

Monthly Energy Bulletin

TSKB Economic Research

March 2023 #58

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25 April 2023

Day-ahead and balancing market maximum price limits for electricity continue to fall

According to the Energy Market Regulatory Authority's (EMRA) decision published in the Official Gazette, the day-ahead and balancing market maximum price limits were reduced by 14.8% per megawatt-hour (MWh) to TL 2,600 on April 1st. With another decision taken one month ago, EMRA reduced the maximum price limit for the related markets from TL 3,650 /MWh to TL 3,050 /MWh.

EMRA also extended the process of the Maximum Conciliation Price (AUF) Mechanism for another 6 months. The AUF is set at TL2,550 per MWh for natural gas power plants, TL 1,800 /MWh for coal power plants and TL 1,700 /MWh for other resources, including renewable energy power plants, according to an EMRA decision published in the Official Gazette. The EMRA determined AUF prices as TL 4,500 /MWh for natural gas power plants, TL 2,750/MWh for foreign coal power plants, TL 2,050 /MWh for domestic coal power plants and TL 1,540 /MWh for other resources in a previous decision taken on September 29, 2022.

26.43
TWh
March Gross
Generation

2,126.2
TL/MWh
Average
MCP

-7.9%

Daily average licensed electricity generation decreased by 3.1% MoM and 7.9% YoY in March.

[Click](#) for details.

-24.1%

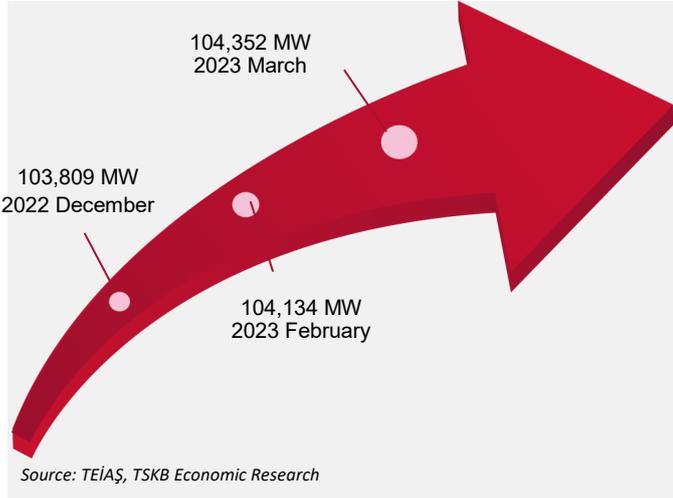
Market Clearing Price (MCP) decreased by 24.1% MoM with an increase of 27.3% YoY in March.

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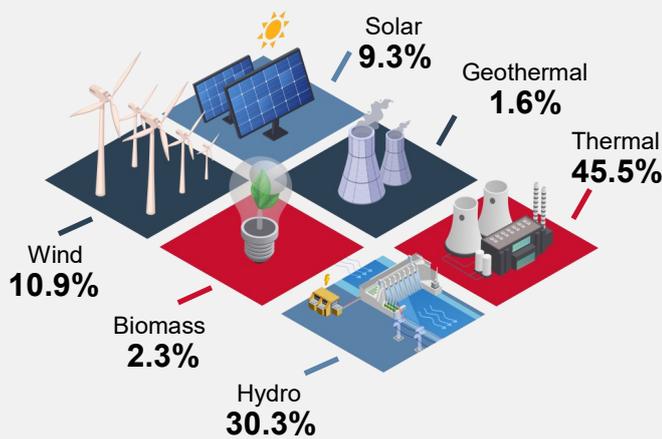
Installed Capacity Analysis

Turkey's total installed power capacity increased from 103,809 megawatts (MW) at the end of December 2022 to 104,352 MW by the end of March 2023. A total net of 218.0 MW in installed power came on-stream in March, with solar power plants providing 129.6 MW of this installed capacity. During the same period, the total net installed power of natural gas power plants increased by 55.2 MW, geothermal energy power plants by 27.7 MW and renewable and waste energy power plants by 5.5 MW, while there no change was observed in power plants running on other resources.



