

# The Psychologist Who Convinced Economists that to Err Is Human



Daniel Kahneman, who passed away in March at the age of 90, received the Nobel Prize in Economics despite having never taken an economics course. Nevertheless, his scholarship reshaped and upended the discipline's fundamental assumptions, laying the groundwork for the emergence of behavioral economics.

CAMBRIDGE – The recent passing of psychologist and Nobel laureate Daniel Kahneman is an apt moment to reflect on his invaluable contribution to the field of behavioral economics. While Alexander Pope's famous assertion that "to err is human" dates back to 1711, it was the pioneering work of Kahneman and his late co-author and friend Amos Tversky in the 1970s and early 1980s that finally persuaded economists to recognize that people often make mistakes.

When I received a fellowship at Stanford University's Center for Advanced Study in the Behavioral Sciences (CASBS) four years ago, it was this fundamental breakthrough that motivated

me to choose the office – or “study” (to use CASBS terminology) – that Kahneman occupied during his year at the Center in 1977-78. It seemed like the ideal setting to explore Kahneman’s three major economic contributions, which challenged economic theory’s apocryphal “rational actor” by introducing an element of psychological realism into the discipline.

Kahneman’s first major contribution was his and Tversky’s groundbreaking 1974 study on judgment and uncertainty, which introduced the idea that “biases” and “heuristics,” or rules of thumb, influence our decision-making. Instead of thoroughly analyzing each decision, they found, people tend to rely on mental shortcuts. For example, we may rely on stereotypes (known as the “representativeness heuristic”), be overly influenced by recent experiences (the “availability heuristic”), or use the first piece of information we receive as a reference point (the “anchor effect”).

Second, Kahneman and Tversky’s work on “prospect theory,” which they published in 1979, critiqued expected utility theory as a model of decision-making under risk. Drawing on the “certainty effect,” Kahneman and Tversky argued that humans are psychologically more affected by losses than gains. The perceived loss from misplacing a \$20 note, for example, would outweigh the perceived gain from finding a \$20 note on the sidewalk, leading to “loss aversion.”

This insight is also at the core of the “framing effect.” The theory, developed while Kahneman was a fellow at CASBS and Tversky was a visiting professor at Stanford, posits that the way information is presented – whether as a loss or a gain – significantly influences the decision-making process, even when what is framed as a loss or gain has the same value.

Lastly, there is Kahneman’s popular masterpiece, the bestselling *Thinking, Fast and Slow*. Published in 2011 and offering a lifetime’s worth of insights, the book introduced

the general public to two stylized modes of human decision-making: the “quick,” instinctive, emotional mode that Kahneman called System 1, and the “slower,” deliberative, or logical mode, which he called System 2. Humans, he showed, are prone to abandoning logic in favor of emotional impulses.

Kahneman received the Nobel Prize in Economics in 2002, despite, as he jokingly remarked, having never taken a single economics course. Nevertheless, his scholarship laid the groundwork for an entirely new field of economic research – and it had all begun in Study 6.

In particular, Kahneman’s work had a profound impact on University of Chicago economist Richard Thaler, who went on to become a Nobel laureate himself. As an assistant professor, Thaler managed to “finagle” a visiting appointment at the National Bureau of Economic Research, whose offices were located down the hill from CASBS, enabling him to connect with Kahneman and Tversky.

In 1998, Thaler co-authored a seminal paper with Cass Sunstein and Christine Jolls, introducing the concept of “bounds” on reason, willpower, and self-interest, and highlighting human limitations that rational-actor models had overlooked. By the time he received the Nobel Prize in 2017, Thaler had systematically documented “anomalies” in human behavior that conventional economics struggled to explain and conducted highly influential research (with Sunstein) on “choice architectures,” popularizing the idea that subtle design changes (“nudges”) can influence human behavior.

But as I gazed at the sweeping views of Palo Alto and the San Francisco Peninsula from the office window at CASBS, the birthplace of behavioral economics, I could not help but wonder whether Kahneman, despite his famously gentle nature, had perhaps been too critical of human decision-making. Are all deviations from “pure” economic logic necessarily “irrational”? Is our inability to align with the idealized

model of economic analysis, coupled with our inevitable – albeit predictable – irrationality, really an inherent weakness? And is our tendency to rely on emotions rather than reason a fatal flaw, and if so, could our susceptibility to instinct ultimately lead to our downfall?

