TSKB ADVISORY SERVICES

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TSKB Economic Research

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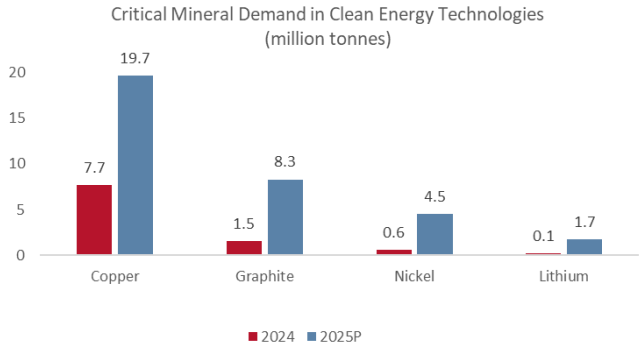
Strong growth in demand for critical minerals continued in 2024.

According to the "Global Critical Minerals Outlook 2025" report, published by the International Energy Agency (IEA), demand for lithium demand increased by around 30% YoY between 2021 and 2024, while demand for graphite increased by 7.7%, demand for nickel increased by 6.1% and demand for cobalt increased by 5.7% over the same period. Electric vehicles, battery storage, renewable energy, and grid networks played a role in the rising demand for critical minerals. While the surge in grid investments in China stand out as a driving force in the rise in demand for copper, the energy sector accounted for 85% of the increase in demand for critical minerals such as lithium, nickel, cobalt and graphite.

Despite the surge in demand, the IEA expects the rise in supply, led by China, Indonesia and the Democratic Republic of the Congo to put downward pressure on battery prices, in particular. However, although demand is expected to continue to increase, the IEA emphasizes that investments are affected by sectoral and economic uncertainties. Accordingly, critical mineral investments, which increased by 14% in 2023, grew by a mere 5% in 2024 to USD 54.6 billion.

The IEA predicts that demand for critical minerals in clean energy technologies will continue to grow. According to the IEA's 2050 Net Zero Scenario, copper demand is estimated to increase from 7.7 million tonnes in 2024 to 19.7 tonnes in 2050, with demand for graphite forecast to increase from 1.5 million tonnes to 8.3 million tonnes per year in the same period with annual demand for nickel forecasted to increase from 0.6 million tonnes to 8.3 million tonnes.



Source: IEA, TSKB Economic Research
Projections for 2050 are based on IEA's 2050 Net Zero Scenario

The report notes that between 2020 and 2024, production of critical minerals has been largely concentrated among a small number of leading suppliers, with increased geographical concentration, especially for nickel and cobalt. However, the report draws attention to the need for well-designed policy support and global cooperation in the diversification of production.

27.4 TWh	2,458.1 TL/MWh
May Gross Generation	Average MCP

0.6%

Daily average licensed electricity generation increased by 0.6% MoM and increased by 1.2% YoY in May.

Click for details.

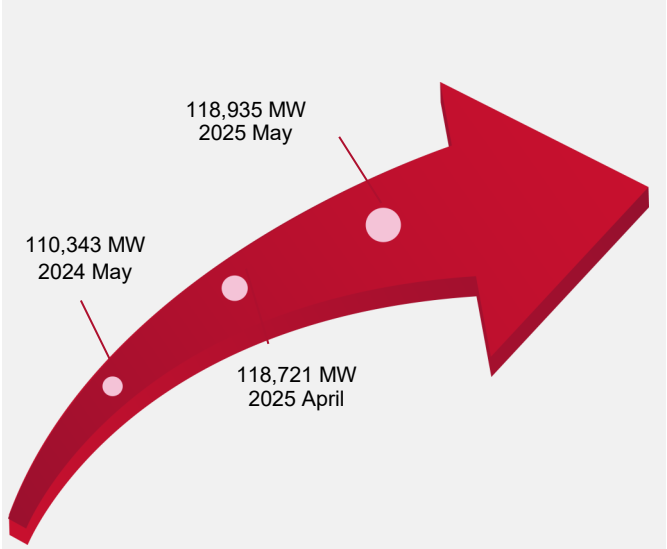
0.2%

Market Clearing Price (MCP) increased by 0.2% MoM and by 20.1% YoY in March.

Click for details.

