

Measuring Democratically

Growth



or decades, gross domestic product has captured the attention of economists and policymakers around the world, offering a single, simple proxy for economic growth. Yet for all of its convenience, it is a poor proxy for human progress, and could easily be improved with a complementary metric that weighs citizens more equally.

WASHINGTON, DC – Abhijit Banerjee and Esther Duflo, two of this year's recipients of the Nobel Memorial Prize in Economic Sciences, are the latest among leading economists to remind us that gross domestic product is an imperfect measure of human welfare. The Human Development Index, published by the United Nations Development Programme, aggregates indicators of life expectancy, education, and *per capita* income and has long been available as an alternative to *per capita* income alone. In 2008, Joseph E. Stiglitz, Amartya Sen, and Jean-Paul Fitoussi outlined the many failures of GDP for the French government-sponsored Commission on the Measurement of Economic Performance and Social Progress. Subsequent OECD-sponsored work elaborated on their findings, and related

research by the Brookings Institution's Carol Graham (on subjective wellbeing) and Duke University's Matthew Adler (on the measurement of social welfare) has received well-deserved acclaim.

Nonetheless, GDP continues to reign supreme in the halls of power. Policymakers around the world are constantly awaiting the latest quarterly data on GDP growth, and variations of one-tenth of a percentage point are regarded as significant indicators of macroeconomic performance. The International Monetary Fund's *World Economic Outlook* may include in-depth analysis across a wide range of topics, but it always starts with GDP.

To see why treating GDP growth as a proxy for progress even in terms of income alone is highly problematic, consider the case of a country with ten citizens and a GDP of \$190, where nine citizens start with \$10 each and the tenth citizen starts with \$100. (Moreover, assume that GDP is equal to national income, so that net factor income from abroad is zero.)

Now, imagine that the first nine citizens experience no income growth in a given year, while the tenth enjoys a 10% increase. GDP will have increased from \$190 to \$200, implying an annual growth rate of approximately 5.26%. This is reflected in the usual way national income is computed. Individuals are weighed by their share of total income, and that 5.26% rate represents a weighted average in which the income growth of the tenth citizen counts nine times more than that of each of the other nine citizens.

Contrast this example with one in which the same country uses a "democratically" measured growth rate, weighing each individual equally as a share of the population rather than as a share of total income. Here, the growth rate would reflect the weighted sum of nine 0% growth rates and one 10% growth rate, each weighed at one-tenth, with a resulting total growth rate of 1%.

The weighing of individuals by their share of income is not generally perceived by the public. But this implicit practice is important to point out, because it enshrines the principle of one dollar, one vote, rather than one person, one vote. It is essential for assessing the total size of a market or the economic “power” of a country, but it does not capture an economy’s performance for its citizens.

This is hardly the only reason why GDP is an inadequate measure of human wellbeing. It also ignores people’s need for respect, dignity, liberty, health, rule of law, community, and a clean environment. But even if all of these other democratic “goods” were satisfied, GDP still would fail as a metric of progress, purely in terms of income alone.

Building on work by the economists Thomas Piketty, Emmanuel Saez, and Gabriel Zucman, the Center for Equitable Growth has proposed “GDP 2.0,” a metric that would complement existing aggregate GDP reports by disaggregating the income growth of different cross sections of the population (such as income quintiles). Providing this kind of distributional picture regularly would require increased coordination among government departments, as well as some conventions on, for example, how to use tax data to complement the usual national accounts. But conventions are also needed for existing national income accounting.

Provided that distributional data are routinely available, one could compute a growth rate based on the weighted average across each decile of the income distribution, with equal weighting for population, as in the example above. Individuals would still be weighed by their incomes *within* each group (which is why it would be preferable to use deciles rather than quintiles), but the final product would be much closer than current methods to the “democratic” ideal.

One of the main advantages of GDP growth is that it is expressed with a single number, whereas other performance

indicators either are presented within dashboards comprising multiple metrics or aggregated in essentially arbitrary ways. The implicit use of income shares as aggregation weights is perfectly appropriate for macroeconomic analysis and is not arbitrary. The problem arises when GDP becomes a proxy for progress. What we can measure easily and communicate elegantly inevitably determines what we will focus on as a matter of policy. As the Stiglitz-Sen-Fitoussi report put it, “What we measure affects what we do.”

