

Monthly Energy Bulletin

TSKB Economic Research

August 2024 #75

Ezgi İpek

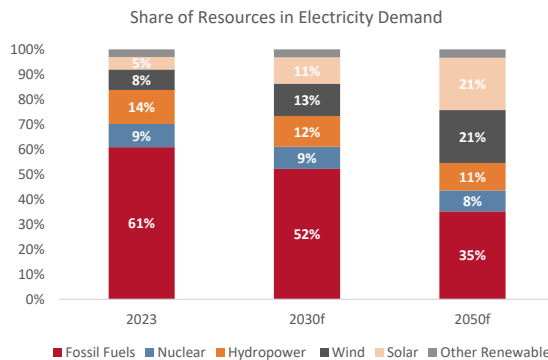
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25 September 2024

Global electricity demand to increase by 80% by 2050, when compared to 2023 levels, with global carbon emissions set to fall by 25%

The "ExxonMobil Global Outlook: Outlook for 2050" report has been published. The report states that demand for energy will increase by a total of 15% around the world by 2050, emphasizing that both renewable sources of energy and fossil fuels will play a role in this growth, with oil and natural gas in particular remaining important for production processes. Energy efficiency, an increase in the use of renewable energy use and the low-emission technologies will all play a key role in reducing emissions.

The report, which predicts that global electricity demand will reach 46,193.5 terawatt-hours (TWh) in 2050, predicts that the share of solar and wind energy in electricity generation will quadruple, while the share of coal will gradually decrease. Accordingly, ExxonMobil expects the share of electricity generated from the sun to reach 11% in 2030 and 21% in 2050, with the share of electricity generated from the wind to rise from 8% in 2023 to 13% in 2030 and 21% in 2050.



Source: ExxonMobil, TSKB Economic Research

However, Ember Climate's report, compared the target of tripling renewable energy capacity by 2030 with the national targets of each country. According to the report, the national targets imply that wind power capacity will increase 2.4-fold to 2,157 gigawatts (GW), leaving a gap of 585 GW for the triple target. The report expects only China to achieve the target of tripling renewables capacity, leaving almost two thirds of the countries short of their national 2030 targets.

33.80 TWh	2,574.1 TL/MWh
August Gross Generation	Average MCP

2.2%

Daily average licensed electricity generation decreased by 2.2% MoM and increased by 1.8% YoY in August.

[Click for details.](#)

0.6%

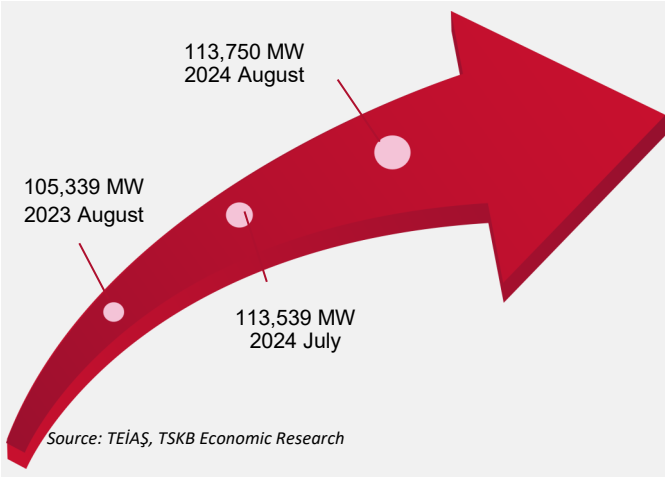
Market Clearing Price (MCP) decreased by 0.6% MoM and increased by 14.4% YoY in August.