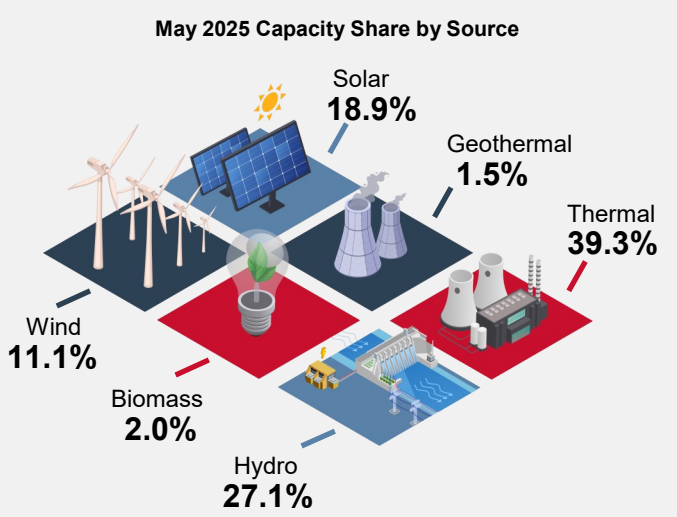
Installed Capacity Analysis

Türkiye's total installed generation capacity increased marginally from 118,721 megawatts (MW) at the end of April 2025 to 118,935 MW by the end of May 2025. When compared to April, a total of 213.7 MW in net installed capacity was commissioned during the month of May, of which 207.8 MW was provided by solar power plants. The installed capacity of wind farms increased by 8 MW, while the installed capacity of power plants using renewable waste decreased by 2.1 MW. There was no change in the installed capacity of other power plant types.



Source: TEİAŞ, TSKB Economic Research

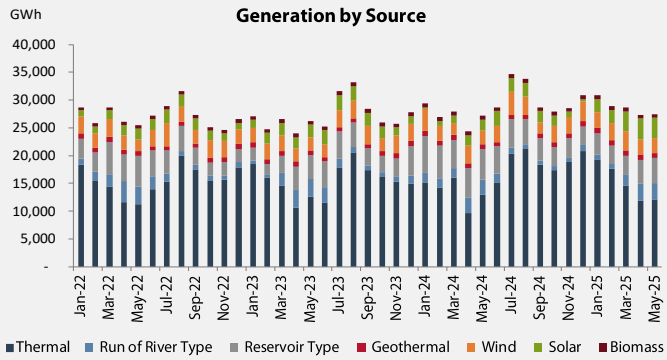
In May, 60.7% of the power plants in operation are renewable sources. Hydroelectric power plants accounted for 27.1% of Türkiye's total installed electricity capacity, the share of wind and solar power plants in total installed capacity exceeded the share of hydroelectric power plants, at 30.1%.

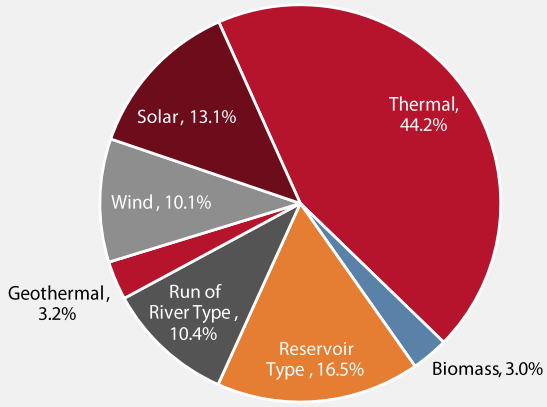


Source: TEİAŞ, TSKB Economic Research

Generation-Consumption Analysis

Electricity generation in Türkiye totalled 27.4 TWh in May 2025, up from approximately 27.3 terawatt hours (TWh) in April 2025. Average daily electricity generation in May increased by 0.6% compared to the previous month and by 1.2% compared to the same period of the previous year.

