

Monthly Energy Bulletin

TSKB Economic Research

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World Energy Outlook 2023 report published

The International Energy Agency (IEA) published the World Energy Outlook report for 2023. According to the report, demand for fossil fuel will peak in 2030 due to the speed of the clean energy transformation, while the share of coal, oil and natural gas in global energy supply, currently around 80%, will decrease to 73% by 2030. While the report two years ago suggested the share of electric vehicles in new US vehicle registrations, currently 12%, would reach 50% by 2030, the report highlighted that the rise in the use of heat pumps in Europe and in solar energy and offshore wind energy resources in China would play an important role in limiting demand for fossil fuels.

Underlining China's pivotal importance in the growth in energy demand, the report reminds us of the importance of steps such as electrification from clean resources, improvement in efficiency and the transition to lower and zero carbon fuels that emerging and developing economies can use to achieve their national energy and climate goals.

Making a statement about the report, the IEA Executive Director Fatih Birol pointed out that governments, companies and investors should stand behind clean energy transitions rather than hindering them, while adding that the claims that oil and natural gas represent safe or secure options for the world's energy and climate future are now weaker than ever.

26.22
TWh

October Gross
Generation

2,249.8
TL/MWh

Average
MCP

4.7%

Daily average licensed electricity generation decreased by 7.6% MoM with an increase of 4.7% YoY in October.

[Click](#) for details.

12.1%

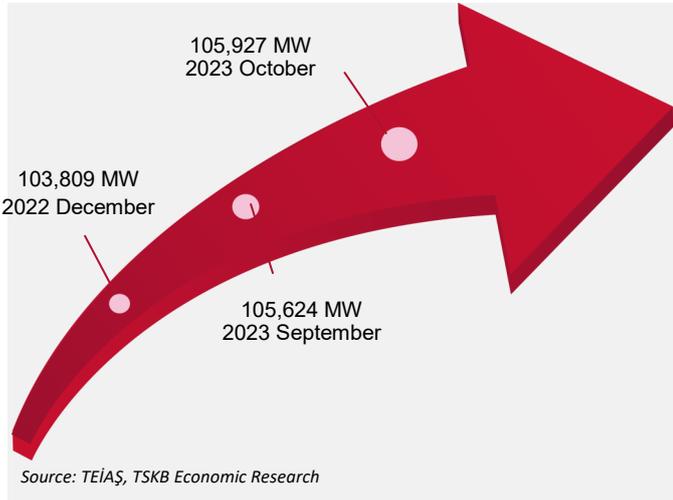
Market Clearing Price (MCP) increased by 12.1% MoM with a decrease of 35.2% YoY in October.

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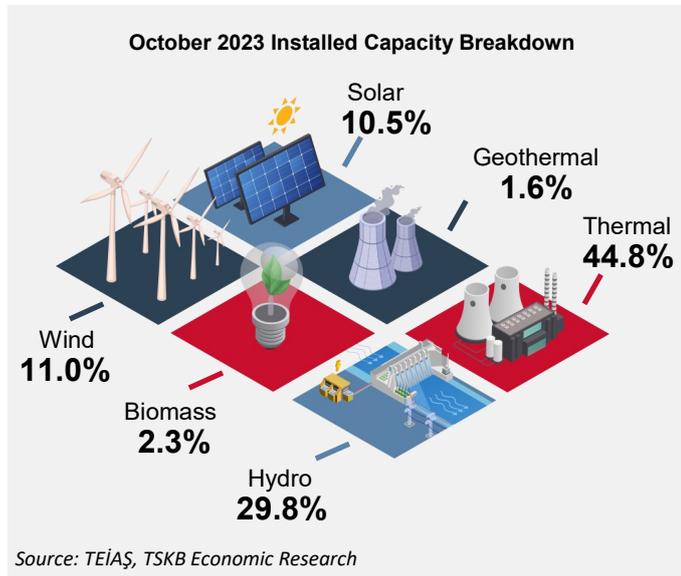


Installed Capacity Analysis

Türkiye's total installed generation capacity, which stood at 103,809 megawatts (MW) at the end of December 2022, had reached 105,927 MW by the end of October 2023. A total net installed capacity of 303.0 MW was commissioned in October, with 257.1 MW of this installed capacity provided from solar power plants. In the same period, there was an increase of 1.8 MW from hydroelectric power plants, 41.1 MW from wind power and 3.0 MW from renewable waste energy plants.