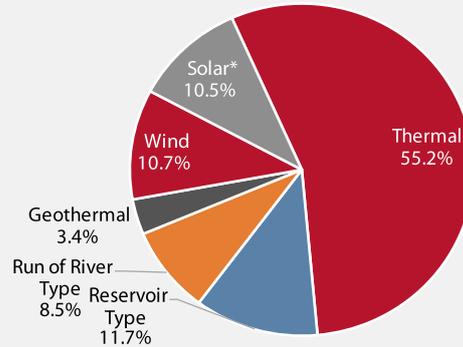
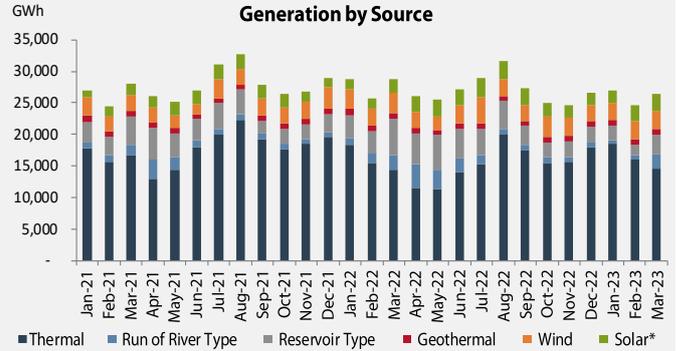
In March, power plants running from renewable resources had a 54.5% share in the capacity of active power plants. Therefore, the share of renewable resources has continued to rise and remained above 54%. Hydroelectric power plants accounted for 30.3% of Turkey's total installed capacity, while wind and solar energy power plants accounted for 20.3% of the country's installed power capacity.

March 2023 Installed Capacity Breakdown



Generation-Consumption Analysis

In the third month of the year, total electricity production increased from approximately 24.6 terawatt-hours (TWh) in February to 26.4 TWh in March. The average daily electricity consumption in March decreased by 7.9% compared to the same period last year and by 3.1% compared to the previous month.

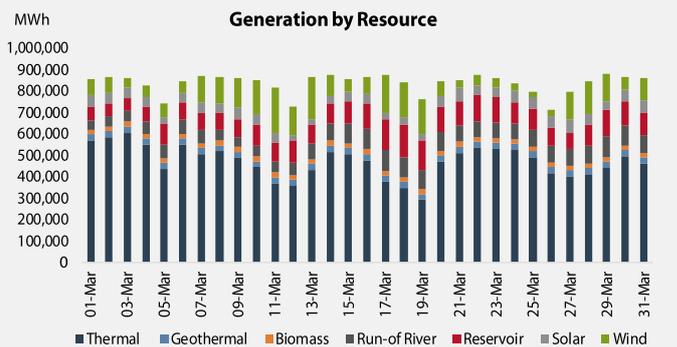


*Since March unlicensed solar power plant generation data has not yet been released by TEİAŞ, the average daily electricity generation by unlicensed solar power plants in March was accepted as same as the average daily electricity generation of January.

Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

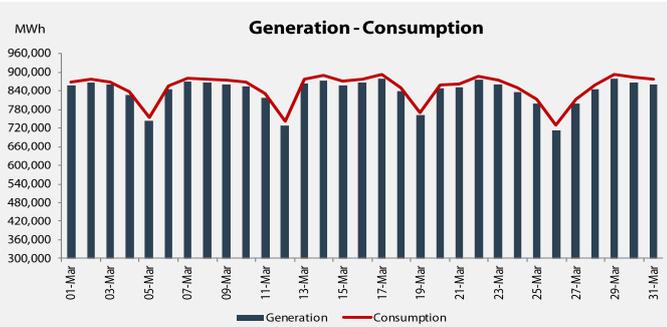
Thermal power plants accounted for 65.1% of the electricity generated in February and 55.2% of the total electricity generated in March. In terms of the breakdown of power plants by resource, hydroelectric power plants generated 20.1% of all electricity in March, up from 9.8% in the previous month. During the same time period, the share of electricity generated by wind farms fell by 0.9 percentage points from the previous month to 10.7%, while geothermal power plants, on the other hand, accounted for 3.4% of total electricity generated.

