ADVISORY SERVICES

Monthly Energy Bulletin

TSKB Economic Research

July 2024 #74

Ezgi İpek ipeke@tskb.com.tr

20 August 2024

34.28 TWh July Gross Generation	2,588.8 TL/MWh Average MCP

18.6%

Daily average licensed electricity generation increased by 18.6% MoM and 8.5% YoY in July

Click for details.

23.6%

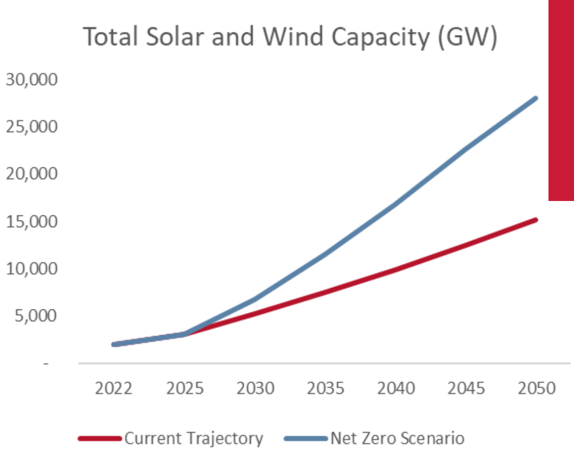
Market Clearing Price (MCP) increased by 23.6% MoM and 30.9% YoY in July.

Click for details.

14% YoY increase in renewable energy capacity in 2023 according to International Renewable Energy Agency (IRENA) figures

According to the 2024 Renewable Energy Statistics Report, published by IRENA, the total renewable energy capacity increased by 14% in 2023 when compared to 2022, reaching 3,864.5 gigawatts (GW). This growth highlights the rise in the share of renewable energy in generation capacity from 40.3% in 2022 to 43% in 2023. IRENA emphasized the gradual rise in the share of solar and wind energy in the total renewable energy capacity, with the share of these two sources in the total renewable energy capacity reaching 63% in 2023, compared to 58.1% in 2022. Solar energy capacity accounted for 36.7% of total capacity in 2023, with wind capacity comprising a 26.3% share.

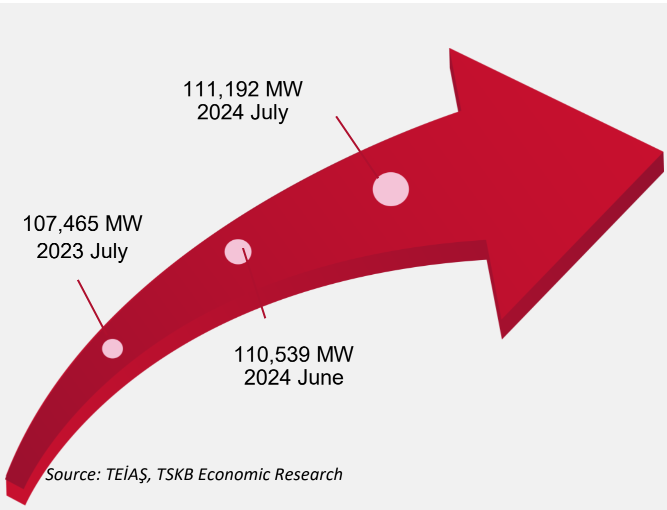
Meanwhile, the BP Energy Outlook 2024 Report stated that solar and wind energy capacities would increase by 2050. The report predicts that in the scenario where current energy policies continue, total solar and wind energy capacity will reach 15,205 GW by 2050, marking an annual average increase of 41.8% compared to 2022, while reaching 28,056 GW in a net zero scenario, with an annual average increase of 58.7%.



