ADVISORY SERVICES

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TSKB Economic Research

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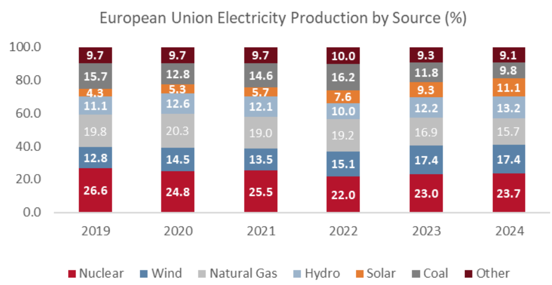
Solar energy capacity in Türkiye has doubled in 2.5 years, exceeding its target for 2025

According to a new study conducted by Ember Climate, solar energy capacity in Türkiye reached 19.6 gigawatts (GW) by the end of 2024, with 90% of new installations in this period being unlicensed power plants established for self-consumption. Moreover, the report also finds that in the last 2.5 years, solar and wind energy generation have prevented natural gas imports of USD 15 billion, contributing to Türkiye's energy independence. While Ember Climate emphasized that Türkiye could increase the momentum in solar energy by drawing on the potential for floating, storage, hybrid and rooftop solar energy, it highlights that there are storage solar and wind energy projects amounting to approximately 33 GW have already received preliminary licensing, and that the rapid progress in the sector could also bring Türkiye's more ambitious energy targets within reach going forward.

In addition, in its "European Electricity Outlook 2025" report, Ember Climate stated that EUR 59 billion of fossil fuel imports had been avoided in the European Union (EU) since 2019 with wind and solar energy capacities. The report emphasized that growth in the electricity sector in the EU was gaining pace with the electricity transition continuing rapidly in 2024. Accordingly, the share of renewable energy in the EU's electricity generation reached 47% in 2024, up from 34% in 2019. The amount of electricity generated from solar energy surpassed generation from coal for the first time in 2024, with an 11.1% share, while electricity generated from natural gas continued to decline for the fifth year in a row.



Source: Ember Climate, TSKB Economic Research
Other includes biofuels, other renewables and other fossil fuels.

The report also notes that the increasing weight of renewables in the electricity sector in the EU has contributed to reducing electricity-related emissions to less than half of their 2007 peak. Ember Climate emphasized issues such as flexibility, grid infrastructure and faster expansion of electrification in order to sustain the growth of clean energy sources, while highlighting the need for storage and demand flexibility for solar energy.

30.4 TWh	2,508.8 TL/MWh
January Gross Generation	Average MCP

1.6%

Daily average licensed electricity generation decreased by 1.6% MoM and increased by 3.4% YoY in January.

Click for details.

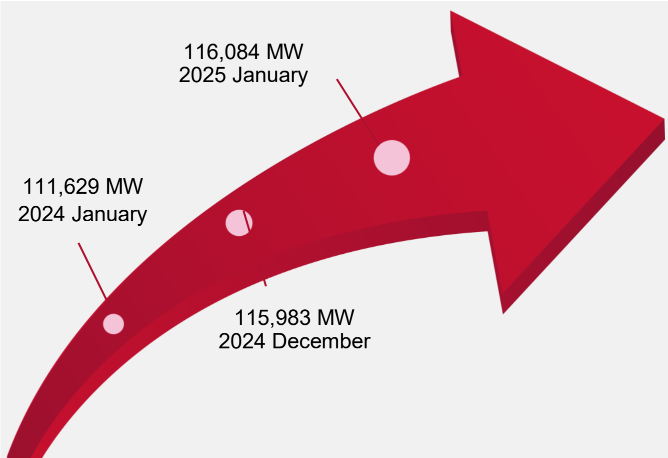
1.0%

Market Clearing Price (MCP) increased by 1.0% MoM and 9.3% YoY in January.

Click for details.