I wish I could ask Kahneman these questions. During my time there in 2020-21, Kahneman, affectionately known as “Danny” to all, was not just what CASBS called a “ghost” of the “study” – a former occupant who had been a major influence on my work – but also, happily, a vibrant, living legend who had enthusiastically invited me to discuss these very issues in person. Looking back, I regret my “planning fallacy” in not taking him up on his offer to deepen our conversation sooner – a sentiment shared by both my System 1 and System 2 modes. If “to err is human,” Danny taught me a poignant final lesson in human error.

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**QatarEnergy to acquire two  
new exploration blocks  
offshore Egypt**



QatarEnergy has signed a farm-in agreement with ExxonMobil to acquire a 40% participating interest in two exploration blocks offshore Egypt.

Under the terms of the agreement, which is subject to customary approvals by the government of Egypt, QatarEnergy will acquire a 40% working interest in each of the “Cairo” and “Masry” Offshore Concession Agreements, while ExxonMobil (the Operator) will retain the remaining 60% working interest.

Commenting on the signing of this agreement, HE Minister of State for Energy Affairs, the President and CEO of QatarEnergy Eng. Saad bin Sherida Al Kaabi said: “I am pleased with our

entry into the Cairo and Masry offshore exploration blocks as they expand QatarEnergy's presence in the Arab Republic of Egypt and extend our ambitious exploration program in-country."

"We look forward to working with our valued long-term strategic partner ExxonMobil, as well as with the Egyptian Natural Gas Holding Company (EGAS) and the Egyptian Ministry of Petroleum and Mineral Resources, in this promising and prospective region. I would like to take this opportunity to thank the Egyptian authorities and our partners for their valuable support and cooperation," His Excellency added.

The Cairo and Masry offshore exploration blocks were awarded to ExxonMobil in January 2023, and cover an area of approximately 11,400 square kilometers in water depths of 2,000 to 3,000 meters.

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## **In the dock: Pivotal climate change testimonies in US**



From Mexicans left homeless by rising seas to Colombians affected by coral bleaching, hundreds of people are telling the top human rights court in the Americas what climate change means to them in an historic case that could shape international law.

Environmental lawyers also hope the hearings at the Inter-American Court of Human Rights (IACHR), which were requested by Colombia and Chile, will define the duties of states to confront the climate crisis and stop it infringing on human rights.

As well as receiving submissions from climate victims, the Costa Rica-based court, which started its inquiry in Barbados in April, will hear from UN agencies, legal experts, grassroots environmental campaign groups, and youth groups.

The next sessions are due to be held in Brasilia and then Manaus, Brazil at the end of May, and an advisory opinion is expected by May 2025.

"We're hoping that the court's legal opinion is a guide and reference for Mexico, and other states, to develop public policies from a climate justice perspective," said Nora Cabrera, a lawyer and head of Our Future, a Mexico-based youth climate justice campaign group.

"And that it includes loss and damage compensation for

affected communities, and adaptation policies for those not yet directly affected by climate change,” said Cabrera, who will be speaking at the next hearing in Manaus.

In January, Colombia and Chile asked the IACHR to issue the advisory opinion, saying that they were experiencing the “daily challenge of dealing with the consequences of the climate emergency,” including fires, landslides, droughts and floods.

“These events reveal the need for an urgent response based on the principles of equity, justice, co-operation and sustainability, with a human rights-based approach,” they said in their petition.

“There is a close relationship between the climate emergency and the violation of human rights,” they added.

It is this link between climate change and human rights that the IACHR will seek to define, while also examining how climate change affects migration and looking at the disproportionate effect on children, women and Indigenous people.

Chile and Colombia also asked the court for clarification on a state’s duties to protect environmental activists.

Latin America is the most dangerous place in the world for environmental and land defenders, according to advocacy group Global Witness. Around 90% of the 177 killings of environmental activists recorded in 2022 took place in the region.

