

# Monthly Energy Bulletin

TSKB Economic Research

January 2022 #56

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20 February 2023

## Turkish National Energy Plan published

The Turkish Ministry of Energy and Natural Resources has released the Turkish National Energy Plan for the 2020-2035 period. Based on the study, installed electricity capacity will increase to 189.7 gigawatts (GW) by 2035, consisting of 52.9 GW in solar energy, 29.6 GW in wind energy and 7.2 GW in nuclear energy.

The share of intermittent renewable energy sources in electricity generation is expected to increase to 34.2% under the Turkish National Energy Plan, and the share of renewable energy resources to 64.7%. Electricity is expected to account for 24.9% of total energy consumption, while energy intensity is expected to fall by 35.3%.

Furthermore, to meet the flexibility requirement, the battery capacity will reach 7.5 GW, with an electrolyzer capacity of 5.0 GW, and demand side participation of 1.7 GW.

The results of the Turkish National Energy Plan, which are expected to reduce energy intensity by 35.3% in the 2020-2035 period, are to be developed on a sectoral basis in order to reduce emissions, with sectoral transformations to be experienced in the long term in line with the Development Plans, particularly on the basis of manufacturing industry sub-sectors within the scope of the Strategy and Budget Department's economic growth projections. The predictions are based on the assumption that carbon prices will be set at the required level.

26.87  
TWh

January Gross  
Generation

3,431.5  
TL/MWh

Average  
MCP

**-6.4%**

Daily average licensed electricity generation increased by 1.2% MoM with a decline of 6.4% YoY in January.

[Click](#) for details.

**-7.9%**

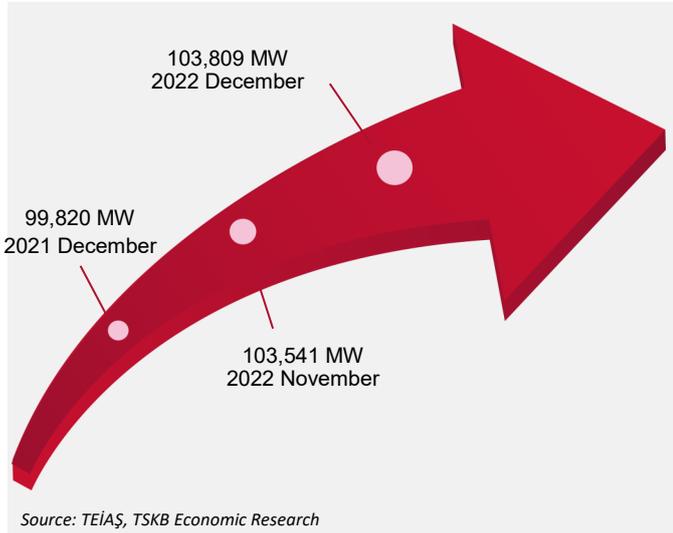
Market Clearing Price (MCP) decreased by 7.9% MoM with an increase of 191.3% YoY in January.

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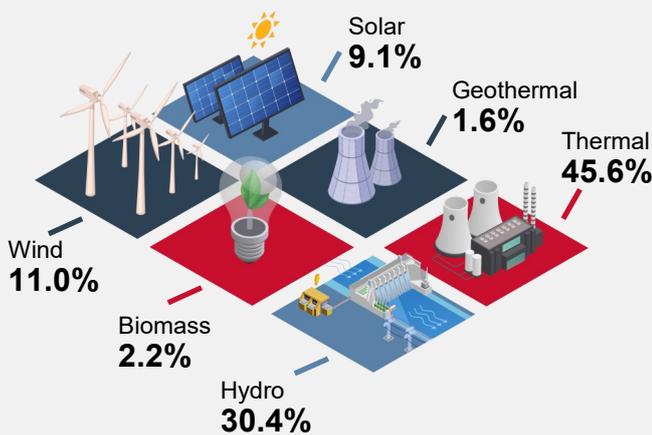
# Installed Capacity Analysis

Turkey's total installed generation capacity, which had reached 99,820 megawatts (MW) at the end of December 2021, reached 103,809 MW by the end of 2022. A net total of 268.2 MW in installed capacity came onstream in December, with solar power plants accounting for 106.4 MW of this installed capacity. In the same period, there was an increase of 30.6 MW in the total net installed capacity of wind farms, while the increase was 82.9 MW for renewable waste energy power plants. In addition to these capacities, the net capacity of natural gas power plants increased by 35.2 MW in December.



