

Monthly Energy Bulletin

TSKB Economic Research

December 2021 #43

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Increase in Electricity and Natural Gas Tariffs

The graduated electricity tariff, determined by the Energy Market Regulatory Authority (EMRA) for 2022, has been published in the Official Gazette and has entered force. With this regulation, a 52% increase shall apply to residential consumers whose daily average electricity usage is less than 5 kilowatthours (kWh), with a 127% increase if their consumption exceeds 5 kWh. While the unit price of electricity consumed in the industrial sector has increased by 126-128%, the unit price of electricity consumed in commercial buildings has increased by 95-97%. With these regulations, a graduated tariff system has been activated for the electricity.

In addition to this, and according to the tariff list of January published by Petroleum Pipeline Corporation (BOTAŞ), the sale price which BOTAŞ will apply to natural gas distributors for residential consumers was raised to TL 1,860 per 1,000 cubic meters (m³), marking a 25% increase in comparison with the current tariff. For industrial subscribers with an annual consumption of over 300,000 m³, the price of 1,000 m³ of natural gas increased by 50% to reach TL 6,300, with tariffs for electricity generation increasing by 15% to TL 5,520 per 1,000 m³.

29.03
TWh

December Gross
Generation

1,014.90 TL/
MWh

Average
MCP

5.8%

Daily average licensed electricity generation increased by 5.8% MoM and 6.8% YoY in December.

[Click](#) for details.

21.8%

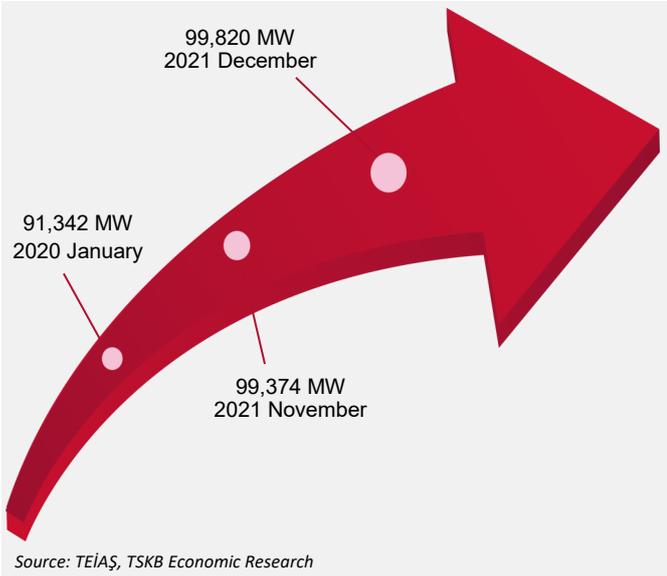
Market Clearing Price (MCP) increased by 243.6% YoY and 21.8% MoM in December.

[Click](#) for details.