Resource: BP, TSKB Economic Research

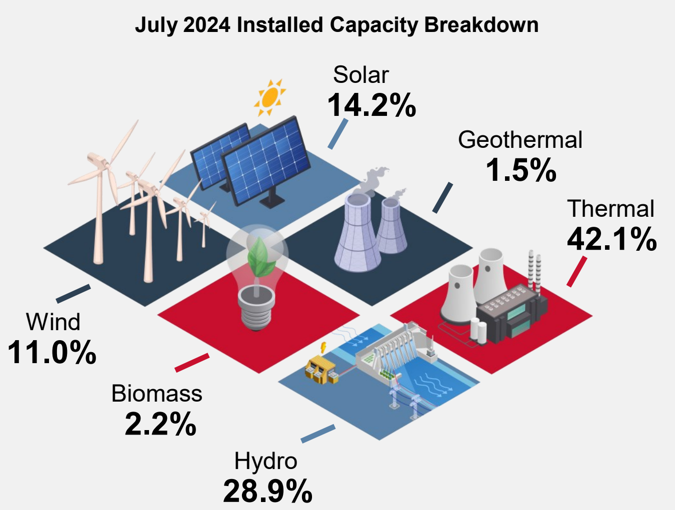
Installed Capacity Analysis

Türkiye's total installed generation capacity increased from 110,593 megawatts (MW) at the end of June 2024 to 111,192 MW in July. A net of 653 MW in additional generation capacity was commissioned in July, with 628.7 MW of this increase consisting of solar power plants and 20.8 MW from wind farms. In the same period, there was an increase of 0.1 MW in hydroelectric capacity and 3.4 MW in the generation capacity from natural gas fired and multi-fuel power plants. There was no change in the installed capacity for other resources.



Source: TEİAŞ, TSKB Economic Research

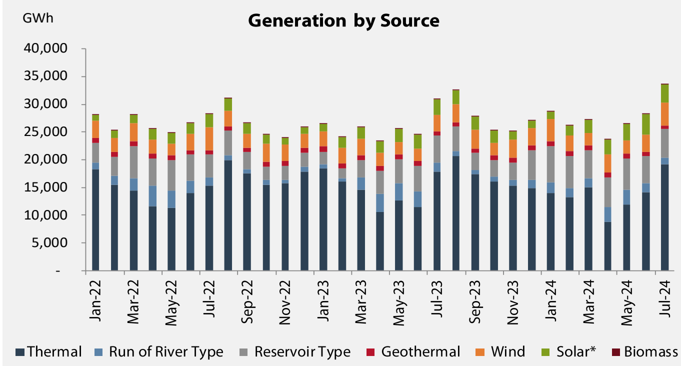
57.9% of the capacity in operation in June consisted of power plants based on renewable energy, marking a continuation in the share. Hydroelectric power plants constituted 28.9% of Türkiye's total electricity installed generation capacity, with wind and solar energy commanding a 25.2% share.

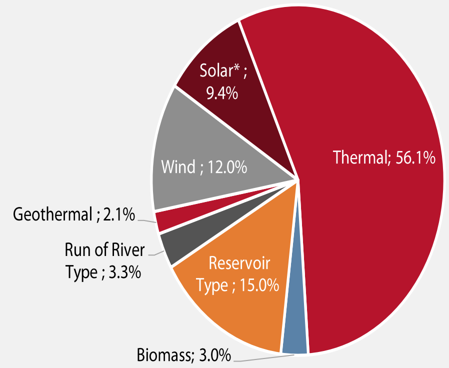


Source: TEİAŞ, TSKB Economic Research

Generation-Consumption Analysis

Total electricity generation increased from approximately 28.91 terawatthours (TWh) in June to 34.28 TWh in July while average daily electricity generation increased by 18.6% in July when compared to the previous month, and by 8.5% compared to the same period of the previous year.