Publishing a democratic metric like the growth rate of GDP 2.0 is no pipedream. A GDP growth rate using equal weights for each decile of the population would also produce *a single number* to complement the usual growth rate. True, it still would not capture the substantial differences *within* the top decile in many countries where the top 1% have been gaining disproportionately compared to everyone else. And we still would need other metrics to measure performance in dimensions other than income. But as a single figure published alongside GDP growth, it could go a long way toward changing the dominant conversation about economic performance.

Climate change crisis: global action needed before it's too late



Scientists said that average temperatures from 2010-2019 look set to make it the warmest decade on record.

Provisional figures released by the World Meteorological Organisation (WMO) suggest this year is on course to be the second or third warmest year ever.

If those numbers hold, 2015-2019 would end up being the warmest five-year period in the record.

This “exceptional” global heat is driven by greenhouse gas emissions, the WMO says.

The organisation’s State of the Global Climate report for 2019 covers the year up to October, when the global mean temperature for the period was 1.1C above the “baseline” level in 1850.

Many parts of the world experienced unusual levels of warmth this year.

South America, Europe, Africa, Asia and Oceania were warmer than the recent average, while many parts of North America were colder than usual.

Two major heat waves hit Europe in June and July this year, with a new national record of 46C set in France on June 28.

New national records were also set in Germany, the Netherlands, Belgium, Luxembourg and the UK.

In Australia, the mean summer temperature was the highest on record by almost a degree.

Wildfire activity in South America this year was the highest since 2010.

The WMO clearly links the record temperatures seen over the past decade to ongoing emissions of greenhouse gases, from human activities such as driving cars, cutting down forests and burning coal for energy.

"On a day-to-day basis, the impacts of climate change play out through extreme and 'abnormal' weather.

And, once again in 2019, weather and climate-related risks hit hard," said the WMO's secretary-general Petteri Taalas.

"Heatwaves and floods which used to be 'once in a century' events are becoming more regular occurrences. Countries ranging from the Bahamas to Japan to Mozambique suffered the effect of devastating tropical cyclones. Wildfires swept through the Arctic and Australia," Taalas continued.

"It's shocking how much climate change in 2019 has already led to lives lost, poor health, food insecurity and displaced populations," said Dr Joanna House, from the University of Bristol.

The World Health Organisation (WHO) has warned that climate change is mostly affecting human health, affirming that it causes the death of 7mn people annually in the world's various regions.

A large number of people suffer annually from pollution, heat stress, injuries and deaths resulting from extreme climate variability and insect-borne diseases such as Malaria, revealed Maria Neira, Director of WHO's Department of Environment, Climate Change and Health, in a report about the impact of climate change on human health, during the UN Climate Change Conference in Madrid.

Neira urged governments to take serious measures to reduce greenhouse gas emissions, as air pollution and climate change kill 7mn people annually.

“Health is paying the price of the climate crisis, because our lungs, our brains, our cardiovascular system is very much suffering from the causes of climate change which are overlapping very much with the causes of air pollution,” said Neira, calling the lower than 1% of international financing for climate action that goes to the health sector “not enough and absolutely outrageous”. The Director considered climate change as potentially the greatest health threat of the 21st Century, explaining that governments find difficulties in obtaining international climate finance to protect the health of their people and prevent the effects of this ongoing climate change.

The Climate Change Conference in Madrid, we hope, will strengthen the global action against this climate emergency and fulfil Paris’ climate agreement starting 2020.

The ECB needs a new mandate



BERLIN – The European Central Bank’s (ECB) decision in

September to pursue more monetary-policy easing was controversial, with one board representative, from Germany, resigning over the move. But one of the most remarkable features of the ECB's position has not gotten enough attention: the admission that inflation expectations have become de-anchored, and that without fiscal-policy support, the central bank will probably fail to fulfill its price-stability mandate for the foreseeable future.

In fact, many observers, and even several members of the ECB's governing council, now argue that the bank needs to adapt its mandate with a new definition of price stability in mind. They are right, but there is one crucial caveat.

Since central-bank independence was strengthened in the 1990s, it has become clear that, in normal times, the specific mandate does not matter much. The United States Federal Reserve managed to guide expectations and achieve price stability with its dual mandate, price stability and maximum employment, just as well as the Bank of England or the ECB, with their narrower price-stability mandates.