“The hearing aims to ask for clarity about human rights obligations and the climate crisis,” said Jacob Kopas, senior attorney at the Earthjustice environmental group, one of a group of lawyers who spoke at the Barbados hearing on April 26.

“It will help to create a more concise framework to guide state behaviour and policy to confront the climate crisis and protect human rights,” said Kopas.

Among those submitting testimonies will be the residents of the El Bosque fishing community in Tabasco, Mexico, where rising sea levels caused by climate change have swept away



about 200 meters of coastline.

Since 2019, the school and more than 50 homes have been destroyed, forcing about 200 people to leave.

El Bosque community leader, Guadalupe Cobos, said she and 10 neighbours will probably have to leave within a year and resettle in an area about 12km away, where new homes are being built by the government.

"We depend on the sea but coastal erosion has affected our way of life. It's important for the court to know that we're living climate change now and that this isn't something that will happen in the future in 20 or 50 years' time," said Cobos.

"We want the court to hear our experiences and to know that our rights have been violated, that we have been forced to migrate," Cobos told the Thomson Reuters Foundation.

The court's advisory opinion could have important implications for climate litigation across Latin America and the Caribbean and make it easier for communities living with the effects of global warming to take legal action.

The opinion will apply to all signatories of the American Convention on Human Rights, most of whom are members of the Organization of American States. The United States and Canada have not ratified the treaty however.

The advisory opinion will help shape the region's legal systems as many countries incorporate its jurisprudence into their laws and constitutions.

"We're hoping that the court makes the link between the climate crisis and human rights violations and that it recognises climate displacement," said Cabrera, whose organisation has been supporting the El Bosque community.

The IACHR is known for its progressive stance on climate justice and human rights.

In March, it recognised that citizens in Peru have the right to a healthy environment when it ruled in favor of people living in the Andean mining town of La Oroya, who had suffered from decades of environmental pollution.

Other courts are also breaking new ground in this sphere.

In Colombia in April, in response to a lawsuit filed by a farming couple who were driven out of their home by flooding caused by heavy rains, the country's constitutional court recognised the links between environmental disasters and climate change and people being forcibly displaced.

Across the world, other top courts are also examining the connection between human rights and climate change. On April 9, the European Court of Human Rights (ECHR) ruled that the Swiss government had violated the human rights of its citizens by failing to do enough to combat climate change.

Two other courts – the International Court of Justice (ICJ) and the International Tribunal for the Law of the Seas (ITLOS) – are also expected to give advisory opinions on international legal obligations of states regarding climate change.

Kopas said the IACHR ruling could lead the way by delivering a “forward-reaching and progressive” advisory opinion.

“It’s historic because of the climate crisis we are in. This is the crisis of our lifetime and of all future generations.”

– Thomson Reuters Foundation

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**Asia continues to be ‘principal market’ for Qatar LNG; accounts for 72% of total supplies in 2022, says GECF**



Principal market for Qatari LNG continues to be Asia, accounting for 72% of its total supplies in 2022, Doha-based Gas Exporting Countries Forum (GECF) said in a report.

Qatar accounted for 16% of European LNG imports in 2022, GECF said in its 'Global Gas Outlook 2050'.

In 2022, net gas exports from the Middle East amounted to 139 bcm. Projections indicate a significant surge in overall net exports to 292 bcm by 2050.

In 2022, the Middle East contributed 96mn tonnes to global LNG exports, representing 25% of the total global LNG exports.

Qatar secured the top position as the leading global LNG exporter, shipping 79mn tonnes, while Oman and the UAE exported 11mn tonnes and 5.5mn tonnes respectively.

"Notably, Qatar supplied 16% of European LNG imports. However, Europe only represented 24% of Qatar's overall LNG exports, while the principal market for Qatari LNG continued to be Asia, accounting for 72% of the total," GECF said.

According to the forum, the "primary force propelling natural gas exports" from the Middle East is set to be growth in LNG supplies, notably led by Qatar.

The upward trajectory of Qatar's position as a leading global LNG exporter in 2022 indicates a growing momentum towards additional expansions or advancements post-2030s and 2040s following the North Field expansion projects.