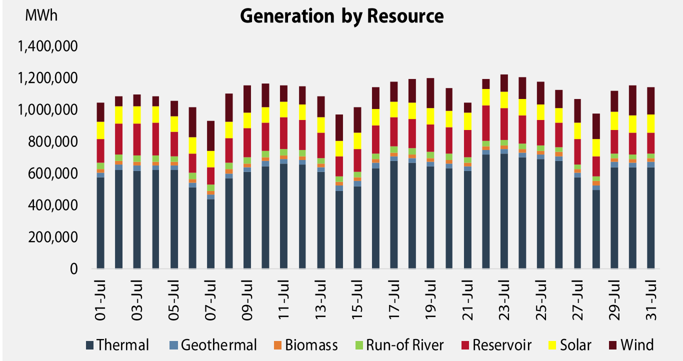




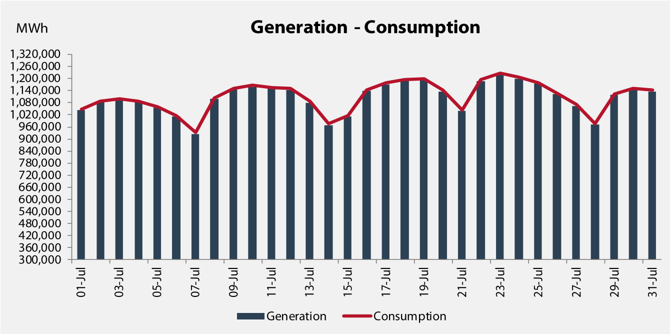
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Thermal power plants accounted for 49.0% of electricity generation in June and 56.1% of total electricity generation in July. Looking at the breakdown of electricity generation by source, the share of electricity generated by hydroelectric power plants decreased from 22.5% in June to 18.3% in July. Wind power accounted for 12% of total electricity generation with geothermal power plants providing 2.1% of the total electricity generated during the same period.

The share of renewable energy power plants in electricity generation declined from 48.6% in June 2024, to 41.8% in July 2024. Dam-type hydroelectric power plants contributed 15% to total generation during the month, with run-of-river hydroelectric power plants accounting for 3.3% of total generation. In addition, the proportion of electricity generated by wind and solar power plants in total electricity generation stood at 21.4%. Among renewable energy, wind was the second source of electricity generation in July, after dam-type hydroelectric power plants, with a share of 12.0%.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Daily electricity generation averaged 1,105,882 megawatthours (MWh) in July, with the highest generation during the month recorded as 1,221,842 MWh on Tuesday, July 23, with the lowest generation in the same period being 925,708 MWh on July 7.

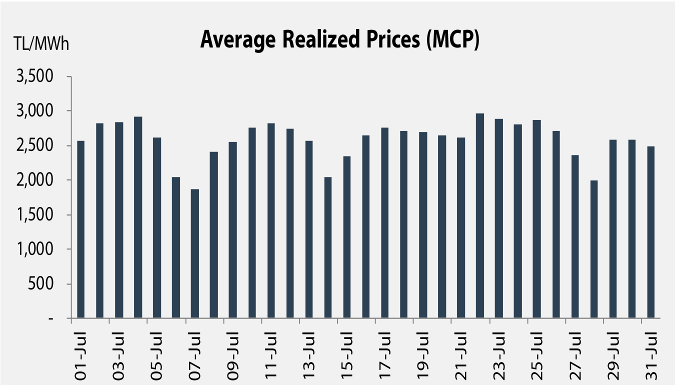
In the same period, daily electricity consumption averaged 1,111,126 MWh with the highest consumption during the month recorded on Tuesday, July 23, at 1,227,087 MWh, and the lowest electricity consumption recorded on Sunday, July 7, at 930,953 MWh.

