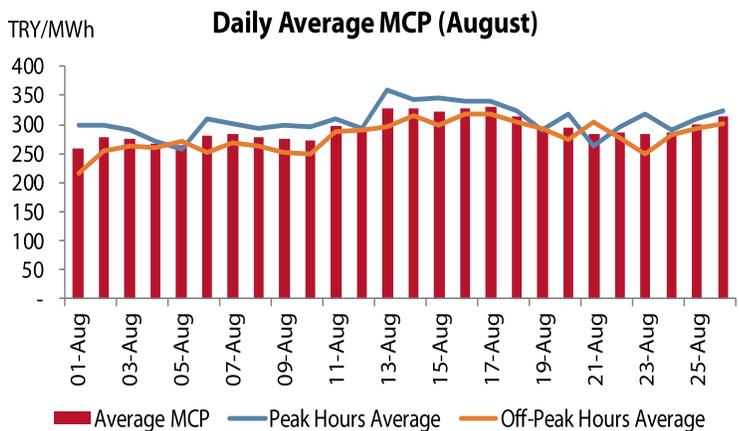
The average pricing in off-peak hours (from 8PM to 8AM) for the same period was calculated to be TRY282.45/MWh. The highest off-peak-hour average was recorded as TRY322.45/MWh on Wednesday, August 29, whereas the lowest off-peak-hour average was calculated as TRY216.40/MWh on Wednesday, August 1.

The annual average market clearing price (MCP) in 2017 was USD45.02/MWh while the average MCP in the first eight months* was also calculated as USD45.02/MWh. The average price of electricity, which was USD44.03/MWh at the end of July, was calculated as USD51.95/MWh for the period of 1-29 August. Because of the rise in the USD/TRY exchange rate, the impact of the natural gas price increase is seen in August.

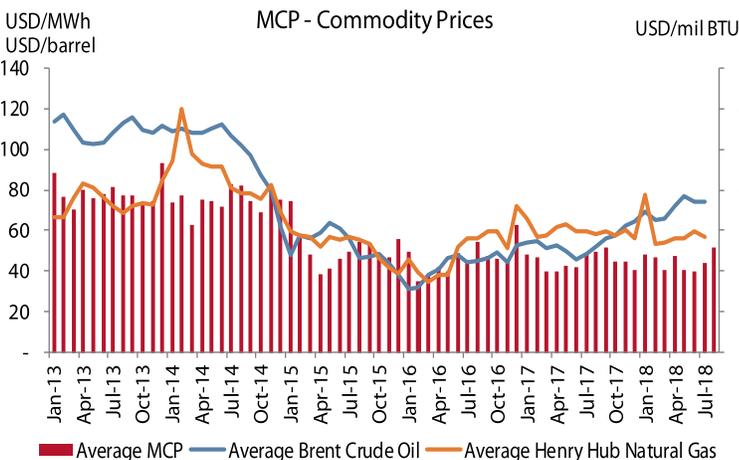
The spot electricity price was also in line with Brent Oil and Henry Hub natural gas prices in the global markets, as presented in the graph.



Source: EXIST, TSKB Economic Research



Source: EXIST, TSKB Economic Research



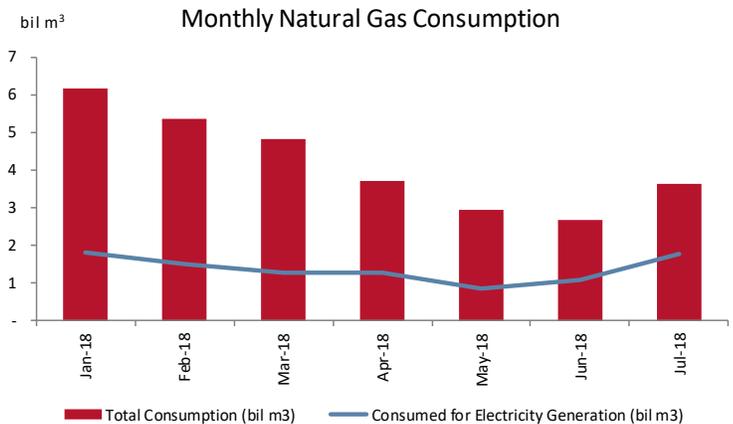
Source: EXIST, CBRT, International Energy Agency (IEA), TSKB Economic Research

*June data consist of data up to June 29.

