

Monthly Energy Bulletin

TSKB Economic Research

May 2023 #60

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Renewable Energy Resources Support Mechanism (YEKDEM) unit pricing revised

The unit price for dam-type hydroelectric and offshore wind energy-based generation facilities has been set at TL 1,440 per megawatt-hour (MWh), while the unit price for river-type hydroelectric generation facilities has been set at TL 1,350 / MWh, with a rate of TL 1,730 /MWh for biofuel facilities and TL 1,060 /MWh for facilities using onshore wind, solar and landfill gas to generate electricity, according to the President's decree published in the Official Gazette on May 1.

Furthermore, solar and wind energy production facilities, as well as integrated electricity storage facilities, are included in the YEKDEM scope, and the YEKDEM unit price for these facilities is TL 1,250 /MWh. According to this decision, the YEKDEM pricing for geothermal energy-based hydroelectric power plants with pumped storage is TL 2,020 /MWh with the application term extended to 15 years. With the exception of these two, the application time was set at ten years in all other production facilities.

While the prior regulation only provided the "ceiling price" application, the "base price" application is included with this new regulation. While the limit for this method in the Renewable Energy Resource Areas (YEKA) escalation is 15%, this level is about 10% in the latest regulations.

The former legislation required escalation updates on a quarterly basis, but the current regulation requires them on a monthly basis. The weight of the PPI and CPI in the previous escalation formula was 52%, while the weight of PPI and CPI in the escalation has been reduced to 40% with this new legislation; the PPI has been assigned a 25% weighting with a 15% weighting for the CPI. Under the new legislation, the weight of foreign money (dollars and euros) has been increased from 48% in the previous regulation to 60%.

26.00
TWh

May Gross
Generation

1,907.3
TL/MWh

Average
MCP

5.1%

Daily average licensed electricity generation increased by 5.1% MoM and 2.0% YoY in May.

[Click](#) for details.

7.7%

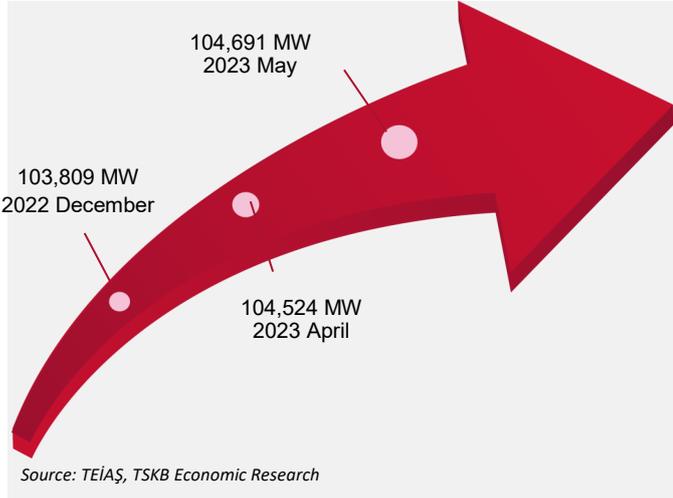
Market Clearing Price (MCP) increased by 7.7% MoM and 8.2% YoY in May.

[Click](#) for details.

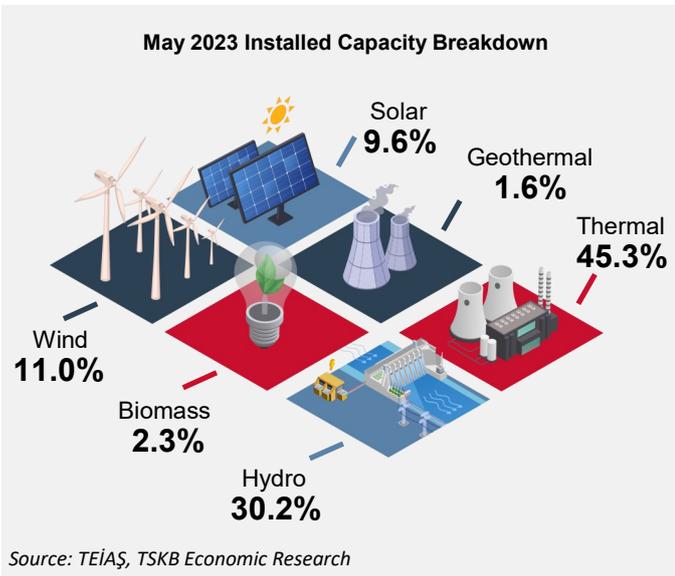


Installed Capacity Analysis

Türkiye's total installed power capacity increased from 103,809 megawatts (MW) at the end of December 2022 to 104,691 MW at the end of May 2023. A total of 166.9 MW in net installed capacity became operational in May, with solar power plants providing 139.3 MW of this installed capacity. During the same time period, the capacity of wind farms increased by 25.0 MW, with a 2.6MW increase in the capacity of renewable waste power plants.