With ambitions to increase its current capacity of 77mn tonnes per year by 64%, Qatar aims to reach 126mn tonnes per year through the North Field expansion by 2028.

By 2050, LNG exports from the Middle East will reach 205mn tonnes, largely due to the expansion efforts in Qatar. Anticipated long-term LNG imports are predicted to reach 16mn tonnes by 2050.

Consequently, the long-term outlook suggests an expansion of LNG net exports to reach 189mn tonnes. Primary destination for Middle Eastern LNG is expected to continue being Asia, with that region set to have an even more significant role in the long run.

By 2050, GECF noted, the Asia Pacific region is poised to receive 186mn tonnes of LNG sourced from the Middle East, constituting over 90% of all LNG exported from that region.

The region possesses 101mn tonnes per year of liquefaction capacity, primarily dominated by Qatar's 77mn tonnes per year. Plans are in progress from 2022 to 2050 to add approximately 130mn tonnes per year of extra LNG liquefaction capacity to the region, with Qatar leading expansion efforts.

The utilisation rate of this increased LNG liquefaction capacity is projected to be high, surpassing 90% by 2050, GECF said.

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## **The Case for a European**

# Public-Goods Fund



Mar 4, 2024 AGE BAKKER, ROEL BEETSMA, and MARCO BUTI

With the European Union's pandemic recovery fund set to end in 2026, there is an urgent need for more durable financial mechanisms to support its long-term objectives. Fortunately, a new investment fund could both enhance the EU's growth potential and ensure compliance with its new fiscal rules and shared values.

AMSTERDAM – Following weeks of intense negotiations, the European Union has agreed to revise its fiscal rules. The new rulebook will replace the Stability and Growth Pact (SGP) – which has been suspended since the start of the COVID-19 pandemic – and modernize the bloc's 25-year-old fiscal framework.

While the SGP featured a one-size-fits-all model that ultimately undermined its credibility, the updated fiscal rules allow for a differentiated approach. The goal is to maintain the existing deficit and public debt limits while still encouraging member states to invest in green and digital technologies. Member states will be granted extended adjustment periods of up to seven years to reduce their debts to sustainable levels, provided they commit to reforms and

investments that support this double (green/digital) transition.

But while the EU's efforts to strike a balance between fiscal discipline and growth incentives are commendable, national budgets alone will not be enough to finance the EU's ambitious double transition. The European Commission estimates that an annual investment of roughly €650 billion (\$700 billion) is needed to meet the 2030 targets of producing at least 42.5% of the bloc's energy from renewable sources and reducing greenhouse-gas emissions by 55%.

Under the new fiscal rules, funding for digital and green investments can be sourced from the €800 billion NextGenerationEU fund, which was established in 2020 to help European economies recover from the COVID-19 shock. But since the NGEU is scheduled to end in 2026, there is an urgent need for more durable financial mechanisms to support the EU's long-term objectives.

As matters stand, the NGEU's focus on national investments has left transnational projects such as high-speed railways and hydrogen infrastructure severely underfunded. Moreover, the US Inflation Reduction Act has widened the investment gap between Europe and the United States. To restore its strategic autonomy, European leaders should build on the success of the NGEU.

In a forthcoming paper, we propose the establishment of a \$750 billion EU public-goods fund aimed at bridging funding gaps in crucial areas like renewable energy and digital infrastructure. The primary focus of this fund would be to catalyze cross-border investments and support projects that struggle to secure funding without EU-level financial support. By making access to this fund contingent on compliance with the new fiscal rules, the EU could maintain fiscal discipline among member states.

The public-goods fund, which would cover the 2026-30 period, is intended to align seamlessly with the EU's climate goals. Building on the successful precedents established by previous EU borrowing initiatives, it would be financed by issuing EU bonds, backed by pooled national guarantees, the EU's budget (bolstered by sufficient revenue streams), or both. Its proposed size represents roughly one-fifth of the bloc's total investment needs through 2030, and the remaining investments would be financed through contributions from member states and the private sector.

By focusing on cross-border investments, the fund would underscore the EU's unified approach to tackling European challenges. At the same time, the requirement to comply with the new fiscal rules would broaden the conditional framework established by the NGEU program, which linked fund access to the rule of law in recipient countries.

