

Monthly Energy Bulletin

TSKB Economic Research

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Can Hakyemez

hakyemez@tskb.com.tr

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Work continues on Türkiye's nuclear energy

The first reactor of the Akkuyu Nuclear Power Plant, which will be Türkiye's first nuclear power plant, is planned to enter operation at the end of 2024. The Minister of Energy and Natural Resources, Alparslan Bayraktar, stated that the government plans to commission the first reactor of the Akkuyu Nuclear Power Plant at the end of 2024, with Türkiye aiming to add more than 20 gigawatts (GW) of nuclear capacity by the end of 2050. While Mr. Bayraktar added that 7.2 GW in capacity would be attained by 2035 within the framework of Türkiye's National Energy Plan, he added that small modular reactors (SMR) would be needed in the system. In this context, the Ministry of Energy and Natural Resources (MENR) held meetings with the Rolls-Royce Group regarding SMRs. In a post on social media, Mr. Bayraktar stated that the government was evaluating possible collaboration with the Rolls-Royce Group in the field of small modular reactors, adding that with their modular structures and small sizes, these reactors will play an important role in achieving Türkiye's energy supply security and meeting the 2053 net zero target.

Meanwhile, Türkiye is in the process of reaching an agreement with China for its third nuclear power plant investment. According to the news on the media, Türkiye and China are expected to reach an agreement within the next few months for the construction of a third nuclear power plant to be built in Thrace. According to the same reports, Mr. Bayraktar stated that an important point had been reached in the negotiations and that the government was close to reaching an agreement with China in the nuclear power program.

28.53
TWh

September Gross
Generation

2,006.8
TL/MWh

Average
MCP

4.7%

Daily average licensed electricity generation decreased by 11.2% MoM with an increase of 4.7% YoY in September.

[Click](#) for details.

-47.8%

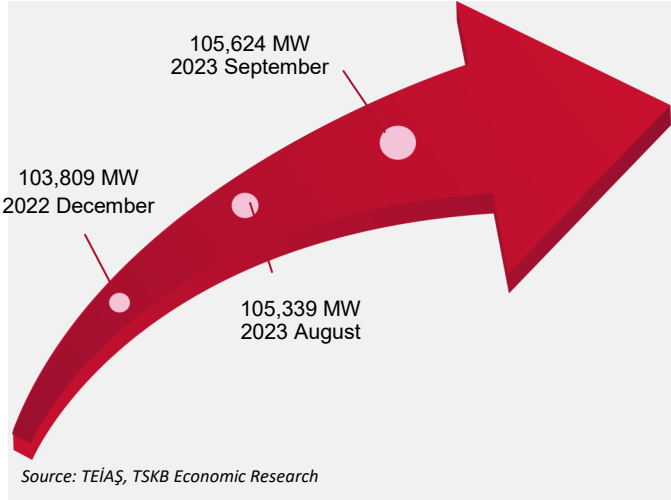
Market Clearing Price (MCP) declined by 47.8% MoM and 10.9% YoY in September.

[Click](#) for details.

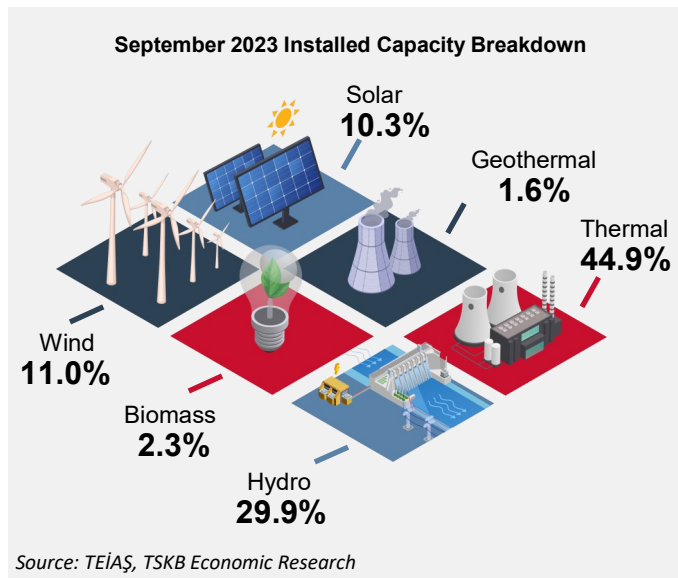


Installed Capacity Analysis

Türkiye's total installed capacity, which stood at 103,809 megawatts (MW) at the end of December 2022, increased to 105,624 MW by the end of September 2023. A total net installed capacity of 285.1 MW was commissioned in September, with solar power accounting for 266.4 MW of this installed capacity. In the same period, there was an increase of 2.5 MW in hydroelectric capacity, 17.6 MW in wind power capacity and 8.6 MW in renewable waste energy capacity. There was a net decrease of 16.5 MW in capacity of natural gas power plants in September.