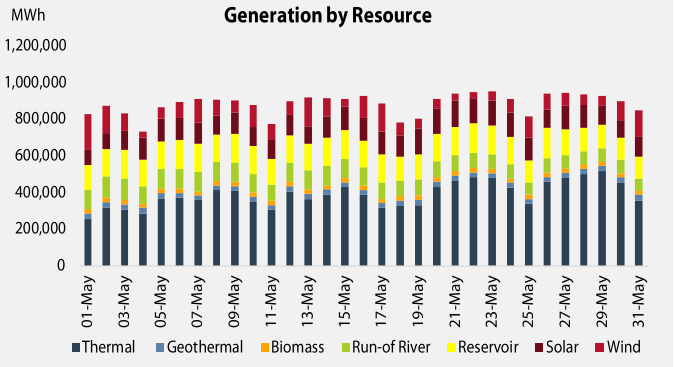




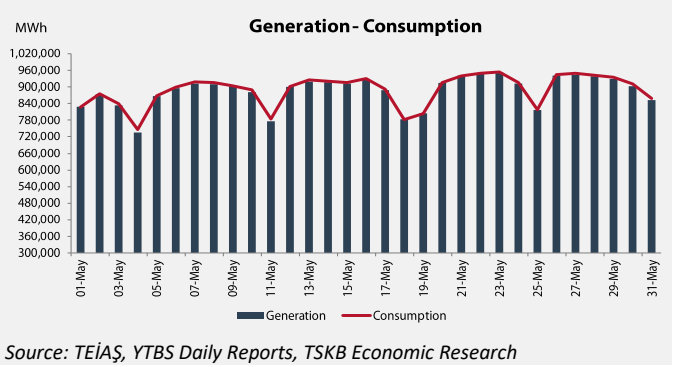
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Thermal power plants, which provided 43.6% of the electricity generated in April, accounted for 44.2% of total electricity generation in May. Based on a source-based breakdown of electricity generation, the share of electricity generated from hydroelectric power plants increased slightly from 26.7% in April to 26.9% in May. Wind accounted for a 10.1% share of total electricity generation during the same period, with geothermal power plants accounting for 3.2% of the total.

Renewable energy plants, which accounted for 54% of electricity generation in April, provided 53.2% of the electricity in May 2025. Dam-type hydroelectric power plants contributed to 16.5% of the total generation during the month, with solar power plants providing 13.1% of the total production, so they were the renewable source of energy generating the most electricity after dam-type hydroelectric power plants. In sum, wind and solar power plants provided 23.2% of the total electricity generated.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Daily electricity generation averaged 886,396 megawatt hours (MWh) in May, with the highest generation recorded on Friday, 23 May at 953,202 MWh and the lowest on Sunday, 4 May at 736,365 MWh.

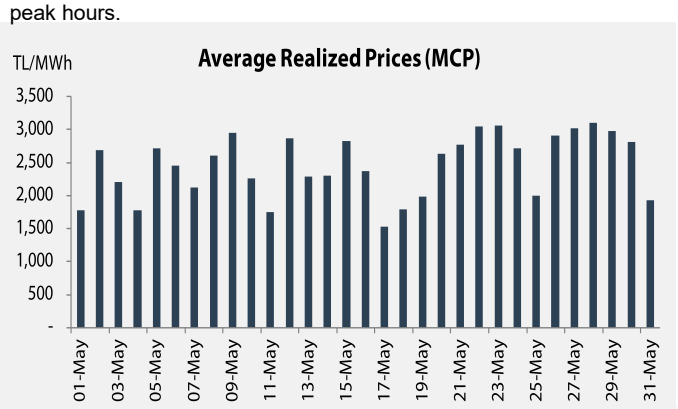
During the month, daily electricity consumption averaged 889,937 MWh with the highest consumption during May recorded on Friday, 23 May at 954,667 MWh and the lowest electricity consumption recorded on Sunday, 4 May at 746,054 MWh.

