



September 2018

#4

Monthly Energy Bulletin

As of 27/09/2018

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TSKB Economic Research



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Applications for Solar-2 YEKA tender will be received at the last week of January 2019

The Solar-2 YEKA document of specifications was released. The document sets out plans to establishment a wave of solar power plants with a total connection capacity of 1000 MWs. 500 MW of the capacity will be located in the Şanlıurfa-Viranehir YEKA, 200 MWs in the Hatay-Erzin YEKA and 300 MWs in the Niğde-Bor YEKA. The allocation of connection capacity will be achieved through a single competition. The solar power plants are planned to enter operation within 5 years, with 60% of the solar panels and at least 51% of the cable, cable channels, carrier structure and inverters to be procured locally. Construction work on all of the solar power plants will begin by the 24th month following the conclusion of the contract. The licence will have a duration of 30 years. The efficiency of the photovoltaic solar cells used in the plants is targeted to be at least 21%, with an 18% rate for the solar modules. The total efficiency loss in solar modules and the total lifetime of the modules is targeted to be 9.25% by the end of first 10 years and 20% by the end of first 25 years. There are plans to develop a lithium-ion technology Energy Storage System with 30 MW/90MWh (AC) capacity in the Niğde-Bor solar power plan .

Installed Capacity Analysis

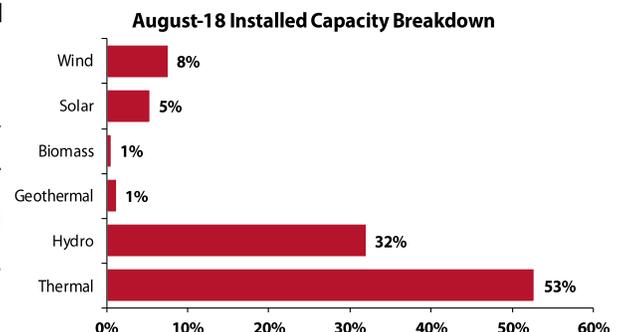
After reaching a capacity of 85,200 megawatts (MW) at the end of 2017 and 87,294 megawatts at the end of July 2018, Turkey's total installed capacity increased to 87,737 MWs by the end of August. A total increase of 2,537 MWs was realized in the first eight months of 2018, with renewable power plants accounting for most of the increase. During this period, unlicensed solar power plants with a total installed capacity of 1,358 MW were commissioned while hydroelectric power plants with a total capacity of 841 MW were commissioned. A total reduction of 50 MW was recorded in the combined capacity of thermal power plants.

Plant Type (MW)	2017	Jun-18	Jul-18	Aug-18
Thermal	46.352	46.061	45.958	46.302
Hydro	27.273	27.912	28.112	28.114
Geothermal	1.064	1.144	1.164	1.164
Biomass	575	624	624	623
Solar	3.421	4.726	4.744	4.793
Wind	6.516	6.671	6.693	6.742
Total	85.200	87.139	87.294	87.737

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

While Turkey's total installed capacity increased by 443 MW, the country's thermal power plants recorded an increase of 344 MW in their total capacity.

47% of the power plants which were in operation in August 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 July.



Source: TEİAŞ, TSKB Economic Research

Electricity Generation Analysis

Approximately 225 gigawatt-hours (GWh) was generated in 2018, while the total generation in September had reached 22.16 GWh as of September 27.

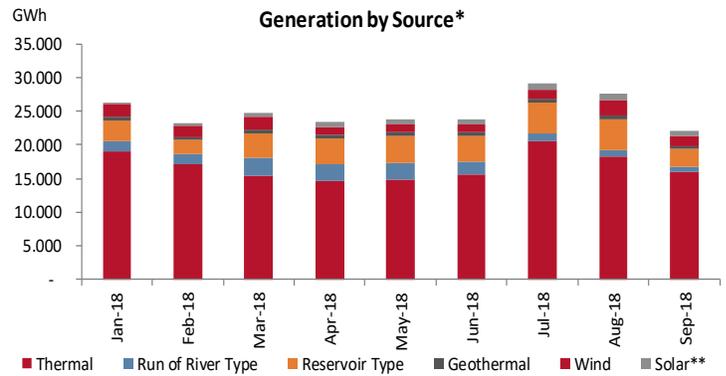
There was a 20% decrease in electricity generation in September when compared to August, which can be attributed to decreases in temperature and an increase in electricity tariffs.