Natural Gas Consumption

A total of 3.7 billion cubic meters (bcm) of natural gas was consumed in July, compared to 2.7 bcm in June. Electricity generation accounted for 48% of natural gas consumption in July, compared to 41% in June.

The higher share of natural gas being used for generation in July is thought to have been due to the decline in electricity generation from hydroelectric power plants as a result of low levels of precipitation.



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

Sector News

Local News

- Marsa Turkey, a Dutch-based Company, will search for natural gas by drilling 2 boreholes in Şarköy, located in the Tekirdağ Province.** The project is planned to be completed over a period of 375 days and the boreholes will have a depth of 1,800 m +/- 50 m. If natural gas is found as a result of the drilling operations, extraction will get underway in due course. (30 August 2018)
- The Turkish Statistical Institute published solid fuel statistics for the month of June with total sellable production of 6,631,156 tonnes of lignite, 367,275 tonnes of hard coal coke and 94,289 tonnes of hard coal.** Delivery quantities were estimated as 6,889,209 tonnes for lignite, 2,723,587 tonnes for hard coal and 401,637 tonnes for hard coal coke. Hard coal had the lowest coverage ratio for solid fuel deliveries (3.5%) while this ratio stood at 91.4% for hard coal coke and 963% for lignite. (29 August 2018)
- 'TURQUOISE', the first LNG storage and gasification Floating Storage Gasification Unit (FSRU) vessel to be ordered by the Kolin and Kalyon Groups from the South Korea Hyundai Terminal, was launched in a ceremony in Ulsan.** The FSRU ship, named 'TURQUOISE', has a length of 295 meters, a breadth of 46 meters and has a storage capacity of 180,000 bcm. (28 August 2018)
- In June, a total of 544,359 was paid for redundant generated electricity from unlicensed electricity sources.** According to the Energy Market Regulatory Authority's (EMRA) June report, the total installed capacity of unlicensed power plants stood at 4,844 MW, with 891,289 megawatt-hours (MWh) of redundant electricity purchased in unlicensed electricity generation. Solar power plants accounted for 97.4% of this amount, with biomass having a 1.9% share, followed by wind (0.4%) and hydroelectric resources (0.2%).