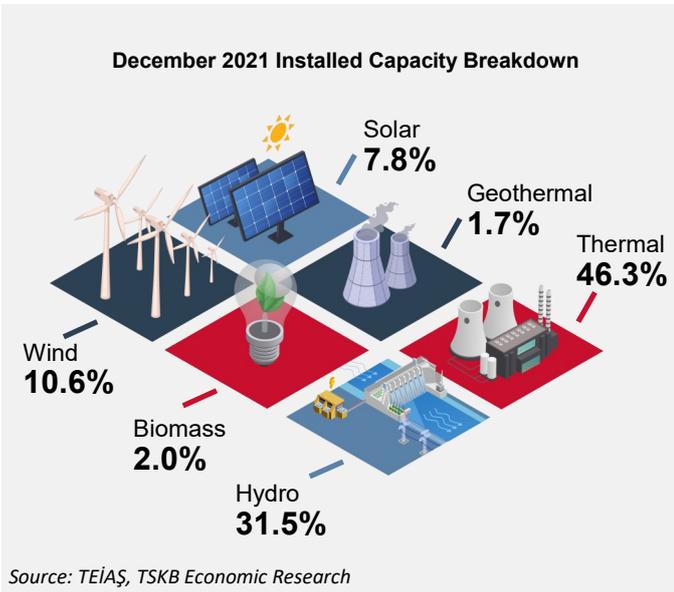


Installed Capacity Analysis

Turkey's total installed capacity, which stood at 96,271 megawatts (MW) at the end of January 2021, increased to 99,820 MW. In December, wind power plants with a net total installed capacity of 178.3 MW entered operation. In November, there was an increase of 106.3 MW in the net total installed capacity of renewable waste power plants, and 70.0 MW in the net total installed power of solar power plants.

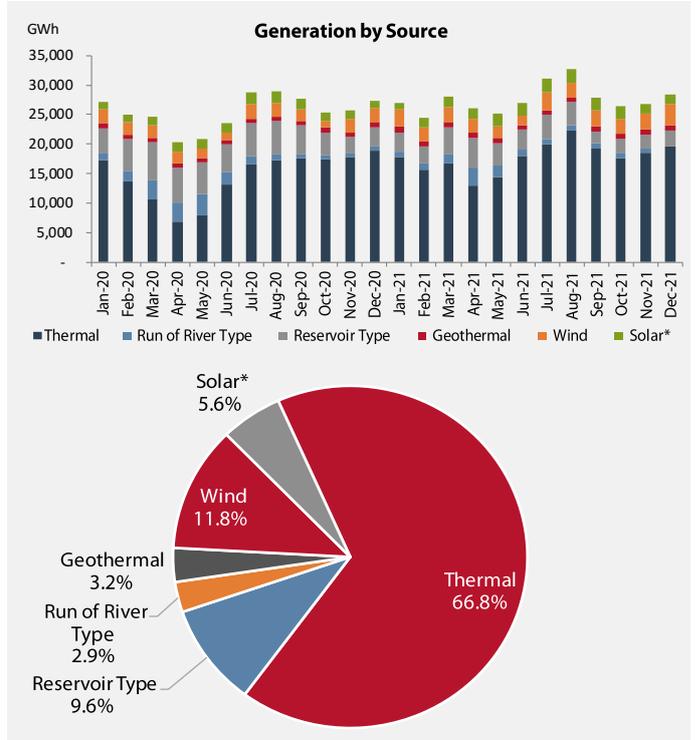


In terms of installed capacity, 53.7% of the capacity consisted of power plants operating from renewable power. Therefore, the proportion of renewables increased and remained over 53%. Hydroelectric power plants account for 31.5%, while wind and solar power plants account for 18.5% of Turkey's total installed capacity.



Electricity Generation Analysis

Total electricity generation stood at approximately 26.72 terawatt-hours (TWh) in November and 29.23 TWh in December. This represents a 5.8% increase in average daily electricity generation when compared with November's average daily electricity generation, and an increase of 6.8% when compared with the same month of the previous year. Comparing the yearly total numbers, total electricity generation in 2021 was up by 8.6%, reaching 331.7 TWh.