Thermal power plants, which had supplied 66% of the total electricity in August, generated 73% of the total electricity generated in September with the decrease in the electricity generation through hydropower and wind likely to have been the main factors behind the 7-point decline. Accounting for 8% of electricity generation in August, wind provided 6% of the total electricity generated in September. Another noteworthy development was that run-of-river type power plants, which had a 17% share in total energy generation in August, recorded a decline in their share to 12% due to the increase in irrigation activity in September.

The average daily generation of licensed power plants in the first 27 days of September stood at 816,577 megawatt-hours (MWh), marking a 5.1% decline compared to August. The reason for the lower daily average generation when compared to the previous month can be attributed to the decline in temperatures and the hike in electricity tariffs.

Daily consumption averaged 816,023 MWh in the first twenty-seven days of September, peaking at 924,317 MWh on Tuesday, September 4, while the lowest level of electricity consumption, at 691,443 MWh, was recorded on Sunday, September 23.

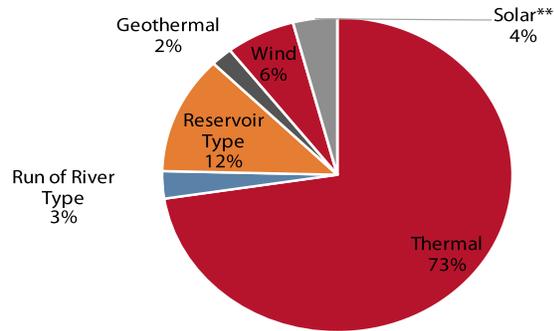
The highest electricity generation from licensed power plants was realized on Tuesday, September 4 and the lowest on Sunday, September 23. The highest level of total electricity generation from licensed power plants on any one day was on Tuesday, September 4, at 923,390 MWh; while the lowest was on Sunday, September 23, at 693,832 MWh.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

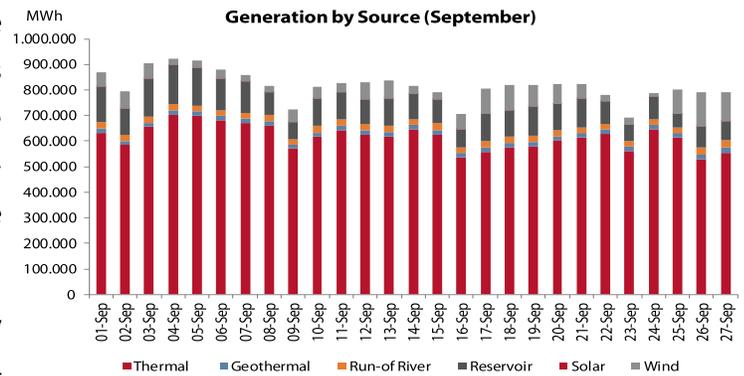
*September data consist of data up to September 28.

**Since the unlicensed solar power plant generation data has not yet been released by TEİAŞ, the total energy generation by unlicensed solar power plants in August and September was accepted same as July.