Installed Capacity Analysis

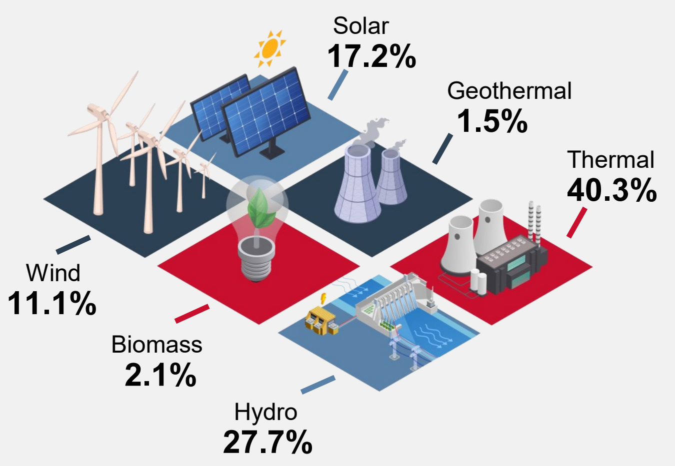
Türkiye's total installed generation capacity edged up from 115,983 megawatts (MW) at the end of December 2024 to 116,084 MW at the end of January 2025. A net of 100.4 MW in installed capacity was commissioned in January with 134.5 MW of this installed capacity being provided by solar power plants. The installed capacity of natural gas and multi-fuel power plants decreased by 2.4 MW, the installed capacity of power plants using fuel-oil diesel fuel decreased by 25.3 MW and the installed capacity of power plants using renewable waste decreased by 6.4 MW, while there was no change observed in the installed capacity of other sources.



Source: TEİAŞ, TSKB Economic Research

59.6% of the generation capacity in operation in January consisted of power plants generating electricity from renewable resources. Thus, the proportion of renewable resources continued to increase, approaching 60%. Hydroelectric power plants accounted for 27.7% of Türkiye's total installed electricity capacity, while the share of wind and solar power plants in total installed capacity exceeded the share of hydroelectric power plants, with a 28.3% share.

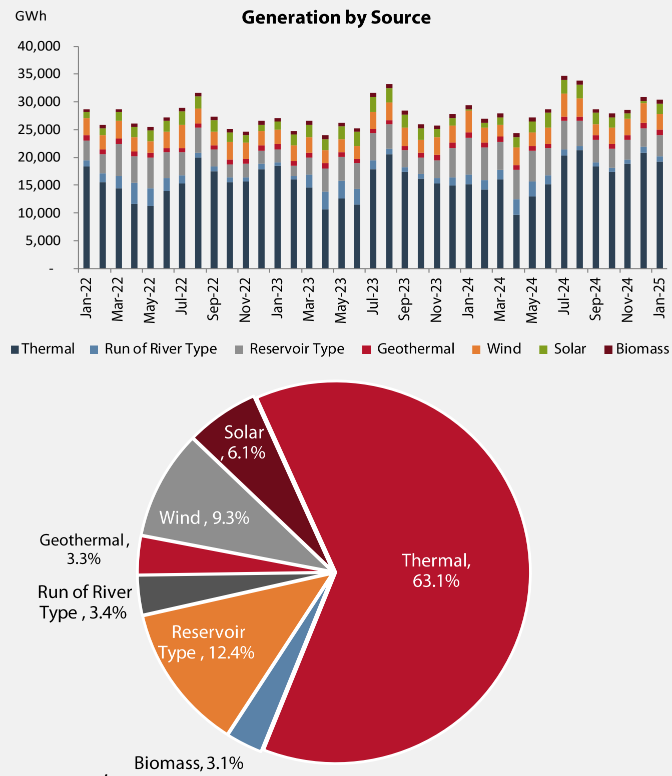
January 2025 Capacity Share by Source



Source: TEİAŞ, TSKB Economic Research

Generation-Consumption Analysis

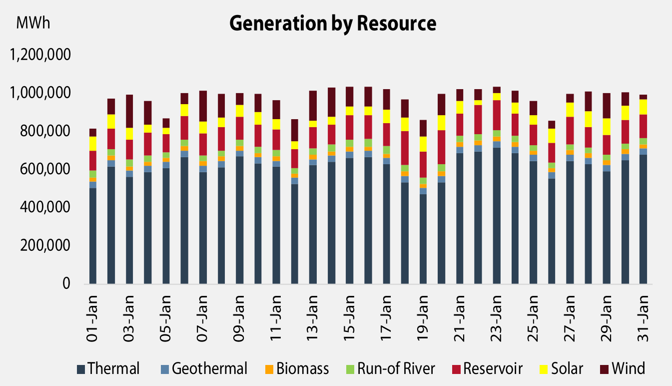
A total of 30.4 TWh in electricity was generated in January 2025, up from approximately 30.9 TWh in December 2024. However, the average daily electricity generation in January decreased by 1.6% compared to the previous month, while remaining 3.4% higher than in the same month of the previous year.