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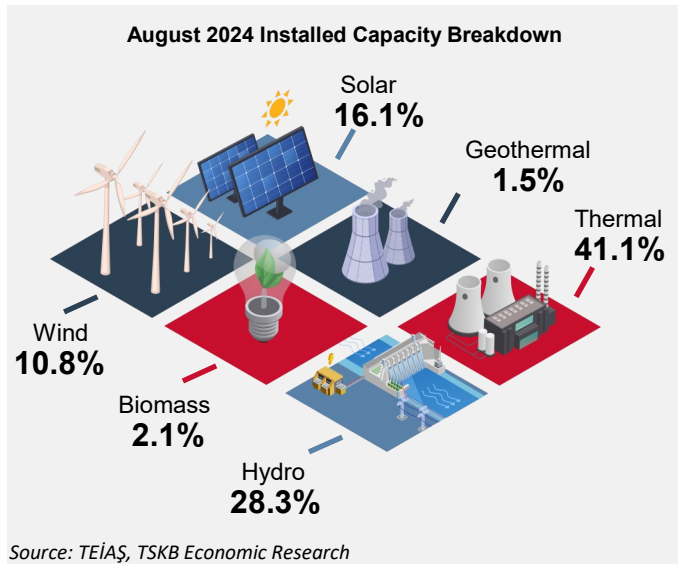


Installed Capacity Analysis

Türkiye's total installed generation capacity increased from 113,292 megawatts (MW) at the end of July 2024 to 113,750 MW in August. Compared to July, a total of 458.3 MW of net installed capacity was commissioned in August, of which 477.2 MW was provided by new solar power plants. In the same period, the installed capacity of natural gas and multi-fuel power plants decreased by 16.4 MW, the installed capacity of power plants using renewable waste decreased by 2.4 MW and the installed capacity of wind farms decreased by 0.1 MW compared to the previous month. No change was observed in the installed capacity of other sources.

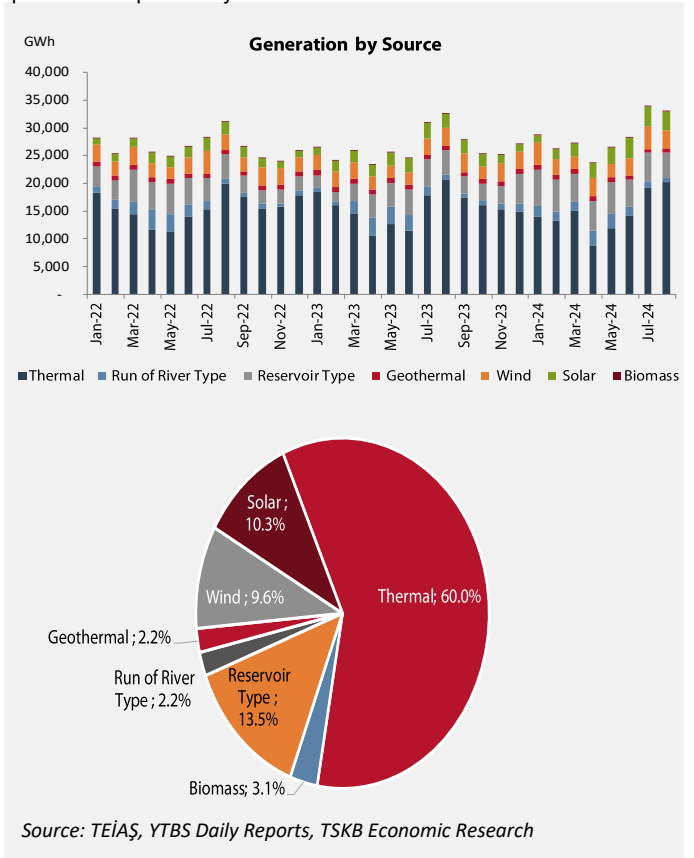


58.9% of the capacity of the power plants in operation in August consisted of power plants generating electricity from renewable sources. Thus, the proportion of renewables continued to increase, remaining above 55% of total installed capacity. Hydroelectric power plants accounted for 28.3% of Türkiye's total installed capacity, while the share of wind and solar power in total the country's installed capacity stood at 26.9%.