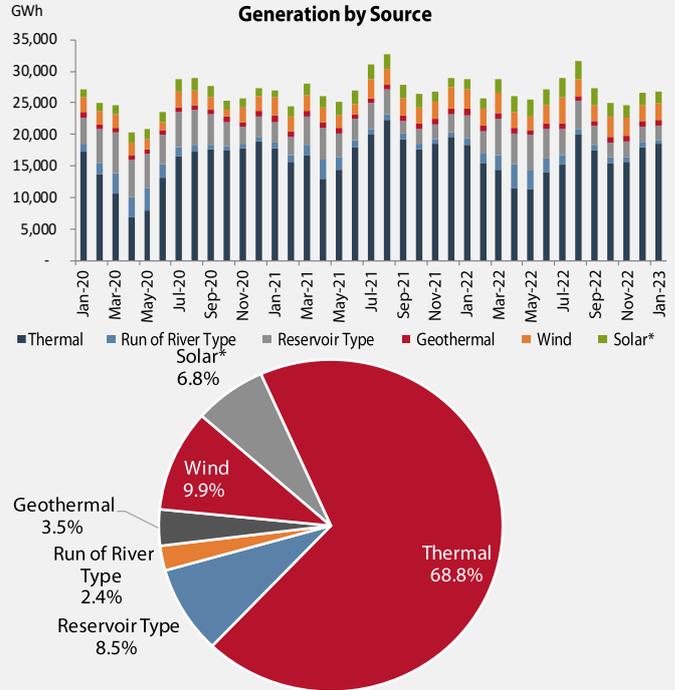
In November, 54.3% of the capacity of the power plants in operation consisted of renewable energy. Thus, the share of renewable resources remained above 54%. Hydroelectric power plants accounted for a 30.4% share of Turkey's total installed electricity power, followed by wind and solar power plants with a 20.1% share.

## December 2022 Installed Capacity Breakdown



# Generation-Consumption Analysis

Total electricity generation, which stood at approximately 26.55 terawatt-hours (TWh) in December, was realized as 26.87 TWh in January. Average daily electricity consumption in January was down by 6.4% when compared to the same period last year but increased by 1.2% when compared to the previous month.

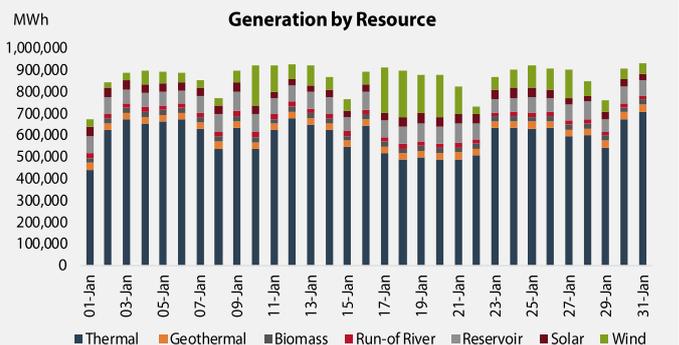


\*Since January unlicensed solar power plant generation data has not yet been released by TEİAŞ, the average daily electricity generation by unlicensed solar power plants in January 2023 was accepted as same as the average daily electricity generation of December 2022.

Source: TEİAŞ, YTBŞ Daily Reports, TSKB Economic Research

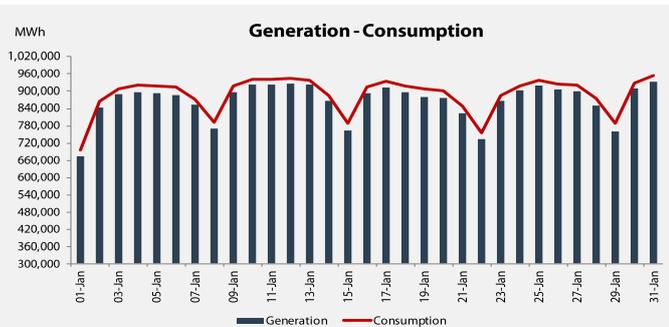
Thermal power plants, which generated 67.5% of Turkey's electricity in December, generated 68.8% of the country's total electricity in January. According to an examination of the resource-based breakdown of the power plants, hydroelectric power plants generated 11% of all electricity in January, up 12.3% from the previous month, while the share of electricity generated by wind increased by 0.1% from the previous month to reach 9.9%. Geothermal power plants, on the other hand, accounted for 3.5% of total electricity generated.