After the global financial crisis, however, the traditional mandate proved inadequate to cope with large-scale financial instability, fickle market confidence and political paralysis. Developed-country central banks had to devise policies on the fly, without a guiding framework. Each in its own way pursued unprecedented monetary easing, massively expanding its balance sheet, in order to provide much-needed support to the economy.

In many ways, these measures succeeded: Monetary expansion played a major role in pulling the economy back from the brink. But, over time, central banks' capacity to affect the real economy declined. Today, and for the foreseeable future, domestic inflation is increasingly affected by global, rather than local, developments, and financial (in)stability and fiscal policy are far more influential than monetary policy.

For the ECB, this generates a particularly serious challenge. After all, unlike other central banks, it must account for the preferences of 19 sovereign national governments, with little to no structural or fiscal-policy coordination. The eurozone is also highly fragmented financially, lacking a common capital market, a unifying safe asset or macroeconomic stabilisation tools.

The ECB needs a more realistic and flexible mandate. Given the eurozone's fragmented nature, that mandate should probably still be centered on price stability. But it should also recognise that the current definition of price stability, "below, but close to, 2 per cent inflation over the medium term", is too narrow.

A broader definition is needed, according to which the ECB pursues a symmetric inflation target of 2 per cent, within a 1.5-2.5 per cent band, over a longer time horizon. Some advocate an even higher target: For example, Olivier Blanchard, a former International Monetary Fund chief economist, has proposed re-anchoring expectations at 4 per cent. A different proposal, from New York Federal Reserve President John Williams, is to target a price level, rather than an inflation rate.

A commitment to more broadly defined price stability in the long term would give the ECB more space during times of crisis, thereby enabling it to account better for risks to financial stability and the real economy. This would help it to stabilise prices more quickly, bolstering its credibility.

By contrast, when the ECB consistently fails to meet its price-stability objective, as it has for the last five years, it loses credibility. And, indeed, the ECB has faced harsh criticism, sometimes warranted, often not, over its implementation of untested expansionary monetary policies since 2008, partly because the measures were often poorly understood by the public. The loss of credibility has

undermined the ECB's capacity to fulfill its objectives, creating a vicious circle that threatens its de facto independence.

This is why the timing of any mandate change must be chosen very carefully. If the ECB tries to move the goalpost while it is missing the shot, the short-term blow to its already diminished credibility could be serious. Given this, the ECB must work to strengthen its standing before it adjusts its mandate, including by attempting to reach the existing price-stability objective after years of failure.

At the same time, the ECB must communicate better what its capabilities are. Some have urged the ECB to try addressing the solvency problems of banks or governments during the crisis. Others would like the ECB to discipline governments to do the "right" thing and consolidate spending. A central bank must do neither and would utterly fail if it tried. But these attempts have hurt the ECB's standing, particularly in Germany, and have diminished its credibility.

Clarifying the contents of the ECB's policy toolbox, including sovereign-bond purchases and other non-standard measures, would go a long way toward protecting the ECB from such attacks in the future. And when the time comes to shift its objectives, the ECB must communicate the change, which, to be sure, may not need to be as big as many believe, clearly and thoroughly.

US President John F. Kennedy was right: the time to repair the roof is when the sun is shining. The ECB cannot revise its mandate until the current storm has passed. But, with water pouring in, it cannot afford to wait very long. The sooner the ECB does what is needed to restore its credibility, the sooner it can do what is needed to protect itself from future storms.

Marcel Fratzscher, a former senior manager at the European Central Bank, is president of the think tank DIW Berlin and

Thousands of UK jobs at risk as E.ON breaks up Npower

German energy group E.ON plans a £500mn (\$642mn) break-up of the struggling British Npower division it inherited from Innogy, which a union said could put up to 4,500 jobs at risk. The revamp, the latest among established British retail power providers, effectively removes one of the market's so-called 'Big Six' players, which have lost customers to nimbler recent entrants and been hit by a regulatory price cap.

E.ON's plan includes managing Npower's residential and small and medium-size business customers on the same platform as its own, while putting Npower's industrial and commercial customers into a separate business.

The rest of Npower will be closed.

E.ON chief executive Johannes Teyssen said the group would examine options for Npower's industrial and commercial business, the division's only profitable part, suggesting it might be sold at some point.

The shake-up will result in up to 4,500 job losses at Npower, British union UNISON said, nearly 80% of the division's total staff.

