TSKB ADVISORY SERVICES

Monthly Energy Bulletin

TSKB Economic Research

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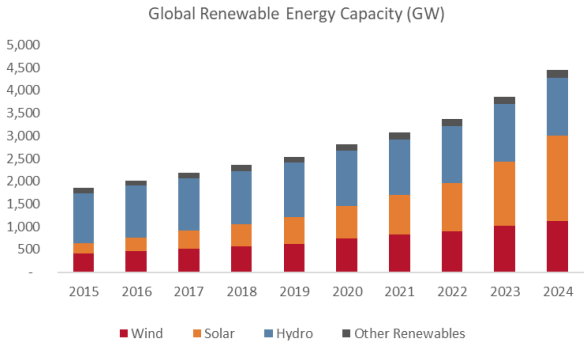
In 2024, global renewable energy capacity was 4,448 gigawatts (GW)

The International Renewable Energy Agency (IRENA) has published Renewable Energy Capacity Statistics for 2024. Accordingly, by the end of 2024, renewable energy capacity increased by 15.1% compared to 2023 to reach 4,448 GW, accounting for 46.4% of the total energy capacity. Solar energy accounted for the largest share within renewable energy capacity, at 1,865 GW, while hydroelectric capacity reached 1,283 GW and wind power capacity reached 1,113 GW. These were followed by bioenergy (151 GW), geothermal energy (15 GW) and wave energy (1 GW).



Source: IRENA, TSKB Economic Research
Other renewables include geothermal, bioenergy and marine energy.

Renewable energy capacity increased by 585 GW in 2024, with solar energy accounting for 452 GW of this increase. Capacity additions to wind energy amounted to 113 GW. Thus, increases in solar and wind energy capacity accounted for 96.6% of capacity additions in 2024.

While IRENA highlighted that 2024 was a record year for the increase in renewable energy capacity, it also drew attention to regional differences in the capacity increases. In the regional breakdown, Asia accounted for 72% of the new renewable energy capacity added in 2024, with 373 GW of this increase being in China. In Europe, renewable energy capacity increased by 70.1 GW, where Germany provided the largest capacity addition (18.8 GW).

The report states that the increase in renewable energy capacity in 2024 was the highest annual increase since 2000. However, it also emphasized that this increase falls short of the pace needed to achieve the goal of tripling global renewable energy capacity by 2030. At this rate of progress, with the growth rate recorded in 2024 maintained, renewable energy capacity will reach 10.4 terawatts (TW) by 2030, 7.2% short of the 11 TW target.

28.0 TWh	2,183.8 TL/MWh
March Gross Generation	Average MCP

2.9%

Daily average licensed electricity generation decreased by 2.9% MoM and increased by 0.5% YoY in March.

Click for details.

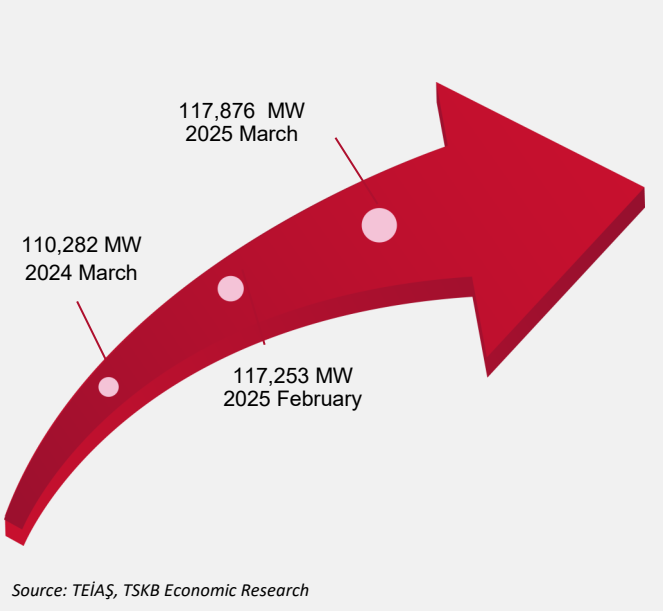
11.9%

Market Clearing Price (MCP) decreased by 11.9% MoM and by 0.3% YoY in March.

Click for details.

