

Monthly Energy Bulletin

TSKB Economic Research

November 2022 #54

Can Hakyemez

hakyemez@tskb.com.tr

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Changes to electricity storage legislation published in Official Gazette

According to the legislative change published by the Energy Market Regulation Authority (EMRA), an electricity storage facility will be permitted to be installed in unlicensed electricity production facilities, where their monthly netting has been made for the excess energy and they have received a call letter within the framework of "Electricity Market Unlicensed Electricity Production Legislation". When the facilities in this situation establish a storage unit, they will be able to obtain approval for an increase in wind and solar capacity up to the storage facility's installed power. The incentive provided by the renewable energy resources supporting mechanism (Feed-in Tariff-YEKDEM) will cover this capacity increase. While the minimum installed power is set at 20 megawatts (MW) for wind and 10 MW for solar power in the production applications which will be lodged within the scope of storage facilities, the maximum installed power will stand at 250 MW.

After the legislation was published, Mustafa Yılmaz, the President of EMRA, stated that 909 applications had been submitted in the first phase, of which 334 would have a total installed capacity of 19,881 MW, with 575 having a total installed power of 47,468 MW being applications within the scope of solar power-based electricity production with storage. Mr. Yılmaz stated that the total investment value of the applications stood at USD 110 billion, with USD 40-45 billion expected to be reflected to the field.

24.91
TWh

November Gross
Generation

3,438.3
TL/MWh

Average
MCP

-6.8%

Daily average licensed electricity generation increased by 2.6% MoM with a decline of 6.8% YoY in November.

[Click](#) for details.

-9.9%

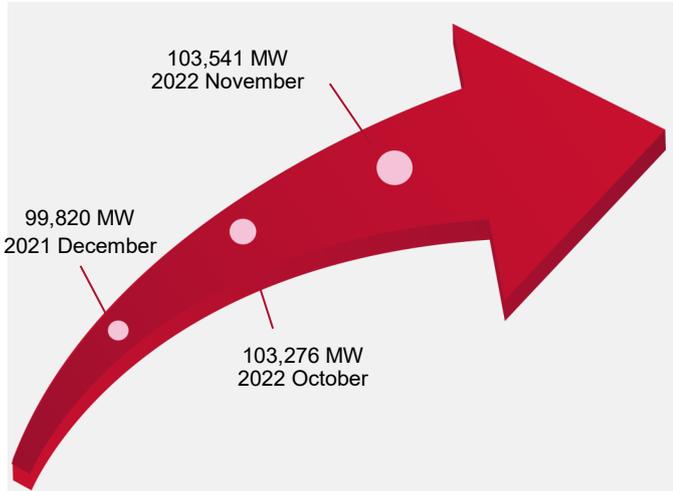
Market Clearing Price (MCP) decreased by 9.9% MoM with a decline of 418.0% YoY in October.

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Installed Capacity Analysis

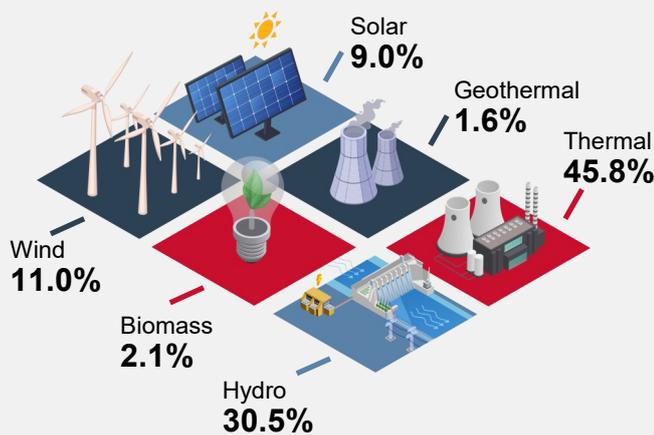
Turkey's total installed generation capacity, which had reached 99,820 megawatts (MW) at the end of December 2021, reached 103,541 MW by the end of November 2022. A net total of 265.3 MW in installed capacity came onstream in November, with solar power plants accounting for 198.6 MW of this installed capacity. In the same period, there was an increase of 58.8 MW in the total net installed capacity of wind farms, while the increase was 6.9 MW for renewable waste energy power plants. In addition to these capacities, the net capacity of natural gas power plants increased by 4.8 MW in November.