Similarly, the proposed conditionality regime would tie access to the new fund to domestic fiscal discipline, thus aligning with the EU's revised fiscal guidelines. Rather than facing penalties for non-compliance, as was the case under the previous SGP, countries would be incentivized to demonstrate fiscal responsibility.

Thus, the conditionality regime would simultaneously boost the EU's growth potential, uphold the integrity of the new fiscal rulebook, and encourage fiscal sustainability among member states. Moreover, increased debt issuance at the European level could be offset by reduced debt issuance at the national level.

Once the fund is established, countries would be encouraged to submit comprehensive investment proposals for transnational projects. The European Investment Bank would determine whether they are eligible to access the fund's resources based on their alignment with the EU's double-transition targets and the potential for positive cross-border spillovers. Meanwhile,

the European Commission would ascertain that the countries proposing these projects comply with fiscal rules.

The fund's proposed design aligns with the trend of using EU funds to achieve broader policy objectives. By relying on the successful model of the pandemic recovery fund and the bloc's current conditionality regime, it would empower the EU to meet crucial climate targets while upholding its shared values.

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## Climate Leadership from the Global South



Mar 14, 2024 MAR ANDRÉS CAMACHO and SOIPAN TUYA

With vast solar, wind, hydro, and geothermal resources, Africa and Latin America have a central role to play in the clean-energy transition. But while countries like Colombia and Kenya have made impressive progress, additional financing – and thus reforms to the international financial system – is sorely needed.

BOGOTÁ/NAIROBI – Last month, the International Energy Agency's ministerial gathering took place in Paris, while the African Union, which recently joined the G20, held its annual summit in Addis Ababa. Both fora recognized the urgent need to fulfill the commitments made at last December's United Nations Climate Change Conference (COP28) in Dubai, not least



to triple installed renewable-energy capacity by 2030. But the challenges ahead are substantial.

COP28 identified many actions that are crucial to achieving net-zero emissions by 2050. Beyond the sharp increase in renewable-energy capacity, these include doubling the rate of energy-efficiency improvements by 2030, phasing down the “unabated” use of fossil fuels, and providing financial support to developing countries as they work to expand energy access and advance economic development.

Africa and Latin America have a central role to play in fulfilling the world’s net-zero ambitions. Both regions boast abundant renewable-energy potential, thanks to vast solar, wind, hydro, and geothermal resources. By leveraging these, Africa and Latin America can make rapid progress in reducing their carbon emissions, enhancing energy access, and stimulating sustainable economic growth.

Our countries, Colombia and Kenya, are already making significant strides toward a cleaner energy mix. Though Colombia has massive oil and gas reserves, hydropower generation accounts for nearly 70% of its electricity production. And the government is committed to increasing the share of renewables in the energy mix further by 2030. By harnessing wind, solar, biomass, and geothermal, Colombia can diversify its renewable-energy portfolio and further reduce its reliance on fossil fuels.

Colombia is also taking direct action to accelerate the phaseout of fossil fuels. The government recently announced a ban on the issuance of new licenses for oil and gas exploration, and has signaled its intention to address the negative effects of fossil-fuel extraction. These measures will not only curb carbon emissions, but also help protect the country’s vulnerable ecosystems and rich biodiversity.

As for Kenya, it is emerging as a renewable-energy success

story in Africa. Using its vast geothermal, wind, solar, and hydroelectric resources, Kenya has raised the share of renewables in its electricity generation to a whopping 94%. Its geothermal sector has achieved remarkable growth, making it Africa's leading producer of geothermal power. And now, Kenya is helping its neighbors, Ethiopia and Djibouti, to harness their own geothermal resources as well.

Underpinning Kenya's progress are government efforts to implement supportive policies and create an enabling environment for private investment. The Kenyan government's forward-thinking approach has not only resulted in expanded energy access for its people; it has also created jobs and local industries, thereby advancing economic development and opening up opportunities to collaborate with others. Kenya is a founding member of Accelerated Partnerships for Renewables in Africa, an initiative that aims to bolster the energy transition in African countries, with support from Denmark, Germany, and the United Arab Emirates.