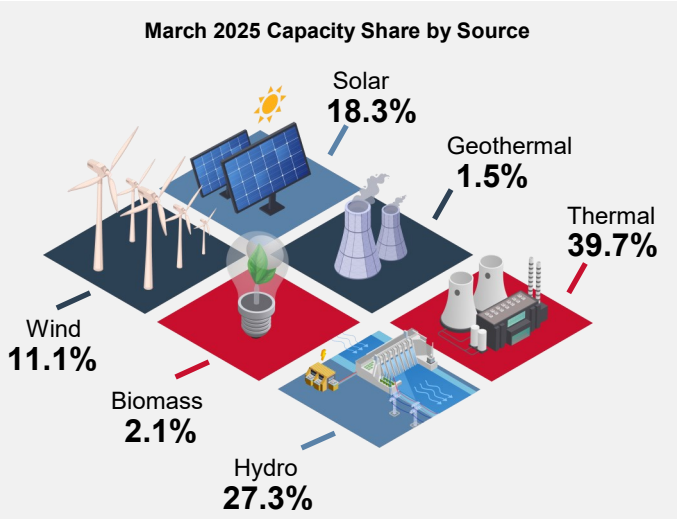
Installed Capacity Analysis

Türkiye's total installed generation capacity increased from 117,253 megawatts (MW) at the end of February to 117,876 MW in March. When compared to February, a net of 622.7 MW in installed capacity was commissioned in March with solar power plants accounting for 623.9 MW of this installed capacity. There was a decline of 1.2 MW in the installed capacity of power plants generating energy from renewable waste, but no change in the installed capacity of other power plants.



Source: TEİAŞ, TSKB Economic Research

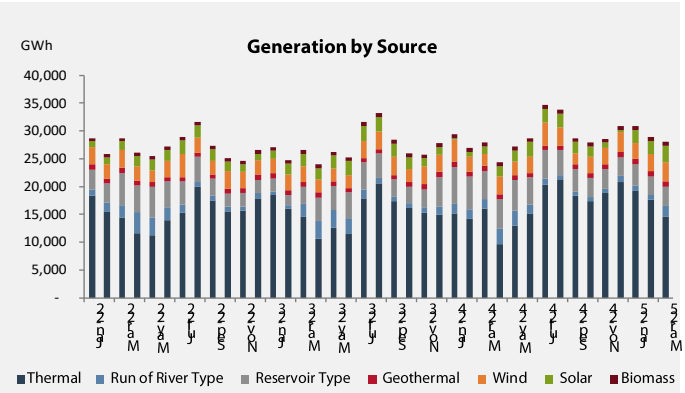
60.3% of the capacity in operation in March consisted of power plants generating electricity from renewable sources. Hydroelectric power plants accounted for 27.3% of Türkiye's total installed electricity capacity, while the combined share of wind and solar power plants in total installed capacity exceeded the share of hydroelectric power plants, at 29.4%.

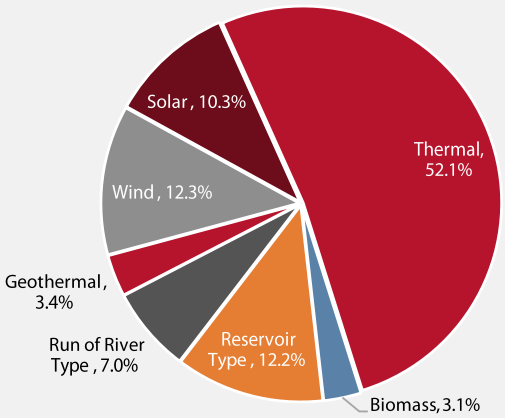


Source: TEİAŞ, TSKB Economic Research

Generation-Consumption Analysis

A total of 28.0 terawatthours (TWh) of electricity was generated in March 2025, compared to approximately 28.8 TWh in February 2025 with the average daily electricity generation for March decreasing by 2.9% compared to the previous month, while 0.5% higher than in the same period of the previous year.