In March 2023, the share of renewable energy plants in electricity production increased from 42.7% in 2022 to 44.8%. During the same time period, dam-type hydroelectric power plants contributed 11.7% of total production, while river-type hydroelectric power plants contributed a 8.5% share. Furthermore, the proportion of electricity generated from wind and solar power plants accounted for 21.2% of all electricity generation.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research





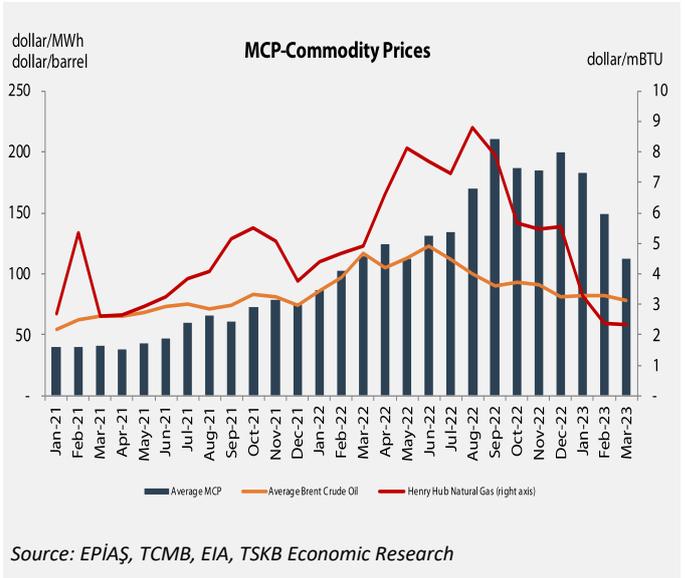
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

The average daily electricity production of licensed power plants in March was 837,931 MWh. The highest March production from licensed power plants was 879,076 MWh on Wednesday, March 29, while the lowest March production from licensed power plants was 712,659 MWh on Sunday, March 26.

The average daily electricity consumption was 850,700 MWh during the same time period. The highest consumption in the third month of the year was 893,202 MWh on Wednesday, March 29, while the lowest consumption was 729,057 MWh on Sunday, March 26.

During the same time period, the average off-peak price was TL 2,007.90 /MWh (between 8PM and 8AM). The maximum limit price of TL 3,050 /MWh was recorded for 8 hours during off-peak hours, while the lowest price of TL 249.99 /MWh was recorded on Friday, 17 March.

The MCP averaged USD 148.60/MWh in February before falling to USD 111.90/MWh in March. The MCP was 2.3% lower in dollar terms 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 had averaged USD 82.59 /bbl in February, fell by 5.0% on the month to USD 78.46 /bbl in March, with this realized average price being 33.1% lower than in the same period of the previous year.