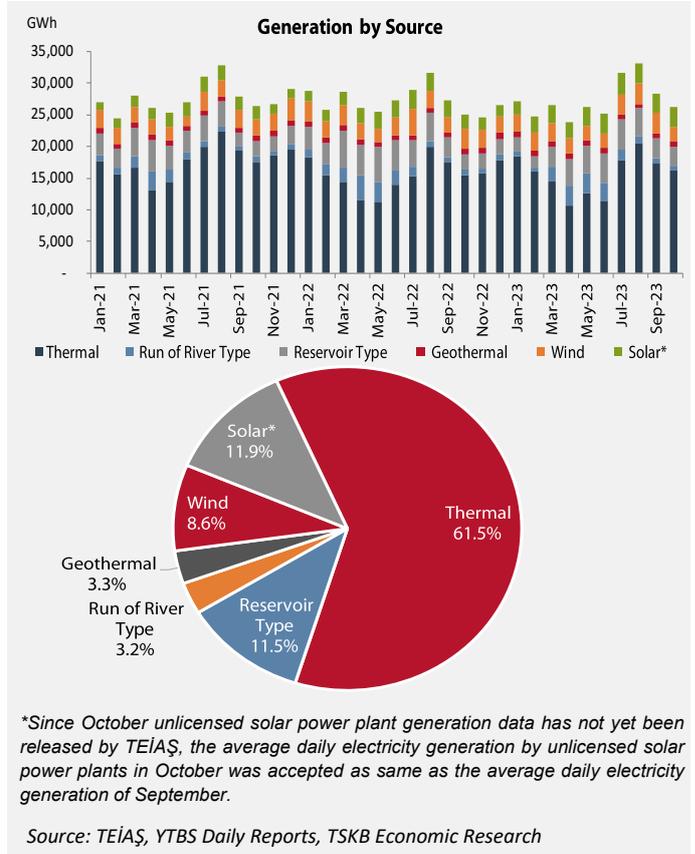


Of the power plants in operation in October, 55.2% in terms of total capacity were power plants generating electricity from renewable sources. Thus, the rate of renewable resources continued to increase and remained above 55%. Hydroelectric power plants constitute 29.8% of Türkiye's total installed generation capacity while wind and solar power accounted for 21.5% of total installed generation capacity.



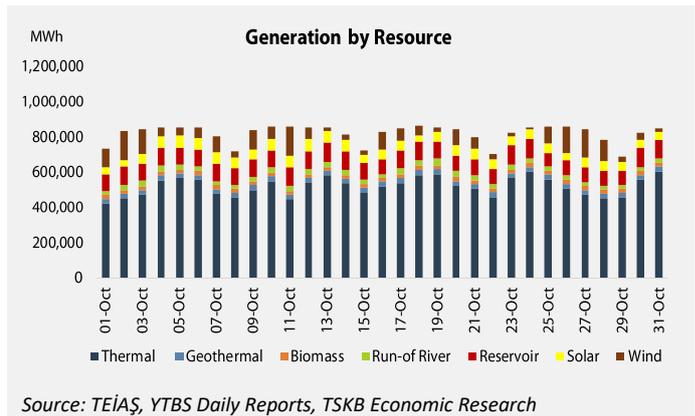
Generation-Consumption Analysis

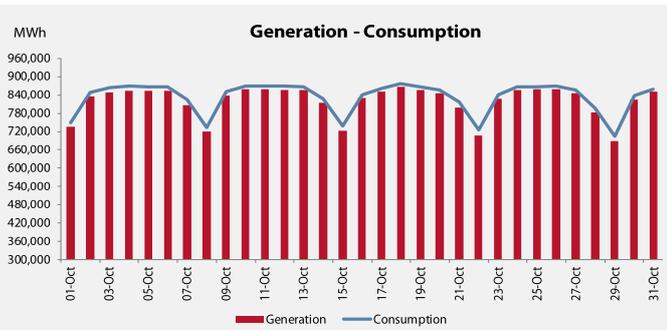
Total electricity generation decreased from approximately 28.4 terawatt hours (TWh) in September to 26.2 TWh in October, although average daily electricity production in October was up by 4.7% compared to the same month of the previous year, while down by 10.6% compared to the previous month.