Colombia and Kenya's achievements should be highlighted and celebrated to motivate and guide other countries in their own clean-energy transitions. Those with fossil-fuel resources, for example, must follow Colombia's example in limiting oil and gas exploration.

But Colombia and Kenya are not only passive models for others to follow; they are also active global leaders. If their clean-energy transitions didn't already make their commitments apparent, their recent decision to join the Beyond Oil & Gas Alliance – an international coalition of governments and partners working to facilitate the fossil-fuel phaseout – should make them so.

Still, financing is key if the world is to realize its clean-energy ambitions. Low investment in Africa is a major challenge. A recent BloombergNEF report shows that in 2021, just 0.6% (\$2.6 billion) of the \$434 billion invested in

renewable-energy projects went to African countries. A sharp increase in funding flows from rich countries to clean-energy sectors in both Africa and Latin America is urgently needed.

Beyond direct financial support from rich countries, the global financial system – including the International Monetary Fund and multilateral development banks – must urgently be reformed, so that it is fairer and more efficient. Only then can this system deliver enough financing to meet the growing needs of developing economies. Coordinated action to ease the debt burdens on developing economies is also vital.

At COP28, the Global South demonstrated solidarity and a commitment to cooperation. By sharing knowledge and best practices, developing economies can drastically accelerate the clean-energy transition. But, if the world is to succeed at combating climate change and safeguarding our collective future, bold action to ensure adequate financing is essential.

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**What's next after new  
Energean gas discovery in  
Israel's Karish North Field?  
Expert underlines need for  
Lebanon to lay groundwork for  
maritime boundary deals with**

# Cyprus and Syria



DOHA/BEIRUT – By Myriam Balaa: Israel's latest undersea gas find further demonstrates that Lebanon should be doing everything it can to pave the way for its own offshore oil and gas industry, specifically by settling its maritime boundaries with Cyprus and Syria, one of the region's foremost authorities on energy development says.

In an interview following Greek/Israeli-owned Energean's announcement of a second discovery in the Karish North Field adjacent to Lebanese waters, energy consultant Roudi Baroudi

said the news was actually good for Lebanon.

“It’s no surprise that they found more. It just underscores what we’ve known for several years: we haven’t located all the resources tucked away beneath the seabed of the East Med, including deposits awaiting discovery off Lebanon’s coast,” said Baroudi, who has more than four decades of experience in the energy business. “The problem is that Lebanon’s ongoing political quagmire has caused significant delays in the development of the country’s nascent offshore hydrocarbon sector.”

Baroudi, who currently serves as CEO of Energy and Environment Holding, an independent consultancy based in Doha, Qatar, confirmed that the new find seemed to be located very close to the maritime boundary line (MBL) agreed to by Lebanon and Israel in October 2022. That agreement, reached after years-long mediation by the United States, was a “necessary step”, he explained, but “it alone has not been sufficient to fully activate Lebanon’s oil and gas industry.”