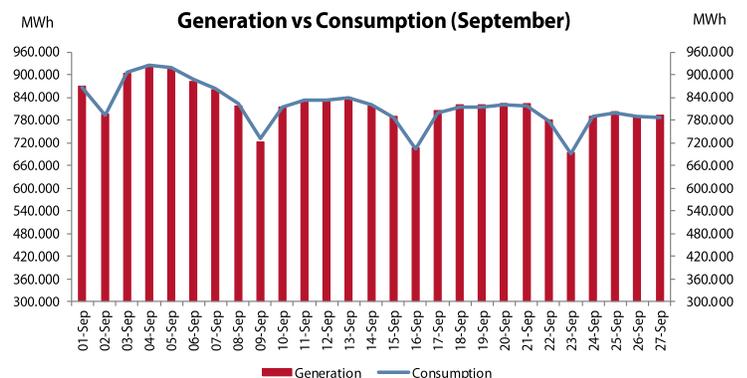


Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

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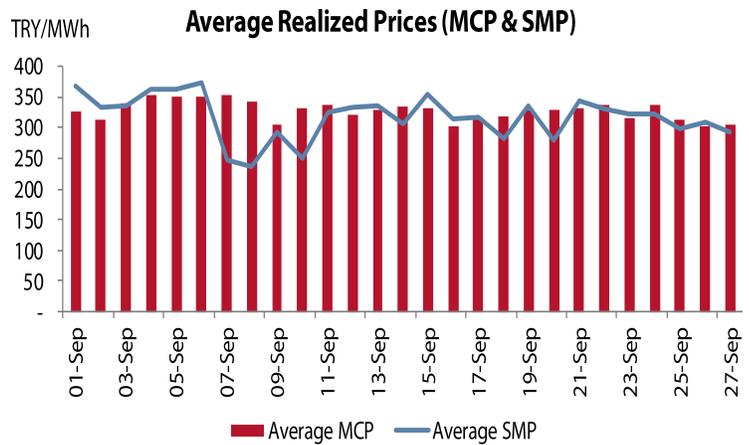
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



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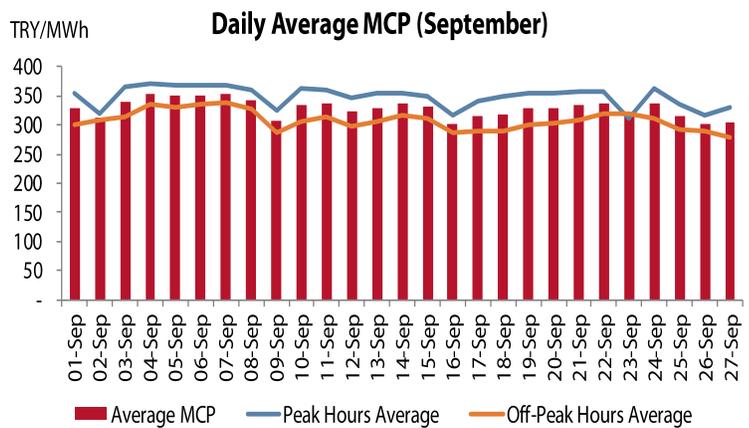
Electricity Price Analysis

The average market-clearing price (MCP) and system marginal price (SMP) fluctuated between TRY235/MWh and TRY375/MWh between 1-27 September. In the first 27 days of the month, the average MCP stood at TRY328.22/MWh, while SMP averaged TRY317.61/MWh. The lowest average MCP, of TRY302.11/MWh, was recorded on Sunday, September 16, and the lowest average SMP was TRY 237.04/MWh on Saturday, September 8.



Source: EXIST, TSKB Economic Research

Compared to the August average, the September MCP average was 9.8% higher, which can largely be put down to the higher costs of natural gas power plants following the hikes in the costs of natural gas.

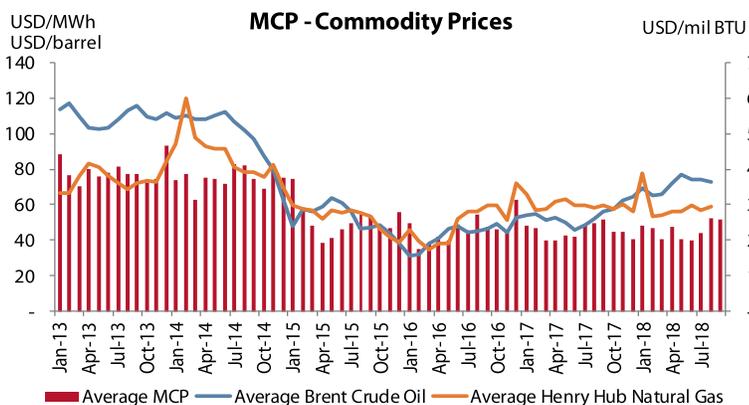


Source: EXIST, TSKB Economic Research

An analysis of September’s daily average MCP finds an average tariff of TRY348.57/MWh for peak hours (from 8AM to 8 PM), 6.2% higher than the daily average value. The highest peak-hour average was recorded as TRY369.84/MWh on Tuesday, September 4, whereas the lowest peak-hour average was calculated as TRY312.29/MWh on Sunday, September 23.