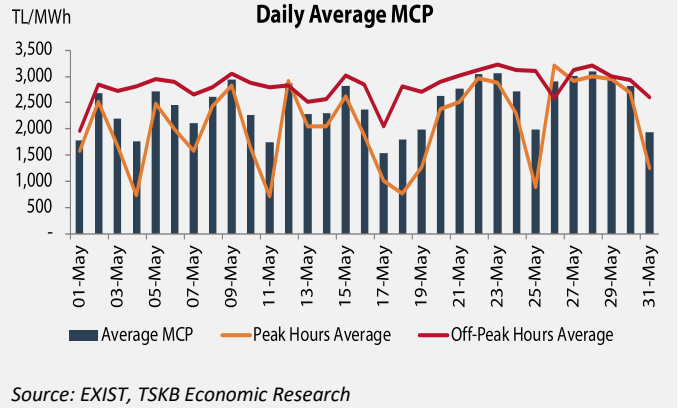
Electricity Price Analysis

The daily average market clearing price (MCP) ranged between TL 1,532.3 - 3,102.6 /MWh during May with an average daily MCP of TL 2,458.2 /MWh. The highest daily average MCP was recorded on Wednesday, 28 May at TL 3,102.6 /MWh with the lowest daily average MCP recorded on Saturday, 17 May at TL 1,532.3 /MWh.

Looking at the hourly data, the MCP reached its maximum limit of TL 3,400 /MWh for a total of 90 hours during May. The hourly minimum price in April was recorded at TL 14 /MWh between 11.00-12.00 on Sunday, 4 May.

Looking at the daily MCP during the month of May, the average for peak hours (between 8AM and 8PM) was 15.1% lower than the rate for all hours, being recorded at TL 2,087.2 /MWh. The maximum limit of TL 3,400 /MWh was recorded on 30 occasions during peak hours, while the lowest rate of TL 14 /MWh was realized for one hour during peak hours.

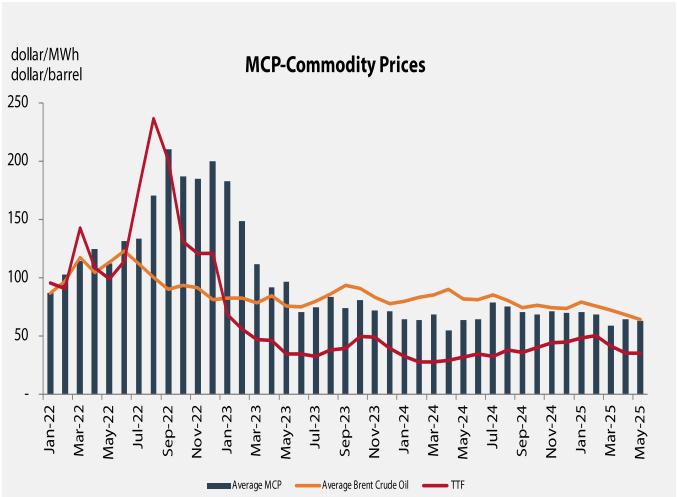




Source: EXIST, TSKB Economic Research

In the same period, the average off-peak rate (between 8PM and 8AM) was TL 2,829.1 /MWh with the maximum limit of TL 3,400/ MWh reached for 60 hours during off-peak hours and the lowest price of TL 130 /MWh recorded between 7-8AM on Saturday, 17 May.

In dollar terms, the average MCP decreased from an average of USD 64.4 /MWh in April to USD 63.4 /MWh in May, with a fall of 0.1% when compared to the same period of the previous year.



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

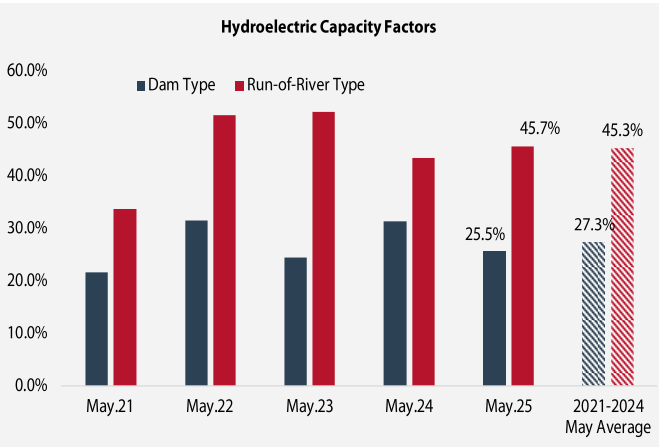
The price of Brent crude oil, which averaged USD 68.1 / bbl in April, decreased by 5.5% on a monthly basis to USD 64.4 / bbl in May, 21.4% lower than the same period of the previous year.

The TTF natural gas contract price, which averaged USD 35.1 / MWh in April, fell by 8.2% month-on-month to USD 35.6/ MWh in May. The TTF was up by 11.6% compared to the same period of the previous year.