Source: TEİAŞ, TSKB Economic Research

In November, 54.2% of the capacity of the power plants in operation consisted of renewable energy. Thus, the share of renewable resources remained above 54%. Hydroelectric power plants accounted for a 30.5% share of Turkey's total installed electricity power, followed by wind and solar power plants with a 20.0% share.

November 2022 Installed Capacity Breakdown

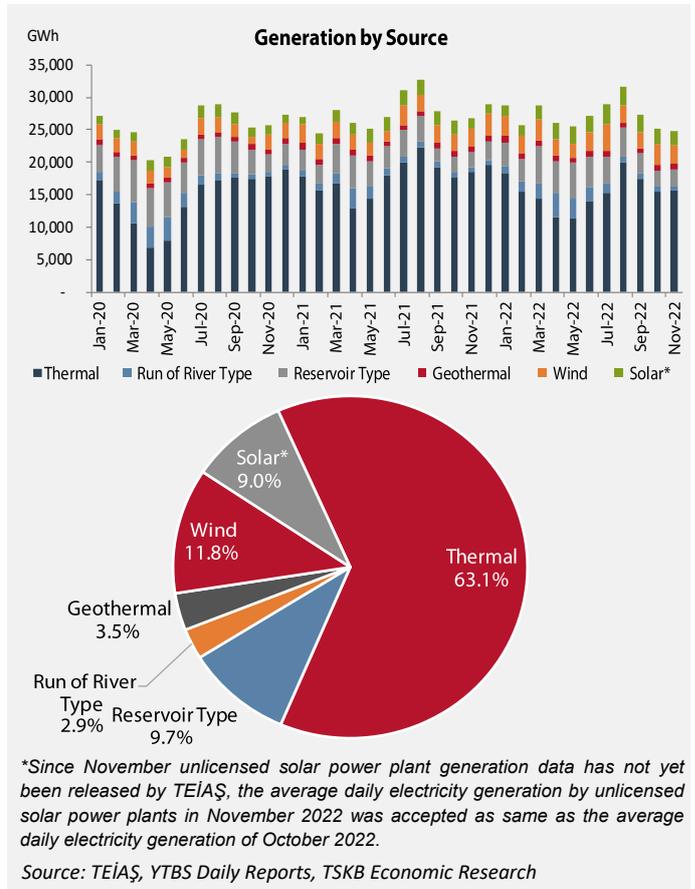


Source: TEİAŞ, TSKB Economic Research



Electricity Generation Analysis

Total electricity generation in November decreased from approximately 25.09 terawatt-hours (TWh) in October to 24.91 TWh. The average daily electricity consumption for November decreased by 6.8% when compared to the same period of the previous year but increased by 2.6% when compared to the previous month.

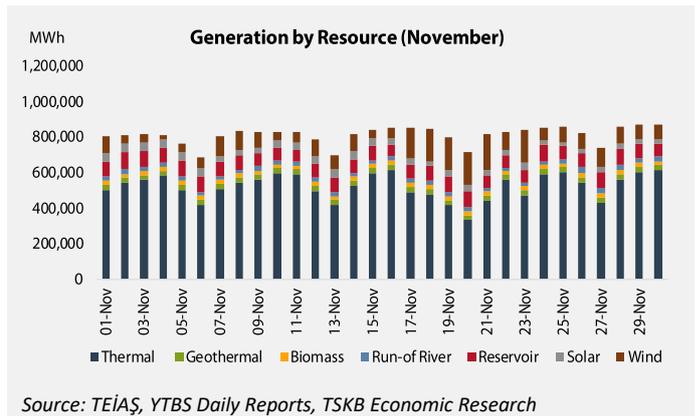


*Since November unlicensed solar power plant generation data has not yet been released by TEİAŞ, the average daily electricity generation by unlicensed solar power plants in November 2022 was accepted as same as the average daily electricity generation of October 2022.