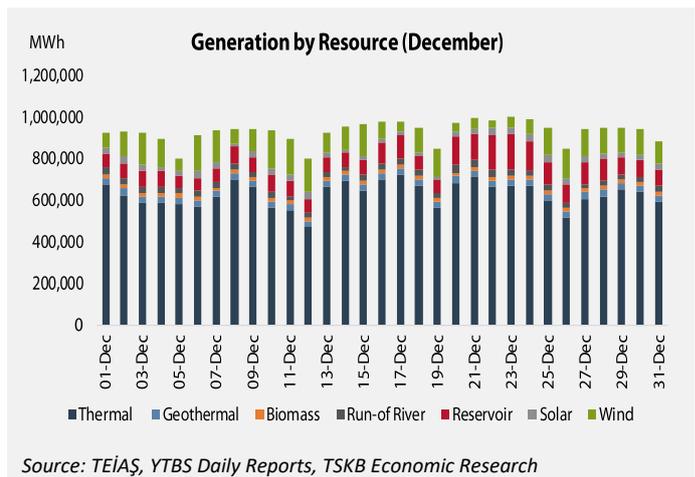


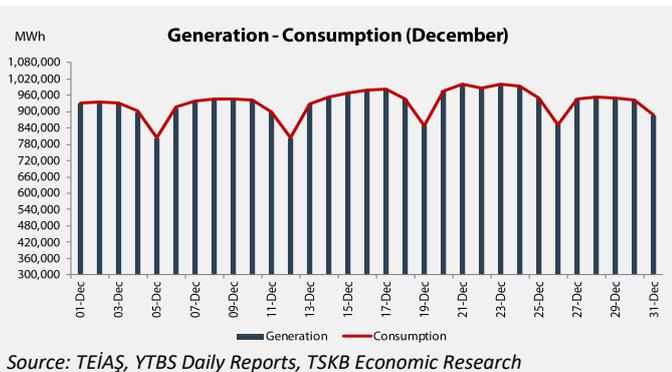
*Since December unlicensed solar power plant generation data has not yet been released by TEİAŞ, the average daily electricity generation by unlicensed solar power plants in December 2021 was accepted as same as the average daily electricity generation of November 2021.

Source: TEİAŞ, YTBS Daily Reports, TSKB Economic Research

Thermal power plants accounted for 69.4% of the electricity generated in November and 66.8% of the total in December. While hydroelectric power plants comprised an 11.6% share in the previous year, they generated 12.5% of electricity in December. The share of the electricity generated by wind power reached its highest rate, at 11.8% in December.

Renewable energy power plants accounted for an average of 42.5% of electricity generation in 2020, 33.2% in December 2021. In the same period, hydroelectric power plants with a barrage have contributed 9.6% of the total production, and solar power plants have provided 5.6% of the total production.





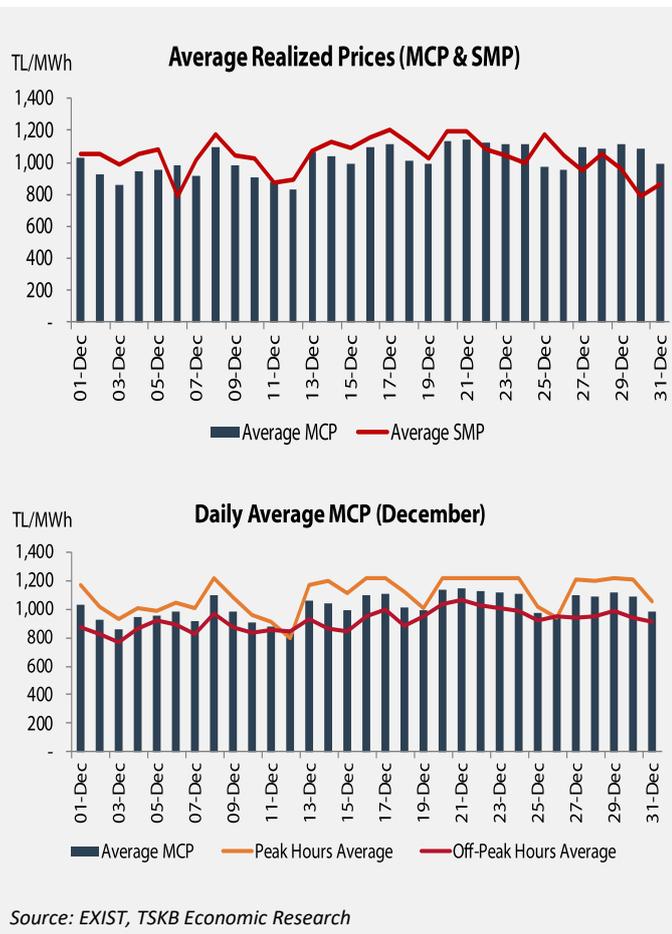
In December, the average daily electricity generation from licensed power plants was 932,690 megawatt-hours (MWh). The highest generation from licensed power plants in December was 1,001,050 MWh, recorded on Thursday, December 23. The minimum production in the same period was 801,695 MWh, recorded on Sunday, December 12.