- **A TRY1.8 billion payment was carried out in June for the Renewable Energy Resources Support Mechanism (YEKDEM).** According to the Monthly Electricity Sector Report published by EMRA in June, generation within YEKDEM power plants reached 5,879,517 MWh. Hydroelectric power plants constituted for 53% of total YEKDEM generation, with a total of 3.14 million MWh. Hydroelectric power plants were followed by wind power plants, with 1,211,336 MWh of generation. (27 August 2018)
- **As of August 19, a total of 4 million applications had been submitted to the Real Estate Amnesty, 124 of which were solar power plants (SPP).** Applications were drafted on the basis of the area and features of the buildings. A total of TRY100,000/MW was taken into account in calculating the amount for solar power plants. (20 August 2018)
- **The Competition Authority approved the takeover of the all of the shares in Alto Holding's Lodos Elektrik Üretim A.Ş. by Cengiz, Mapa, Limak, Koloğlu and Kalyon.** Lodos Elektrik operates the Kemerburgaz Wind Farm, which supplies electricity to 20,000 consumers with its installed capacity of 24 MW. (17 August 2018)
- **The final version of the Environmental Impact Assessment (EIA) Report, related to the planned floating power plant, was found to be sufficient and was officially accepted by the Review and Evaluation Commission.** The 240 MW power plant, which will be operated by Electricity Generation Inc. (EÜAŞ), is planned to be moored off Yenikapı, İstanbul. The planned power plant will be built using dual-fuel gas engines (fuel oil + natural gas). The EIA Report, which the Commission concluded, was available for ten days at the Provincial Directorate and the Ministry of the Ministry of Environment and Urban Planning to receive views and proposals from the public. The Floating Power Plant will be in operation for about 1,500 hours/year and generate 360,000 MWh of electricity. (15 August 2018)
- **BOTAŞ fixed the reference USD exchange rate for the price of natural gas utilized for purposes of electricity generation, at TRY6.5.** The aim of fixing the dollar rate for purchases of natural gas was to reduce uncertainty for the rest of the month. (14 August 2018)
- **The Ministry of Energy and Natural Resources (MENR) is working on a model in which households with electricity consumption that is less than 150 kWh of electricity per year are relatively less-affected by possible increases in energy prices, in an effort to protect low-income citizens.** MENR is working on various models to protect low income citizens. Households consuming more than 150 kWh of electricity will be required to pay higher unit prices. The aim of this measure is to protect low income households and pave the way for savings. (10 August 2018)
- **Siemens-Gamesa, a member of the consortium that won the wind YEKA tender, will establish its EUR70 million wind power equipment investment in Aliğa, İzmir.** According to information provided by Siemens-Gamesa officials, the company completed its work to search for a location. The facility, which will employ 150,000 workers, will be located in the Aliğa Organized Industrial Zone (ALOSBİ). Purchasing a 40,000 meter plot from ALOSBI, Siemens-Gamesa announced that it would start work on the facility this month, with production set to commence by November 2019. (10 August 2018)

- **The Minister for Energy and Natural Resources, Fatih Dönmez, stated that Turkey would continue to import natural gas from Iran due to the importance of supply security.** In a TV program in which he took part in, Fatih Dönmez added that the trade with Iran was legitimate. Later in his speech, he stated that Turkey's third nuclear power station is planned to be established in the Thrace Region and that all work will be carried out with China. Mr. Dönmez also specified that TürkAkım's construction work in the sea had been completed and no delays were expected. In his speech, he went on to add a third LNG terminal is planned to be established in Saros. Fatih Dönmez stated that after the sun and wind energy resource area tenders, preliminary work on a third YEKA (Renewable Energy Source Area), which will be located offshore, had been completed. He also said that most productive areas for this project are the north of Marmara and Aegean Regions. Dönmez mentioned that the YEKA off-shore wind farm would have an installed capacity of approximately 1,000-1,200 MW and the proposals are expected to be collected in October. (9 August 2018)
- **Enterprises and industrialists consuming more than 1 million kWh of electricity per year, will be subject to higher electricity tariffs unless they sign a contract with generation companies.** On April 1, the Energy Market Regulatory Authority (EMRA) launched the latest supply application for large industries with annual consumption of 50 million kWh. These consumers provide their electricity with all costs applied from the market with the price of electricity determined by deals. Following the deal process a bilateral agreement on the purchase and sale is signed. The consumer undertakes additional costs if they do not reach a deal. In this case, the consumer would deal with the retailer in the distribution zone, thus leading to higher tariffs. EMRA aims to expand this practice before the end of the year. For this purpose last week, EMRA requested the number of subscribers consuming more than 1 million kWh of electricity per year and consuming electricity in the regions of electricity distribution companies. (9 August 2018)
- **Piping work was completed on a 435 km section of the 930 km second line of TÜRKAKIM natural gas pipeline project, which will transport natural gas to Europe.** Project spokesman Aslı Esen stated in a meeting in Istanbul that piping work on half of the second pipeline had been completed as of August 7. She added that the on-shore construction work of the purchase terminal, located in Kiyıköy, had got underway. (8 August 2018)
- **In Saros Bay, an urgent expropriation will be carried out for BOTAŞ' re-gasification terminal (FSRU).** The urgent expropriation decision for the FSRU and the On-Shore Pipeline Project, planned by BOTAŞ, on the coast of Sazlıdere Village of Keşan District of Edirne Province in the coast of Saros Bay was published in the Official Gazette with the signature of President Recep Tayyip Erdoğan. (8 August 2018)
- **The Turkey Electricity Transmission Company (TEİAŞ) announced capacity figures for unlicensed electricity generation investments in August.** According to the capacity allocation chart posted on the website, the solar power capacity stated in the call letter for August was 6,270.41 megawatts and the wind power capacity was 162.74 megawatts. Therefore, the total allocated capacity was 6,433 MW. (8 August 2018)