The share of electricity generated by renewables in total electricity generation fell from 42.7% in 2022 to 31.2% in January 2023. Dam-type hydroelectric power plants contributed 8.5% to total generation during the relevant period, with river-type hydroelectric power plants contributing 2.4% to total generation. The share of dam-type hydroelectric power plants in January was at its lowest since September 2021. Furthermore, the electricity generated from wind and solar power plants stood at 16.8% of total electricity generation.



Source: TEİAŞ, YTBŞ Daily Reports, TSKB Economic Research





Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Average daily electricity generation from licensed power plants in January stood at 867,710 MWh. The highest amount of generation from licensed power plants in January was 933,958 MWh, recorded on Tuesday, January 31<sup>st</sup>, while the lowest in January was 673,979 MWh, recorded on Sunday, January 1<sup>st</sup>.

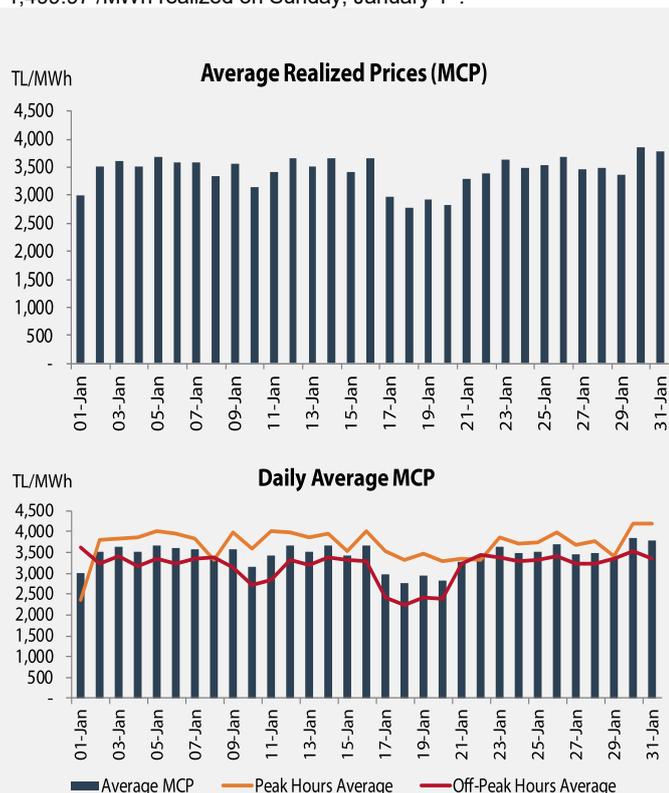
Average daily electricity consumption during the same period was recorded at 889,098 MWh. The highest level of consumption in January was 954,583 MWh, recorded on Tuesday, January 31<sup>st</sup>, while the lowest consumption was 694,851 MWh, recorded on Sunday, January 1<sup>st</sup>.

## Electricity Price Analysis

The daily average market clearing price (MCP) in January ranged between TL 2,775 /MWh and TL 3,875 /MWh. In January, the daily MCP averaged TL 3,431.50 /MWh. The highest daily average MCP was TL 3,857.60 /MWh, which was recorded on Monday, January 30<sup>th</sup>, and the lowest daily average MCP value was TL 2,776.20 /MWh, on Wednesday, January 18<sup>th</sup>.

Looking at the hourly data, the highest MCP was realized at TL 4,200 /MWh in January, which was the maximum price limit of 165 hours, in January. On Friday, January 20<sup>th</sup>, the hourly minimum electricity price was recorded as TL 1,477.50 /MWh.