The daily average electricity consumption stood at 933,860 MWh in December. The highest consumption during the last month of the year was 1,001,775 MWh, recorded on Thursday, December 23, and the minimum electricity consumption was 804,611 MWh, recorded on Sunday, December 5.

Electricity Price Analysis

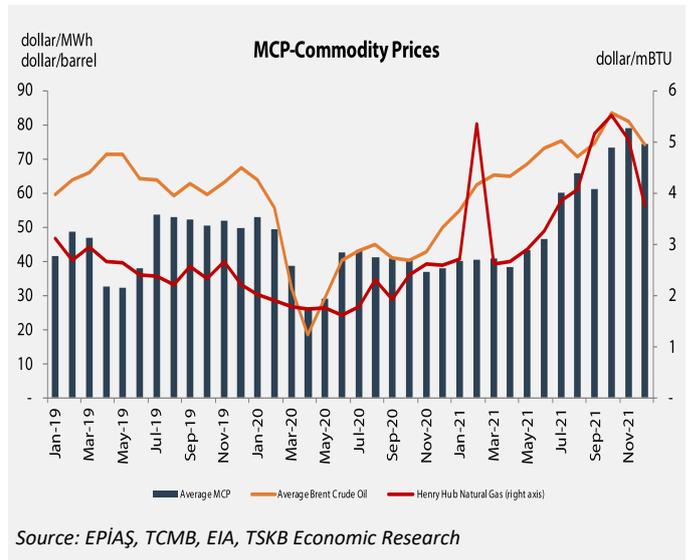
The daily average market clearing price (MCP) and system marginal price (SMP) fluctuated between 785 TL/MWh and 1.205 TL/MWh, in December. The average MCP during December was 1,016.81 TL/MWh, with an average SMP of 1,037.17 TL/MWh. The minimum average MCP value was recorded on Sunday, December 12 at 826.58 TL/MWh with the minimum average SMP recorded on Thursday, December 30, at 787.18 TL/MWh.

When the hourly data is examined, PTF was actualized as 1,217 TL/MWh, the highest price determined, in a total of 204 hours, in December.



A daily MCP analysis for December finds that the average peak hours rate (between 8AM and 8PM) was 8.2% higher than the daily average value, to stand at 1,099.87 TL/MWh. The highest peak hours average was 1,217.00 TL/MWh, a level recorded for 5 days during the month, and the lowest average of peak hours was 798.75 TL/MWh and it has actualized on Sunday, December 12.

In the same period, the average off-peak rate (between 8PM and 8AM) was 917.41 TL/MWh. The highest average of off-peak hours rate, of 1,061.88 TL/MWh, was realised on Tuesday, December 21. The lowest off-peak average, of 77.56 TL/MWh, was recorded on Friday, December 3.



The MCP, having averaged USD 8.82 /MWh November, fell to an average of USD 74.42 /MWh in December, marking an increase of 96.2% when compared with the same period of the previous year.

Average Commodity Prices

The average price for a barrel of Brent Crude fell from USD 81.05 in November to USD 74.17 in December, a monthly fall of 8.5%. This average was 48.4% higher than the same period of the previous year.

The average contract price of Henry Hub natural gas continued to decrease, from USD 5.05 /mBTU in November to USD 3.76 /mBTU in December, still 45.2% higher than in the same period of last year.