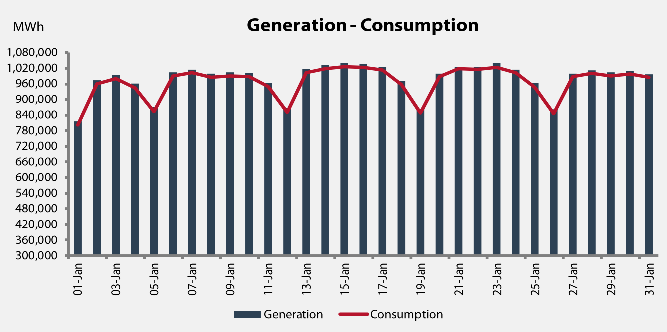
Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Thermal power plants, which provided 67.1% of the electricity generated in December, accounted for 63.1% of the total electricity produced in January. The source-based breakdown of electricity generated from power plants finds that hydroelectric power plants accounted for 15.8% of the total electricity generated in January, compared to 14.3% in the previous month. In the same period, the solar power plants generated 6.1% of total generation, with geothermal power plants providing 3.3% of total electricity.

The share of electricity generated by renewable energy plants increased from 30.5% in December to 34.5% in January 2025, while dam-type hydroelectric power plants contributed 12.4% of total generation In the corresponding period with run-of-river-type hydroelectric power plants providing 3.4% of the total. In addition, wind and solar power provided 15.4% of the total electricity generated. Among renewable resources, wind provided the highest proportion of electricity, with a 9.3% share of total generation.



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research



Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Average daily electricity generation stood at 981,175 megawatt hours (MWh) in January with a maximum of 1,039,200 MWh in generation on Wednesday, January 15, and a minimum of 815,616 MWh on Wednesday, January 1.

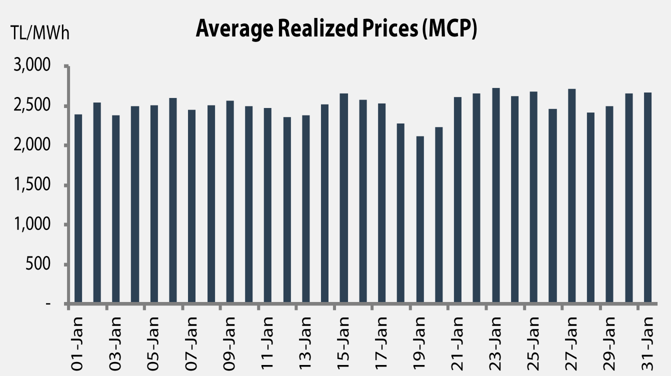
In the same period, daily electricity consumption averaged 967,603 MWh with the maximum consumption in January recorded on Wednesday, January 15 at 1,025,360 MWh and the lowest on Wednesday, January 1, at 802,474 MWh.

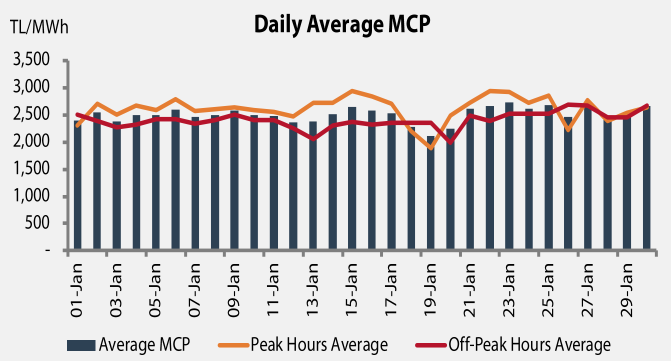
Electricity Price Analysis

The daily average market clearing price (MCP) fluctuated in a range of TL 2,115-2,727 /MWh in January with an average MCP of TL 2,508.80 /MWh in January. The highest daily average MCP was recorded on Thursday, January 23 at TL 2,727 /MWh, while the lowest daily average MCP, of TL 2,115 /MWh was recorded on Sunday, January 19.