Thermal power plants, which accounted for 61.2% of the electricity generated in September, met 61.5% of the total electricity produced in October. Looking at the source-based breakdown of the power plants, hydroelectric power plants generated 14.7% of the total electricity in October, compared to 13.7% in the previous month. In the same period, the share of electricity generated from wind farms decreased by 3.2 percentage points compared to the previous month, to 8.6%. Geothermal power plants provided 3.3% of the total electricity produced.

The share of renewable energy plants in electricity generation, which averaged 42.7% in 2022, stood at 38.5% in October 2023. During the relevant period, dam-type hydroelectric power plants provided an 11.5% contribution to total generation, with run-of-river type hydroelectric power plants accounting for 3.2% of total generation. In addition, wind and solar power accounted for 20.5% of total electricity generation. Solar power plants were recorded as the renewable energy source that produced the most electricity, with a share of 11.9% in electricity generation.





Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

In October, the average daily electricity generation from licensed power plants stood at 821,921 MWh, reaching a maximum of 865,967 MWh on Wednesday, October 18 and a minimum of 689,716 MWh on Sunday, October 29.

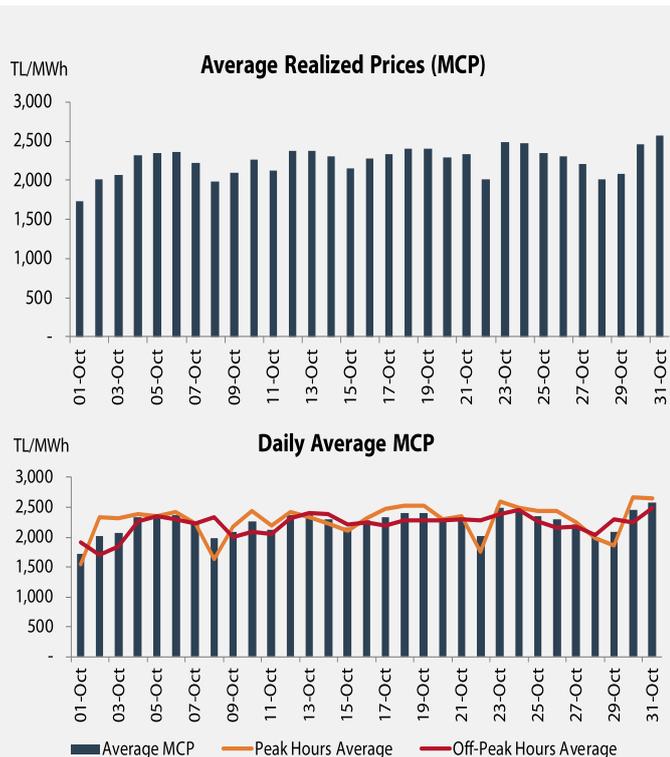
During the month, electricity consumption averaged 834,713 MWh, with a maximum of 878,940 MWh recorded on Wednesday, October 18, and the minimum on Sunday, October 29, when the consumption stood at 705,378 MWh.

Electricity Price Analysis

The daily average market clearing price (MCP) varied between TL 1,725.0 /MWh and TL 2,580.0 /MWh in October. The MCP averaged TL 2,249.8 /MWh in October with the highest daily average MCP recorded on Tuesday, October 31, at TL 2,576.4 /MWh and the lowest daily average MCP recorded on Sunday, October 1, at TL 1,728 /MWh.

Looking at the hourly data, MCP reached its determined maximum price limit of TL 2,700.0 /MWh for a total of 111 hours in October, while dipping to the minimum hourly electricity price of TL 500.0 /MWh on Sunday, October 1, between 12PM and 1PM.