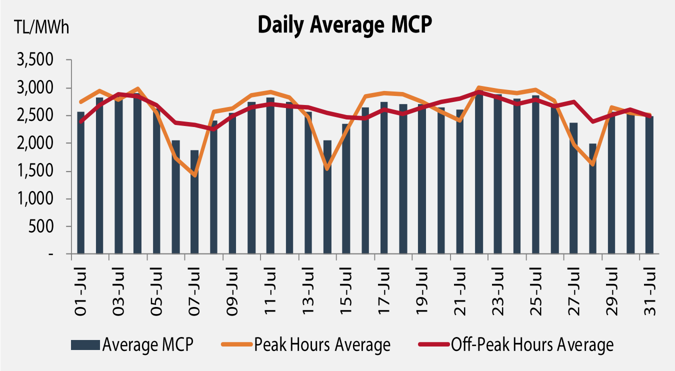
Electricity Price Analysis

The daily average market clearing price (MCP) varied between TL 1,870.00 and TL 2,600.0 /MWh in July with the daily MCP averaging TL 2,588.8 /MWh in July. The highest daily average MCP was recorded on Monday, July 22, at TL 2,595.2 /MWh with the lowest daily average MCP was recorded on Sunday, July 7, at TL 1,873.6 /MWh.

In terms of the hourly data, the MCP reached its ceiling level of TL 3,000.0 /MWh for a total of 185 hours in July. The minimum hourly electricity price of TL 437.25 TL/MWh was recorded on Sunday, July 7, between 11.00-12.00.

Looking at the daily MCP in July, the peak hours average (between 8AM and 8PM) was 1% below the all hours average value, being recorded at TL 2,563.8 /MWh. The ceiling price of TL 3,000.0 /MWh was reached 89 times during peak hours, with the price only at its minimum of TL 437.25 /MWh for 1 hour during peak hours.

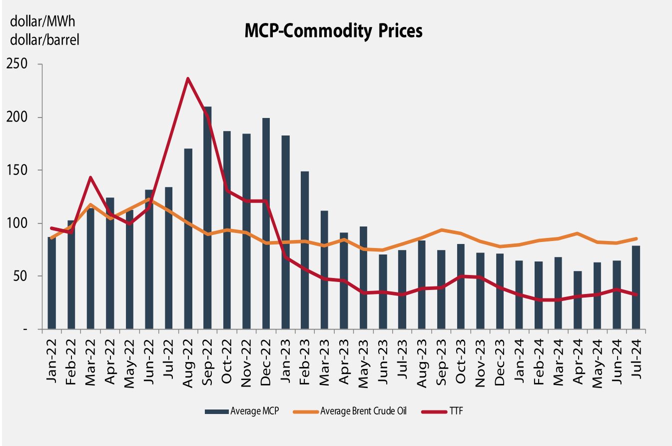




Source: EXIST, TSKB Economic Research

In the same period, the average price in off-peak hours (between 8PM and 8AM) was TL 2,613.9 /MWh. While the maximum limit price of 3,000.0 TL/MWh was realized for 96 hours during off-peak hours, the lowest price of TL 999.0 /MWh during off-peak hours was recorded on Sunday, July 14, between 7AM and 8AM.

The average MCP increased from USD 64.4 /MWh in June to USD 78.8 /MWh in July, marking an increase of 5.5% in dollar terms when compared to the same period of the previous year.



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

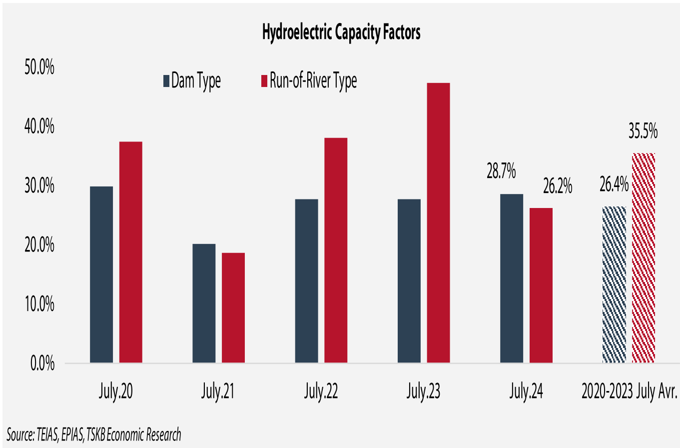
The price of Brent crude oil, which averaged USD 81.1 /bbl in June, fell to USD 85.6 /bbl in July, marking a 5.5% increase on a monthly basis. This average price was 6.9% higher than the same period of the previous year.