In terms of the hourly data, the MCP reached its ceiling level of TL 3,000 /MWh in January for a total of 112 hours, and its minimum rate of TL 556 /MWh for 1 hour.

The average peak rate MCP (8AM-8PM) was 3.8% higher than the average for all hours, coming in at TL 2,605.30 /MWh, with the maximum limit of TL 3,000 /MWh recorded on 99 occasions during peak hours, and lowest price of TL 556 /MWh only realized for 1 hour during peak hours.



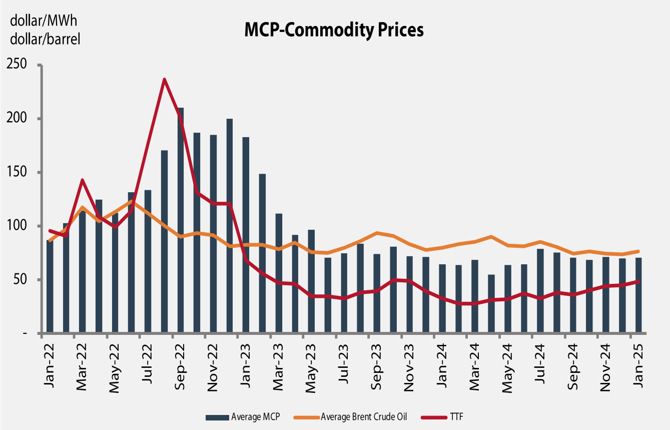


Source: EXIST, TSKB Economic Research

In the same period, the average of off-peak hours (8PM-8AM) was TL 2,412.30 /MWh. The maximum limit price of TL 3,000 /MWh was realized for 13 hours during off-peak hours, while the lowest off-peak rate of TL 1,406 /MWh was recorded between 10-11PM on Sunday, January 12.

The MCP increased from an average of USD 70.00 /MWh in December to an average of USD 70.60 /MWh in January, marking a increase of %9,3 compared to the same period of the previous year.

Average Commodity Prices



Source: EPİAŞ, TCMB, EIA, TSKB Economic Research

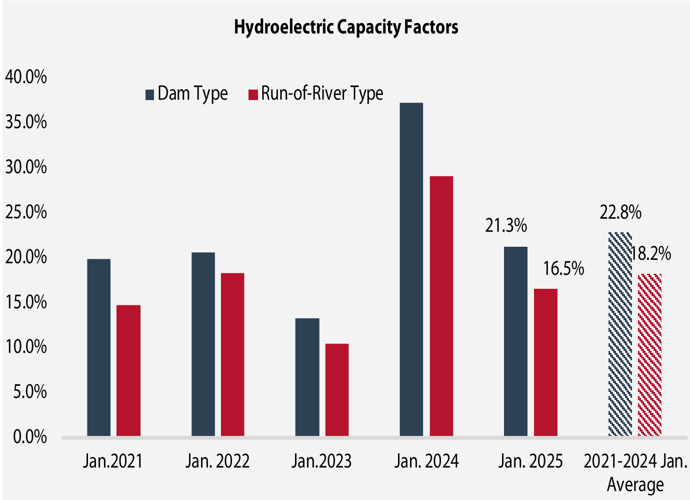
The Brent crude oil price increased by 3.5% month-on-month from an average of USD 73.7 /bbl in December to USD 76.3 /bbl in January, remaining 4.3% lower than in the same period of the previous year.

The TTF natural gas contract price, which averaged USD 44.80 / MWh in December, increased by 7.8% month-on-month to USD 48.20 /MWh in January, marking an increase of 47.5% compared to the same period of the previous year.

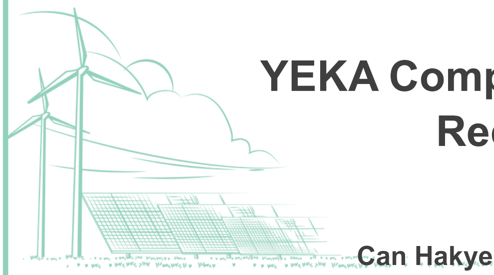
Hydroelectric Capacity Factors

Dam-type and run-of-river type hydroelectric power plants operated at 21.3% and 18.2% capacity factor rates, respectively, in January. When compared to January 2024, this represents a decrease of 16.0 percentage points in the capacity factor for dam-type hydro-electric power plants and a decrease of 12.6 percentage points in the capacity factor for run-of-river type power plants in January 2025. Alongside the months of January over the last 5 years, the highest capacity factor was recorded in January 2024.