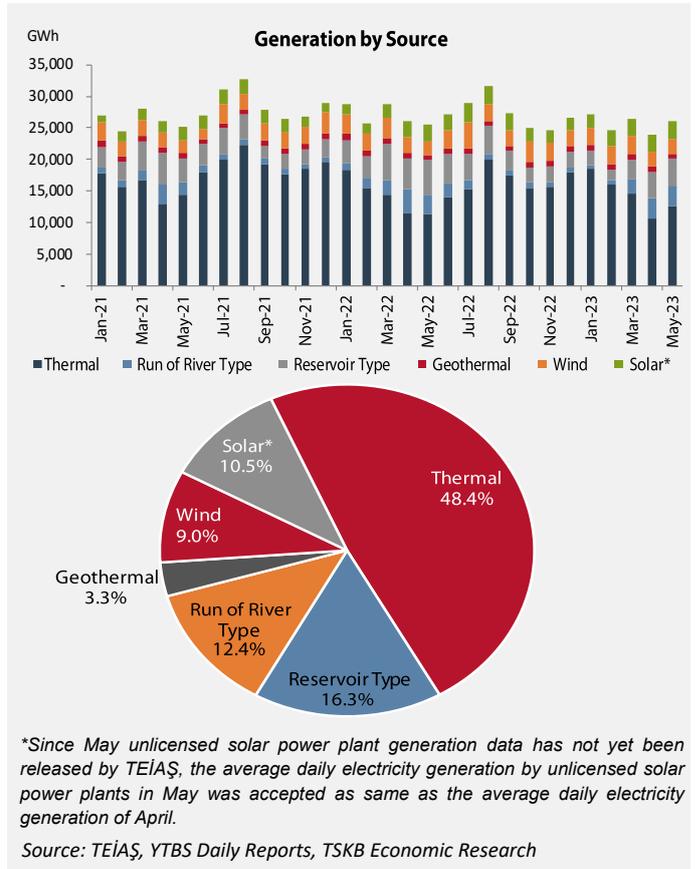


In May, power plants generating electricity from renewable sources accounted for 54.7% of the capacity of all operating power plants. As a result, the share of renewable resources in total capacity increased and remained over 54%. Hydroelectric power plants accounted for 30.2% of Türkiye's total installed capacity, while wind and solar power plants accounted for 20.6% of total installed capacity.



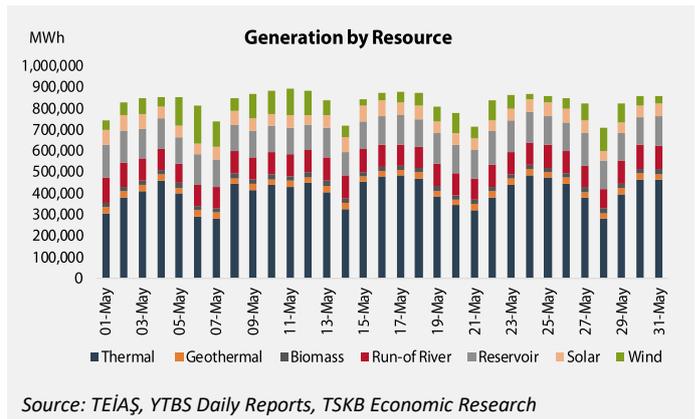
Generation-Consumption Analysis

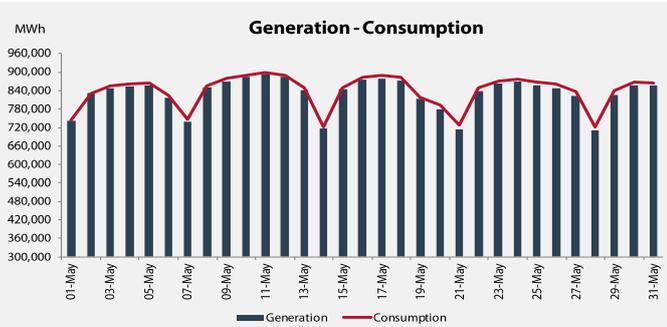
Total electricity generation increased from roughly 23.9 terawatt-hours (TWh) in April to 26.0 TWh in May. Average daily electricity consumption was 2.0% higher in May when compared to the same period of last year and 5.1% higher when compared to the previous month.