"The UK market has been very challenging for several years," Teyssen said. "Churn (customer switching) rates are high, margins slim, and the price caps introduced this year have exacerbated the situation.

No company operating there has been spared these difficulties."

Teyssen said talks with British unions about the plans had started. Shares in E.ON were up 1.6% at 0951 GMT.

“We see this initial update as encouraging, given likely low market expectations around the outlook for Npower,” Jefferies analysts wrote, keeping a “buy” rating on E.ON stock.

Npower has been suffering more than its large rivals, including E.ON itself, Centrica’s, SSE, EDF and Iberdrola, partly because of internal billing problems.

E.ON said it expected its combined British business to achieve at least 100mn pounds of earnings before interest and tax (EBIT) and positive free cash flow from 2022 onwards. E.ON took over Npower as part of a far-reaching asset swap with RWE that included the break up of Innogy.

The deal, first announced in March 2018, has turned E.ON into a pure energy retail and networks group.

As a result of the transaction, E.ON’s net debt nearly doubled to €39.6bn (\$43.7bn) at the end of September.

E.ON also said yesterday the deal had led it to raise its 2019 adjusted EBIT forecast to €3.1-3.3bn from 2.9-3.1bn.

In the first nine months of the year, adjusted EBIT fell 6% at €2.2bn.

Solar power project for auction in South Pakistan



Pakistan is entering into a new era of attracting power projects through competitive bidding to provide cheaper electricity to end-consumers, as Sindh government is all set to auction the first-ever project through the bidding process by March 2020. To date, the country has attracted power projects by offering incentives to investors under the cost-plus tariff formula, which ensured a fixed internal rate of return (IRR) to investors.

The achievement of surplus installed capacity of power production in recent times allowed authorities to make a shift towards new power projects through the tariff-based competitive bidding. "We are set to auction the first 50-megawatt (MW) solar power project at Manjhand (district Jamshoro) through competitive bidding by February-March," Sindh Solar Energy Project (SSEP) Project Director Mehfooz A Qazi said. The 50MW project is part of the planned 400MW solar power park in Sindh that is estimated to attract new investment of around \$250mn. "We aim to auction all the potential 400MW solar power projects by 2021 and start supplying electricity to the national power grid within the next

five years (2023-24)," he said. The World Bank is providing financial and technical support for establishing the solar park. "World Bank has provided an assistance of \$100mn for four different solar power projects, including \$30mn for establishing the 400MW solar park," he said. In this backdrop, the energy department of the government of Sindh appointed a consortium of foreign and local advisers to auction the 400MW power projects.

The consortium comprises Bridge Factor (Pakistan) and Tractebel Engie (Germany) in association with Renewable Resources Limited (Pakistan), Ashurst Law (Singapore) and Axis Law (Pakistan). On behalf of the government of Sindh, Qasim inked the contract with the consortium to hire its services in the presence of Provincial Energy Minister Imtiaz Ahmed Shaikh at Energy Department. The project director hoped the solar projects would attract an investment of around \$250mn, considering the country has recently attracted \$38mn investment for a 50MW solar project under the old formula of cost-plus tariff. "We are highly hopeful the projects will provide cheaper and clean energy in the country," he said. Earlier, the National Electric Power Regulatory Authority (Nepra) had announced an upfront tariff of 5.23 cents per unit (Kilowatt per hour) to attract solar projects under the old formula of cost-plus tariff. "The competitive bidding will surely attain a comparatively cheaper tariff than the upfront tariff," he said. The competitive bidding process allows the Sindh government to accept the lowest tariff-bid from new potential investors. Later-on, it may ask other investors to match the lowest bid to become part of the 400MW solar park. He said the investors would offer the much cheaper tariff than the upfront one, as cost of solar power projects has massively gone down over a period of time. "The government awarded a (high) tariff of 15-16 cents per unit for the first solar park (Quaid-e-Azam Solar Park of 100MW set up in Bahawalpur, Punjab) years back. The cost of solar power projects has further cut down since Nepra approved the up-

front tariff of 5.23 cents per unit for solar power,” he said. Solar remains one of the low- cost sources of electricity generation in the energy mix in the country. More importantly, the federal government has planned to increase the share of solar power to around 25% by 2025 compared to around 4-5% at present. Qazi said the demand for electricity has been increasing by 5-7% per year. “The surge in demand may come comparatively higher and quicker considering the country is set to see acceleration in economic growth going forward.”