The capacity factor for dam type hydro-electric power plants was 1.5 percentage points lower than the average for the months of January between 2021-2024, while the capacity factor for run-of-river type hydro-electric power plants was 1.7 percentage points below the average.



Source: TEIAS, EPIAS, TSKB Economic Research



YEKA Competitions Completed with a Record Contribution

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The Competition on Renewable Energy Resource Areas and Connection Capacities Based on Wind Energy (YEKA RES-2024) took place on January 28, 2025. The YEKA competitions, held within the framework of the announcement published in the Official Gazette in October 2024, provided an important opportunity to test the new model. A total of five competitions allocated 1,200 MW of installed capacity of connection capacity.

In the competition announcement announced in October, the floor and ceiling prices were set at USD 35 and USD 55 per MWh, respectively, with a contribution to be paid per MW when the floor price was reached. It was stated that the contributions to be received from the winners of the competitions would also be used as a contribution to the Renewable Energy Resources Support Mechanism (YEKDEM). The winning bidders of the competition will, starting the date of signing the contract, be able to sell the electricity they generate to the transmission grid in the free market for the first 72 months, and then for 20 years at the price determined.

A total of 100 applications were submitted by 40 companies for the 1,200 MW of capacity to be allocated with 5 projects in the competitions held on January 28. In all competitions, the floor price was reduced to USD 35 / MWh, while the contribution income was also higher than expected.

Enerjisa Enerji Üretim A.Ş. won the competitions for the Edirne Wind Farm and Balkaya Wind Farm, with their total capacity of 750 MW, while the company committed to provide a total contribution payment of USD 55.9 million. Enerji Turizm San. A.Ş. won the competition held for the Sergen Wind Farm, with a capacity of 200 MW - another YEKA located in Kırklareli. The last two YEKAs are the 160 MW Yellice Wind Farm and the 90 MW Gürün Wind Farm located in the Sivas region.

As in other competitions, the floor price was reduced in these competitions, while Efor Holding A.Ş., which won the competition for the Yellice Wind Farm, committed to pay a total of USD 22.4 million and ADY Akdeniz Rüzgar Enerjisi Üretim A.Ş., which won the competition for the Gürün Wind Farm, committed to pay a total of USD 13.3 million.

As a result of these competitions, the companies committed to pay a total of USD 119.6 million for five YEKA projects with a total capacity of 1,200 MW. Contributions must be paid within 20 working days of the companies being invited to the sign contract.

In this vein, it is encouraging that the first competitions held on the new YEKA model exceeded expectations, both in terms of both demand and in terms of the prices. Right after YEKA RES-2024, announced in October 2024, the competitions on Solar Energy-Based Renewable Energy Resource Areas and Connection Capacities (YEKA GES-2024), announced in November, took place in the first week of February.

In addition, the announcement from the Minister of Energy and Natural Resources, Alparslan Bayraktar, that the 2025 YEKA tenders amounting to at least 2,000 MW would be held by the end of the year demonstrates that YEKAs will continue to be at the forefront throughout 2025. Following the YEKA RES-2024, all sector stakeholders will closely monitor the unit prices and contributions to be reached at YEKA GES-2024.

Competition Name	Capacity (MW)	Winning Company	Unit Electricity Price (dollar/ MWh)	Contribution Share (dollar/ MW)	Total Contribution Share (million dollars)
Edirne WPP	410	Enerjisa Üretim A.Ş.	35	60,000	24.6
Balkaya WPP	340	Enerjisa Üretim A.Ş.	35	92,000	31.3
Sergen WPP	200	RT Enerji Turizm San. Ve Tic. A.Ş.	35	140,000	28.0
Yellice WPP	160	Efor Holding A.Ş.	35	140,000	22.4
Gürün WPP	90	ADY Akdeniz Rüzgar Enerjisi Üretim A.Ş.	35	148,000	13.3

Source: ETKB, TSKB Economic Research

Sector News

Local News

- İşbank commissions its first solar power plant investment for self-consumption. The power plant, which has an installed capacity of 25 MW, will meet the energy needs of the head office building and operation centers. The power plant, commissioned following work carried out under the roof of İş Enerji, a subsidiary of the İşbank Group, aims to prevent 20,000 tonnes of carbon emissions.