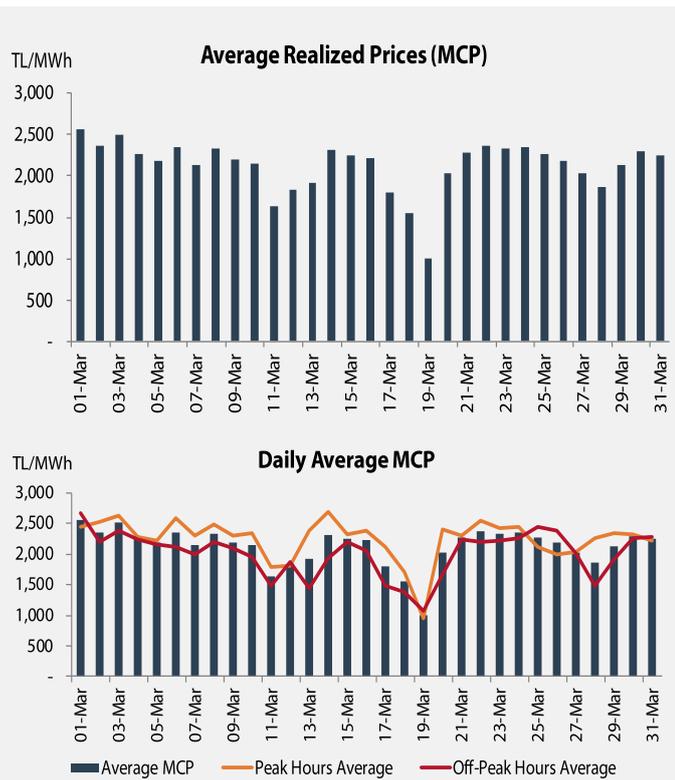
The Henry Hub natural gas contract price, which averaged USD 2.38 /mbtu in February, fell 1.3% on the month to USD 2.35 /mbtu, marking a decrease of 52.0% compared to the same period of the previous year.

Electricity Price Analysis

In March, the daily average market clearing price (MCP) varied between TL 1,000 – 2,575 /MWh. Daily MCP average for March was TL 2,126.20 /MWh. The maximum daily average MCP was TL 2,556.60 /MWh on Wednesday, March 1, with a minimum daily average MCP of TL 1,009.10 /MWh on Sunday, March 19.

According to the examination of the hourly data for March, the MCP reached its maximum price limit of TL 3,050 /MWh for a total of 58 hours. The minimum hourly electricity price, of TL 249.99 /MWh, was recorded on Friday, March 17.

The average daily MCP in peak hours (8AM-8PM) in March was 5.6% higher than the average value for all hours, at TL 2,244.50 /MWh. The maximum price limit of TL 3,050 /MWh was recorded for 50 hours during peak hours, with lowest price of TL 450.00 /MWh was realized on Sunday, March 19 during peak hours.



Source: EXIST, TSKB Economic Research





Sector News

Local News

- **EMRA updated its Renewable Energy Resources Supporting Mechanism (YEKDEM) unit cost for April and later.** Up-to-date projections published in the Official Gazette range between TL 9.52-118.05 per MWh. YEKDEM unit prices had taken negative values for each month of 2023 in the previous projections, ranging between TL 728.97 and TL 1,509.27 / MWh. (31 March 2023)

- **Ministry of Energy and Natural Resources issues statement regarding the arbitration case against the Iraqi Central Government.** According to the statement, the arbitration board rejected four of Iraq's five demands in the arbitration case while accepting the remainder of Turkey's demands and deciding that the Iraq Central Government will pay compensation to Turkey. (29 March 2023)

- **Iraq halts Kurdistan Regional Government's oil exports to Turkey.** According to Reuters, once Iraq won the arbitration lawsuit against Turkey, it halted oil exports to Turkey from the quasi-independent Kurdistan Regional Government. Iraq took the legal action in 2014, claiming that Turkey had violated a bilateral agreement by allowing the shipment of oil extracted by the Kurdistan Regional Government through the Kirkük-Ceyhan crude oil pipeline. (28 March 2023)

- **Natural gas from Black Sea to be delivered to Filyos Natural Gas Processing Facility in April.** According to a statement issued by the Minister of Energy and Natural Resources, Fatih Dönmez, a portion of the field employees were required to go to the earthquake zone. As a result, they now expect the natural gas discovered in the Black Sea to reach the Filyos Natural Gas Processing Facility in April, rather than March as

formerly indicated. (23 March 2023)