Sector News

Local News

- **Electricity Generation Company (EÜAŞ) to invest in hydroelectric power plants (HEPP) with pumped storage.** In a statement, İzzet Alagöz, the General Manager of EÜAŞ, declared that there were 7 HEPPs suitable for pumped storage and that the necessary investments will be undertaken to bring them into service. Mr. Alagöz remarked that they had been assigned by the Ministry of Energy and Natural Resources (MENR) to install nuclear power plants and mini nuclear reactors in cooperation with EÜAŞ. He added that EÜAŞ was conducting a local wind tribune production project with Aselsan. (December 30, 2021)

- **Regulation to base natural gas distribution on central district population.** According to the Presidential Decision published in the Official Gazette, natural gas will be distributed by BOTAŞ to districts with a central population of at least 15,000. In addition, natural gas will also be distributed to districts with a population of at least 10,000 the opinion of the Ministry of Treasury and Finance and the approval of the MENR. Previously, the condition was for natural gas to be distributed to districts with a central population of at least 20,000 in the decision declared on September 24, 2021. (December 30, 2021)

- **Oil, natural gas and coal prices to decrease according to the Minister of Energy and Natural Resources, Fatih Dönmez.** Evaluating the situation, Fatih Dönmez stated that global investments had decreased with the pandemic, but a quick recovery in demand had led to a supply shortage. This was then reflected to prices, but with prices since easing in the recent period. Mr. Dönmez added the way to reduce the weight of energy costs in the Turkish economy was to produce Turkey's own energy resources. He remarked that the government was aiming to connect the natural gas discovered in the Black

Sea to the network in the first quarter of 2023, adding that natural gas prices would decrease once this gas was in the system. (December 27, 2021)

- **Solar power limit for residential dwellings to increase to 25 kilowatts (kW).** A legal amendment motion to increase the limits of solar power installations in residential dwellings from 10 kW to 25 kW was accepted in the Turkish Parliamentary General Meeting. The proposal presented to the Turkish Parliament Authority on December 17, 2021, and accepted in the Planning and Budget Commission on December 21, 2021, suggested increasing the limit to 20 kW. (December 27, 2021)

- **EÜAŞ to only buy electricity from power plants running on local coal in 2022.** In the announcement, EÜAŞ announced that electricity will be purchased from private companies which only generate electricity from power plants running on locally produced coal, or power plants which use generate electricity from a mixture of local and imported coal. According to the announcement, 27.5 TWh electricity is planned to be purchased from the companies which generate electricity from locally procured coal, and 1.5 TWh from companies which operate power plants generating electricity from a mixture of local and imported coal. (December 24, 2021)

- **Free consumer limit reduced to 1,100 kilowatthours (kWh).** EMRA updated the annual consumption amount that had been used as a free consumer limit in the electricity market for 2022. According to the Board's decision, a consumer would need to consume at least 1,100 kWh electricity in the last year, starting from January 1, 2022, to gain the right to purchase their electricity from their preferred seller. This amount was set at 1,200 kWh in 2021. (December 22, 2021)

- **Removal of TRT levy from electricity bills.** With the draft law which was approved in the General Assembly of the Turkish parliament, the provisions for fulfilling the obligations which

had been guaranteed according to the Electricity Energy Fund Agreement will be abolished. In addition, an “Energy Transformation Department” will be established within EMRA. (December 22, 2021)

- Power plants with 2,403 MW of capacity to be removed from YEKDEM in 2022. EMRA published the preliminary list of the power plants that will be supported within the scope of the Renewable Energy Resources Support Mechanism (YEKDEM) in 2022. According to the information provided in the list, 1,035 power plants with a total installed power capacity of 25,528 MW will benefit from the purchase support within the YEKDEM in 2022. (December 16, 2021)

- Additional YEKA candidate fields announced for Renewable Energy Resource Fields Solar Power Plants-3 (YEKA GES-3) tender. In the announcement made by the MENR, as a result of the work conducted with the companies who won the tenders held in May, it was stated that detailed work was continuing for the announcement of candidate YEKAs as solar power based renewable energy resource fields, while determined additional fields were also announced. (December 8, 2021)