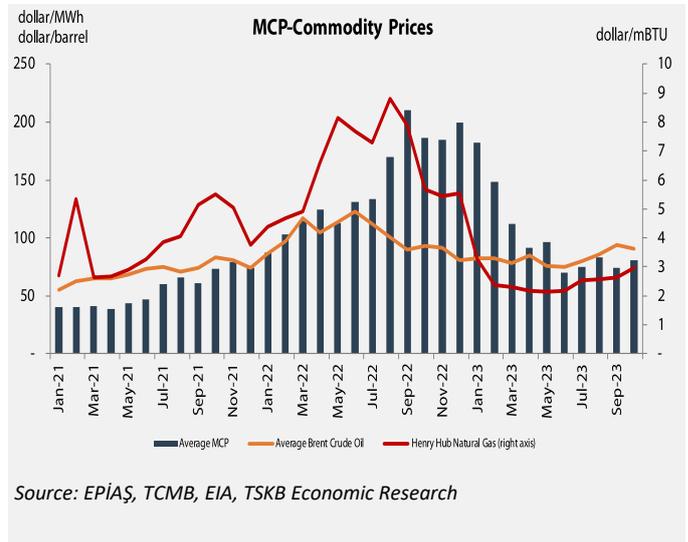
Looking at the daily MCP levels, the peak hours average (between 8AM and 8PM) was 1.4% higher than the all hours average to be recorded at TL 2,281.5 /MWh. The maximum limit price of TL 2,700.0 /MWh was recorded for 91 hours during peak hours, while dipping to the lowest price of TL 500.0 /MWh for one hour during peak hours.



Source: EXIST, TSKB Economic Research

In the same period, the average off-peak hours rate (between 8PM and 8AM) was TL 2,218.2 /MWh. The maximum limit price of TL 2,700.0 /MWh was realized for 20 hours during off-peak hours with the lowest price of TL 1,250.0 /MWh during off-peak hours recorded between 4-5AM and 6-7AM on Monday, October 2.

The MCP averaged USD 74.4 /MWh in September, increasing to USD 80.8 /MWh in October - 56.7% lower than in the same period of the previous year in dollar terms.



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

Average Commodity Prices

The barrel price of a barrel of Brent oil, which averaged USD 93.7 in September, fell to USD 90.8 in October, a decrease of 3.1% on a monthly basis and 2.7% lower than the same period of the previous year.

The Henry Hub natural gas contract price, which averaged USD 2.64 /mBtu in September, increased by 12.9% on a monthly basis to reach USD 2.98 /mBtu with a decrease of 47.3% observed compared to the same period of the previous year.





Sector News

Local News

- **Türkiye may provide support to the manufacture of clean energy technologies.** In his statement, Fatih Birol, the Executive Director of the IEA, stated that industry has entered an era of manufacturing new clean energy technologies adding that Türkiye may identify areas where it has a competitive advantage and play an important role in these areas. Reiterating that Türkiye offers very substantial industrial and manufacturing potential, Director Birol said that Türkiye could meet both its own needs and the needs of some other countries by manufacturing clean energy technologies. (October 31, 2023)

- **European Union (EU) Commissioner for Energy, Kadri Simson emphasises EU's focus on increasing cooperation opportunities with Türkiye.** Speaking at the meeting organized by the Turkish Wind Energy Association (TÜREB) in cooperation with WindEurope, Commissioner Simson said, "Turkish companies are one of the main partners of EU turbine manufacturers. Türkiye has ambitious plans to increase wind power, including offshore generation. The Turkish market is highly important for EU producers. The European Union hopes that the support we provide EU producers of wind generation will also benefit Türkiye. You also know that you can rely on the solid production foundation of a reliable partner. We are ready to work with our Turkish partners to overcome the current challenges in this field, facilitate the integration of wind energy and increase production capacity in this field." he said. (October 27, 2023)

- **Grant agreement signed with the International Bank for Reconstruction and Development (IBRD) for offshore wind farm projects.** According to the agreement published in the

Official Gazette, the IBRD will provide a EUR 7.98 million grant to Türkiye to be used for the development of offshore wind farms. According to the agreement, the grant will expire on May 31, 2025. (October 26, 2023)