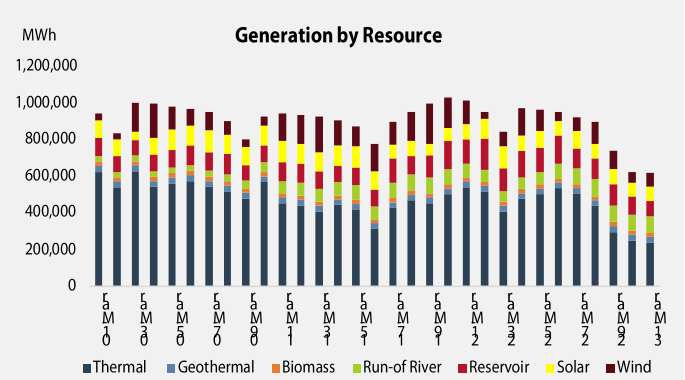




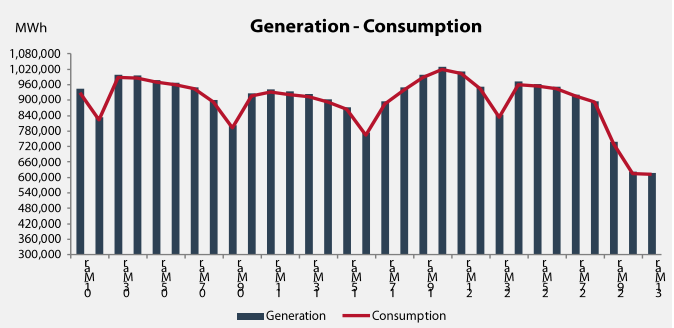
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Thermal power plants, which provided 63.5% of the electricity generated in February, accounted for 54.7% of total electricity generation in March. A source-based breakdown of electricity generation finds that hydroelectric power plants increased their share in total generation from 14.4% in the previous month to 19.2% in March. In the same period, solar power plants accounted for a 10.3% share of electricity generation, with geothermal power plants providing 3.4% of the total electricity.

Renewable energy plants in accounted for 43.5% of electricity generation in March, up from 36.5% in February. In the corresponding period, dam-type hydroelectric power plants contributed 12.3% of the total generation, while run-of-river type hydroelectric power plants accounted for 7.0% of total generation. In addition, the ratio of electricity obtained from wind and solar power plants in total electricity generation was recorded at 22.7%. In March, wind accounted for the second highest share of electricity based on renewables, after dam-type hydroelectric power plants, with a share of 12.3% in total electricity generation.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Daily electricity generation averaged 903,751 megawatthours (MWh) in March with the highest daily production during the month recorded on Thursday, March 20 at 1,029,298 MWh, and the lowest generation recorded on Monday, March 31 (617,764 MWh).

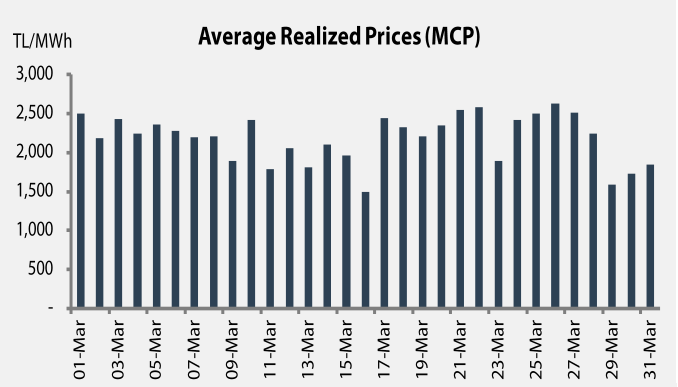
The average daily electricity consumption was 893,275 MWh during March, with the highest consumption recorded on Thursday, March 20 (1,018,310 MWh) and the lowest on Monday, March 31 (610,002 MWh).

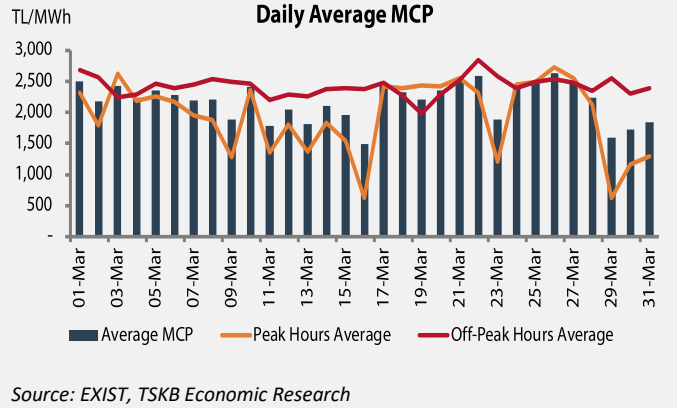
Electricity Price Analysis

In March, the daily average market clearing price (MCP) ranged between TL 1,496.7 and TL 2,627.1 per MWh. The average daily MCP in March was TL 2,183.8 /MWh. The highest daily average MCP was recorded on Wednesday, March 26 at TL 2,627.1 /MWh and the on Sunday, March 16 at TL 1,496.7 /MWh.