Hydroelectric Capacity Factors

The capacity factors of dam- and river-type hydroelectric power plants in May 2025 were 25.5% and 45.7%, respectively. When compared to May 2024, the capacity factors for dam-type hydroelectric power plants was down by 5.8 percentage points while there was an increase of 2.1 percentage points for run-of-river type hydroelectric power plants in May 2025. Looking at the months of May over the last 5 years, May 2022 saw the highest capacity factors for dam-type power plants, at 31.6%, while the highest capacity factor for run-of-river type plants was recorded in May 2023, at 52.3%.

The capacity factors for dam-type power plants was 1.8 percentage points below the average for the month of May between 2021-2024, and the capacity factors for run-of-river type power plants was 0.3 percentage points above the average.



Source: TEIAS, EPIAS, TSKB Economic Research

What Do Energy Calculations Say?

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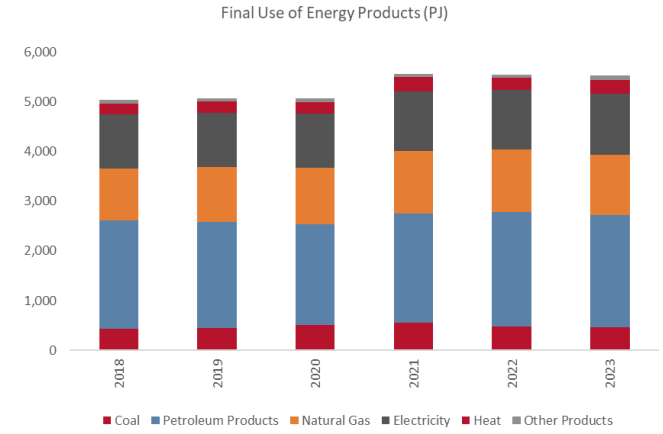
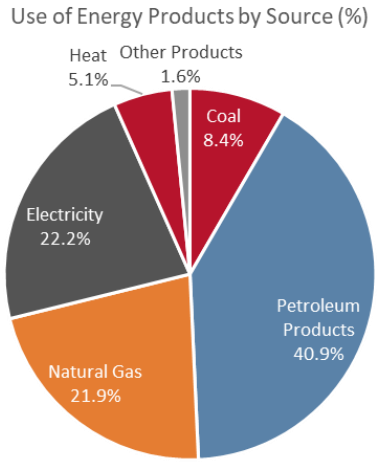
TurkStat has published the "Energy Accounts" data for 2023. The limited decrease seen in the end use of energy products in 2022 continued in 2023. The final use of energy products, which decreased by 0.2% year-on-year in 2022, decreased by 0.4% year-on-year in 2023 to 5,526.7 petajules (PJ).



Source: TÜİK, TSKB Economic Research

A look at the data in more detail shows that the share of fossil fuels in final use has decreased, while the share of resources such as electricity and heat has increased. Although this indicates a change in Türkiye's final energy use, the resource-based breakdown demonstrates that fossil fuels still have the highest share.

Looking at the development of the end use of energy products over the years, petroleum products account for the highest share over the last 6 years. The share of petroleum products in end energy use decreased from 43% in 2018 to 40.9% in 2023, to be recorded as 2,259.7 PJ. The share of natural gas, which follows petroleum products, decreased by 1 percentage point from 22.9% of end energy use in 2022 to 21.9% in 2023.



Source: TÜİK, TSKB Economic Research

Electricity, on the other hand, increased its share by 0.8 percentage points from 2022, to reach 22.2% in 2023. The share of coal decreased from 10% in 2020 and 2021 to 8.5% in 2022 and 8.4% in 2023. These four major items were followed by heat (5.1% share) and other resources (1.6%), which included firewood, wood waste, other solid biomass, charcoal, liquid biofuels and biogas.

Various sectors took the lion's share in the end use of energy products, their share in the end use stood at 67.9% in 2023. The energy use of these sectors, which had a share of 69.3% in 2022, decreased from 3,847.3 PJ in 2022 to 3,755.1 PJ in 2023. The transportation and storage sectors were responsible for the largest share of this decline, along with the repair of motor vehicles and motorcycles, with a reduction of 241 PJ in energy usage in these sectors. However, although there was an increase in the end use of energy products in the construction and manufacturing industry, these increases were not sufficient to prevent a decline in the end use of energy products on an annual basis.