- Turkey could potentially produce 3.4 million tonnes of green hydrogen per year by 2050, according to SHURA Energy Transformation Center. An online introductory meeting entitled “An Evaluation of Turkey’s Green Hydrogen Production and Exportation Potential in Technical and Economical Terms” report was conducted by SHURA in coordination with the Bilkent Energy Policies Research Center and the German Energy Agency. In the meeting, it was remarked that with the correct investments and policies, Turkey could produce up to 3.4 million tonnes of green hydrogen per year by 2050, and export 1.5-1.9 million tonnes of this amount. In addition, when the expected costs and possible commercial pricing is considered, the hydrogen economy - which was evaluated in a study – could provide an annual gross benefit of between USD 5 to 8 billion to the Turkish economy each year by 2050. (December 8, 2021)

- Deadline postponed for applications in Renewable Energy Resource Fields (YEKA) contests. MENR has postponed the deadline for applications by approximately 4 months for the solar power-based YEKA SPP-5 contest and wind power-based YEKA WPP-3 contest. According to the announcement in the Official Gazette, the deadline for applications for YEKA WPP-3, which had been announced as December 14, 2021, has been postponed until April 27, 2022. The Ministry also postponed the deadline for applications of YEKA SPP-5 from January 12, 2022 to May 31, 2022. (December 6, 2021)

- New capacities announced for hybrid and 5.1.h. investments. According to the announcement announced by Turkish Electricity Transmission Corporation (TEİAŞ), the institution will allocate 1,589.5 MW in new capacity in 12 different regions as three distinct groups with 373.1 MW in capacity for the hybrid investment, where the main resource not wind or solar power, but where the supplementary resource is wind or solar power, and 163.4 MW for the facilities to be established within the framework of Regulation on the Unlicensed Electricity Generation 5.1.h and which will be connected to the system through the transmission level, and 1,053 MW in capacity increases for power plants where the main source is wind or solar power. (December 6, 2021)

News From Abroad

- Technological developments to play a key role in combatting climate change, according to Fatih Birol. The President of the International Energy Agency (IEA), Fatih Birol, remarked in a meeting entitled “Renewable Energy’s Role in Carbon-Free Economic System” that there would be a competition in the future period between the USA-China and Europe-USA in the fields of electric vehicles, hydrogen and mini modular nuclear reactors. He added that 90% of the World’s economy had pledged their commitment to net zero while warning that there was a large gap between the commitments and what had actually been done. He stated that as well as the pledges from countries, technological developments and clean energy competition between countries would be pivotal in the success in combatting climate change. In addition, he remarked that renewable energy would constitute 95% of the power plants that would be installed in the world’s electricity market in the coming 5 years, adding that China, India, the USA, and Europe would be the most important players in this field. (December 27, 2021)

- World Bank approves USD 300 million credit line to be used in generating electricity from geothermal resources of Turkey. According to the published notification, The World Bank’s financing package, which brings credits and grants together, will enable the private sector in Turkey to increase its investments in geothermal energy development by reducing investor risks with a Risk Sharing Mechanism and providing access for long term financing with a Resource Development Credit Opportunity. Financing will be used to fund electricity generation, capacity drilling, steam field development work and geothermal direct usage activities. (December 20, 2021)

- Coal-derived electricity generation to increase by 9% in 2021 according to the IEA. According to the “Coal 2021” report published by the IEA, the coal-derived electricity is expected to reach an all-time high, increasing by 9% this year after having decreased in 2019 and 2020. Total demand for coal in the world is also expected to grow by 6%. While coal-derived electricity is expected to grow by 20% in the USA and European Union, a decrease in these markets is expected after next year. (December 20, 2021)