The average pricing in off-peak hours (from 8PM to 8AM) for the same period was calculated as TRY307.87/MWh. The highest off-peak hour average was recorded as TRY338.47/MWh on Friday, September 7, whereas the lowest off-peak-hour average was calculated as TRY278.85/MWh on Thursday, September 27.

The annual average market clearing price (MCP) in 2017 was USD45.02/MWh, while the average MCP in the first nine months* was calculated as USD45.77/MWh. The average price of electricity, which was USD45.04/MWh after the first eight months, was calculated as USD51.56/MWh for the period of 1-27 September. The fall in the value of the TRY against the USD was apparent on natural gas prices for both August and September.



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

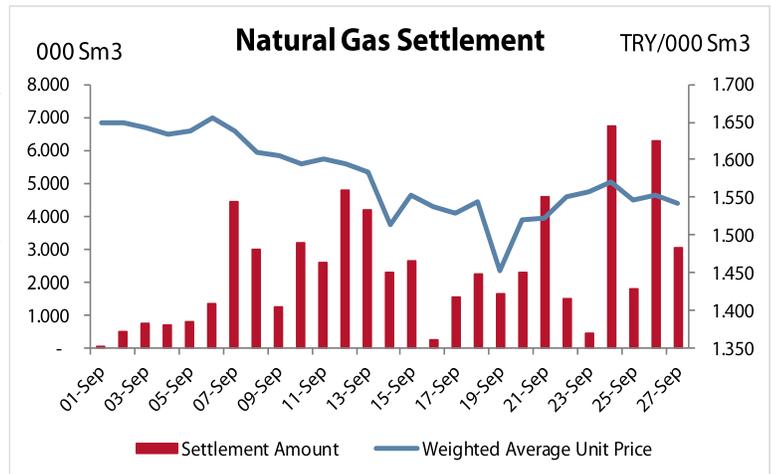
The spot electricity price was also in line with the Brent Oil price and the Henry Hub natural gas price in the global markets, as presented in the graph.

*September data consist of data up to September 28.

Natural Gas Settlements

According to the data obtained from the Organized Wholesale Natural Gas Sales Market, which was operated by EPIAŞ, the daily average natural gas settlement was recorded as 2,410,000 Sm³. On the first day of the settlements, there was only 2,000 Sm³ was realized, while 6,744,000 Sm³ of natural gas was settled on Monday September 24.

In the same period, the weighted average of the settlement unit price was calculated as 1,577.58 TRY/000 Sm³.



Source: EXIST Natural Gas Platform, TSKB Economic Research

Sector News

Local News

- Turkey's natural gas imports declined to 3,635 million cubic meters in July with an annual drop rate of 12.1%.** According to the "July 2018 Monthly Natural Gas Sector Report" prepared by the Energy Market Regulatory Authority (EMRA), a total of 3,179 billion cubic meters of natural gas was imported with pipelines, and 456 million cubic meters was transferred through LNG facilities. In July, a total of 2,305 million cubic meters of natural gas was imported from Russia. This country was followed by Iran (840 million cubic meters) and Azerbaijan (595 million cubic meters). (27 September 2018)
- Mithat Cansız, the Deputy Minister for Energy and Natural Resources, stated that a new company would be established in order to conduct mining exploration and operation activities abroad.** Cansız shared details about the new company on his twitter account. Mithat Cansız added that the new company would obtain mining licenses in Africa and Central Asia and complete its establishment as soon as possible. The company is planned to be established within the General Directorate of Mineral Research and Exploration (MTA). (27 September 2018)
- Support from EBRD for the Renewable Energy Resources Support Mechanism (YEKDEM).** Andi Aranitasi, a senior banker at the EBRD, stated that the EBRD's support for the Ministry of Energy and Natural Resources in designing incentive mechanisms for renewable energy resources had been continuing. Aranitasi added that the intention to move to a new system was well understood and that the EBRD expected the announcement of a new mechanism, which would support Turkey's renewable energy resources, towards the end of the year". (26 September 2018)
- Turkish Petroleum has reached an agreement with Rowan Companies to provide a platform for drilling two wells in the Mediterranean Sea.** According to Rowan Companies' statement, the Rowan Norway platform, which will be utilized for drilling, will operate for between 100 and 140 days. The agreement is expected to be signed by the end of the year. (25 September 2018)