Qatargas LNG production achieves ‘best in class’ reliability performance of 98.8% in 2019



Qatargas' liquefied natural gas (LNG) production is on target achieving the “best in class” reliability performance of 98.8%

while the Laffan Refinery achieved a strong reliability of 98.6%, well ahead of the current year targets.

The world's top LNG company's "achievements in 2019 and its strong performance" in a wide range of areas were highlighted at its Annual Town Hall meetings held in Doha and Al Khor recently.

The company also completed "successful and safe" shutdowns of three of its mega LNG trains to ensure their reliability.

Qatargas maintained a "strong environmental and safety performance" as it achieved a flaring rate of 0.38 against a target of 0.44 thanks to a successful flare reduction project whereas the greenhouse gas (GHG) emission rate showed 0.35 against a target of 0.42.

In the year under review, Laffan Refinery 1 marked 10 years of operation without any Lost Time Incident (LTI) and the company successfully completed two key environmental projects – the Waste Materials Management facility and the Treated Industrial and Process Water facility.

Updates on the North Field Expansion (NFE) and North Field Production Sustainability (NFPS) projects were provided during the event.

While the NFPS project will ensure that the current production capacity of the North Field offshore wells is well maintained into future, the NFE project will further enhance Qatar's production capacity from the current 77mn tonnes per year (Mtpy) to 110mn Mtpy by 2024. Updates on the Barzan Pipeline and Helium 3 projects were also provided during the event.

The 2020 strategic goals, as explained during the meetings, included striving for an "Incident and Injury Free" workplace, improving uptime availability, reliability and utilisation of the LNG plants to achieve full plant capacity and meet supply rights; and enhancing and promoting reliability culture across the organisation to drive efficiency.

In addition, further strategic goals were identified as maximising revenue by penetrating new markets; maximising customer satisfaction while retaining contractual and financial performance; and achieving Qatarisation targets through a skill-based Qatarisation strategy.

At the events, Qatargas performance, challenges and strategic goals were reviewed.

The Town Hall meeting is an open forum for employees to meet

with Qatargas' chief executive officer and the management leadership team for discussions on the company's performance, future challenges and strategic goals for the year ahead.

A question and answer session followed in which Qatargas CEO Sheikh Khalid bin Khalifa al-Thani, and the management team replied to employee's questions and enquiries on work-related matters.

Natural gas in increased focus on world stage, al-Kaabi tells GECF meeting



Natural gas is getting increased focus on the world stage as it provides the right balance of reliable and secure sources of energy, which can not only drive growth but also help address the environmental concerns, Qatar has said.

HE Minister of State for Energy Affairs Saad bin Sherida al-Kaabi, made this remark at the extraordinary ministerial meeting of the Gas Exporting Countries Forum (GECF) in Malabo, Equatorial Guinea.

The extraordinary meeting is held in preparation of the fifth Heads of State Summit, which will also be held in Equatorial Guinea.

Referring to the relevance of associating the UN Sustainable Development Goals with greater access to a versatile, flexible, economic, and clean source of energy, he said: "we

are pleased to note the increasing attention natural gas is receiving as an important clean fuel in the global energy mix, and as a significant contributor to economic prosperity and environmental efforts to reduce emissions.”

Many countries around the world are reaching the conclusion that natural gas does provide the right balance of reliable and secure sources of energy, which can drive economic growth, and help address environmental concerns at the same time, said al-Kaabi, who led Qatar’s delegation.

Qatar will hold the sixth heads of state summit of GECF in 2021.

Demand slowdown in top gas buyer set to worsen



Bloomberg/ Beijing/Singapore

A slowdown in gas demand growth in China, the driver of global use over the past two years, is expected to slacken further,

adding to investor concern as supply continues to build.

Consumption in 2021-2025 will grow at a slower pace than it has in the current five-year period, a researcher at China's economic planning department said at the BloombergNEF summit in Shanghai on Wednesday. Furthermore, a weaker economy and rising imports via pipeline could shrink the share of liquefied natural gas in the overall Chinese market, according to gas utility ENN Energy Holdings Ltd.

The country's overall gas use has expanded 9.5% so far this year, down from 18% in 2018, amid concerns that the slowing economy has prompted the government to focus less on pollution control, which had earlier helped spur demand for the fuel.