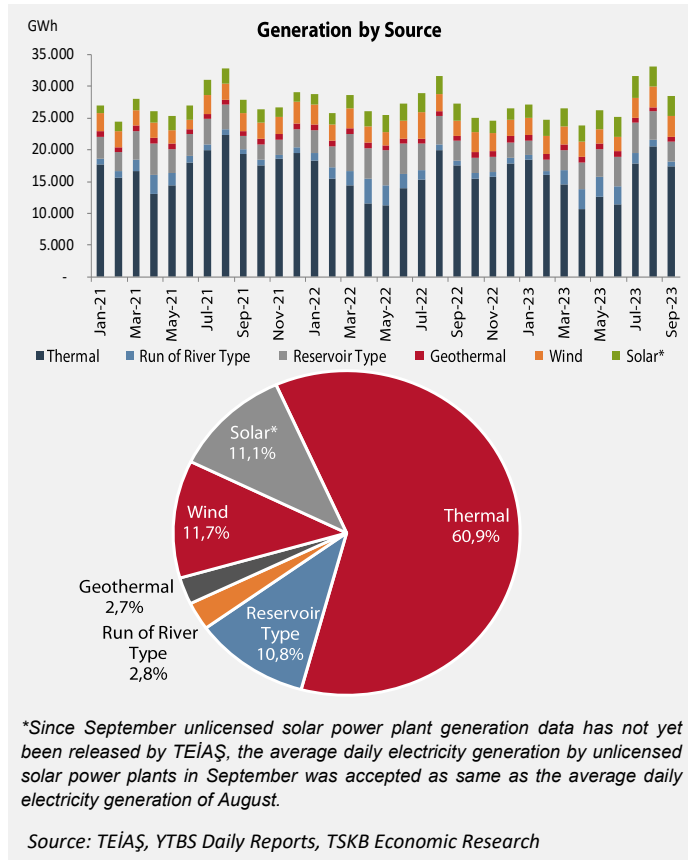


55.1% of the capacity of the power plants in operation in September were power plants generating electricity from renewable resources, marking an increase from the previous month. Hydroelectric power plants constitute 29.9% of Turkey's total installed generation capacity, with wind and solar power plants having a total share of 21.3% of installed generation capacity.



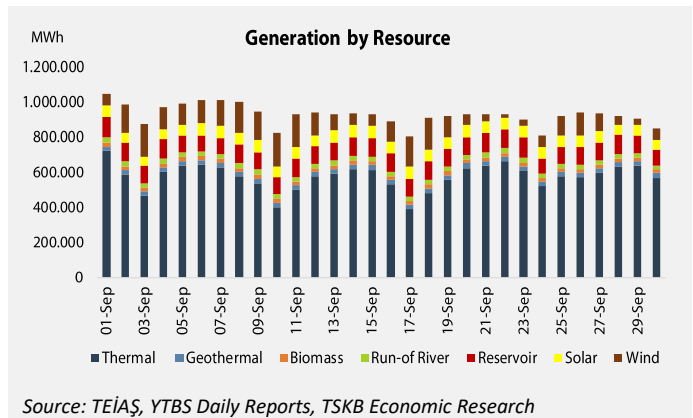
Generation-Consumption Analysis

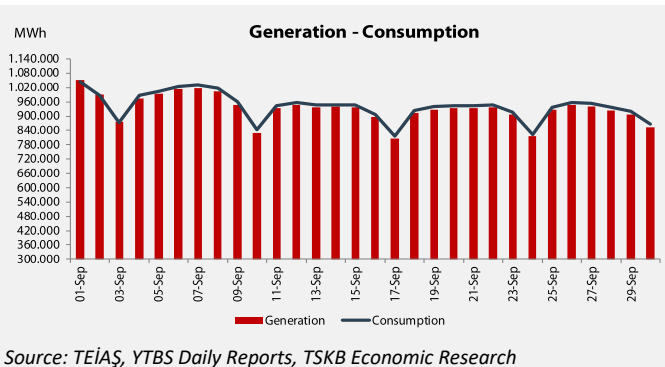
Total electricity generation, which stood at approximately 33.2 terawatt-hours (TWh) in August, declined to 28.5 TWh in September, although the average daily electricity generation in September increased by 4.7% compared to the same period of the previous year, while being 11.2% down on the previous month.