- **Surplus electricity generated from unlicensed power plants in the earthquake zone to eligible to be sold.** According to a decision taken by the board of the Energy Market Regulatory Authority (EPDK) published in the Official Gazette, all excess electricity generated in unlicensed electricity generation facilities that entered operation in 2023 in provinces where a state of emergency and/or disaster area had been declared can be sold. In addition, unlicensed electricity production facilities in these provinces may sell more excess electricity than other provinces. (October 25, 2023)

- **Renewable Energy Resource Area (YEKA) competitions come to the forefront for the development of offshore wind energy.** According to the 'Offshore Wind Energy Tenders: Global Trends and Recommendations for Türkiye' report prepared in cooperation with the SHURA Energy Conversion Center and Turkish Wind Energy Association (TWEA), an effective YEKA mechanism needs to be established for the development of offshore wind energy in Türkiye. While the report emphasizes the importance of developing projects in accordance with the international environmental and social standards and considering the environmental and social impacts comprehensively before the energy potential in these competitions where planning the areas where the projects will be established, it also underlines that domestic parts need to be used in the projects, that a lasting and stable Energy Supply Agreement should be concluded and that an environment which fosters competitive pricing should be established. (October 24, 2023)

- **Deadline for applications for the Renewable Energy Resources Support Mechanism for 2024 set at 30 November 2023.** In the statement issued by the EPDK, it was stated that legal entities with production licenses who seek to benefit from the mechanism must apply by 30 November 2023 at the latest. (October 18, 2023)

- **EPDK suspends applications for storage electricity generation facilities.** According to the decision published in the Official Gazette, EPDK temporarily suspended storage electricity generation facility pre-license applications. However, according to the report published by BloombergHT on the subject, a total of 23.8 gigawatts (GW) of storage capacity was allocated to 399 facilities among the applications that had been submitted as of November 19, 2022, while the evaluation process continues for 256 applications. In the same regulation published in the Official Gazette, some of the obligations placed on associate license holders in electricity generation have also been abolished including the obligation to take an expropriation decision regarding water retention areas in hydroelectric power plants and the obligation to carry out allocation procedures for the area where the production facility will be established in nuclear power plants. The amendment has also introduced a provision that offers those with the right to use wind farm sites the right to establish unlicensed production facilities (October 16, 2023).

- **Türkiye aims to reduce energy intensity by more than 16% by 2030.** In his speech, the Deputy Minister for Energy and Natural Resources, Zafer Demircan, expressed the importance of energy efficiency, adding that the government aimed to reduce energy intensity by more than 16% between 2023 and 2030. Stating that the government was seeking to reach the net zero target between 2035 and 2053 through the use of renewable energy sources and nuclear energy, Mr. Demircan added that Türkiye would have 20 GW of capacity in nuclear power by 2053. He added that the government attached importance to establishing more renewable energy capacity, creating nuclear capacity and ensuring energy efficiency while reaching the net zero target. (October 12, 2023)

- **"Türkiye-US Intergovernmental Energy and Climate Dialogue Program" planned to get underway in November.** The Minister of Energy and Natural Resources, Alparslan Bayraktar, said in his statement that there was US investors and financial circles had expressed interest in Türkiye and that they planned to launch a new mechanism, the "Türkiye-US Intergovernmental Energy and Climate Dialogue Program", in November. Mr. Bayraktar, who also provided information on Türkiye's energy agenda, stated that October 29, 2024 had been set as the commissioning date for the first reactor in the Akkuyu Nuclear Power Plant, adding that the government was seeking an agreement with China within the next few months for the construction of a nuclear power plant in Thrace. He also stated that negotiations were continuing on the transportation of Israeli natural gas to European countries through Türkiye, with 40 million cubic meters of natural gas per day to be taken into the system in the Sakarya natural gas field within the next few years. (October 6, 2023)