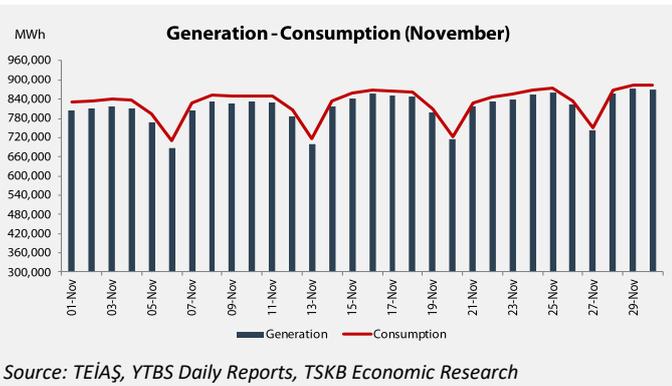
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Thermal power plants, which accounted for 61.7% of electricity generation in October, generated 63.1% of total electricity in November. A look at the breakdown of generation by resource finds that hydroelectric power plants accounted for 12.6% of total electricity generation in October, compared to 13.1% in the previous month. During the same period, the share of electricity generated by wind fell by 0.8 percentage points when compared to the previous month, to 11.8%. Geothermal power plants, on the other hand, accounted for 3.5% of total electricity generation.

The average share of renewable energy plants in electricity generation increased from 36.0% in 2021 to 36.9% in November 2022. Dam-type hydroelectric power plants contributed 9.7% to total generation during the period, while river-type hydroelectric power plants provided a 2.9% contribution to total generation. Since May, there has been no decrease in the share of electricity generated by dam-type hydroelectric power plants. Furthermore, the electricity obtained from wind and solar power plants amounted to 20.8% of total electricity generated.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



Electricity generation from licensed power plants in November averaged 813,701 MWh per day, with the highest generation from licensed power plants in November being recorded at 873,763 MWh on Tuesday, November 29th, with the lowest on Sunday, November 6th, at 685,669 MWh.

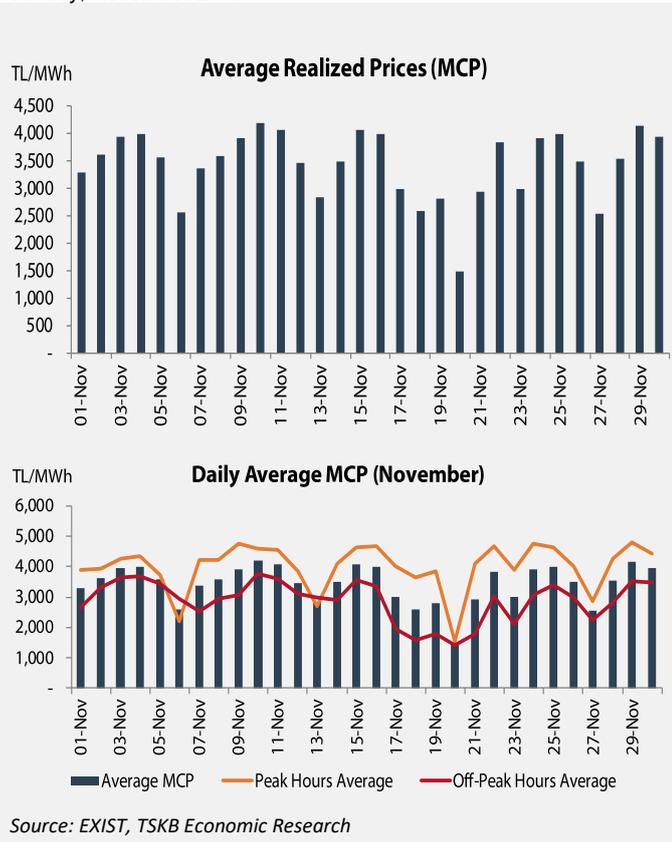
Daily electricity consumption during the same time period averaged 830,357 MWh with the highest consumption in the month was recorded on Tuesday, November 29th at 884,539 MWh and the lowest consumption recorded on Sunday, November 6th at 709,162 MWh.