Thermal power plants accounted for 62.1% of the electricity generated in August and 62.9% of the total electricity generated in September. Hydroelectric power plants, which had a share of 16.3% of total electricity generation in the previous month, saw their share in total generation decline to 13.6% in September. In the same period, the share of electricity generated from wind farms increased by 2.1 percentage points compared to the previous month to reach 11.7%. Geothermal power plants accounted for 2.7% of the total electricity produced.

The share of renewable energy plants in electricity generation, which averaged 42.7% in 2022, edged down to 39.1% in September 2023. During the relevant period, dam-type hydroelectric power plants contributed 10.8% of the total generation, while run-of-river hydroelectric power plants met 2.8% of the total generation. The proportion of electricity generated from wind farms and solar power plants stood at 22.8%, with wind being the renewable energy resource to generate the most electricity.





Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Licensed power plants generated an average of 932,260 MWh of electricity per day, with the highest amount of electricity generation from licensed power plants in September being 1,050,454 MWh on Friday, September 1 and lowest being 806,090 MWh on Sunday, September 17.

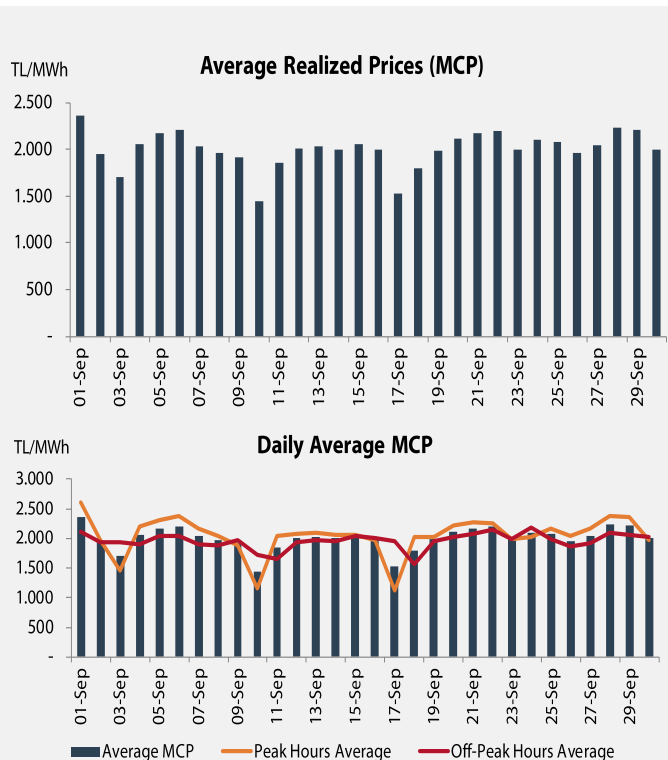
Daily electricity consumption averaged 942,180 MWh during the same period. The highest level of consumption during the month of September was recorded on Friday, September 1, at 1,045,218 MWh, with the lowest electricity consumption recorded on Sunday, September 17, at 817,749 MWh.

Electricity Price Analysis

The daily average market clearing price (MCP) varied between TL 1,440.0 /MWh and TL 2,365.0 /MWh in September, with an average daily MCP of TL 2,006.8 /MWh in September. The highest daily average MCP was recorded on Friday, September 1, at TL 2,360.3 /MWh, with the lowest daily average MCP recorded on Sunday, September 10, at TL 1,442.0 /MWh.

In terms of the hourly data, the MCP was realized at its maximum price limit of TL 2,700.0 /MWh for a total of 30 hours in September. The minimum hourly electricity price of TL 250.0 /MWh was recorded at 12:00 on Sunday, September 17.

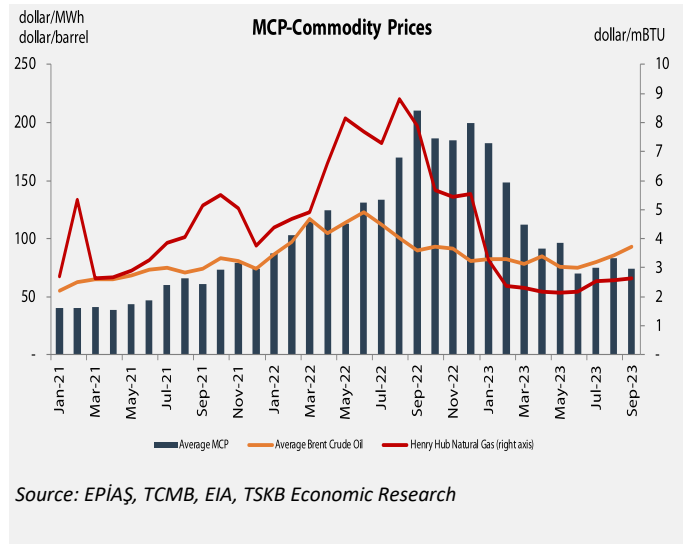
An analysis of the MCP for September finds that the peak hours average (between 8AM and 8PM) was 2.2% higher than the all hours average to be recorded at TL 2,051.2 /MWh. The maximum limit price of TL 2,700.0 /MWh was recorded for 26 hours during peak hours, while the lowest price of TL 250.0 /MWh was recorded for one hour during peak hours.