Thermal power plants provided 44.5% of electricity generation in April and 48.4% of the total electricity generated in May. A look at the resource-based breakdown for the power plants finds that hydroelectric power plants generated 28.8% of Türkiye's electricity in May, down from 30.9% the previous month. During the same time period, the share of electricity generated by wind fell by 1 percentage point to 9.0%. Geothermal power plants, on the other hand, accounted for 3.3% of total electricity generated.

On a year-on-year basis, the share of renewable energy plants in power generation increased from 42.7% in May 2022 to 51.6% in May 2023. Dam-type hydroelectric power plants generated 16.3% of all electricity during the period in question, while river-type hydroelectric power plants provided 12.4% of total production. Furthermore, wind and solar power plants generated 19.5% of the total electricity during the period.





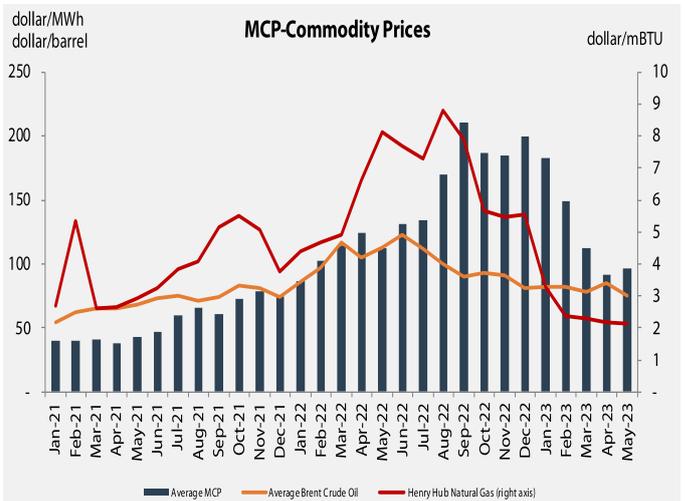
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

In May, licensed power plants generated an average of 831,505 MWh per day. The maximum generation from licensed power plants in May was 893,363 MWh on Thursday, May 11 while the lowest generation from licensed power plants in the same period was 711,975 MWh on Sunday, May 28.

The average daily consumption of electricity for the same time period was 839,396 MWh. The maximum consumption in May was 897,629 MWh, on Thursday, May 11, while the lowest consumption was 722,954 MWh on Sunday, May 28.

During the same time period, the average off-peak rate (8PM-8AM) was TL 1,930.40 /MWh. While the maximum limit price of TL 2,600 /MWh was recorded for 54 hours during off-peak hours, the lowest off-peak price was TL 10.00 /MWh on Sunday, May 28.

The MCP averaged USD 91.6 /MWh in April, falling to USD 96.70 /MWh in May. The MCP was 14.1% lower in dollar terms than in the same period of the previous year.



Source: EPIAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

Having averaged USD 84.64 /bbl in April, the Brent crude oil price fell to USD 75.47 in May, a 10.8% fall on a monthly basis. This realized average price was 33.4% lower in comparable period of the previous year.

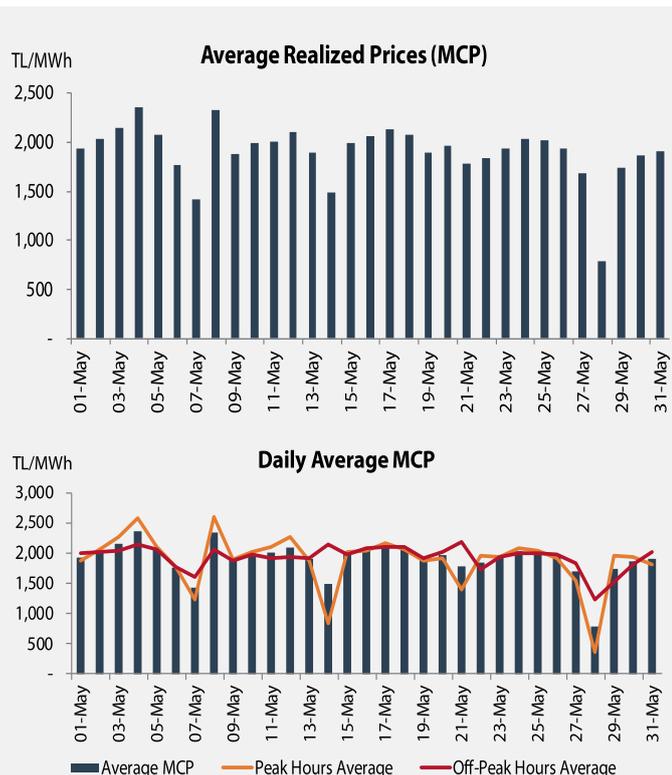
The Henry Hub natural gas contract price fell 0.5% month-on-month to USD 2.15 /mBtu, from USD 2.16 /mBtu in April, while recording a 73.6% fall when compared to the same time the previous year.