- **The Natural gas powered “SOCAR Aliğa Cogeneration Plant Project” with 375 MWs of installed capacity, is planned to be developed within the PETKİM Petrochemical Facilities in Aliğa.** The project is worth approximately \$360 million and will generate electricity and steam by using 108,000 cubic meters of natural gas per hour as fuel. Electricity and steam power generated from the facility will be utilized to supply the electricity and steam power demand of the PETKİM Petroleum Facilities and STAR Refinery. (24 September 2018)
- **The Turkish Statistical Institute (TÜİK) released its 2017 energy consumption statistics.** According to the statistics, the most energy consuming sectors are manufacturing industry (42.2% of the total), electricity, gas, steam and air conditioning supply (40% of the total) and transporting and storage (10.2% of total energy consumption). Natural gas was the most consumed energy resource in 2017. Sectors with the most electricity consumption were manufacturing industry (66.2% of the total), electricity, gas, steam and air conditioning supply (7.2%), and wholesale and retail trade (6.7% of total electricity consumption). (24 September 2018)
- **According to the New Economic Program for 2019-2021, energy and petrochemicals will be prioritized sectors for investment in an attempt to bring down the current account deficit.** As presented by the Minister for the Treasury and Finance, Berat Albayrak, in the Dolmabahçe Presidential Office, the New Economic Program highlights medicine, chemicals, petrochemicals, energy, machinery/equipment and software as priority investment sectors. Built on three pillars of Balance, Discipline and Change, the program aims to increase the share of solar power, wind, biomass, renewable energy and local coal resources in the electricity production. The localization of these energy technologies will be supported by the Renewable Energy Resource Fields (YEKA) model. According to the program, energy imports reached \$37.2 billion in 2017 and are expected to reach \$46 billion in 2018. The budget anticipates energy imports of \$43 billion for 2019, \$44.3 billion for 2020 and \$45.2 billion for 2021. (21 September 2018)
- **Körfez Ulaştırma A.Ş., the railway transportation affiliate of TÜPRAŞ, has ordered 5 Power Haul series diesel electric locomotives from GE Transportation.** The company will double the size of its fleet with the purchase. Diesel electric locomotives will be produced by TÜLOMSAŞ, GE's strategic business partner in Eskişehir. In accordance with the contract, GE will provide the pioneering technology and design of Power Haul locomotives, while TÜLOMSAŞ will perform the local production, assembly and final tests. (21 September 2018)
- **The Minister of Energy and Natural Resources, Fatih Dönmez, stated that the government had been working on a low tariff policy for houses with low electricity consumption and small traders.** Pointing out the necessity of taking electricity costs into account when pricing, Dönmez emphasized that the price adjustments, which had taken place twice, had been kept to a minimum. Stressing the importance of energy efficiency, Fatih Dönmez detailed the steps to be taken to decrease energy consumption. He referred to the significance of natural gas when discussing the sanctions on Iran, where he stated that Turkey needed natural gas with respect to the country's supply security. He said that from a judicial standpoint, both the buyer and seller have liabilities of their own. “This means the seller is liable to sell the gas by the amount that I demand and that I, the buyer, am liable to pay the price. Accordingly, there is also a ‘buy at place or pay’ term in the contract where if the buyer does not buy the gas, they nevertheless have to pay the price. This is also a judicial matter. In the past, there have been instances where this situation has been realized in reverse order. When they cannot supply, we apply penal sanctions”, he added. Finally, Fatih Dönmez denied that the investments in the energy sector would be postponed. (20 September 2018)