- **The feasibility study for Turkey's second petrochemical plant will be completed in April.** According to a statement by the Manager of SOCAR Turkey, Zaur Gahramanov, the petrochemical plant, which will be located in Petkim's Aliğa complex, is planned to enter production either at the end of 2022 or at the beginning of 2023. Gahramanov said that the STAR Refinery would produce about 1 million reformats and that 250,000 tonnes of the amount produced would be transferred to Petkim with the remaining 750,000 tonnes processed in the planned plant. The new plant will focus on urgently needed new petrochemical products, and aims to meet 40% of Turkey's petrochemical product imports. (7 August 2018)
- **The STAR Refinery in Aliğa, İzmir, started to process oil.** The first cargo of 80,000 tonnes of crude oil arrived at the STAR Refinery, which has been established in a USD6.3 billion investment by SOCAR Turkey. The first raw material to enter the refinery for processing was Azeri light oil from Azerbaijan. The refinery, which is in the process of commissioning, will be test-producing until the planned commissioning month of October. According to a statement issued by the General Manager of the refinery, Mesut İlker, the STAR Refinery will provide a USD1.5 billion contribution towards bringing down the current account deficit each year. (6 August 2018)

News from Abroad

- **China and Japan are developing a common charging standard that will allow electric vehicles to be charged in less than 10 minutes.** According to Chademo, a DC charging standard for electric vehicles, the new system will be completed by 2020. Chademo has more than 18,000 charging stations, of which 6,000 are in Europe. There are more than 200,000 charging stations in China. (30 August 2018)
- **Russia reached a 30-year record in coal production.** According to a statement issued by Russia's Energy Minister, Aleksandr Novak, this year's coal production is expected to exceed the 420 million tonne record set in 1988. (29 August 2018)
- **Iran has decided to resume the electricity and water exports that it had previously halted.** Within this context, Iran will continue to supply electricity to Iraq. Iran, which had halted electricity exports, claiming that Iraq had not regularly paid the price of imported electricity, decided to re-open electricity transmission lines. (27 August 2018)
- **The German Chancellor, Angela Merkel, met the Azerbaijani President İlham Aliyev, where she gave a message of deepening the partnership on energy.** The meeting between the two leaders covered the expansion of some projects including the Trans-Anatolian Natural Gas Pipeline (TANAP), the natural gas pipeline between Azerbaijan and Italy through Turkey and Greece, and the Southern Corridor. Speaking at a joint press conference, Merkel pointed out that Azerbaijan was a crucial player in the European Union's (EU) efforts to diversify its energy supply and pointed out that "the passing of the Southern Gas Corridor will play a pivotal role in the EU's supply of energy. We also care about the Baku-Tbilisi-Kars railway project, which will connect Asia and Europe and deepen trade relations considerably." (27 August 2018)
- **Iraq has argued that it should be exempt from the sanctions in place against Iran.** Iraqi government officials and the Central Bank claimed that Iraq's economy is closely linked to Iran, demanding that the US grants Iraq exemption from the US sanctions against Iran. (22 August 2018)