According to the resource-based breakdown, petroleum products provided 42.4% of the final energy use in the sectors in 2023, followed by electricity (26.4%) and natural gas (16.6%). Although the share of fossil fuels continues to exceed the share of electricity and heat products, it appears to have been on a downward trend in recent years.

The situation is different when it comes to household energy use. While the final use of energy products by households increased by 4.1% year-on-year, this increase was driven by transportation activities in households. In 2023, there is a decrease in the amount of energy used by households for space heating and cooling. In the same period, oil was the leading source of energy at 37.6%, followed by natural gas (33.1%) similar to the sectors in the final energy use of households. The share of electricity and heat products is close to 20%.

What do the energy calculations described in this framework say about the end use of energy products? Fossil fuels, consisting of coal, oil and natural gas, still have a large share in Türkiye's energy balance. There has been a significant decrease in this sub-breakdown in 2023, and we can see this both in quantity and rates. The big rise in 2023 was in electricity and heat, with an overall increase of around 1.5 percentage points in the total. This indicates that we are indeed entering an "Age of Electricity", which Fatih Birol, Director of the International Energy Agency, also stated in Türkiye. We will continue to monitor whether the data in the coming years supports this.

Sector News

Local News

- Turkish Electricity Transmission Corporation (TEİAŞ) announces capacity mechanism payment list for March. Accordingly, TEİAŞ completed a total capacity payment of TL 1.89 million to 32 power stations for the month of March. Within the scope of the capacity mechanism, the Gebze Natural Gas Combined Cycle Power Plant (DGKÇS) received the highest payment for March at TL 159.79 million.

- The Energy Market Regulatory Authority (EMRA) publishes "Electricity Market Sector Report" and "Natural Gas Market Sector Report" for February 2025. Accordingly, electricity consumption increased by 5.8% in February when compared to February 2024 to reach 28.2 TWh. Electricity consumption stood at 24.7 TWh in January. Billed electricity consumption increased by 4.0% year-on-year to 23.1 TWh. In addition, natural gas consumption increased by 19.% compared to the same month of the previous year to reach 7.5 billion cubic meters (bcm), while 50.2% of the natural gas consumed was used by the residential sector. Natural gas imports increased by 16.7% compared to February 2024, amounting to 6.4 bcm.

- Turkish Petroleum (TPAO) to search for oil and natural gas in Hungary. According to the concession agreement signed with TPAO and the Hungarian MOL Group, TPAO has the right to explore and produce oil and natural gas in Hungary. The Minister for Energy and Natural Resources, Alparslan Bayraktar, stated that this is TPAO's first investment in Europe, and the first time TPAO will operate in the field of oil and natural gas exploration in Europe.

- Türkiye to become a global player in the field of natural gas and oil exploration. Speaking at the Istanbul Natural Resources Summit, President Recep Tayyip Erdoğan stated that Türkiye would contribute to global energy security by signing new collaborations in the energy and mining sectors. Emphasizing that Eskişehir Beylikova is home to the world's second largest reserve of rare earth elements in a single field with 690,000 tonnes of reserves, President Erdoğan emphasized that the government would soon implement an industrial facility that will convert rare earth elements into raw materials. In addition, the Minister of Energy and Natural Resources, Alparslan Bayraktar, stated that cooperation had been developed not only in land areas but also in different regions and continents, adding that new partnerships were being prepared in addition to existing projects in Azerbaijan, Iraq and Russia.

- Türkiye has the potential to assume global leadership in geothermal energy, according to Vice President Cevdet Yılmaz. Speaking at the International Geothermal Investment Summit, Yılmaz emphasized that it was possible for Türkiye's geothermal energy capacity to increase from 1,734 MW to 40,000 MW and even further over time, adding that a localization rate of up to 55% had been achieved in geothermal energy facilities.

- BOTAŞ's Floating Storage and Regasification Unit (FSRU) to go beyond Türkiye's borders for the first time and perform periodic duty in Egypt. According to statements from the Minister of Energy and Natural Resources, Alparslan Bayraktar, the flexible and efficient international cooperation model will contribute to natural gas supply security in both Türkiye and Egypt.