Electricity Price Analysis

The daily average market clearing price (MCP) in May ranged between TL 780 /MWh and TL 2,370 /MWh. The MCP averaged TL 1,907.30 /MWh in May with a highest daily average of TL 2,358.70 /MWh on Thursday, May 4 and the lowest daily average of TL 787.30 /MWh on Sunday, May 28.

According to hourly data, the MCP stood at its maximum limit of TL 2,600 /MWh for 97 hours in May and its minimum of TL 0 /MWh for 6 hours on Sunday, May 28.

Looking at the daily MCP analysis for the month of May, the peak hours average (8AM-8PM) was TL 1,884.10 /MWh -1.2% lower than the average value for all hours. The maximum peak-hours limit price of TL 2,600 /MWh was recorded for 43 hours, while the lowest price of TL 0 /MWh was recorded between 8AM and 2PM on Sunday, May 28.



Source: EXIST, TSKB Economic Research





Sector News

Local News

- Electricity generated by the Akkuyu Nuclear Power Plant to save 7 billion cubic meters (bcm) of natural gas each year. In his statement, the Minister of Energy and Natural Resources, Fatih Dönmez, said that once the Akkuyu Nuclear Power Plant, the world's largest nuclear construction site, is fully operational in 2028, it will meet 10% of Türkiye's electricity needs while reducing its annual natural gas need by 7 bcm. Minister Dönmez added that natural gas and oil exploration activities in the Black Sea are ongoing, and that there was evidence of natural gas in the Central Black Sea and oil in the Eastern Black Sea Region. (24 May 2023)

- Pre-license installed capacity for storing wind and solar power plants now exceeds 9,500 MW according to EMRA Chairman Mustafa Yılmaz. The Chairman underlined that this pre-license volume, which was granted for a total of 120 projects, represents an investment of USD 18 billion in the field. He added that field investigations were particularly concentrated in Karaman, Tekirdağ, Kırklareli, and Antalya. (22 May 2023)

Scope of investments in unlicensed power plants expanded. Production facilities will be permitted to be built within the borders of supply companies with different assignments for those seeking to build multiple production facilities for single or multiple consumption facilities, according to the regulation published in the Official Gazette for the amendment in National Residential General Announcement. The regulation, which entered effect in September 2022 requires investments to be undertaken in the same supplier business regions. (10 May 2023)

- Oil discovered in Gabar to supply 12% of Türkiye's energy needs. According to Fatih Dönmez, Minister of Energy and Natural Resources, gross reserves amounting to 1 billion barrels of oil have been detected in Gabar, of which 60% can be extracted. Mr. Dönmez stated that the daily output volume would reach 180,000 barrels as a result of this finding, with the oil extracted in Gabar alone able to meet 12% of Türkiye's needs. (8 May 2023)

- Principles of free natural gas usage published in the Official Gazette. The natural gas fee will not be charged from the first invoice to be accrued from 24 April 2023 to 31 May 2023 for natural gas consumption from subscribers in homes, places of worship (including cemevis), according to the decision taken by the Energy Market Regulatory Authority published in the Official Gazette. This will remain in place until 1 May 2024. The decision was also taken not to charge any additional fee for consumption up to 25 cubic meters in monthly natural gas consumption invoices. The Chairman of EMRA, Mustafa Yılmaz, indicated in a statement that the cost of providing free natural gas and the subsequent discount would be TL 40 billion. (5 May 2023)

- Industrial sector ranks as biggest consumer of energy. According to TURKSTAT's "Energy Calculations" data for 2021, the manufacturing industry ranked first with a 34.7% share in the sectoral breakdown of the final consumption of energy products, which climbed by 9.8% year on year to reach 5,560 petajoules in 2021. The industrial sector was followed by households (30.4%), with commerce, services, and the public sector accounted for the remaining 24.4%. The overall physical energy flow in 2021 was determined as 19,184 petajoules, according to the "Energy Calculations," which reviewed the physical energy supply and demand figures for the 2017-2021 period. (4 May 2023)