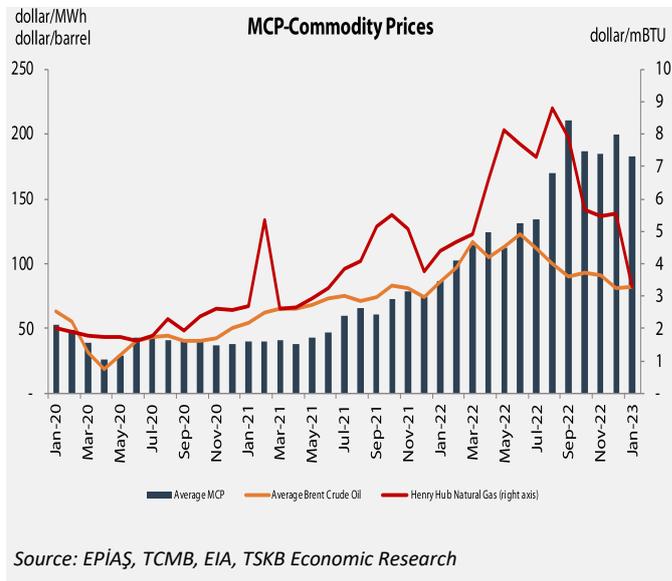
An analysis of the daily MCP for January finds an average peak-hours (8AM-8PM) rate of TL 3,698.30 /MWh, 7.8% higher than the average value for all hours. During peak hours, the maximum limit price of TL 4,200 /MWh was recorded for 147 hours with the lowest price of TL 1,499.97 /MWh realized on Sunday, January 1<sup>st</sup>.



Source: EXIST, TSKB Economic Research

During the same time period, the average off-peak (8PM-8AM) rate was TL 3,164.60 /MWh. The highest limit price of TL 4,200 /MWh was reached for 18 hours during off-peak hours, while the lowest price of TL 1,477.46 /MWh was recorded on Friday, January 20<sup>th</sup>.

The MCP averaged USD 199.48 /MWh in December, but fell to USD 182.61 /MWh in January. The MCP was 110% higher in USD-terms when compared to the same period the previous year.

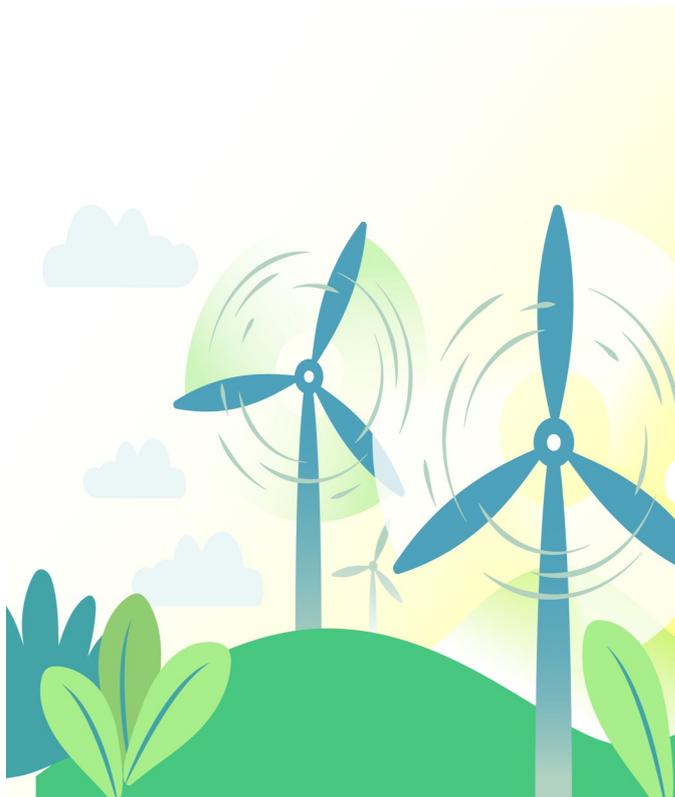


Source: EPIAŞ, TCMB, EIA, TSKB Economic Research

### Average Commodity Prices

The price of Brent crude, which averaged USD 80.92 /bbl in December, increased 1.9% month-on-month to reach USD 82.44 /bbl in January, although remaining 4.7% lower than in the same period of the previous year.

The Henry Hub natural gas contract price, which averaged USD 5.53 /Mbtu in December, fell by 40.9% month-on-month to USD 3.27 /Mbtu. This level represents a decrease of 25.3% when compared to the same period the previous year.