- Energy Market Regulatory Authority (EMRA) determines service fees for electricity for 2025. Accordingly, the unit assurance rate were set at TL 569.4 per kilowatt (TL /kW) for the industrial, public and private sector subscriber group, 200.3 TL /kW for residential subscribers, and 270.2 TL /kW for agricultural activities, lighting and other subscribers. The electricity cut-off and connection fees were set at TL 106.8 for low voltage connections and TL 799.6 for medium voltage connections. In addition, EMRA set out determined the upper limits of natural gas connection and service fees. The upper limit for the subscriber connection fee to be applied by natural gas distribution companies for 2025 was set at TL 6,154.

- TL 472 billion allocated as energy support from the 2025 budget. According to statements from President Recep Tayyip Erdoğan's, 65% of natural gas bills and 60% of electricity bills will be covered by the state in 2024, with TL 472 billion in resources allocated to this in 2025. The Minister of Energy and Natural Resources, Alparslan Bayraktar, on the other hand, stated that Türkiye could contribute more to Europe's energy supply security, and that natural gas in Türkiye could reach Europe with a revival of the pipeline project extending through Syria to Qatar.

- Socar Türkiye plans to invest USD 7 billion in petrochemicals. According to press reports, with the investment to be undertaken in the "Master Plan" project, steps are planned to be taken towards the installation of new petrochemical production units and the modernization of existing facilities. Socar Türkiye stated that the first feasibility studies of the project have been completed and emphasized that the project aimed to render Petkim and its other subsidiaries pioneers in the global competition.

- Şırnak Gabar produces 71,000 barrels of oil per day. The Minister of Energy and Natural Resources, Alparslan Bayraktar, stated that the annual economic value of this production in 75 wells was USD 2 billion, adding that the production target in Gabar was 100,000 barrels per day. Adding that natural gas tariffs could be adjusted during the year by taking account of inflation and global costs, Mr. Bayraktar said that the government planned to keep tariffs unchanged in the first quarter of 2025.

- Minister of Energy and Natural Resources, Alparslan Bayraktar, announces that decisions to design a new electricity distribution and retail market architecture will be taken in 2025. Emphasizing that the tariff period that will cover the years 2026-2030 will be viewed differently with developments such as changes in production and digitalization, Mr. Bayraktar stated that the private sector had invested a total of USD 20 billion in the distribution sector since 2009. In addition, he added that investments should be put into operation that will further reduce the loss and leakage rates, which stand at 9.4% in Türkiye. The Chairman of EMRA, Mustafa Yılmaz, on the other hand, announced that all electricity meters installed for the first time in Türkiye would be "smart and domestic" from January 1, 2026. Stating that distribution companies would complete all integration work for the use of smart meters in 2025, Mr. Yılmaz emphasized that the new smart meters would enable instant monitoring of electricity consumption data and help users better manage their billing processes.

- TL 259 billion of public investment to be undertaken in the energy and mining sector as part of the 2025 Investment Program. According to a statement issued by the Minister of Energy and Natural Resources, Alparslan Bayraktar, on social media, the government aims to prioritize investments which will increase natural gas and oil production, especially in the Sakarya Gas Field and Gabar region, with TL 140.7 billion to be invested in these activities in 2025. In addition, the government aims to invest TL 45.8 billion in natural gas storage and transmission infrastructure, TL 42 billion in electricity transmission infrastructure, and TL 9.5 billion in capacity increases, rehabilitation and infrastructure for power generation plants.

- 800 MW capacity Aliağa Solar Cell and Panel Integrated Production Facility opened. Speaking at the opening ceremony of the facility, owned by Smart Solar Technologies, the Minister of Energy and Natural Resources, Alparslan Bayraktar, stated that the production facility would lead to the local manufacture of solar cells, almost all of which are imported in solar panel production, and emphasized that foreign dependence and the current account deficit in this area will be reduced. Mr. Bayraktar, who visited the site where the nuclear power plant in Sinop will be built, stated that 30,000 people would work on the construction of the power plant and that the power plant would meet approximately 10% of Türkiye's electricity needs.