- **Energy products account for 53.3% of total physical energy resources, followed by energy wastes (36.8%) and natural energy inputs (9.9%), respectively.** Petroleum products ranked top in terms of end-use energy goods in 2021, with a 39.3% proportion. Petroleum goods were followed by natural gas (22.8%), electricity (21.5%), coal products (10.0%), heat (5.2%), and other products (1.2%) (3 May 2023)

- **Protocols signed for the first green hydrogen facility.** Protocols for the South Marmara Hydrogen Coast Platform Guided Project, which envisages the manufacture of electrolyzers for hydrogen generation as well as manufacture and transport green hydrogen, and the HYSouth Marmara Hydrogen Valley Project were signed on April 27. The South Marmara Hydrogen Coastal Platform Guided Project aims to build a 30 kilowatt PEM type electrolyzer to store and use the green hydrogen produced at the Bandırma Energy Base. In addition, the HYSouth Marmara Hydrogen Valley Project aims to demonstrate the annual production, transportation, and storage of 500 tonnes of green hydrogen using renewable energy-based electricity generation, as well as its use for power generation purposes in industry and emergency situations. Linde Gaz will transport hydrogen, which will be used by Kale Seramik, Şişecam, and Eti Maden. The project's entire budget was announced as EUR 36.8 million. Furthermore, according to a press article, Patrick Graichen, the Undersecretariat of the German Ministry of Economy and Climate Protection, stated that the Ministry was working on the conveyance of green hydrogen produced in Türkiye from wind and solar energy through pipes to be constructed in Germany. (2 May 2023)

Foreign News

- **Global investments in solar energy expected to exceed investments in oil.** According to the International Energy Agency's (IEA) "Global Energy Investments 2023" report, USD 1.7 trillion of the expected USD 2.8 trillion of global energy investment in 2023 is expected to be spent on clean energy technologies (such as renewable energy resources, electric vehicles, nuclear energy, storage, networks, low-emission fuels, efficiency improvement and heat pumps). The report estimates that investments in solar energy will outnumber investments in oil production in 2023, and that clean energy investments will increase by 24% between 2021 and 2023. According to the analysis, worldwide heat pump sales have increased at double digit rates every year since 2021, while the increase in sales of electric vehicles is set to continue. (26 May 2023)

- **European Commission calls on member states to eliminate their energy subsidies by end of 2023.** Within the framework of the "European Spring Benefits Package," the European Commission has asked member states to cut the energy support measures in place by the end of 2023. The European Commission also noted that if continued increases in energy prices necessitate the introduction of support measures, the measures should be financially affordable, protect individuals and businesses and provide energy-saving incentives. (25 May 2023)

- **Clean energy technologies taking on increased importance in terms of energy security.** The President of IEA, Fatih Birol, reviewed the G7 summit he attended. Chairman Birol remarked in his evaluation that the progress in clean energy technology was very rapid, pointing out that solar energy capacity had increased by 40% in the space of a year. Mr. Birol noted that there was a vigorous return to nuclear energy,

expressing his belief that nuclear energy was essential for Türkiye while adding that clean energy technologies were indispensable for energy security. (23 May 2023)

- **Tender offers for joint natural gas purchases from the European Union (EU) received.** The tender attracted over 110 companies, with a total volume of 10.9 bcm. In the first procurement, 25 international providers submitted a supply offer surpassing 13.4 bcm for total natural gas demand of 11.6 bcm, according to EU Commission Vice President Maros Sefcovic. He added that total volume of 10.9 bcm had been matched, of which about 2.2 bcm is LNG and 8.7 bcm being pipeline natural gas. (17 May 2023)

- **The United States to purchase crude oil for its strategic oil reserves.** The US Department of Energy stated that up to 3 million barrels of crude oil would be allocated for delivery in August for the strategic oil reserve. The US administration authorized the release of more than 180 million barrels of oil from the strategic oil reserve in March 2022. (16 May 2023)

- **EnerjiSA receives USD 100 million loan from the European Bank for Reconstruction and Development (EBRD).** The EBRD announced in a statement that the company was given a funding opportunity of USD 100 million to develop its investment portfolio in the wind energy sector. The projects being planned are expected to reduce carbon emissions by 52,000 tonnes per year. (15 May 2023)

- **EU member states begin tender procedure for collective purchase of natural gas.** Maros Sefcovic, the Vice President of the European Commission, noted in his statement that the first tender procedure for the joint natural gas purchase within the scope of the Energy Platform had begun, with 107 firms engaging in the developed natural gas purchase mechanism. Noting that 77 European firms had requested the purchase of 11.6 bcm of natural gas until May 2024 in the first bids, the Mr. Sefcovic added that 2.8 bcm of this amount consisted of liquefied natural gas (LNG). (11 May 2023)





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