## Sector News

### Local News

- **Oman signs natural gas supply agreement.** In a statement, the Minister of Energy and Natural Resources, Fatih Dönmez, remarked that a new natural gas agreement had been signed with Oman, where 1.4 billion cubic meters (bcm) of natural gas will be supplied to Türkiye each year for ten years. (31 January 2023)

- **Reduction in natural gas prices used in industry and electricity generation.** According to a statement issued by Boru Hatları ile Petrol Taşıma A.Ş. (BOTAŞ), the wholesale price of natural gas used by large industrial enterprises has been cut by between 13.30% and 17.22%, while the wholesale price of natural gas used for electricity generation was cut by 16.67%. The new prices will be effective from February 1<sup>st</sup>. As a result, the cost of natural gas used for electricity generation has been reduced from TL 18 TL to TL 15 per cubic meter. (30 January 2023)

- **Energy Market Regulatory Authority (EMRA) predicts 56.1 bcm of natural gas consumption in 2023.** EMRA also announced its 2022 natural gas consumption forecast of 60.05 billion cubic meters. (30 January 2023)

- **Foreign energy dependency targeted to be cut to 50% by 2053.** According to a statement issued by the Minister of Energy and Natural Resources, Fatih Dönmez, the government plans to reduce foreign energy dependency to 70% by 2035 and 50% by 2053. Mr. Dönmez stated that the government plans to provide incentives for domestic production of the electrolyzer used in hydrogen production, while announcing the discovery of world's second largest reserve of rare earth elements. Mr. Dönmez added that the Beylikova reserve contains

7 or 8 of the periodic table's 17 rare elements. (30 January 2023)

- **EMRA lowers free market electricity ceiling price.** According to the decision published in the Official Gazette, the free market electricity ceiling price has been reduced from TL 4,200 to TL 3,650 per MWh. The Chairman of EMRA, Mustafa Yılmaz, stated that EMRA expects a 12% decrease in electricity prices in industrial establishments that consume electricity over the market price. (27 January 2023)

- **EMRA announces launch of an administrative investigation into 40 companies which submitted false reports under the Maximum Settlement Price Mechanism (AUF).** According to a press release from EMRA, bilateral agreements with fixed prices that are not covered by the AUF because they protect consumers are secured, while administrative investigations have been launched into 40 companies due to mistaken or intentionally false reports, and it is decided that TL 10.2 billion would be paid back. Furthermore, EMRA stated that due to the nature of the AUF mechanism, this amount, which exceeds TL 11 billion with interest, would be directly reflected to consumers' bills as a cost reduction. (16 January 2023)

- **Five zones assigned as Renewable Energy Resource Areas (YEKA).** According to a decision taken by the Ministry of Energy and Natural Resources and published in the Official Gazette, five zones in the provinces of Mersin, Niğde, Konya, and Karaman have been assigned as YEKA areas for wind and solar energy generation. (16 January 2023)

- **Wind and solar power plants to be built on Treasury land.** Murat Kurum, the Minister for the Environment, Urbanization, and Climate Change, announced on social media that wind and solar power plants would be built on an area of 300 million

square meters (m<sup>2</sup>) of Treasury land which is currently inactive and unsuitable for agriculture. According to the Ministry's General Directorate of National Real Estate, within the scope of this project, which envisages a total of 20,000 MW of renewable energy capacity, 160 million m<sup>2</sup> of land has been earmarked in 41 provinces and a further 140 million m<sup>2</sup> will be announced. With the exception for residential and lighting subscribers, mining or geothermal operation license holders, industrialists, those in the public and private sectors and those engaged in agricultural activities can all use this application to generate the electricity they require. (13 January 2023)

- **Natural gas supplies cut by 70% from January 1 due to a malfunction in the Iranian transmission network, according to Petroleum Pipeline Corporation (BOTAŞ).** It was stated that all necessary precautions had been taken to ensure that the use of natural gas across the country would not be negatively affected, and that additional gas needs are met through storage facilities. (9 January 2023)