Electricity Price Analysis

The daily average market clearing price (MCP) in November fluctuated between TL 1,485 – 4,185 /MWh. In November, the daily MCP average was 3,484.3 TL /MWh. The highest daily average MCP was TL 4,180.90 /MWh on Thursday, November 10th and the lowest daily average MCP value was TL 1,488.50 /MWh on Sunday, November 20th.

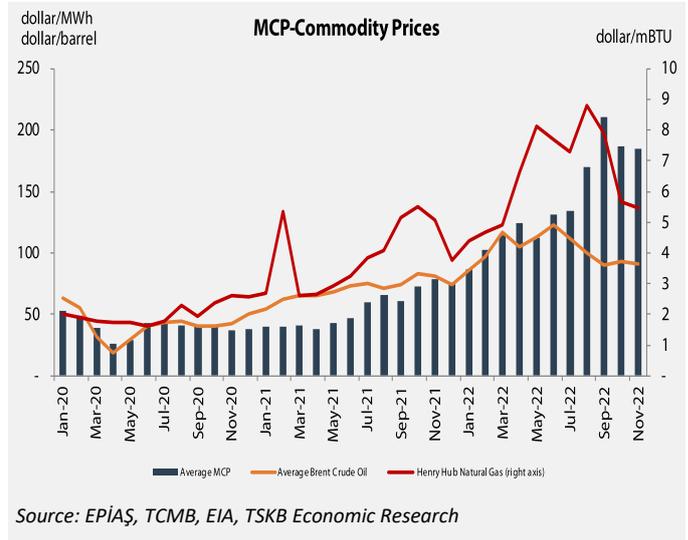
An analysis of the hourly data finds that November's MCP was realized at TL 4,800/MWh in November, which is the maximum price limit of 136 hours. On Monday, November 21, the hourly minimum electricity price was TL 100 /MWh.

Looking at the MCP trends in November, the average MCP in peak hours (between 8AM-8PM) was recorded as TL 3,994 /MWh, some 16.2% higher than the average value for all hours. During peak hours, the maximum limit price of TL 4,800 /MWh was recorded for a total of 130 hours, while the lowest price of 250 TL/MWh was realized on Sunday, November 20th.



During the same time period, the average off-peak rate was TL 2,882.70 /MWh (between 8PM-8AM). The maximum limit price of TL 4,800 /MWh was recorded for six hours during off-peak times with lowest price recorded on Monday, November 21st, at TL 100 /MWh.

The MCP averaged USD 186.58 /MWh in October before decreasing to USD 184.61 /MWh in November. However, this still represents an increase of 134.2% in dollar terms compared to the same period the previous year.



Average Commodity Prices

The price of a barrel of Brent crude, which averaged USD 93.33 /bbl in October, fell to USD 91.42 /bbl in November, a 2.0% decrease on a monthly basis. This average price is 12.8% higher than in the same period of the previous year.

The Henry Hub natural gas contract price fell 3.7% on the month to USD 5.45 /mBtu in November from USD 5.66 /mBtu in October. This marks a 7.9% increase when compared to the same period the previous year.





Sector News

Local News

- **Electricity generation license holders to be eligible for supply licenses.** According to the regulation published in the Official Gazette, all legal entities holding an electricity production license will be able to obtain an electricity supply license if all other necessary conditions are met. EPDK issued a decision in 2014 to prohibit legal entities holding electricity generation licenses from also holding an electricity supply license. (24 November 2022)

- **Yusufeli Dam and Hydroelectric Power Plant (Yusufeli HPP) now operational.** In a speech to mark the opening of the plant, President Recep Tayyip Erdoğan stated that the facility was expected to generate 1.9 million MWh of electricity, enough to bring power to 2.5 million homes. The Yusufeli HPP, with a combined capacity of 558 MW, is Turkey's highest dam and the world's fifth highest dam. (23 November 2022)