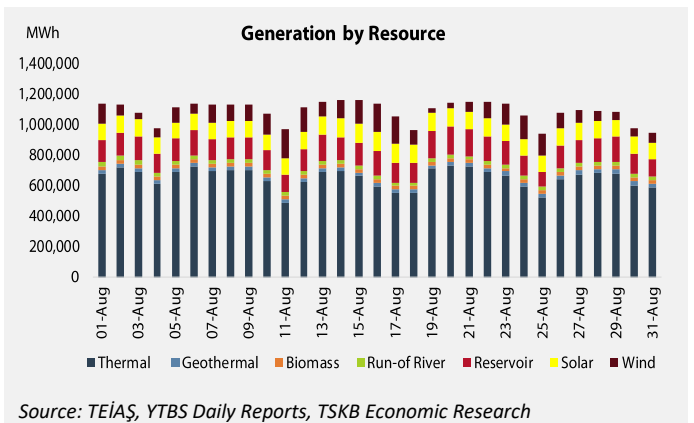
Generation-Consumption Analysis

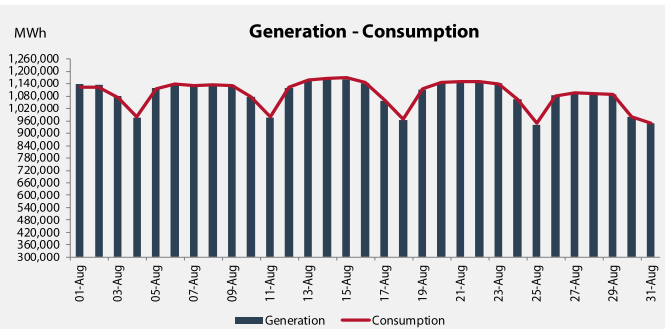
Total electricity generation stood at 33.80 TWh in August, up from approximately 34.54 TWh in July 2024. However, the average daily electricity generation for August decreased by 2.2% compared to the previous month, although remaining 1.8% higher than in the same period of the previous year.



Thermal power plants, which provided 55.6% of the electricity generated in July, met 60.0% of the total electricity generation in August. Looking at a breakdown of the electricity generated from power plants by source, hydroelectric power plants, which accounted for 18.2% of electricity generation in the previous month, accounted for 15.7% of total electricity generation in August. Wind accounted for 9.6% of all electricity generation during the period, with geothermal power plants providing 2.2% of the total electricity.

The share of renewable energy plants in electricity generation, which stood at 42.3% in July 2024, declined to 37.9% in August 2024. In the same period, dam-type hydroelectric power plants contributed 13.5% to total generation, while run-of-river type hydroelectric power plants met 2.2% of total generation. In addition, wind and solar power plants accounted for 19.9% of the total electricity generation. In August, solar power plants were recorded as the second source of electricity generating the most electricity after hydroelectric power plants with dams with a share of 10.3% among renewable energy plants.





Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

The average amount of electricity generation in August was 1,090,407 megawatt-hours (MWh) per day. The highest level of generation in the month was 1,164,631 MWh, recorded on Wednesday, August 14, while the lowest level of generation in the month was 942,433 MWh, on Sunday, August 25.

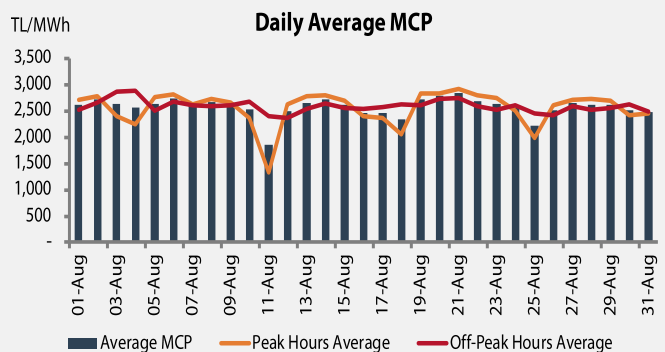
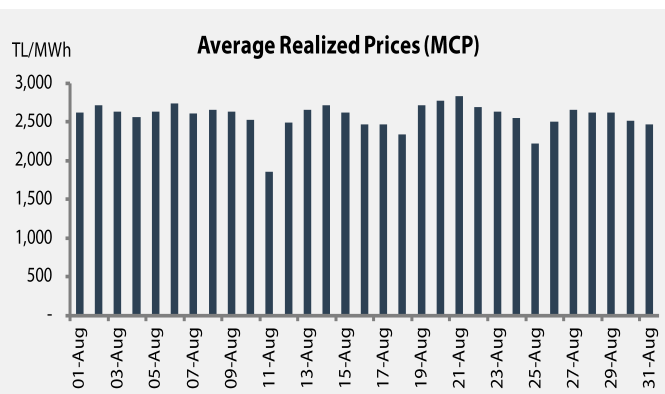
During the month, daily electricity consumption averaged 1,090,400 MWh with the highest level of consumption on Thursday, August 15, at 1,168,558 MWh, and the lowest level of electricity consumption recorded on Sunday, August 25, at 947,355 MWh.