- **Natural gas agreement signed between Türkiye and Bulgaria.** The agreement, which will transfer up to 1.5 bcm of natural gas per year between Türkiye and Bulgaria, will remain in effect for 13 years. Fatih Dönmez, Türkiye's Minister of Energy and Natural Resources, stated that the agreement would help secure Europe's natural gas supply, particularly in Bulgaria, and that it marked an important step toward Türkiye becoming a gas hub. The agreement covers roughly half of Bulgaria's annual natural gas consumption. (4 January 2023)

- **Natural gas tariff for residential and industrial subscribers left unchanged for January – but electricity generation tariff lowered.** In January, BOTAŞ's sales price to gas distribution companies for residential consumers remained unchanged at TL 4,080 per 1,000 cubic meters of natural gas. The industrial tariff was set at TL 7,124 per 1,000 cubic meters of natural gas for level 1 subscribers and TL 15,833 per 1,000 cubic meters for level 2 subscribers. The price of natural gas in the electricity generation tariff was reduced by 12.73% and announced as TL 18,000 per 1,000 cubic meters. (2 January 2023)

- **Investment demand in electricity storage surpasses USD 230 billion according to EMRA.** Although the total capacity to be allocated is approximately 30,000 MW, 2,753 applications with an installed power of 164,200 MW were received in a 40-day period, according to the Chairman of EMRA, Mustafa Yılmaz, whose evaluations are included in the EMRA statement. Mr. Yılmaz stated that solar energy-based storage electricity generation accounted for 1,542 of these applications, with an installed capacity of 72,400 MW. He added that the wind energy-based storage electricity generation facility had attracted 1,211 applications with a combined installed capacity of 91,800 MW and that these applications had a total investment value of more than USD 230 billion, with USD 40-45 billion of this amount expected to be reflected in the field based on current capacity. Investors who have signed a contract with TEİAŞ to establish wind and solar power plants with capacities as much as the storage capacity may apply to EMRA for a pre-license without competition. (2 January 2023)

## Foreign News

- **European Commission proposes limits for price of Russia's premium oil products.** There have been reports that the Commission proposed that the European Union set a price ceiling of USD 100 /bbl for premium Russian petroleum prod-

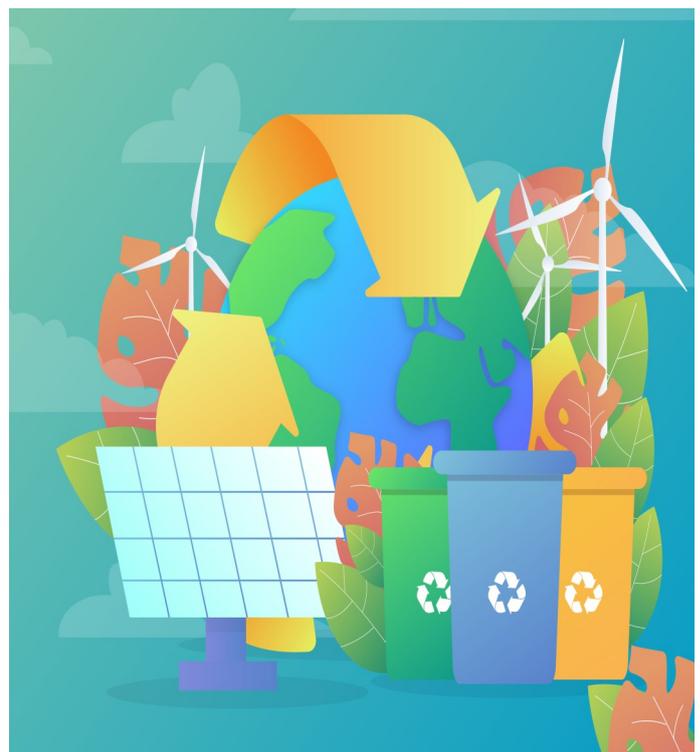
ucts such as diesel, and USD 45 /bbl for heavy products like fuel oil. Prices are expected to be set before February 5<sup>th</sup>, when imports of petroleum products from Russia will be prohibited. (27 January 2023)

- **Algeria and Italy agree to construct new gas pipeline.** The two countries signed a first memorandum of understanding, according to a written statement from Sonatrach. The memorandum of understanding includes increasing the existing natural gas carrying capacity, laying a new gas pipeline to transport natural gas, supplying alternately blue and green hydrogen and ammonia, laying the submarine power cable and upgrading the existing natural gas liquefaction capacity. The second memorandum confirmed that the potential for reducing greenhouse gas emissions in Algeria, as well as the best techniques for actualizing this reduction, would be determined. (24 January 2023)