- **Turkey's 12th Energy Summit completed.** Fatih Dönmez, the Minister of Energy and Natural Resources, spoke at the summit, entitled "Energy & Geopolitics," where he stated that the natural gas discovered in the Black Sea will be delivered to the system in the first quarter of 2023. He stated that if this natural gas is delivered to the system at full capacity, the system's reliance on foreign sources will be reduced from 99% to 66%. Mr. Dönmez stated that the country's external energy dependence, currently 70% will be reduced to 50% within the next five years. Coming to the subject of hydrogen production, Mr. Dönmez stated that Turkey's electrolysis capacity, which is set to reach 2 gigawatts (GW) in 2030, will reach 70 GW in 2035, 35 times higher than the current level. He also promised that the cost of producing hydrogen would be reduced from USD 2.4 to less than USD 1.2. (22 November 2022)

- **President Recep Tayyip Erdoğan announces that works on 3rd nuclear power plant is underway.** According to President Erdoğan's statement, a third nuclear power plant will be built in another location in addition to the nuclear power plants at Akkuyu and Sinop. President Erdoğan stated that Boru Hatları ile Petrol Taşıma A.Ş. (BOTAŞ) would complete the land pipeline to bring natural gas to the system in the coming months, adding that the government is working hard to begin delivering the natural gas discovered in the Black sea in 2023. (3 November 2022)

- **Turkey must build new wind farms with at least 3,000 MW of capacity per year according to the President of the Turkish Wind Energy Association (TÜREB), İbrahim Erden.** In his opening speech at the Wind Energy Congress of Turkey (TÜREK 2022) in İzmir, organized by TÜREB, Mr. Erden stated that 12,000 MW was an insufficient amount of power for wind farms in a country with a potential of more than 100,000 MW. President Mr. Erden stated that Turkey ranked 5th in Europe for wind power equipment production, stating that Turkey must add 3,000 MW of wind power capacity each year. Mustafa Yılmaz, the Head of the EMRA, also spoke at the congress, stating that the accepted energy storage regulation would unlock USD 20-25 billion in investment. (2 November 2022)

- **Installed power limit for hybrid wind power plants (WPP) investments removed.** According to a decision published in the Official Gazette by EMRA, investments added to WPPs will be excluded from the 100 MW upper limit principle. According to the regulation, the 100 MW limit will be maintained for additional investments in other resources. (2 November 2022)

Foreign News

- **Qatar will supply Germany with liquefied natural gas (LNG).** The Qatar Energy Company and ConocoPhillips, a US-based energy company, have agreed to sell liquefied natural gas to Germany. According to the 15-year agreement, more than 2 million tons of LNG are scheduled to be delivered for the first time in 2026. This agreement is the first long-term agreement made since the outbreak of the Russia-Ukraine war. (30 November 2022)

- **Germany and Spain announce surprise tax plans.** According to Bloomberg, the German government will impose an unexpected 90% tax on earnings exceeding EUR 130 /MWh of electricity sold by companies using solar, wind, or nuclear energy. In addition to these resources, earnings in lignite coal plants exceeding EUR 82 /MWh and any earnings in oil power plants exceeding EUR 280 /MWh will be taxed. While the measures are expected to enter effect from September 2022 and last until the end of June 2023, it was stated that they may be extended until the end of 2024. The Spanish government, meanwhile, proposed legislation to collect EUR 7 billion from banks and energy companies. According to the Financial Times, the government intends to collect a total of EUR 3 billion over the next two years through a temporary tax of 4.8% on bank interest and commissions. It also plans to collect EUR 4 billion by levying a 1.2% tax on energy companies' sales during the same time period. The Spanish Senate will vote on the legislation. (25 November 2022)

- **European Commission proposes ceiling price of EUR 275 /MWh for natural gas.** According to the Commission's statement, the ceiling price for natural gas that will be applied in the coming month is EUR 250 /MWh. If the TTF price exceeds EUR 275 /MWh for two weeks and the difference between the TTF and the LNG price is higher than EUR 58 /MWh for 10 consecutive trading days within two weeks, the offered ceiling price mechanism will be activated automatically. On November 24, energy ministers from EU member states will meet to evaluate the European Commission's offer. (23 November 2022)