Looking at the hourly data, the MCP reached its maximum limit of TL 3,000 /MWh for a total of 35 hours in March and the minimum of TL 0 /MWh for 7 hours.

In terms of peak and off-peak hours, the average rate for peak hours (8AM-8PM) was 10.6% lower than the average value for all hours, recorded as TL 1,951.3 /MWh. The maximum limit of TL 3,000 /MWh was recorded 17 times during peak hours, while the lowest price of TL 0 /MWh was recorded for 7 hours during peak hours.

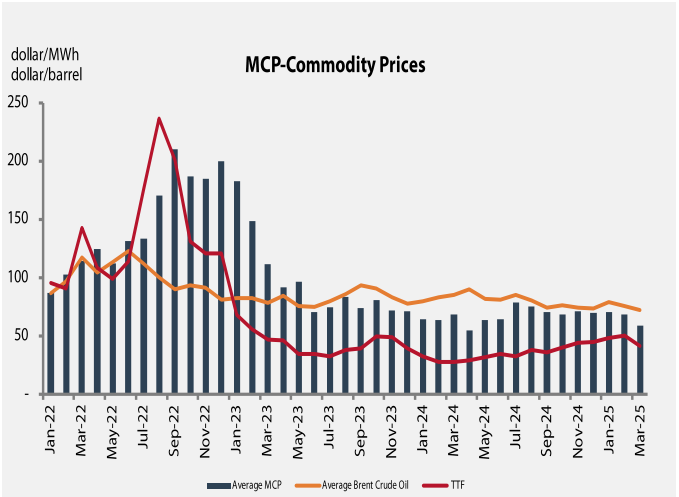




Source: EXIST, TSKB Economic Research

In the same period, the average off-peak rate (8PM-8AM) was TL 2,416.4 /MWh. The maximum limit of TL 3,000 /MWh was recorded for 18 hours during off-peak hours while the lowest off-peak rate of TL 1,348.4 /MWh, was recorded between 6AM and 7AM on Saturday, March 29.

The average MCP decreased from an average of USD 68.5 /MWh in February to an average of USD 59 /MWh in March, which was 13.9% lower than in the same period of the previous year.



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

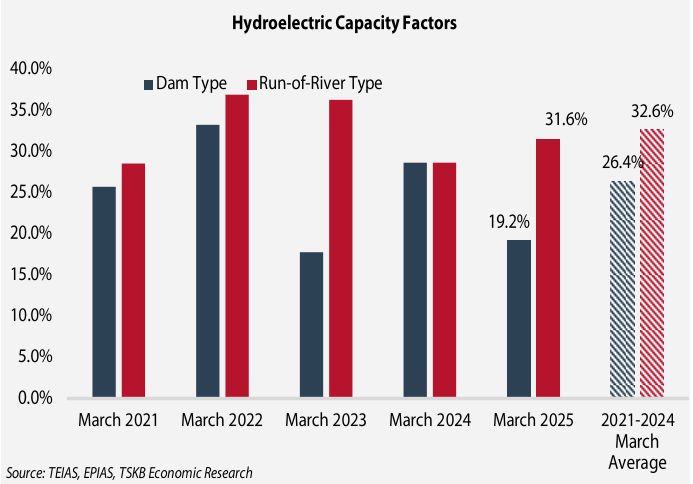
The price of a barrel of Brent crude oil decreased by 4.5% from an average of USD 75.4 in February to USD 72 in March, which was 15.6% lower than in the same period of the previous year.

The TTF natural gas contract price, which averaged USD 50.3 /MWh in February, decreased by 17.1% month-on-month to USD 41.8 /MWh in March, while still 49.8% higher than in the same period of the previous year.

Hydroelectric Capacity Factors

The capacity factors of dam and river type hydroelectric power plants in March 2025 were 19.2% and 31.6%, respectively. When compared to March 2024, these levels mark a decrease of 9.4 percentage points for dam-type hydroelectric power plants and an increase of 2.9 percentage points for run-of-river type hydroelectric power plants. Looking at the capacity factors of the months of March over the last 5 years, we note that the highest rate was recorded in March 2022.

The capacity factors of dam-type hydroelectric power plants were 7.2 percentage points lower than the average for March 2021-2024, while the capacity factors for run-of-river type power plants were 1 percentage point below the average.