- **The EBRD, İş Bankası, Vakıfbank, Garanti Bankası, Yapı ve Kredi Bankası and KfW IPEX-BANK joined forces to supply credit to a project for 13 local and renewable energy plants, planned by Akfen Renewable Energy.** A total of \$363 million will be drawn from banks for the project which is expected to cost \$530 million. On September 11th, Akfen Renewable Energy was reported to have taken \$102 million worth of credit from the EBRD. (19 September 2018)
- **Bilgin Energy completed its purchase of OMV Samsun Elektrik Üretim Sanayi ve Ticaret A.Ş. from Austria's biggest energy company, OMV.** According to the statement from OMV, supplying 3% of Turkey's total electricity demand and operating OMV Samsun Elektrik Natural Gas Combined Cycle Power Plant since 2013 with its 890 MW generation capacity, OMV Samsun Elektrik Üretim Sanayi ve Ticaret A.Ş. finalized the purchasing procedure. With this purchase of the company, Bilgin Energy raised its total installed capacity to 1,760 MWs. (11 September 2018)
- **Sonatrach prolonged its natural gas agreement with BOTAŞ.** The new agreement, signed on July 31, 2018, extends the period that the Algerian company, Sonatrach, will supply natural gas supply to Turkey by five years, starting from October 1st, 2019. Under the new agreement, annual natural gas exports to Turkey will be raised to 5.4 billion cubic meters. (11 September 2018)
- **100 plastics and metal collection points to be placed at various locations in İstanbul.** As Advertised on the İstanbul Metropolitan Municipality social media accounts, collection points will give deposits to İstanbul Card users who bringing plastics and metals. The machines will be able to distinguish the type of waste and will not accept waste that does not conform to certain standards. The starting date for the project and the amount of deposits that will be given to those bringing the waste are yet to be announced. (7 September 2018)
- **Akenerji A.Ş. decided to merge with its affiliate Egemer Elektrik Üretim A.Ş.** Two companies had previously applied to authorities for permission for merge; however, merging has been held due to commercial and technical reasons. Later on, official authorities decided to cancel the merging procedure since the validity of permission for merging had expired. Upon the cancellation, Akenerji Elektrik Üretim A.Ş. Board of Directors decided to assign Egemer Elektrik Üretim A.Ş. to Akenerji A.Ş. with total of its assets and liabilities. (5 September 2018)
- **SOCAR Turkey LNG Satış A.Ş. came under the joint control of Reysaş A.Ş. and SOCAR Turkey Petrol Enerji Dağıtım A.Ş.** The Competition Authority gave its approval to Reysaş Yatırım Holding A.Ş. and SOCAR Turkey Petrol Enerji Dağıtım A.Ş. to bring SOCAR Turkey LNG Satış A.Ş. under their joint control. SOCAR Turkey LNG Satış A.Ş. was under the sole control of SOCAR Turkey Petrol Enerji Dağıtım A.Ş. (4 September 2018).
- **The Organized Wholesale Natural Gas Sales Market (OTSP) was launched on September 1, 2018.** Turkey became the first country in its region where natural gas price is determined in a free market. In current natural gas market, natural gas is traded with bilateral agreements in which natural gas is bought and sold annually. Through the OTSP, natural gas will be traded for shorter periods. The new natural gas market, which started its tests on April 1, 2018, will be operated by EPIAŞ. Having entered operation on September 1, 2018, the first matching in the OTSP followed within the same day. (3 September 2018)

- **Russia will supply 1 million tonnes of oil to Turkey.** According to the agreement between Rosneft, one of Russia's biggest oil companies, and SOCAR, a total of one million tonnes of Russian crude oil will be supplied annually to SOCAR's Star Refinery located in Izmir. (3 September 2018)