Electricity Price Analysis

The daily average market clearing price (MCP) ranged between TL 1,860.0 and TL 2,840.0 per MWh in August with a daily average MCP of TL 2,574.1 /MWh. The highest daily average MCP was recorded on Wednesday, August 21 at TL 2,839.0 /MWh with the lowest realized on Sunday, August 11 at TL 1,861.1 /MWh.

Looking at the hourly data, the MCP reached its maximum price limit of TL 3,000 /MWh for a total of 103 hours in August. The hourly minimum electricity price of TL 230.9 /MWh was recorded between 11AM and 12PM on Sunday, August 11.

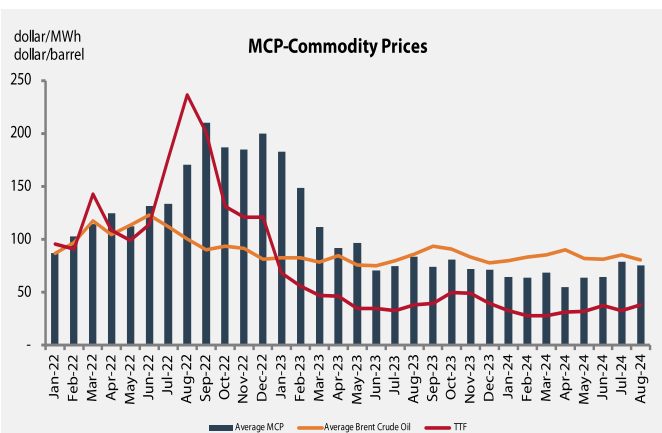
Analyzing the MCP on a daily basis for August, the peak hours (8AM-8PM) average was 0.6% below the average of all hours, coming in at TL 2,558.6 /MWh. The maximum limit price of 3,000 TL/MWh was recorded 46 times during peak hours, while the lowest price of TL 230.9 /MWh was realized for one hour during peak hours.



Source: EXIST, TSKB Economic Research

In the same period, the average off-peak (8PM-8AM) price was TL 2,589.7 /MWh. While the maximum limit price of 3,000 TL/MWh was realized for 57 hours during the off-peak hours, the lowest off-peak rate of TL 1,250.0 /MWh was recorded only between 7-8AM on Sunday, August 11.

The average MCP of USD 78.8 /MWh in July increased to an average of USD 75.7 /MWh in August, marking a decline of 9.1% in dollar terms compared to the same period of the previous year.



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

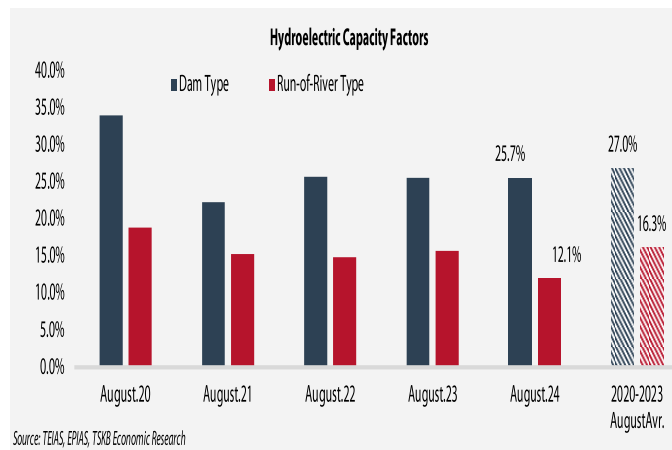
The price of Brent crude oil, which averaged USD 85.1 per barrel in July, decreased by 5.8% on a monthly basis to USD 80.2 per barrel in August 6.8% lower than in the same period of the previous year.