- **Iraq-Türkiye Oil Pipeline to re-open this week.** In his statement, the Minister of Energy and Natural Resources Alparslan Bayraktar stated that the Iraq-Türkiye Oil Pipeline, which was shut for repairs following the earthquakes which struck the Kahramanmaraş area of Türkiye on February 6, as well as

floods and similar disasters, was now ready to open again this week. Mr. Bayraktar stated that the pipeline would be able to supply 500,000 barrels of oil per day to the global oil markets once it opens, adding that as of today, 2 million barrels of oil per day pass through the straits. (October 3, 2023)

- **Increase in electricity tariffs for industrial and commercial subscribers.** EPDK announced the electricity price tariffs that will enter force from October 1. The announced tariffs mark a 20% increase for industrial and commercial subscribers, while there is no change in electricity tariffs for residential subscribers. (October 2, 2023)

- **Increase in prices of natural gas for industry and power plants.** According to the statement issued by the Petroleum Pipeline Corporation (BOTAŞ), the natural gas tariff for electricity generation and the sales price of natural gas used in large industrial enterprises and small and medium-sized enterprises were increased by 20%. According to the announced tariff, the tariff for industrial subscribers was determined as TL 8,549 per 1,000 cubic meters of natural gas for stage 1 and TL 11,374 for stage 2. Based on the tariff for electricity production, the price of 1,000 cubic meters of natural gas will be TL 12,000. There was no change in the wholesale price of natural gas for residential use. (October 2, 2023)

Foreign News

- **Global oil demand expected to reach 101.9 million barrels per day in 2023.** According to the October Oil Market Report published by the IEA, it is forecasted that global oil demand will increase by 2.3 million barrels per day in 2023 to reach 101.9 million barrels, with the impact of the growth in demand in China, India and Brazil. The report also sets out that global oil demand is expected to increase by 900,000 barrels per day in 2024 to reach 102.7 million barrels per day. In its September report, the IEA had set out forecasts for global oil demand of 101.8 million barrels per day in 2023 and 102.8 million barrels per day in 2024. (October 18, 2023)

- **80 million km of power lines need to be replaced or added by 2040.** According to the "Electricity Grids and Secure Energy Transitions" report published by the IEA, 80 million kilometers of power lines will need to be replaced or added by 2040 to meet national climate targets and support energy security. The report points out that electricity grid investments, which have not kept pace with investments in renewable energy sources such as wind and solar, should double by 2030 and will need to exceed USD 600 billion per year. According to one scenario explored in the report, if grid investments remain



slow, a slower introduction of renewable energy will increase fossil fuel consumption, with the result that cumulative carbon dioxide emissions between 2030 and 2050 could be up to 60 billion tonnes higher. The report also points out that delays in grid investment and reform will increase global carbon dioxide emissions, slow down energy transitions and lead to a shift away from the 1.5°C target. (October 17, 2023)

- US Energy Information Administration (EIA) revises oil price forecast downwards. In its "September 2023 Short-Term Energy Outlook Report", the EIA set out its expectation that the Brent oil price would decrease by 0.4% compared to the previous estimate, to USD 84.09 /bbl by the end of the year. However, the average barrel price of Brent oil is expected to edge up to USD 94.91 /bbl in 2024 according to the report in what was an upward revision from the previous estimate of USD 84.09 /bbl. Meanwhile, the EIA estimates that global consumption of oil and liquid fuels will stand at 100.9 million barrels per day in 2023 and 102.2 million barrels per day in 2024. In the previous month, the forecasts for global oil and liquid fuels consumption had been predicted to be 101.0 million barrels per day in 2023 and 102.3 million barrels per day in 2024. (October 12, 2023)

- Number of wind energy technicians expected to increase to 574,175 in 2027. The Global Wind Workforce Outlook published by the Global Wind Organization (GWO) and the Global Wind Energy Council (GWEC) predicts that the number of technicians working in the wind energy sector will increase from 489,600 in 2022 to 574,175 in 2027. The report expects annual wind energy additions to increase from 78 GW in 2022 to 155 GW in 2027, with total global wind energy capacity reaching 1,581 GW by the end of 2027. (October 12, 2023)