That contrasts with the boom in 2017-2018, when President Xi Jinping's calls for blue skies sparked a race among local governments and businesses to switch millions of homes and factories from burning coal to using more of cleaner-burning gas.

The demand slowdown has pushed LNG prices in Asia lower by almost 40% this year, a slump also aided by China's rising domestic output of the fuel.

China's gas demand growth will likely slow over the duration of the 14th Five-Year Plan from 2021 to 2025 compared with current levels, Tian Lei, an assistant professor at the National Development & Reform Commission's Energy Research Institute, said in an interview on the sidelines of the BNEF summit.

Consumption will probably be weaker at the start of the five-year period, before accelerating toward the end due to environmental pressure, he added.

A sharp deceleration in China's economic growth – with gross domestic product expanding in the third quarter at the slowest rate in decades – coupled with rising pipeline imports following the start-up of the Power of Siberia line from Russia, could cut LNG's market share in China and lower import growth, according to Mark Lay, deputy general manager of ENN.

China's LNG imports gained 14% this year through October after rising more than 40% in each of the prior two years. Increased

domestic gas production amid the nation's efforts to bolster energy security will also erode overseas purchases, said Daniela Li, a BloombergNEF analyst.

Despite prospects of a slowdown, the current gas consumption levels still represent "extraordinary growth," said Bernard Samuels, vice president of China gas development at Royal Dutch Shell Plc. The government's plans for a national pipeline company could help lower prices for domestic customers and boost demand, he said.

Future of solar panel production will have two faces



Solar customers increasingly want panels that capture energy from both their sunny and shady sides, as plummeting component prices finally allow such products to be cost-effective.

Panels that are bi-facial, as the technology is known, will probably become the industry standard, according to one of the world's biggest solar manufacturers, LONGi Green Energy Technology Co. They already dominate in the Middle East and are making inroads in the U.S., Europe and elsewhere, according to another top maker.

The shift is being driven by ever-cheaper parts, which are making the products profitable even though adding solar glass on the underside of panels boosts power output by less than 10%, according to BloombergNEF. Bi-facials will likely make up 15% of the global market next year, up from 4% this year, BloombergNEF analyst Wang Xiaoting said Tuesday at the research firm's annual summit in Shanghai.

Russia says new crude-only Opec+ target isn't a loophole



Bloomberg/ Vienna

The exclusion of a light oil called condensate from Russia's output target under the Opec+ deal is not a loophole, but a way to bring the country in line with the rest of group, said Energy Minister Alexander Novak.

At Friday's meeting of the Organization of Petroleum Exporting Countries and its allies in Vienna, Russia was given

permission to exclude the liquid hydrocarbon that condenses out of natural gas from its production target. The change brings Russia's November oil output in line with its pledged cut, where previously it had fallen short.

Novak denied the decision was a loophole that would give Russia an opportunity to pump more oil and still claim compliance with the Opec+ deal because the oil nation's statistics don't publish separate crude and condensate volumes.

"We have a very precise way to calculate our crude oil and condensate output field by field, crude variety by crude variety," Novak said in an interview with Bloomberg TV in the Austrian capital. "It is impossible to create a loophole."

Russia has every means to reflect the breakdown in its data and will be transparent about the oil production levels with Opec, analysts and media, Novak said. The country reached an agreement with Opec on feeding data from its computerised oil-tracking system to the agencies monitoring the group's output, he said.

Russia, one of the architects of the Opec+ deal, has consistently failed to comply with its pledged output cut this year. Last month, Novak said one of the key hindrances was rising production of condensate from new natural gas fields. The nation includes condensate in the total oil production volumes, while its Opec partners do not.

At the Vienna meeting, Opec+ agreed to reduce its output target by 500,000 barrels a day in the first quarter.

Russia's cuts target will be deepened by about 70,000 barrels a day, bringing its total obligation for crude-only supply curbs to some 300,000 barrels a day.

The new rules on condensate will help Russia achieve full compliance with its pledges, Novak said. Already in November, if condensate had been excluded, Russia's crude-only daily cuts reached some 232,000 barrels, more than required under the Opec+ deal, Novak said.

The nation is determined to deliver the pledged cuts in full in the first quarter, even as low winter temperatures in

Siberia, Russia's main oil region, make supply reductions difficult, Novak said.