- Amendments to regulations in electricity markets published in the Official Gazette. With the amendments, the role of storage facilities was expanded, and the conditions related to the license application, operation and acceptance of these facilities had been determined. While it is set out that facilities with electricity storage will be directly evaluated in market operations as part of generation facilities, the obligation to keep these facilities operational at certain capacity rates has also been set out. In the Balancing Power Market, the decision was taken to implement the settlement period as 15 minutes, with the stipulation that the necessary infrastructure preparations for this application should be completed by January 1, 2027. In addition, while certain capital and collateral conditions have been introduced in license applications for electricity storage facilities, unlicensed generators connected to the transmission system are now obliged to notify the system operator of their finalized daily schedules and available capacities.

- EMRA announces its natural gas consumption forecast for 2025. According to the Board Decision announced in the Official Gazette, national natural gas consumption is projected to total 53.29 billion cubic meters (bcm) in 2025.

- The Ministry of Energy and Natural Resources declares 10 regions as Renewable Energy Resource Areas (YEKA). The regions declared YEKA are located in Karaman, Ankara, Bolu, Erzurum and Kahramanmaraş.

- EMRA publishes its "Electricity Market Sector Report" and "Natural Gas Market Sector Report" for November 2024. Accordingly, electricity consumption in November increased by 6.4% compared to November 2023 to reach 27.9 TWh. Electricity consumption was 27.3 TWh in October. Billed electricity consumption increased by 7.0% year-on-year to 22.3 TWh. However, natural gas consumption increased by 42.8% compared to the same month of the previous year, reaching 4.8 bcm, while 32.2% of the natural gas consumed was used by the residential sector. Natural gas imports, on the other hand, increased by 31.0% compared to November 2023, to reach 5.8 bcm.

- Wind energy investments expected to gain pace in 2025. İbrahim Erden, the President of the Turkish Wind Energy Association (TWEA), stated that the target for new wind energy capacity in 2025 was 800-900 MW. Adding that the government expect installations to gain pace and reach 2,000 MW in 2025 and every year beyond with the Super Permit Law and related legislative regulations carried out under the leadership of ETKB, Mr. Erden emphasized that a more balanced growth period was expected in terms of installation and investment in the wind energy sector this year.

- New tariff period for electricity, to start on February 1, will affect 3% of subscribers. With the new tariff, groups exceeding 417 kWh of electricity consumption per month and 5,000 kWh per year in 2024 will cover the real costs of consumption. The Minister of Energy and Natural Resources, Alparslan Bayraktar, stated that there would be no change in the bills of 40 million out of the 42 million electricity subscribers, adding that the government was working on a similar province-based grading application for natural gas.

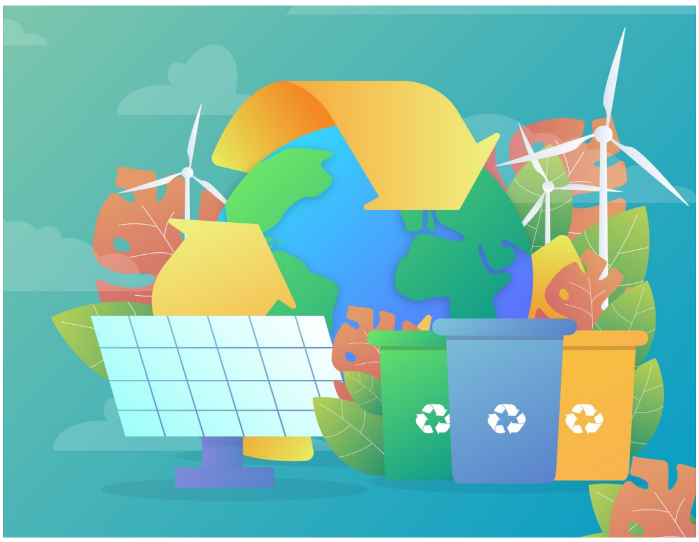
Foreign News

- Shipment of Russian natural gas to EU countries via Ukraine has been stopped. According to Gazprom's statement, Russian natural gas will not be shipped through Ukraine as of the first day of 2025, after the Ukrainian natural gas company Naftogaz refused to renew the agreement between the two countries.