Source: TEIAS, EPIAS, TSKB Economic Research

Global energy demand up 2.2% in 2024

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In its "Global Energy Outlook 2025" report, the International Energy Agency (IEA) stated that the growth in global energy demand in 2024 exceeded the average of the last decade, to come in at 2.2%. The IEA estimates that 0.3 percentage points of this 2.2% increase was due to extreme weather events, pointing out that electricity demand increased by 4.3% in the relevant period. This increase in electricity demand was down to easier access to the use of electricity-intensive appliances such as air conditioners, increased demand for electricity from electricity-intensive industrial production, digitalization, data centers and Artificial Intelligence, and the rising rate of electrification of end users.

According to the report, demand for fossil resources such as natural gas, oil and coal continues to grow, albeit at a slower pace. Natural gas exhibited the highest rate of growth of any fossil fuel (2.7%) during 2024, while demand for oil increased by 0.8% and coal by 1%. While China was the main driver of the increase in demand for natural gas and coal, intense heat waves in China and India were behind the increase in demand for coal.

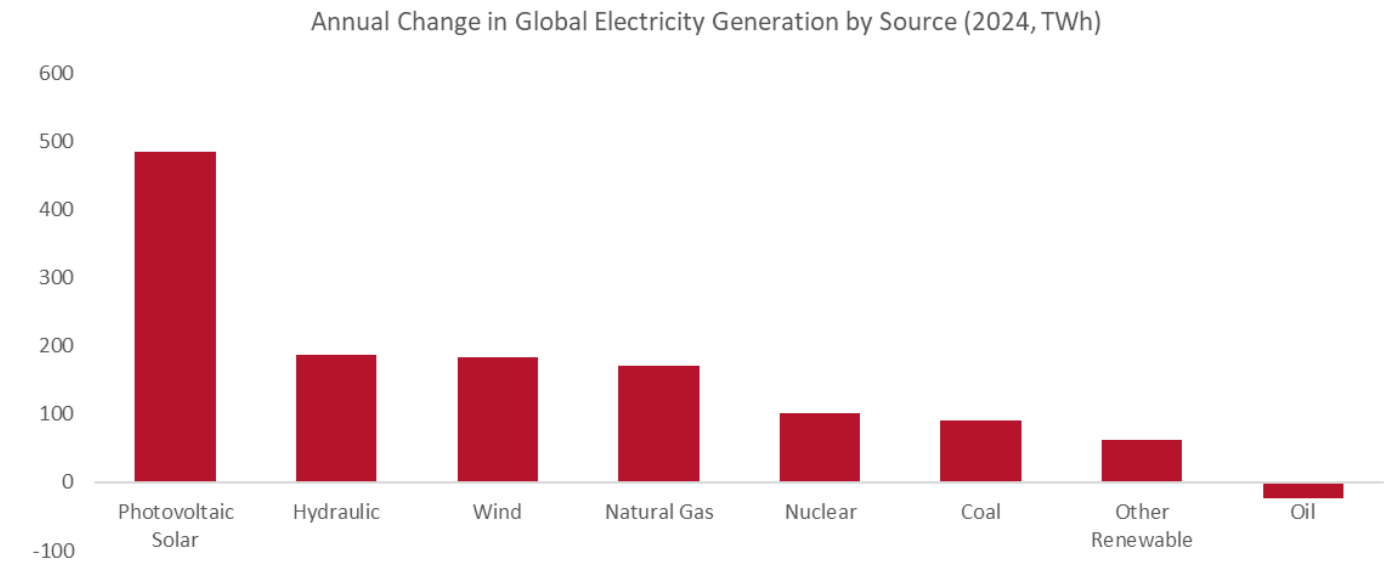
Developing and emerging economies account for more than 80% of global energy demand growth, with China, India and the United States recording the highest energy demand growth. The report drew attention to the slowdown in the rate of growth in energy demand in China when compared to the previous year, with less than 3% growth in 2024. The report emphasized that demand for energy in the European Union increased for the first time since 2017, excluding 2021 when demand had recovered in the wake of the Covid-19 pandemic.

One thing that stood out was that with the 4.3% increase in demand for electricity in 2024, China was responsible for more than half of this increase. Of the approximately 1,080 TWh increase in demand in 2024, China accounted for 553 TWh of this amount.