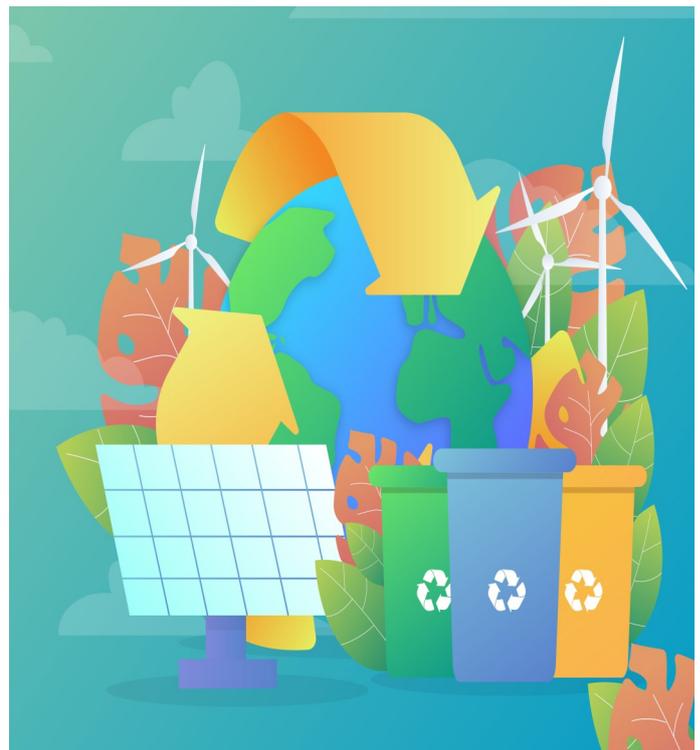
- **27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) completed in Egypt.** The final declaration agreed on the establishment of a Loss and Damage Fund for developing countries that are most vulnerable to the destructive effects of climate change. However, no agreement regarding which countries would contribute to the fund and at what level has been reached. (20 November 2022)

- **US Energy Information Administration (EIA) revises its oil price prediction upward.** According to the EIA's "November 2022 Short Term Energy Outlook Report," the average price of Brent crude oil for the coming year is projected to be USD 95.33 /bbl, which compares to the USD 94.58 /bbl estimate in the October report. The price for West Texas Intermediate (WTI) crude oil is now estimated to be USD 89.33 /bbl, according to the report; it had been estimated to be USD 88.58 /bbl. However, the price of a barrel Brent crude oil is now expected to be USD 102.13 /bbl, while WTI crude oil is expected to be USD 95.88 /bbl. (10 November 2022)

- **International Energy Agency (IEA) issues warning to Europe about natural gas.** The IEA report "Never Too Early to Prepare for Next Winter: Europe's Gas Balance for 2023-2024" emphasizes that Europe must act quickly to avoid natural gas

scarcity in the coming year. Within the scope of this report, IEA President Fatih Birol stated that the IEA may face a significant supply shortage in the coming year despite the fact that storages were successfully filled to 95% prior to the winter months. Mr. Birol stated that he expected European storage facilities to be only 65% full in this period next year due to difficulties in refilling storage from next spring. (4 November 2022)

- **Oil demand to reach 109.8 million barrels per day according to OPEC.** According to the Organization of the Petroleum Exporting Countries (OPEC) report entitled "2022 World's Oil Outlook," global oil demand in 2045 will reach 109.9 million barrels per day, an increase of 12.9 million barrels per day compared to 2021. The report predicts a 3.5% increase in global oil demand in 2022, with a 5.7% increase in 2021 compared to the previous year. According to the report, while demand in countries outside the Organization for Economic Cooperation and Development is on course to grow by 23.6 million barrels per day by 2045, demand in OECD countries will fall by 10.7 million barrels per day. According to the report, oil will continue to account for the highest share of the global energy portfolio until 2045, with India and China playing an important role in the growth in demand for oil during this period. (1 November 2022)





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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