- Methane emissions need to be reduced "urgently" to limit global warming to 1.5°C. According to the report entitled "The Imperative to Cut Methane from Fossil Fuels" prepared by the IEA, the United Nations Environment Program (UNEP) and the Climate and the Clean Air Coalition (CCAC), there must be deep reductions in carbon dioxide emissions as well as reduction of methane emissions from fossil fuels in order to achieve global climate targets, and these reductions need to be achieved quickly. The report also emphasizes that rapidly cutting methane emissions will have a greater impact than removing all of the world's fossil fuel-powered cars and lorries from the roads, and that it could also prevent 1 million premature deaths, 90 million tonnes of crop loss and 85 billion working hours due to ozone exposure. (October 12, 2023)

- European Council adopts target of 42.5% of energy consumption to come from renewable resources by 2030. The Renewable Energy Directive adopted by the Council aims to increase the share of renewable energy in the total energy consumption of European Union countries to 42.5% by 2030, reaching 45% with an additional indicative increase of 2.5%. Accordingly, member countries will choose between a binding target of reducing greenhouse gas intensity resulting from the use of renewable energy in the transportation sector by 14.5% by 2030 and a binding share of renewable energy in final energy consumption of at least 29%. While the Renewable Energy Directive predicts that industry will increase its use of renewable energy by 1.6% annually, it states that member countries have agreed that 42% of hydrogen used in industry should come from non-biological renewable fuels by 2030 and 60% by 2035. However, while an indicative target has been set for at

least 49% of the share of energy required in buildings to come from renewable energy by 2030, the share of renewable energy in heating and cooling in each country is planned to gradually rise by 0.8% per year until 2026 and then by 1.1% per year between 2026-2030. (October 10, 2023)

- Global oil demand to reach 116.0 million barrels per day by 2045 according to the Organization of the Petroleum Exporting Countries (OPEC). According to the "Global Oil Outlook 2045" report published by OPEC, it is estimated that global oil demand, which stood at 99.6 million barrels per day in 2022, will increase to 110.2 million barrels per day in 2028 and 116.0 million barrels per day in 2045. Pointing out that demand for primary energy sources, excluding coal, will increase until 2045, the report states that oil will maintain the highest share in global energy production at 29.5% in 2045. The report also predicts that the share of fossil fuels, whose share in global energy production stood at 80% in 2022, will decrease to 69% in 2045 due to the decrease in the use of coal. (October 10, 2023)

- Natural gas market to grow slowly until 2026. In its "Medium-Term Natural Gas Report", the IEA forecasts that the growth in global natural gas demand, which averaged 2.5% per year between 2017-2021, would average 1.6% between 2022-2026. According to the report, total natural gas consumption in the Asia Pacific, Europe and North America regions, which peaked in 2021, will decrease by an average of 1% per year in the 2022-2026 period, with global production of liquefied natural gas to increase by 25% between 2022 and 2026. (October 10, 2023)

- Slight increase in global electricity sector emissions in first half of 2023. According to the "Global Electricity Sector Mid-Year Analysis 2023" report published by Ember, although wind and solar energy increased their share in electricity supply, emissions from the global electricity sector increased by 0.2% in the first half of 2023 compared to the same period of the previous year. The reason for this limited increase in emissions was the decrease in the electricity generation from hydroelectric power plants affected by climate change. According to the report, while a 17% decrease in electricity sector emissions was recorded in the EU countries with a 12% decrease in Japan, there was a 7.9% increase in emissions in China. The total share of wind and solar energy in electricity generation reached 14.3% in the first half of 2023 while the proportion of electricity generated from hydroelectric power plants decreased by 8.5% compared to the same month of the previous year. (October 9, 2023)

- More investment needed to reduce energy prices. Heysem Faisal al-Gays, the President of the OPEC, stated that the oil sector would need at least USD 12 trillion in investment by 2045 if an increase in global energy prices is to be avoided. Al-Ghais also warned that underinvestment in the oil sector would be dangerous. Additionally, in an interview with the Financial Times, US Climate Envoy John Kerry described the energy transition as a new industrial revolution, and that it was critical for the fossil fuel industry to be at the table in this transformation and to embrace commitments to reach net zero by 2050. (October 4, 2023)



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