The TTF natural gas contract price, which averaged USD 32.5 /MWh in July, increased by 18.2% month-on-month to USD 38.4 /MWh in August. The TTF increased by 0.6% when compared to the same period of the previous year.

Hydroelectric Capacity Factors

The capacity factors of dam- and run-of-river type hydroelectric power plants for August 2024 were 27.0% (up 0.1 percentage points compared to August 2023) and 16.3% (down 3.8 percentage points) respectively. Comparing these figures with the numbers in the month of August over the last 5 years, the rate for August 2024 was the lowest level for run-of-river type plants, while the capacity factor for dam-type power plants was 8.5% lower than its August 2020 rate, which was the highest in the 5-year period.

The capacity factor for dam-type hydroelectric power plants was 1.3 percentage points lower than the average for August 2020-2023, while the capacity factor for run-of-river type power plants was 4.2 percentage points lower than the average.



Source: TEİAŞ, EPİAŞ, TSKB Economic Research



Sector News

Local News

- **Some natural gas tariffs raised according to a statement issued by Petroleum Pipeline Company (BOTAS).** Accordingly, the wholesale price of natural gas used by eligible consumers with an annual natural gas consumption of 300,000 sm³ or less, excluding for electricity generation, was raised by 33.1% with effect from August 1, 2024, while the wholesale price of natural gas used in homes increased by 38.0%. There was no change in the wholesale price of natural gas used for electricity generation and the wholesale price of natural gas used by eligible consumers with an annual natural gas consumption of 300,001 sm³ or more, except for that used in electricity generation.

- **Turkmenistan expected to supply a total of 300 billion cubic meters (bcm) of natural gas, including 15 bcm every year for 20 years.** In his statement, the Minister of Energy and Natural Resources Alparslan Bayraktar emphasized the need for a pipeline in order to use natural gas in the final phase, and stated that in the first phase, natural gas volumes of 2 bcm could be imported using existing infrastructure and the swap method. In addition, Mr Bayraktar added that there had been discussions on cooperation with Turkmenistan on natural gas storage, smart meters and smart grid systems.

- **SHURA Energy Transformation Center publishes its report on "Battery Energy Storage Options for Türkiye".** According to the report, Türkiye is expected to attain total battery storage capacity of 7.2 gigawatt-hours (GWh) or 28.8 GWh by 2035, and it is calculated that if this capacity is operated to minimize the renewable energy interruption, a total of 6.9 TWh

of renewable electricity generation interruptions could be prevented by 2035. SHURA emphasizes that consumption in natural gas power plants will be reduced by approximately 11.7 TWh in 2035, removing the need for USD 369 million in natural gas imports and reducing carbon emissions by 2.3 million tonnes.

- **Conditions for installation of electric vehicle charging units in housing areas and near apartment blocks facilitated.** With the circular sent by the Ministry of Environment, Urbanization and Climate Change to the provincial governorships, the installation of electric vehicle charging units in the common areas of the housing areas and near apartment blocks has been facilitated, while the Minister for the Environment, Urbanization and Climate Change, Murat Kurum, stated that the government aims to contribute to the 2053 Net Zero Emission target by rolling out electric vehicle charging units near apartment blocks and housing areas as part of its environmentally friendly transportation approach.

- **Low energy potential of Turkish coal reserves reduces production performance while also causing higher emissions in unit electricity generation.** According to Ember Climate's study, domestic coal power plants with low efficiency are affected by frequent failures and irregular production profiles. While power plants running on domestic coal are estimated to be operating at a capacity utilization rate of just 48%, this rate is 71% for those running on imported coal. Lost hours due to breakdowns are five times higher for domestic coal power plants than for power plants using imported coal. Ember Climate states that domestic coal-based power plants are insufficient to meet Türkiye's continuous electricity demand of 20

GWh, and emphasizes that the economic and environmental burdens that the country will face in the future can be alleviated by determining an exit strategy from coal.

- **Standard Chartered Bank to provide EUR 249 million in financing to Kalyon Energy.** The loan, which will be provided under the guarantee of the UK Export Credit Agency (UKEF) and the Polish Export Credit Agency, is aimed to be used for the construction and operation of solar power plants with a total electricity generation capacity of 390 MW in Niğde, Gaziantep and Şanlıurfa. When the project is completed, it is expected to generate enough renewable electricity to power more than 65,000 households per year in Türkiye.