The TTF natural gas contract price increased by 12.3% from its June average of USD 37.2 /MWh to USD 32.5 /MWh in July. The TTF price was up by 0.1% compared to the same period of the previous year.

Hydroelectric Capacity Factors

Dam and run-of-river type hydroelectric power plants operated at capacity factors of 28.9% and 18.5% respectively in July. Compared to July 2023, this marked an increase of 0.7 percentage points for dam-based power plants but a decrease of 7.4 percentage points for run-of-river type power plants. When compared with the months of July over the last 5 years, there was a decrease of 4.7 percentage points for run-of-river type hydro-electric power plants compared to July 2020 - when the rate was highest - while the capacity factors for run-of-river type hydro-electric power plants was the lowest since July 2021.

Capacity factor of dam-type hydro-electric power plants operated are higher than the average between July 2020-2023, while run-of-river type hydro-electric power plants were operating at a capacity factors 3.7 percentage points below the average.



Sector News

Local News

- Energy Market Regulatory Authority (EMRA) announces increase in electricity tariffs due to increase in energy generation costs. According to the announced tariff list, residential tariffs have been increased by 38%, agricultural tariffs by 30%, tariffs for low level private and public consumers by 38% and high level public and private services sector subscribers by 20%. It was reported that the Minister of Energy and Natural Resources, Alparslan Bayraktar, emphasized the role of post-pandemic price increases in commodity and energy in the decision to raise tariffs, adding that the 60% state subsidy continued for residential subscribers.

- Spot electricity ceiling price raised from TL 2,700.0 to TL 3,000 /MWh. EMRA raised the ceiling price in the Day Ahead Market and Balancing Power Market to TL 3,000.0 /MWh while leaving the minimum price limit unchanged at zero.

- Ministry of Energy and Natural Resources determines potential renewable energy resource area (YEKA) for solar energy investments. The area is located in Eskişehir.

- Türkiye resumes electricity exports to Iraq for the first time in 3 years. Up to 300 MW of electricity will be sold to Iraq through exports via the existing interconnection line.

- Türkiye needs public and private sector financing for its energy transformation plan, according to the World Bank. It was reported that the World Bank Türkiye Country Director, Humberto Lopez emphasized that Türkiye's energy transformation plan was the most ambitious plan which the World Bank had seen, apart from China and India's. He stated that the cost of achieving the targets set in the National Energy Plan would be approximately USD 100 billion, with this cost covered by USD 80-85 billion of investments in production, USD 10 billion in transmission and USD 5-10 billion in distribution. While emphasizing the need for public and private sector financing to meet this amount, he stated that the World Bank was working together with the Ministry of Energy and Natural Resources on energy efficiency, transmission lines and roof panel installation projects.

- EMRA publishes "Electricity Market Sector Report" and "Natural Gas Market Sector Report" for May. According to the report, electricity consumption in May increased by 3.1% compared to May 2023 to reach 27.1 TWh, while standing at 24.2 TWh in April. Billed electricity consumption increased by 5.8% YoY to 21.1 TWh. However, natural gas consumption decreased by 25.9% to 3.7 bcm when compared to the same month of the previous year, with 34.3% of the consumed natural gas used by the industrial sector. Natural gas imports decreased by 21.9% compared to May 2023, to 2.9 bcm.