- **The UK stopped work on a USD570 million solar power project in Iran.** British renewable energy investor Quercus announced that it would halt construction on a USD570 million solar power project in Iran due to new sanctions imposed on Tehran by the US. It was expected that construction work on the solar power plant would continue for 3 years and add 100 MW of electricity to the network every 6 months. (15 August 2018)
- **In the European Union (EU), companies whose carbon emissions have exceeded the quotas have paid penalties of EUR18/tonne.** Approximately 12,000 factories and power plants in the EU are required to pay for every tonne of carbon they have stored within the scope of the program. (14 August 2018)
- **The Chinese CNPC bought the French TOTAL's share in Iran's Southern Pars Natural Gas Zone.** TOTAL was forced to withdraw from Iran due to the sanctions imposed by the US. According to the statement, an 80.1% share of the 11th section of Southern Pars Natural Gas Zone owned by TOTAL was transferred to CNPC. (13 August 2018)
- **The oil giant Shell provided support to Ample through an investment branch.** Ample will allow electric cars to be charged more quickly and cheaply. According to a statement issued by Shell Ventures, USD31 million has been invested in the Ample initiative. (10 August 2018)
- **The bi-directional Lozenets-Nedylsko Pipeline, which will transmit natural gas between Turkey and Bulgaria, was opened.** The 20-kilometer-long pipeline will transmit natural gas to Turkey. The transfer of natural gas from Turkey to Bulgaria and from Bulgaria to Turkey will be carried out through the pipeline. The total cost of the pipeline is 52 million levæ. (6 August 2018)



Economic Research
research@tskb.com.tr

MECLİSİ MEBUSAN CAD. NO 81
FINDIKLI İSTANBUL 34427, TÜRKİYE
P: +90 (212) 334 50 50 F: +90 (212) 334 52 34

This document was produced by Türkiye Sınai Kalkınma Bankası A.S. (“Industrial Development Bank of Turkey”) (“TSKB”) solely for information purposes and for the use of registered broker or dealer, whether the registered broker or dealer is acting as principal for its own account or as agent for others, or a bank acting in a broker or dealer capacity as permitted by U.S.A. law. This document shall not be reproduced under any circumstances and is not to be copied or made available to any person other than the recipient. It is produced and distributed in the Republic of Turkey. This document does not constitute an offer of, or an invitation by or on behalf of TSKB or any other company to any person, to buy or sell any security. The information contained herein has been obtained from published information and other sources which TSKB considers to be reliable. No liability or responsibility whatsoever is accepted by TSKB for the accuracy or completeness of any such information. All estimates, expressions of opinion and other subjective judgments contained herein are made as of the date of this document. TSKB may, from time to time, have a long or short position in any of the securities mentioned herein and may buy or sell those securities or options thereon either on their own account or on behalf of their clients. TSKB may, to the extent permitted by law, act upon or use the above material or the conclusions stated above or the research or analysis on which they are based before the material is published to recipients and from time to time provide investment banking, investment management or other services for or solicit to seek to obtain investment banking, or other securities business from, any entity referred to in this document.

Any customer wishing to effect transactions in any securities referred to herein or options thereon should do so only by contacting a representative of TSKB.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, me-chanical, photocopying, recording, or otherwise, without the prior consent of Türkiye Sınai Kalkınma Bankası A.S.

This document does not constitute an offer to sell, or an invitation to subscribe for or purchase, any of the offer shares in any jurisdiction to any person to whom it is unlawful to make such an offer or solicitation in such jurisdiction. The distribution of this document in certain jurisdictions may be restricted by law. Persons into whose possession this document comes are required by TSKB and the managers to inform themselves about and to observe any such restrictions. No person has been authorized to give any information or to make any representation except as contained in this publication.

In making an investment decision investors must rely on their own examination of the Company and the terms of the offering including the merits and risk involved.