- **List of Turkey's largest 100 electricity producers revealed.** According to the "MW100 – Turkey's Largest 100 Electricity Producers of 2023" report prepared by the Energy Journal with the support of Kearney, Turkey's total capacity increased by 4% compared to the previous year to reach 85.7 gigawatts (GW). Electricity Generation Company (EÜAŞ) commands the biggest capacity at 21,254 MW, followed by ENKA (3,969 MW) and EnerjiSA (3,727 MW). In terms of the breakdown of resource-based breakdown is examined, Eren Enerji ranks first among coal power plants, EÜAŞ ranks first among hydroelectricity power plants, Polat Enerji ranks first among wind energy and Zorlu Enerji ranks first among geothermal power plants. Furthermore, the research emphasizes the importance of digitalization in the energy sector, adding that several organizations in the energy sector are utilizing digitalization to set themselves apart. (23 March 2023)

- **A total capacity allocation of 3,590.61 MW has been announced for renewable and hybrid power plants.** According to the announcement published by Turkish Electricity Transmission Company (TEİAŞ), 175 MW of the announced capacity is for power plants whose main source is wind and solar energy; the remaining 1,038.5 MW is planned for hybrid investments where the main source is wind or solar energy and where the auxiliary source is not wind and solar energy. The remaining 2,377.11 MW is expected to be made up of generation facilities developed under Article 5.1.h of the Unlicensed Electricity Generation Regulation and connected to the system at the transmission level. (23 March 2023)

- **Further increase in generation of electricity from wind and solar resources in 2022.** According to Ember's "Türkiye Electricity Review 2023" study, the share of wind and solar

resources in electricity production climbed from 13.5% in 2021 to 15.5% in 2023 with wind accounting for 10.8% of electricity generation in 2022, with solar energy comprising 4.7%. Furthermore, the report indicates that generation from natural gas declined by around 35% in 2022 compared to the previous year, with this drop likely caused by high natural gas costs. According to the report, hydroelectric power generation increased in January 2022 due to issues with natural gas supplies from Iran. Power plants running on imported coal also generated more electricity than power plants using domestic coal. (14 March 2023)

- **Regulation prohibiting private sector from entering new agreements with states with which Turkey has a natural gas export agreement to be repealed.** According to the legislation proposal submitted to the Turkish parliament, even if the states have a long-term agreement, the private sector will be permitted to form agreements and sell natural gas on the local market and/or export it. On this issue, the authority to grant permission will be transferred from the Energy Market Regulatory Authority (EMRA) to the Ministry of Energy and Natural Resources. Petroleum Pipeline Corporation (BOTAS) will be able to demerge in line with the Presidential Decree with the legislative proposal, on the basis of its functions such as storage, import, transmission, commerce and distribution. (14 March 2023)

- **YEKDEM to update its numbers.** In a statement, the Deputy Minister of Energy and Natural Resources, Abdullah Tanca, stated that the updates were made in accordance with factors such as daily conditions, new costs, application results and the costs which consumers can handle. In addition, pumped storage hydroelectric power plants, regardless of reservoir area, will be included in the scope of YEKDEM and the domestic contribution price support under the Law on Amending Certain Laws filed to the Turkish Parliament. (9 March 2023)

- **Unlicensed facility applications to be permitted at licensed power production plant sites.** An unlicensed generation application can be submitted for the pre-license field or the generation facility area subject to the generation license application, according to the Regulation on the Amendment of the Regulation on Unlicensed Electricity Production in the Electricity Market published in the Official Gazette. Any energy transmitted from generation facilities covered by this section to the network will not be subject to any settlement or set-off under the applicable legislation. This energy will also be considered a free contribution to YEKDEM. (2 March 2023)

Foreign News

- **Germany planning further savings to prevent a natural gas shortage next winter.** According to Klaus Müller, the Head of the Federal Network Agency (Bundesnetzagentur), which governs Germany's energy market, the end of the energy crisis is dependent on the how cold the approaching winter will be. Chairman Müller warned that the upcoming winter would be more critical, adding that more savings would be vital to prevent natural gas shortages. (24 March 2023)