- HIT-30 High Technology Investment Program aiming to build a large capacity and holistic ecosystem that includes the entire value chain in high technology fields. President Recep Tayyip Erdoğan stated that the government had prepared a USD 5 billion incentive package aimed at increasing the electric vehicle production capacity to at least 1 million vehicles annually, and had determined battery production as a priority area for the automotive industry to maintain its competitiveness, while in this context, they aim to build a capacity of 80 gigawatt hours by 2030. President Erdogan added that up to USD 8,000 of grant support would be provided per MW for cell production investments for the establishment of a 15 GW capacity within the scope of a USD 2.5 billion package in solar energy, with USD 1.7 billion to be provided to support the production of offshore turbines and critical components in wind energy. He stated that USD 200,000 of resources had already been allocated.

Foreign News

- World Bank launches new program to increase energy efficiency. The Program to Increase Energy Efficiency in Europe and Central Asia, which will continue for 10 years, aims to provide a total of USD 2.4 billion of financing from the private sector and the development sector, including USD 1.46 billion of World Bank financing and USD 1.5 billion of private sector financing. The financing to be provided is aimed to be used for the development of public facilities, residential buildings and electrical devices used in homes, industrial modernization and district heating systems. The program, which supports regional initiatives that will accelerate energy efficiency to ensure a safe, affordable and clean supply of energy, will be applied to projects in Türkiye and Moldova in the first phase, where USD 300 million dollars of financing will be provided for the renovation of central government buildings in Türkiye.

- European Commission approves EUR 3 billion support plan with Sweden to support the expansion of capture and storage of biogenic carbon dioxide released during the combustion or processing of biomass. Under the plan, which will continue until the end of 2028, projects that eliminate biogenic carbon emissions will be supported and companies will be eligible for grants on the basis of the tonnage of the carbon they store. The support plan, which is compatible with Sweden's and the European Union's climate targets, is expected to cut Sweden's greenhouse gas emissions by 85% compared to 1990 levels by 2045.

- International Energy Agency (IEA) publishes its report "Global Review of Patent Data on Smart Grid Technologies". Emphasizing that smart grid technologies can reduce the need and costs of new infrastructure by increasing the flexibility and reliability of the electricity grid, the IEA analysed innovative trends and developments in the sector according to the European Patent Office (EPO) database. According to the report, smart grid innovations, which constituted 13% of energy sector innovations in 2022, are in line with IEA's 2050 Net Zero Scenario. While the IEA emphasized that Europe stands out as a center for smart grid technologies, it also stated that the center had shifted from Europe to Asia in recent years.

- European Commission approves EUR 11 billion public support package to support offshore wind energy installations in France. The plan will support the construction and operation of two offshore wind farms with a capacity of 1,000-1,200 MW in the South Atlantic and 1,400-1,600 MW in the Normandy region. These power plants are expected to generate a total of 10 TWh of electricity annually.

Organization of Petroleum Exporting Countries (OPEC) leaves its 2024 daily global crude oil demand growth forecast unchanged, forecasting an increase of 2.2 million barrels per day. According to its Monthly Oil Market Report for July, OPEC forecasts daily oil demand of 104.46 million barrels per day for 2024 – unchanged from the previous month, while also maintaining its forecast for growth of 1.8 million barrels per day.

- IEA publishes its July Oil Market Report. According to the report, global oil demand recorded its slowest quarterly increase since the last quarter of 2022, with a YoY increase of 710,000 barrels per day in the second quarter of 2024. While the IEA emphasized the impact of the fall in consumption in China on the slowing demand, it maintained forecast for global oil demand growth constant at 970,000 barrels per day. For 2025, it reduced its growth expectation by 50,000 barrels per day, now expecting growth of 980,000 barrels per day.

- IEA publishes Natural Gas Report for the third quarter of 2024. The report states that after the natural gas supply shock in 2022 and the gradual balancing in 2023, the natural gas market started to experience more significant growth in the first half of 2024. While global demand for natural gas is on course to grow by 3% YoY in the first half of 2024 according to the report, 60% of this growth will come from Asia. While the IEA emphasizes that the growth remains fragile despite the recovery in demand, it expects global demand growth to remain at 2.5% for the 2024 full year.