- Shell expects liquefied natural gas (LNG) trading volume to have been weak in the last quarter of 2024. In a statement ahead of its 2024 results, which will be published on January 30, the company emphasized the role of the expiration of hedging contracts in the wake of the Russia-Ukraine War in the decline in trade volume. In addition, it stated that a lower level of gas deliveries were carried out to liquefaction facilities, reducing its LNG production forecast for the last quarter from 6.9-7.5 million tonnes to 6.8-7.2 million tonnes.

- Organization of the Petroleum Exporting Countries (OPEC) maintains its global oil demand growth forecast for 2025 unchanged at 1.4 million barrels per day. According to the Monthly Oil Market Report for January published by OPEC, annual demand growth in 2026 is expected to be 1.43 million barrels per day, similar to the 2025 levels. OPEC predicts that 2026 oil growth will be driven by transportation sector fuels. In addition, the International Energy Agency (IEA) published its Oil Market Report for January. According to the report, global oil demand increased seasonally in the fourth quarter of 2024, bringing the oil demand growth for 2024 to 1.5 million barrels per day. While this increase marked the highest increase observed since the fourth quarter of 2023, it was 260 thousand barrels per day above the IEA's previous estimates. The IEA expects oil demand to grow by 1.05 million barrels per day in 2025, reaching a total of 104 million barrels per day.

- IEA publishes its report, "The Road to a New Era of Nuclear Energy". The report states that the market, technological and policy foundations of nuclear energy are ready to meet the growing demand for electricity, driven by areas such as electric vehicles, data centers and artificial intelligence. According to the report, although some countries are phasing out the use of nuclear energy, new reactors are coming on stream in several markets, including Japan, China, India, Korea and in Europe. Despite the developments, the report emphasizes that nuclear power is heavily dependent on Chinese and Russian technologies, and that this concentration both in technology



and uranium production poses a risk. While the IEA emphasizes that small modular reactors (SMR) may usher in a new era for nuclear energy by becoming cost-competitive with government support and new business models, it highlights that a more diverse and competitive nuclear energy sector can be created with SMR technologies. The report added that the annual investment in this area double to USD 120 billion by 2030, and that both public and private financing should be expanded to meet this target.

- EU launches "Global Energy Transition Forum" to accelerate the energy transition. According to the statement from the President of the EU Commission, Ursula von der Leyen, at the World Economic Forum, the forum aims to bring together many countries such as Brazil, the United Kingdom, the United Arab Emirates, Kenya, South Africa and Canada to promote clean energy projects and increase investment.

- EUR 354 billion of energy subsidies in the EU in 2023. According to the "2024 Report on Energy Subsidies in the EU" published by the European Commission, energy subsidies in 2023 decreased by 10% compared to 2022. While emphasizing the effects of the energy crisis between 2021 and 2023, the report added that the crisis support implemented by EU countries stood at EUR 187 billion in 2022 and EUR 145 billion in 2023 with fossil fuel subsidies accounting for 34% of total subsidies in 2023 and renewable energy subsidies accounting for 17%. Although there was a decrease in fossil fuel subsidies in 2023 when compared to 2022, the report emphasized that reducing, reorganizing and eliminating these subsidies is a priority.

- Inaugurated US President Donald Trump announces that US withdrawal from the Paris Climate Agreement. President Trump, who also signed an executive order suspending approvals, permits and loans for US onshore and offshore wind energy projects, declared a "National Energy Emergency" in the country. Stating that the development, production, transportation, refining and production capacity energy and critical minerals is insufficient to meet the needs of the country, President Trump emphasized that the integrity and expansion of the energy infrastructure of the United States is a priority for the national and economic security of the United States. Accordingly, "energy sources" were defined as crude oil, petroleum products, natural gas, uranium, coal, biofuels, geothermal heat, the kinetic motion of flowing water and critical minerals. However, the executive order entitled "Unleashing American Energy" underlines the importance of using affordable and reliable energy and natural resources in the United States. Decisions taken in this direction include promoting energy research and production, improving the US position as a producer and processor of non-fuel minerals, including rare earth elements, and removing the "electric vehicle mandate". In addition, President Trump also ordered a halt to spending that subsidizes clean energy and other climate initiatives through the "Inflation Reduction Act" enacted in the Biden administration.

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