- Work on natural gas filling project for 2nd line of North Stream 2 gets underway. In the explanation made by North



Stream 2 AG, it is marked that the process for controlling the line in the project is completed. In the explanation, it is stated that natural gas filling started for the 2nd line of the North Stream 2 natural gas pipeline on December 17. (December 20, 2021)

- No consensus was built on the energy in the European Union (EU)'s Leaders Summit. The EU Council's President Charles Michel made a statement after the summit and indicated that there are different opinions on the subjects of energy investments' classification and the operation of emission commerce system, and there is no consensus built on the subject of the summit's final declaration on the energy field. President Michel added his words that leaders will discuss the energy subject again in the next summit. According to the press news, a group of countries, where Poland is taking the lead, is complaining about high carbon prices, demanding making a change in the emission commerce system of the EU, and wanting prices to be reduced. Another instability is being experienced in the decision of including natural gas and nuclear energy in the green investments category. 10 countries, such as France, states that nuclear energy is an effective, safe, and competitive resource in combatting climate change, and they want to include it in the green investment classification frame. (December 17, 2021)

- EU Commission proposes new framework to promote hydrogen and reduce methane emissions. Frans Timmermans, the Vice President responsible for the European Green Deal, remarked on the necessity of the transition from fossil fuels to renewable and low-carbon gas, such as hydrogen, adding that rules would be needed to build the necessary markets, networks and infrastructure to make this transition. Kadri Simson, the commissioner responsible for energy, added that the EU was aiming to create a competitive hydrogen market with its own infrastructure. In addition, he stated that the EU's goal was an 80% cut in emissions in the natural gas, oil, and coal sectors by 2030. He suggested that strict rules were needed to trigger this action on methane outside Europe too, in methane emissions caused by these sectors. (December 16, 2021)

- EU Commission calls for zero-emission goal for buildings. The proposal penned by the Commission on December 15, 2021 suggests a net zero emission obligation for new public buildings built in the EU from 2027, and for all other new buildings from 2030. The commission's proposal would bring in a zero-emission goal for existing building stock by 2050. A zero-emission building is conceptualized as consuming a minimum of energy, using renewable energy as much as possible, not causing fossil fuel-caused carbon emissions and demonstrating sensitivity on the building's impact on global warming throughout its whole life-cycle. Currently, the buildings in Europe are using 40% of the energy and causing 36% of the greenhouse gas emissions. (December 16, 2021)

- The United Kingdom (UK) to conduct stress tests in energy companies by January. British energy regulator Ofgem will impose conditions on energy companies to improve if companies show financial weakness in these tests. The published plan will be able to limit energy company's speed for increasing their customers and Ofgem will be able to stop the company's growth in case it is risky. (December 16, 2021)

- IEA now expecting a smaller increase in global oil demand. In its November 2021 "Oil Market Report", the IEA set out its projection for the increase in global petrol demand for the year, with a downward revision of 100,000 barrels per day

in comparison with the previous report. Accordingly, oil demand is expected to reach approximately 96.19 million barrels per day, marking an increase of 5.37 million barrels per day for this year when compared to the previous year. Demand is expected to return to its pre-pandemic level, reaching 99.53 million barrels per day, with an increase of 3.34 million barrels per day in 2022. Also, according to the report, global oil supply is expected to increase by 1.5 million barrels per day to reach 95.27 million barrels per day by the end of the year, and further to 101.67 million barrels per day in 2022. (December 15, 2021)

- Global oil demand up by 190,000 barrels per day on average in November when compared to the previous month. In its monthly "Oil Market" report, the Organization of Petroleum Exporting Countries (OPEC) set out its projection that oil demand would be 96.63 million barrels per day in 2021. They also projected an increase of 4.15 million barrels/day in global oil demand in 2022, with global oil demand reaching approximately 100.79 million barrels/day. They projected global oil demand of 100.59 million barrels/day in 2022. (December 14, 2021)





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