IEA publishes mid-year update of its 2024 Electricity Report. The report expects global electricity consumption to rise at its fastest pace in recent years during the 2024-2025 period, driven by strong economic growth, intense heatwaves and increasing electrification. The IEA expects a 4% increase in global electricity consumption for 2024, with strong demand for electricity in China, India and the USA largely behind this increase. Solar energy alone is expected to account for almost half of the growth in global electricity demand by 2025, with global electricity generation from solar and wind energy expected to surpass hydro-electric generation in 2024. The IEA predicts that global CO_2 emissions from electricity generation will remain broadly unchanged until 2025, falling by less than 1% in 2025, following a slight increase in power sector emissions in 2024.

- IEA publishes Carbon Accounting Report for Sustainable Biofuels. The report emphasizes the importance of carbon accounting, which refers to the assessment of greenhouse gas emissions and covers the entire biofuel supply chain, for policy makers while adding that transparent and internationally ac-

cepted carbon accounting must be developed and used to popularize sustainable biofuels. The report underlines that carbon accounting should be part of a broad policy portfolio that includes all sustainability criteria, underlining the importance of food and water security and biodiversity being protected by taking socioeconomic factors into account when setting policy.

- IEA publishes mid-year update of its 2024 Coal Report. According to the report, global coal demand in 2023 increased by 2.6% YoY, reaching a new record of 8.7 billion tonnes on the back of the high demand in China. Electricity generation from coal continued to be the largest source of electricity production worldwide, increasing by 1.9% to 10,690 TWh in 2023. Based on current assumptions, the IEA expects global demand for coal to remain level throughout 2024 and remain largely unchanged at approximately 8.7 billion tonnes in 2025.

- Development Finance Institutions (DFIs) in a position to spearhead a more sustainable and inclusive energy transition. According to the study conducted by the IEA, DFIs distributed an average of USD 24 billion annually in financing for energy sector projects between 2019-2022, with approximately 80% of this amount was used for clean energy projects. The IEA emphasizes that DFIs, beyond financing specific energy projects, play an important role in enabling investments with policy support and technical assistance that form the basis for the energy transition. DFIs increase project viability by sharing risks with private investors, especially in developing countries, through the use of concessional loans, guarantees, technical assistance and co-investment opportunities. Thus, DFIs accelerate the role of the private sector in the energy transition and enable partnerships with the public sector.

- IEA publishes report on Climate Resilience for Energy Security in Southeast Asia. The report states that while the effects of climate change are becoming increasingly evident in the region, frequent and intense heat waves change precipitation patterns, placing the region under especially high risk of flood. The IEA expects erratic rainfall with a continued rise in average temperatures, while the impact of extreme climate events will affect the entire energy supply chain, from fuel extraction and processing to electricity generation and distribution. While the IEA states that changing the planning and development of energy infrastructure may help mitigate climate impacts, it emphasized the importance of integrating climate resilience into energy policies.

- Electricity generation from wind and solar energy in the European Union (EU) surpasses generation from fossil fuels in the first half of 2024. According to the report published by Ember, wind and solar energy throughout accounted for 30% of electricity generated from across the EU received a 30% share, while the share of fossil fuels decreased to 27%. Despite the 0.7% increase in electricity demand on an annual basis, electricity production from fossil fuels, which recorded a 17% annual decrease in the first half, also caused a decrease in emissions. In this context, as a result of the decrease in electricity production from fossil fuels, emissions in the first half of the year decreased by 16.6% compared to the same period of 2023.

Economic Research

ekonomikarastirmalar@tskb.com.tr

MECLİSİ MEBUSAN CAD.
NO:81 FINDIKLI İSTANBUL 34427, TÜRKİYE
T: +90 (212) 334 50 50 F: +90 (212) 334 52 34