Source: EXIST, TSKB Economic Research

In the same period, the average off-peak rate (between 8PM and 8AM) was TL 1,962.5 /MWh, with the maximum limit price of TL 2,700.0 /MWh realized for four hours during off-peak hours and the lowest price of TL 980.0 /MWh during off-peak hours recorded at 6AM on Monday, September 11.

The MCP, having averaged USD 83.4 /MWh in August, decreased to an average of USD 74.4 /MWh in September, with the MTP 64.6% lower in dollar terms when compared to the same period of the previous year .



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

The Brent crude oil price, which averaged USD 86.1 /bbl in August, rose to USD 93.20 /bbl in September, rising by 8.3% on a monthly basis to stand 3.8% higher than in the same period of the previous year.

The Henry Hub natural gas contract price, which averaged USD 2.58 /mbtu in August, increased by 1.4% on a monthly basis to reach USD 2.62 /mbtu with a decrease of 66.8% observed when compared to the same period of the previous year.





Sector News

Local News

- **Türkiye to export 2 million cubic meters of natural gas per day to Moldova.** According to the statement issued by Petroleum Pipeline Corporation (BOTAŞ), a natural gas export agreement was signed with the Moldovan company, East Gas Energy Trading. Within the scope of the agreement, BOTAŞ will transfer 2 million cubic meters of natural gas to Moldova per day from October 1. BOTAŞ had previously signed a natural gas export agreement with Greece, Bulgaria, Hungary and Romania. (September 29, 2023)

- **Maximum settlement price mechanism will not be implemented starting from October 1.** There have been reports that the maximum settlement price mechanism for electricity, which had been implemented until October 1, will not be implemented after this date. However, there have been other reports that the electricity tariff applied to industries and commercial establishments will be increased by 20% with effect from October 1. (September 29, 2023)

- **Türkiye to export natural gas to Romania.** According to a statement issued by BOTAŞ, an agreement was reached with OMV Petrom, one of the leading energy companies of the region, with natural gas exports through pipelines from Türkiye to Romania to begin on October 1 within the scope of the agreement that will extend until March 31, 2025. The agreement covers the supply of up to 4 million cubic meters of natural gas per day. A similar agreement had been entered into before, and BOTAŞ started shipping natural gas to Bulgaria in April. (September 27, 2023)

- **Total cost of free natural gas usage reaches TL 1.8 bil-**

lion. The Minister of Energy and Natural Resources, Alparslan Bayraktar, stated that the total cost of free natural gas usage had now reached TL 1.8 billion, while the cost of using up to 25 cubic meters for 12 months will reach TL 6 billion. (September 22, 2023)

- **TEMSA to carry out an R&D project for the manufacture of hydrogen powered buses.** Within the scope of the Joint Development Agreement signed between TEMSA and Portugal-based zero-emission bus manufacturer CaetanoBus, the two companies will develop a bus which runs on hydrogen fuel. The first prototype of the hydrogen-fueled intercity bus to be produced in TEMSA's Adana facility is aimed to be completed in 2024 with mass production of the bus to start in 2025, capturing a place in the hydrogen bus market. (September 18, 2023)

- **Revision to monthly offset article of the unlicensed electricity production regulation.** According to the amendment published in the Official Gazette, if the production facilities within the scope of Article 5.1.ç and the production facilities within the scope of Article 5.1.h, provided that they are at different measurement points, are established together, and provided that the facility within the scope of Article 5.1.ç is applicable, the electricity supplied to the system by any facility within the scope of Article 5.1.h shall be evaluated within the scope of the renewable energy resources support mechanism (YEKDEM) at the end of the monthly offset. It is assumed that this electricity is produced by the responsible supply company and given to the system, and in this context, the electricity given to the system will be considered as a free contribution to YEKDEM. (September 12, 2023)