- **IEA has raised its projection for global oil demand.** The International Energy Agency (IEA) raised its projection for global oil demand for this year by 80,000 barrels per day, over its previous projection in its monthly oil market report. Global oil demand is expected to reach 101.72 million barrels per day in 2023, up 1.87 million barrels from the previous year, according to the report. China is expected to account for nearly half of the expected increase in global oil demand. (18 January 2023)

- **United Arab Emirates' natural gas and oil giant ADNOC working on a carbon dioxide injection project.** According to the statement, the project in question is part of a USD 15 billion action plan to reduce emissions from ADNOC's operations. While carbon dioxide injection processes are expected to get underway in the second quarter of 2023, ADNOC initially plans to inject 18,000 tons of carbon dioxide. (18 January 2023)

- **No change to OPEC's projections for global oil demand.** According to the Organization of Petroleum Exporting Countries' (OPEC) monthly oil market report, global oil demand in 2023 will be 101.77 million barrels per day, unchanged from the previous month's forecast. Daily oil demand in 2022 is estimated to have been 99.55 million barrels per day. According to the report, global oil supply increased to around 101.7 million



barrels per day, up by 300,000 barrels per day from the previous month and by 3.8 million barrels compared to the previous year. (17 January 2023)

**- Germany launches its first private floating liquefied natural gas (LNG) terminal.** The facility, which has the capacity to convert 5 bcm of LNG into gas per year, aims to close the supply gap in Germany caused by Russia's lack of supply. The floating LNG Storage and Gasification Unit (FSRU) in the Lubmin region on Germany's Baltic Sea coast is the city's second facility, following the Uniper's facility started to service in Wilhelmshaven. (16 January 2023)

**- Global market for mass production of clean energy technologies expected to reach USD 650 billion per year by 2030.** According to the IEA's "Energy Technologies Perspective 2023" report, the global market is projected to reach USD 650 billion - more than triple the current market size - if countries fully implement their climate and energy commitments. According to the report, the number of people employed in the production of clean energy technologies will grow from 6 million currently to 14 million by 2030. (16 January 2023)

**- Saudi Arabia announces intention to produce low-enriched uranium and nuclear fuel.** Saudi Arabia's Energy Minister, Abdulaziz bin Salman, stated that his country was aiming to produce nuclear fuel for both domestic and export markets. Abdulaziz Bin Salman stated that the Saudi Arabian National Atomic Energy Program would build nuclear reactors in the country, adding that two large commercial nuclear reactors will be built in the initial step and then expanded. (12 January 2023)

**- Global oil demand to continue rising according to Energy Information Administration (EIA).** According to the EIA's "Short-Term Energy Outlook" report, consumption will rise from 99.43 million barrels per day in 2022 to 100.48 million barrels per day in 2023. Furthermore, the EIA forecasts that oil demand will increase by 1.72 million barrels per day in 2024 over its 2023 level, reaching 102.20 million barrels per day. The EIA predicts an average Brent crude oil price of USD 83.10 /barrel in 2023, down by 18% on the year, falling further to USD 78.00 /barrel in 2024. Brent crude had been projected to average USD 92.36 /bbl in 2023 in the earlier forecast. (11 January 2023)

**- Belgium reaches agreement with energy company Engie to keep its two nuclear reactors operational for another ten years after they were scheduled to be shut down.** Before the Russian-Ukrainian war, the Belgian government had planned to shut down all of its nuclear power plants in 2025. However, due to the European Union's energy crisis due to the war, Belgium decided to extend the period of operation of the nuclear power plants it had earmarked for closure for a further ten years. (10 January 2023)

**- Germany and Norway sign green energy memorandum of understanding.** It has been reported that the German RWE and Norwegian Equinor will build pipelines and hydrogen-powered power plants to transport green hydrogen from Norway to Germany under a signed memorandum of understanding. The 3 GW capacity power plants planned for construction in Germany in 2028 and 2029 will be powered primarily by natural gas. The plants' fuels will be replaced as more volume and technology become available, and they will be completely dependent on hydrogen by the mid-2030s. (06 January 2023)





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