- An estimated 75bcm of natural gas reserves discovered in the Black Sea. This discovery in the Göktepe-3 field is believed to have an economic value of USD 30 billion. According to the statement issued by the Ministry of Energy and Natural Resources, the reserves are sufficient to provide natural gas to Türkiye's households for 3.5 years.

- Pomega, a subsidiary of Kontrolmatik, signs agreement with US battery manufacturer, Our Next Energy (ONE) for the production of battery cells in Türkiye. Under the agreement, ONE's battery cells will be produced at Pomega's gigafactory in Ankara. Production will get underway in 2026 with a capacity of 2 gigawatt hours (GWh) and reach 5 GWh in 2027.

- Canada reported to be interested in nuclear power plants to be built in Türkiye. The Minister of Energy and Natural Resources, Alparslan Bayraktar, reportedly stated that the government is in talks with various countries and companies regarding the planned nuclear power plants, with Canada among these countries along with Russia, South Korea and China.

- Transfer of the operating rights of Çayırhan Thermal Power Plant and Seyhan 2 and Yüreğir Hydroelectric power plants approved. According to the decision published in the Official Gazette, the transfer of the ownership and immovables of Çayırhan Thermal Power Plant belonging to Electricity Generation Inc. (EÜAŞ), the ownership of Çayırhan Lignite Plant, the license and the operating rights of the mining sites covered by the licenses and the licenses to Akçadağ İnşaat Enerji ve Madencilik A.Ş., which submitted the winning bid of TL 20 billion, was approved. In addition, the transfer of EÜAŞ's operating rights for the Seyhan 2 and Yüreğir Hydroelectric Power Plants belonging to the highest bidder, Gazişehir Energy Production Industry Trade for TL 190 million TL, was approved.

- The Association of Natural Gas Distribution of Türkiye (GAZBİR) publishes "2024 Natural Gas Distribution Sector Report". According to the report, Türkiye's natural gas consumption in 2024 increased by 6% compared to the previous year to reach 53 bcm. In 2024, residential consumption of natural gas increased by 13% compared to 2023 to reach 19 bcm. While consumption of natural gas and electricity generation plants decreased by 3% YoY, natural gas consumption in industry increased by 9%. In addition, while over TL 15 billion was invested by natural gas distribution companies in 2024, Türkiye's natural gas distribution network expanded by 8.4% YoY to 219,145 kilometers.

- No plans to raise electricity and natural gas tariffs in the next few months according to Energy and Natural Resources Minister, Alparslan Bayraktar. Stating that Türkiye had entered a new era in oil and natural gas exploration, Mr. Bayraktar stated that natural gas production would be stepped up with the support of Türkiye's first floating natural gas production platform, adding that the government aimed to increase Türkiye's daily natural gas production to 40 million cubic meters in 2028. He also stated that no price adjustment for electricity and natural gas tariffs was expected in the coming months.

- Uludağ Electricity Distribution (UEDAŞ) raises investment targets for 2025 by 70% compared to 2024, to TL 6.4 billion. With the planned investment, UEDAŞ aims to ensure energy infrastructure is safer and more resilient, while increasing system security. In this vein, UEDAŞ plans to allocate TL 5.5 billion on network investments and TL 800 million on other development projects**.**

- EMRA introduces new regulation on demand-side participation services in electricity market. Under the new regulation, the methodology for determining and monitoring consumption schedules and calculating the differences between actual consumption data and reported values will be presented for aggregators providing demand-side participation services, with fines in place where there is a deviation of more than 15% between reported amount and the actual consumption.

Foreign News

- Reports that USA will impose sanctions on countries that buy oil from Iran. U.S. President Donald Trump has stated that all purchases of oil or petrochemical products from Iran should be stopped, while stressing that countries that buy any products from Iran will be subject to secondary sanctions.

- European Union (EU) publishes its roadmap aimed at completely ending dependence Russian energy. The REPowerEU Roadmap aims to phase out imports of Russian natural gas, oil and nuclear energy from EU markets in a gradual and coordinated manner. The EU emphasizes that with the REPowerEU Plan implemented in 2022, the share of natural gas imports from Russia decreased from 45% in 2021 to 19% in 2023. However, impots of natural gas from Russia increased in 2024, and the Roadmap was prepared as a precautionary measure. The Roadmap aims to stop all the natural gas that had been imported from Russia in 2024 and block new contracts. However, EU countries are expected to draw up national plans outlining how they will contribute to phasing out energy imports from Russia by the end of 2025. While the EU aims to submit legislative proposals in June to support the Roadmap, the Roadmap aims to achieve a cleaner and more independent energy system.