Foreign News

- **International Energy Agency (IEA) updates its "Net Zero Roadmap" report.** The 2023 update of the report published in 2021 estimates that it may be possible to limit global warming to 1.5°C by 2050 due to the post-pandemic economic recovery and increase in clean energy investments. He pointed out that the necessary technology exists to achieve an 80% reduction in emissions by 2030. While the report highlights the importance of international cooperation, it points out that tripling the global renewable energy capacity by 2030 will provide the greatest reduction in emissions. In statement about the report, the IEA Executive Director, Fatih Birol, stated that the investment amount, estimated to be USD 1.8 trillion in 2023, would need to be increased to USD 4.5 trillion by 2030. Mr. Birol added that focusing on clean energy would reduce demand for fossil fuels by 25% by 2030 and by 80% by 2050. (September 27, 2023)

- **Low-emission hydrogen production to reach 38 million tonnes by 2030.** According to the Global Hydrogen Outlook 2023 report published by the IEA, it is estimated that global low-emission hydrogen production will reach 38 million tonnes in 2030, of which 27 million tonnes will be produced by the electrolysis method and the remainder by carbon capture, use and storage technologies of fossil fuels. The report points out that 42 countries have determined a hydrogen strategy with hydrogen use to reach 95 million tonnes, marking an annual increase of 3% in 2022. (September 25, 2023)

- **Organization of Petroleum Exporting Countries (OPEC) finds International Energy Agency (IEA) forecast "risky".** The OPEC Secretary General, Haitham al-Ghais, warned that the narrative by the IEA Executive Director on Tuesday could have dire consequences for economies on a global basis and potentially lead to an unprecedented energy chaos. In his column published in the Financial Times, IEA Executive Director Fatih Birol had written that for the first time, demand for coal, oil and natural gas was expected to peak before 2030, after which consumption of fossil fuels would decrease as climate policies enter force. (September 15, 2023)

- **The IEA projects global oil demand to grow by 2.2 million barrels per day in 2023.** According to the September "Oil Market Report" published by the IEA, global oil demand in 2023 is expected to increase by 2.2 million barrels per day to 101.8 million barrels. While the IEA predicts that the extension of the supply cuts implemented by the OPEC+ by the end of 2023 will lead to a significant supply deficit in the fourth quarter, it expects global oil supply to stand at 101.6 million barrels per day in 2023. In its report published in August, the IEA projected that global oil demand would stand at 102.2 million barrels per day in 2023. (September 14, 2023)

- **Executive Director of the IEA, Fatih Birol, emphasizes energy efficiency as a "tremendous source of income".** In his statement at a meeting, Mr. Birol pointed out that energy efficiency has a higher return than renewable energy investments, and added that energy efficiency in the world had increased by 2% in 2022 and that efforts were ongoing to increase this rate to 4%, the target for 2023. Stating that engines and air conditioning systems could be the first step for energy efficiency in the industry, Mr. Birol shared that one in every five new cars sold in 2023 would be electric. (September 14, 2023)

- **European Parliament (EP) raises usage target for renewable energy resources to 42.5%.** In the General Assembly session, there was agreement to raise the share of renewable energy resources in the total energy consumption of European Union countries to 42.5% by 2030. In addition, member countries will also strive to increase the share of renewable energy resources to 45%. Under the previous regulation, this target stood at 32%. In addition, according to the new regulation, the transportation sector's greenhouse gas emissions will be reduced by 14.5% by 2030. (September 13, 2023)

- **Global fossil fuel demand to peak before 2030.** Mr. Fatih Birol, the Executive Director of the IEA, stated that according to IEA's new projections, global demand for oil, natural gas and coal would peak before 2030. One of the main reasons behind the earlier peak in global fossil fuel demand, which was expected to peak in 2030 in previous estimates, was the acceleration in renewable energy technologies over the last 12 months. (September 12, 2023)

- **Leaders of G20 countries agree to triple renewable energy capacity by 2030.** In the declaration published after the G20 summit held in India, member countries stated their determination to triple global renewable energy capacity by 2030. Countries have also called for USD 5.9 trillion in financing before 2030 to support developing countries in their climate plans. While there was agreement to phase out inefficient fossil fuel subsidies, promote clean energy production and support just transitions, no agreement was reached on phasing out fossil fuels. (September 11, 2023)





Economic Research

ekonomikarastirmalar@tskb.com.tr

MECLİSİ MEBUSAN CAD.

NO:81 FİNDİKLİ İSTANBUL 34427, TÜRKİYE

T: +90 (212) 334 50 50 F: +90 (212) 334 52 34

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