News from Abroad

- **The European Union is developing a new structure to sustain oil trade with Iran.** The new structure, which will be established by the European Union, paves the way for energy companies to trade with Iran without adhering to US dollars and the global financial system led by the US. Federica Mogherini, serving in the United Nations General Assembly in New York as the High Commissioner of EU Foreign and Security Policy, said "We are committed to maintaining the freedom of economic actors to trade with Iran in a legal framework", following meetings with the other parties of the Iran agreement - the UK, China, France, Germany and Russia. (27 September 2018)
- **Siemens and Iraqi governments expected to sign a EUR13 million agreement.** The project will add 11GWs to Iraq's energy capacity and support the development of electrical communication technologies. Thomas Bareiss, the Undersecretary of the Ministry for the Economy and Energy of Germany, said "We aim to increase energy capacity by 11 GWs within 4 years, provide thousands of job opportunities and support the education of the Iraqi people". (25 September 2018)
- **South Korea and Japan announced that they had suspended oil imports from Iran following the USA's decision to impose sanctions against Iran.** According to information provided by Iran's Oil Ministry, South Korea has halted its petroleum imports from Iran after the USA imposed sanctions against Iran. According to reports provided from Shana, the official news portal of the Oil Ministry, South Korea became the first country to suspend oil imports from Iran after the imposition of US sanctions. Bijen Zengene, the Minister for Oil in Iran, stated that the trade of oil between Iran and Iraq would continue and that both countries would continue to transport oil from Kirkuk by tankers. (25 September 2018)
- **World's first hydrogen powered train in service in Germany, developed by European railway company, Alstom.** Named "Coradia iLint", the train can reach a speed of 140 kilometers per hour and will provide service to a 100-kilometer area in Lower Saxony, Germany. Mass production of the train will begin in the medium term and 14 hydrogen-powered trains worth a total of EUR 81 million will enter service. The hydrogen required for the operation of the train will be stored in Bremerwörde Station in the form of gas. The most prominent features of this train are its low noise pollution and zero emissions. (19 September 2018)
- **USA prepared to supply LNG to Germany.** In his speech to the German journal, Bild, Dan Brouillette, the Deputy Secretary of the Department for Energy in the USA, stated that USA would start selling LNG to Germany within the next 4 years. Dan Brouillette said "LNG is coming to Germany - there is no doubt about that. The question is 'When?'". (18 September 2018)

- **Qatar's Minister of Energy Muhammed Al-Bada voiced his expectation of a 20-25% increase in China's LNG demand, despite commercial tensions with the USA.** In 2017, China became the second biggest importer of LNG, surpassing South Korea, with Chinese demand for LNG increasing by 46%. According to Al-Sada's statement, China's demand for LNG will surge this year as well. Al-Sada added that China's demand for LNG was expected to increase by 20-25%, or even more. (11 September 2018)
- **China announces an increase in its natural gas imports from Russia and Kazakhstan.** The reports from the National Energy Council did not include any details about when imports would be increased or by how much. Last year, China imported 444,947 tonnes of LNG from Russia and 810,310 tonnes of natural gas from Kazakhstan. (11 September 2018)
- **Finland starts work on construction of Nord Stream 2 Natural Gas Pipeline, which will transport Russian natural gas to Europe by the Baltic Sea.** The Nord Stream 2 AG company announced that it had started laying pipes in Finland as part of the Nord Stream 2 Natural Gas Pipeline project. The project is reported to have reached 374 kilometers in length. The pipeline, which will cross an area of about 1,200 kilometers in total, extending from Russia and across the Baltic Sea, will transport Russian gas directly to Germany. With this project, natural gas - which is currently transported via Ukraine to Northern Europe - will be directly supplied to Northern Europe via the Baltic Sea. (7 September 2018)
- **India to continue importing oil from Iran despite US sanctions.** After SCI and SCI.NC, one of the biggest shipping companies of India, suspended its expeditions following the imposition of sanctions from the USA, the Indian government has permitted its refineries to import oil from Tehran by using Iranian petroleum tankers and insurance. Japan, on the other hand, is preparing to suspend its crude oil import from Iran with effect from October, in response to US sanctions against countries which import crude oil from Tehran. (5 September 2018)



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