- IEA publishes "Global Methane Monitoring 2025" report. The report states that fossil fuels are responsible for one third of methane emissions from human activities. Record levels of oil, natural gas and coal production with limited mitigation efforts will cause more than 120 million tonnes of methane emissions in 2024. The report states that 20 million tonnes of these emissions came from bioenergy production and consumption, with 8 million tonnes from abandoned mines. The IEA states that about 70% of methane emissions from the fossil fuel sector could be avoided at low cost and with existing technologies.

- IEA publishes its "Global Electric (EV) Vehicle Outlook 2025" report. According to the report, an additional 3.5 million EVs were sold in 2024 compared to 2023, while global EV sales exceeded 17 million. While China maintained its leading position in sales, there was a contraction in sales in Europe in 2024 with the decline of support for EVs. The IEA predicts that global EV sales will exceed 20 million by 2025 with Asian and Latin American EV markets becoming the new growth hubs. Although the report warns that uncertainties in trade and industrial policies and risks to the economic outlook may affect the use of EVs, the IEA expects EV sales to account for 40% of total car sales by 2030, compared to 20% in 2024. The IEA emphasizes that charging coverage, capacity and integration need to increase to achieve more widespread adoption of EVs.

- Meta investing in 650 MW of solar power capacity to support its growing AI operations. With the agreement entered into with the American power generation company, AES, solar energy projects will be carried out in Texas and Kansas.

- Organization of Petroleum Exporting Countries (OPEC) leaves its global oil demand growth forecast for 2025 unchanged at 1.3 million barrels per day. According to the Monthly Oil Market Report for May published by OPEC, oil demand is expected to grow by 1.3 million barrels per day in 2026, unchanged from the previous report.

- IEA publishes its Oil Market Report for May. According to the report, global oil demand is forecasted to grow by 740,000 barrels per day in 2025. The IEA raised its global oil demand forecast by 20,000 barrels per day compared to the previous month, stating developing countries will play a role in this increase. According to the IEA report, demand it expected to grow by 760,000 barrels per day in 2026.

- European Commission announces that award of around EUR 1 billion in grants to 15 projects to support renewable hydrogen. The grants are expected to support the production of around 2.2 million tonnes of renewable hydrogen over ten years and prevent more than 15 million tonnes of CO_2 emissions. According to the document published by the European Commission, hydrogen is expected to be produced in sectors such as transportation and chemicals.

- USA President Donald Trump signs executive order on the reform of the Nuclear Regulatory Commission. The executive order is aimed at increasing US nuclear power capacity from the current level of 100 GW to 400 GW by 2050, thus reducing dependence on foreign technologies, removing regulatory barriers and supporting the domestic nuclear industry.

- EU approaching its climate and energy targets for 2030. According to a statement by the European Commission, the EU is "well on track" towards achieving its target of a 55% cut in greenhouse gas emissions by 2030 when compared to 1990 levels. The European Commission states that emissions were 37% lower in 2023 compared to 1990, adding that member states are committed to reducing dependence on imported fossil fuels and increasing energy supply and infrastructure security according to their national plans. In order to achieve the target, it emphasizes that member states that have not yet submitted a national energy and climate plan (Belgium, Estonia and Poland) must submit their plans without delay.

- IEA publishes "Outlook for Biogas and Biomethane" report. The report evaluates the global potential and costs of biogas and biomethane through geographical analysis. While the report alludes to a that the sustainable production potential of 1,000 bcm equivalent for biogases, it predicts that costs will decrease by 20% with the potential to reach a 1,400 bcm equivalent by 2050 with product efficiency and technological learning. The IEA states that 80% of the sustainable production potential will be met by developing countries led by Brazil, China and India. However, the IEA emphasizes that investments would increase from the current level of USD 2 billion to USD 15 billion by 2050 for biogas and biomethane production to reach its potential.

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