- **Ronesans Energy provided \$165 million in financing from Germany.** With the financing provided with the export credit guarantee of the Federal Republic of Germany with a maturity of 15 years, it is planned to commission a 189 MW wind power plant within the scope of the Renewable Energy Resource Area-3 (YEKA-3) for wind power plant projects.

- **The Ministry of Industry and Technology made a call for investment for 6 different technologies within the scope of HIT-30.** The calls published on the HIT-30 website cover electric vehicles, batteries, chips, solar, wind and R&D studies. With the calls, which include a budget support of approximately 19.7 billion dollars, it is aimed to increase renewable energy, electric vehicle, battery and chip production capacities and to establish R&D centers on a global scale. The total support budget includes grant support, tax incentives, investment location allocation, employment supports and tax exemptions.

- **It is aimed to store 20% of the natural gas used annually by Türkiye.** According to the statements of the Minister of Energy and Natural Resources, Alparslan Bayraktar, Silivri has a total natural gas storage capacity of 5.8 bcm, 4.6 bcm in Silivri and 1.2 bcm in Salt Lake, while it is aimed to reach a total capacity of 12 bcm in the next five years.

- **Türk Eximbank secured 300 million euros in financing.** According to media reports, 300 million euros of financing was provided by a consortium of banks, 95% of which is guaranteed by the Multilateral Investment Guarantee Agency (MIGA), an institution of the World Bank. Within the scope of 3-year term financing, companies that produce green products, produce medium and high technology products, support women's participation or have SME qualifications will be prioritized to meet the trade finance needs of Turkish exporters.

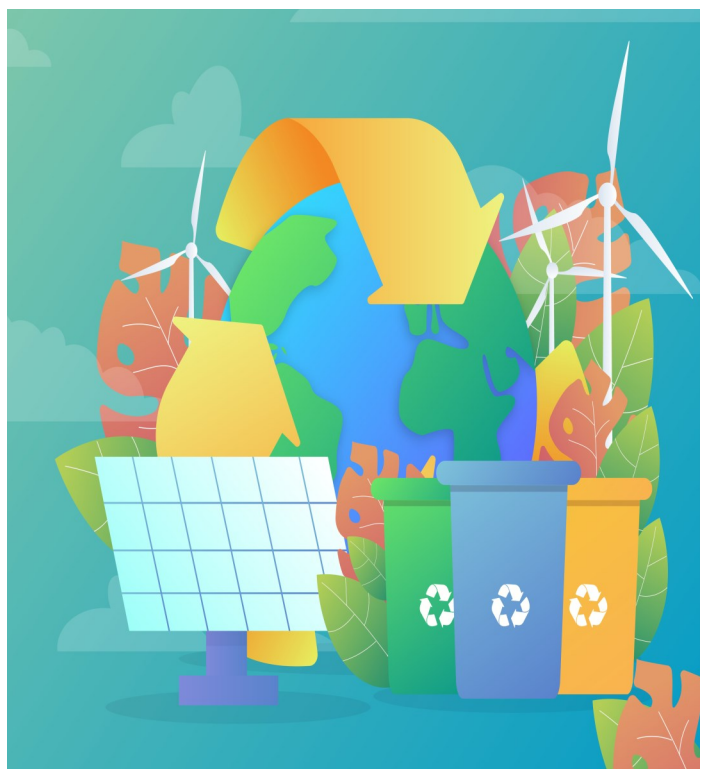
- **Strategic cooperation framework agreement signed between Yiğit Battery and lithium battery manufacturer, Ganfeng LiEnergy.** The agreement includes cooperation on issues such as lithium-ion battery cells, battery modules, energy storage systems and recycling of lithium-ion batteries. A joint venture company is to be set up, which aims to invest USD 500 million to establish a lithium battery production facility with a 5 GWh capacity in Türkiye. The joint venture, which will apply for incentives within the scope of the HIT-30 Program, is expected to increase Türkiye's production capacity for European exports.