In developed countries, which recorded a decrease of 140 TWh in demand for electricity in 2023, it is noteworthy that there was an increase of 230.9 TWh in 2024. While the increase in electricity demand in the USA stands out among developed countries, high demand for air conditioning, growth in the data center sector and industrial production were among the important drivers of this increase.

So what about the growth in electricity supply? While it is noted that global electricity generation increased by 4% to 1,200 TWh in 2024, clean energy sources provided more than 80% of this increase. While renewable energy sources alone accounted for an increase of about 75%, photovoltaic solar power plants were the largest contributor to renewable energy, providing 485 TWh of generation. Solar power plants are followed by hydroelectric power plants with a contribution of 186 TWh with wind power contributing 184 TWh. Nuclear power plants, which are considered a stakeholder in clean energy sources, stand out with a share of approximately 4%. Fossil fuels, on the other hand, accounted for 20% share in electricity generation.

While all these figures support the IEA's narrative of advancing to the "Electric Age", they also confirm that China will be at the forefront of this journey. As electricity demand and generation grow, it appears inevitable that clean energy sources will play an even more important role in this growth going forward.



Source: IEA, TSKB Economic Research

Sector News

Local News

- Capacity payment of TL 1.05 billion to be made to 32 power generation plants within the scope of the capacity mechanism. According to the January list of payments to be made by the Turkish Electricity Transmission Company (TEİAŞ) within the scope of the capacity mechanism, 32 power generation plants will share a total capacity payment of TL 1.05 billion. In January, the highest payment, of TL 122.99 million, will be made to Hidro-Gen Energy Import, Export, Distribution and Trading Inc.

- Iğdır-Nakhchivan Natural Gas Pipeline opened. While the uninterrupted flow of natural gas to Nakhchivan through Türkiye started with the line, President Recep Tayyip Erdoğan stated that the 80-kilometer-long pipeline has a transportation capacity of up to 2 million cubic meters per day and that the line will meet all of Nakhchivan's natural gas needs for a minimum of 30 years. The Minister of Energy and Natural Resources, Alparslan Bayraktar, added that the next project would be the power line from Nakhchivan to Türkiye.

- USA to extend the Gazprombank exemption, as requested by Türkiye. According to Bloomberg, the exemption granted to Türkiye in Gazprombank sanctions has been extended until May.

- Production in Sakarya Gas Field to grow five-fold in 2028. According to statements from the Minister of Energy and Natural Resources, Alparslan Bayraktar, the natural gas needs of 3 million households are already met by production from the Sakarya Gas Field, and in 2028, all of residential natural gas used in Türkiye will be provided from the field.

- Authorized Supply Companies to purchase a minimum of 50% of the electricity they will provide for the consumers of the final source supply tariff from Electricity Generation Inc. (EÜAŞ), according to the decision taken by the Energy Market Regulatory Authority (EMRA) published in the Official Gazette.

Foreign News

- Europe "needs to increase its distribution network investments to EUR 67 billion by 2025". In an interview with the Anadolu Agency, Kristian Ruby, the Secretary General of the European Electricity Industry Association (Eurelectric) stated that Europe needs infrastructure modernization in order to have a strong electricity system, and emphasized that grid investments, currently EUR 34 billion, will need to increase. In addition, Kristian Ruby drew attention to the opportunities for cooperation between Europe and Türkiye in the process of electrification and transition to energy, adding that Europe may consider importing more electricity from Türkiye.

- Development of battery industry "has entered a new stage". According to a study carried out by the IEA, the global battery market continues to grow with increasing demand and falling prices, while regional and small markets are being replaced by global markets and standardization. While the study finds that China, which produces more than three-quarters of the batteries sold globally, will continue to be the largest producer, it emphasizes that countries such as Korea, Japan, and USA are also important players for the battery industry. The report adds that many battery manufacturers in Europe, where production costs are 50% higher than in China, have postponed or cancelled expansion plans due to uncertainties over profitability. While the IEA emphasizes the importance of diversifying the production and supply chain of batteries, it draws attention to the need for cooperation in the sector.

- Morocco approves USD 32.5 billion worth of green hydrogen projects. The projects aim to produce ammonia, steel and industrial fuels. The Moroccan government aims to export green hydrogen to the European Union as well as meet domestic demand.

- Organization of the Petroleum Exporting Countries (OPEC) leaves global oil demand growth forecast for 2025 unchanged at 1.4 million barrels per day. According to the Monthly Oil Market Report for March published by OPEC, oil demand will grow by 1.4 million barrels per day in 2026, similar to 2025.

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