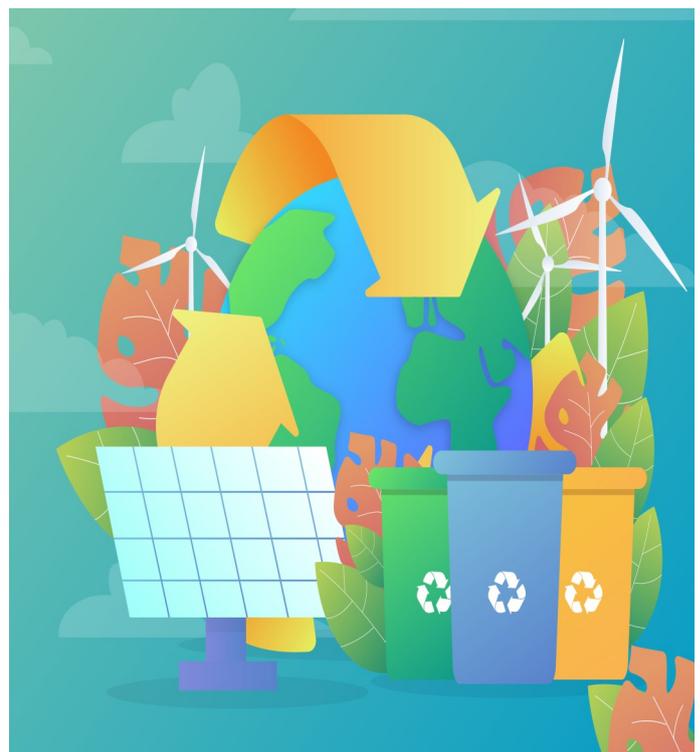
- **Global renewable energy capacity rises by 9.6% in 2022.** According to the International Renewable Energy Agency's (IRENA) "Renewable Capacity Statistics 2023" report, renewable energy capacity increased by 294.6 gigawatts (GW) in 2022 compared to 2021, reaching 3,372 GW. According to the report, China accounted for 47.7% of new capacity in 2022 (140.6 GW), taking China's renewable energy capacity to

1,161 GW, followed closely by Europe and North America with increases of 57.3 GW and 29.1 GW, respectively. Solar energy accounted for 191 GW of the new capacity added in 2022, while wind energy accounted for 75 GW. (23 March 2023)

- **According to IEA President Fatih Birol, next winter may be more challenging than this winter.** In a statement to the European Parliament's Industry, Research and Energy Committee, the International Energy Agency (IEA) President Fatih Birol stated that the energy crisis had been overcome this year, but that next winter may be more difficult. Mr. Birol noted that while European countries were able to import more substantial volumes of liquefied natural gas (LNG), China's LNG demand will increase, rendering access to LNG more difficult next year. (10 March 2023)

- **Global natural gas demand predicted to remain unchanged in 2023.** According to the International Energy Agency's "Gas Market Report, 1Q-2023" worldwide natural gas demand, which is estimated to have fallen by 1.6% in 2022, will remain unchanged in 2023. According to the report, trade volume in LNG increased to USD 450 billion in 2022, with a 63% increase in LNG shipments to Europe compared to the previous year. Natural gas prices have fallen in recent months, according to the report, but they may rise in 2023 in line with an increase in LNG demand in China. (3 March 2023)

- **Turkey climbs to sixth place in Europe in terms of wind energy capacity.** According to the "2022 European Wind Statistics and 2023-2027 Outlook" report, prepared by the WindEurope European Wind Energy Association, Turkey commanded the sixth highest wind energy capacity in Europe with 11.97 GW of wone capacity, with the addition of 0.87 GW of capacity in 2022. According to the study, the top five countries accounted for one-third of Europe's total wind energy capacity of 254.79 GW with Germany having the highest capacity in Europe at 66.32 GW, followed by Spain (29.80 GW), the United Kingdom (28.49 GW), France (21.14 GW) and Sweden (14.59 GW). (3 March 2023)





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