- **Cooperation agreement signed between the Industrial Development Bank of Türkiye (TSKB) and Poweren Elektrik for 110 MW in solar and wind energy projects.** This agreement, the first investment within the scope of the TSKB Venture Capital Investment Fund launched by TSKB with Maxis Private Equity, is expected to contribute to Türkiye's energy targets and support its carbon reduction commitments.

- **Solar panels produced without use of domestically produced solar cells will not be covered by the incentive certificate.** The Ministry of Industry and Technology amended the Communiqué on the Implementation of the Decision on State Aid in Investments. According to the amendment published in the Official Gazette, solar panels and solar panel carrier construction systems to be procured from abroad within the scope of solar energy-based electricity generation investments, and solar panels produced without using domestically produced solar cells, starting from the ingot slicing stage or a stage before, will not receive support within the scope of the incentive certificate.

- **Energy Market Regulatory Authority (EMRA) publishes "Electricity Market Sector Report" and "Natural Gas Market Sector Report" for June.** Accordingly, electricity generation in June increased by 13.7% compared to June 2023 and reached 28.7 TWh. Electricity consumption was 27.1 TWh in May. Billed electricity consumption increased by 6.8% YoY to 22 TWh. In addition, consumption of natural gas increased by 8.5% compared to the same month of the previous year to reach 2.7 bcm, while 36% of the natural gas consumed was used by the conversion/cycle sector. Natural gas imports, on the other hand, decreased by 0.75% compared to June 2023, to 2.3 bcm.

- **Expansion of the import surveillance application, introduced to support domestic solar panel production.** The import surveillance application, introduced by the Ministry of Commerce for the import of "wafer" (silicon chips sliced from ingot) to increase the locality rates in solar panels, now also applies to the import of "blue wafers", which are the final stage of panel production. According to the decision, a surveillance certificate of USD 85 per kilogram will be obtained for the import of these materials.



Foreign News

- **U.S. Energy Information Administration (EIA) releases its July Short-Term Energy Outlook Report.** The EIA expects the price of Brent crude, which closed July at USD 81 per barrel, to rise to USD 85-90 per barrel by the end of 2024 due to the decline in global oil stocks. Its forecast for oil prices for the end of 2025 is revised down by 3% compared to the previous forecast due to declining oil consumption, at USD 86 per barrel. According to the report, the EIA still expects global demand for oil to grow by 1.1 million barrels per day in 2024, but now only expects an increase of 1.6 million barrels per day in oil demand in 2025, down 0.2% in its previous forecast.

- **Organization of the Petroleum Exporting Countries (OPEC) revises down its daily global crude oil demand growth forecast for 2024.** According to the Monthly Oil Market Report for August published by OPEC, the oil demand forecast for 2024, which had been maintained at 104.4 million barrels per day in the previous month, was reduced by 135,000 barrels per day to 104.3 million barrels per day.

- **International Energy Agency (IEA) publishes its Oil Market Report for August.** According to the report, while global oil demand is still expected to grow by 970,000 barrels per day, in line with the projection set out in the previous report, growth is expected to remain at a similar level in 2025. The IEA emphasizes that despite the demand forecasts, which remain similar, the change in demand drivers has become more pronounced. Accordingly, while the growth in demand for oil in China is expected to slow down, demand in developed economies, especially the USA, is on course to strengthen.

- **Institute for Energy Economics and Financial Analysis (IEEFA) publishes its report "Accelerating the Transition from Coal to Clean Energy".** The report, which examines five separate case studies, emphasizes that the transition from coal to clean energy may be possible before 2030. It states that the profit margins of renewable energy assets may be sufficient to cover the shutdown costs of coal power plants. The IEEFA emphasizes that while only 10% of coal capacity is planned to be decommissioned by 2030, with the contribution of governments, investors and all organizations in the sector, the transition from coal to clean energy can gain pace and become economically viable.

- **The Norwegian Wealth Fund to invest USD 1 billion in renewable energy.** The investment will be transferred to Copenhagen Infrastructure Partners (CIP), which focuses on offshore and onshore wind energy, solar energy, storage, grid and distribution. This is expected to encourage more investment and generate experience with new markets and technologies, while the total amount will be divided into three separate regions: North America, Western Europe and developed countries in the Asia Pacific region.





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