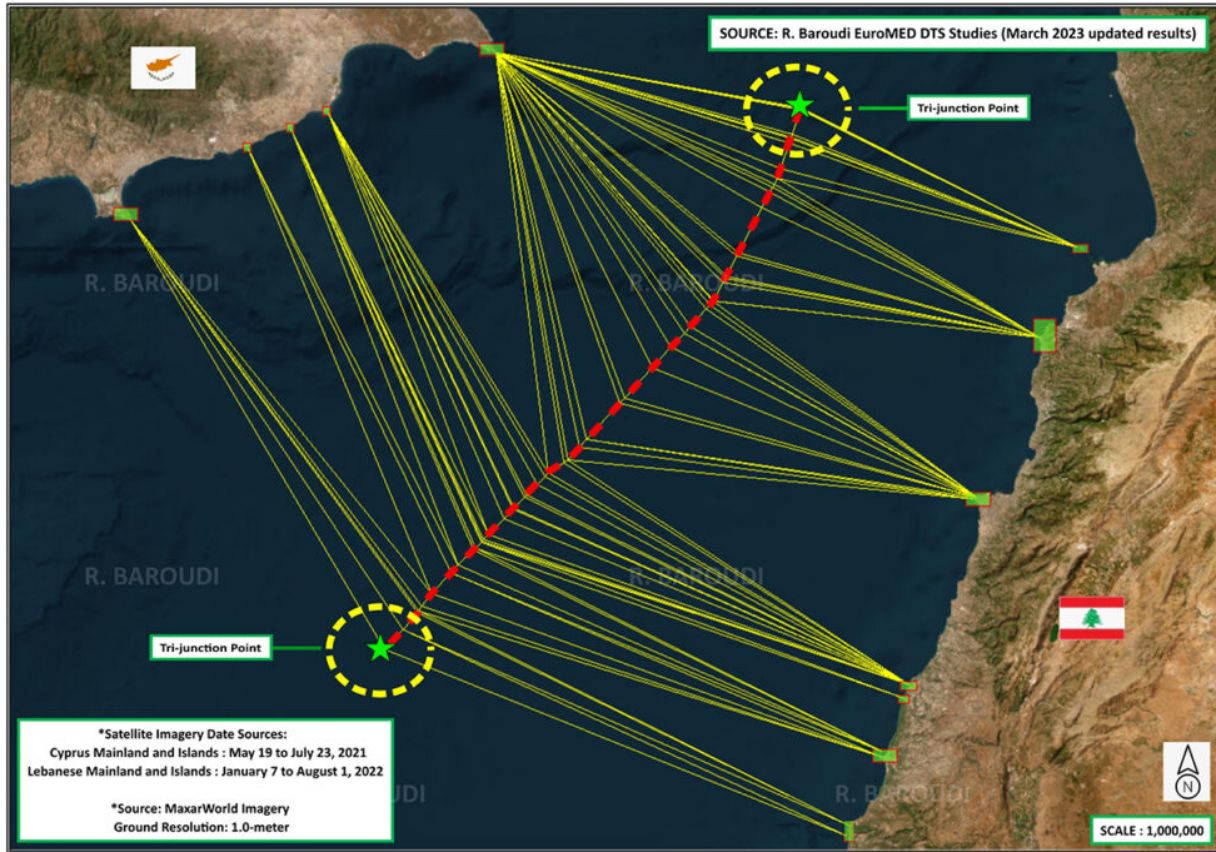
Asked how Beirut should proceed at this juncture, he stressed the importance of moving ahead with efforts to finalize Lebanon’s MBLs with Cyprus and Syria, “which would achieve full international recognition of Lebanon’s Exclusive Economic Zone, thereby reducing the risk for the big energy companies whose assistance we need in order to fully explore and exploit our offshore resources.”

“We’ve already negotiated the different equidistance points for a completed MBL agreement with Cyprus, we just haven’t ratified it,” Baroudi explained. “That means we just have to adjust a few coordinates in order to set a trijunction point where the Lebanese, Cypriot, and Israeli MBLs intersect at sea. And setting that trijunction in the south will automatically simplify the process of setting another in the north for Lebanon-Cyprus-Syria”.

## CYPRUS - LEBANON MBL

Cyprus vs. Lebanon \*Strict Equidistance Maritime Boundary Line (MBL)

100% \*Full Effect Line (red dashed line), using all relevant Cyprus coastlines and offshore Islands (see close-up inset example), plus also all relevant Lebanese mainland coastlines and all offshore Islands (see closeup inset example). This MBL begins at the northern computed Cyprus-Syria-Lebanon Trijunction point (TRJ ~ green star) and terminates at the southern modified computed Cyprus-Lebanon-Israel Trijunction point (TRJ ~ green star). See the report for specific details on the Trijunction Points and MBL Line Latitude and Longitude geographic coordinates, along with methodology on how the Trijunction Points and this MBL was produced.



He also played down claims in some circles that a significant gap exists between the Lebanon-Cyprus line and the Cyprus-Israel line, making it more difficult to set a trijunction.

“There is a gap, of course, but it’s really quite small,” Baroudi told the reporters “The proof of this is in the delineation of the offshore blocks issued by both Lebanon and Cyprus about a decade ago. On all the international blocks maps of the area, even including the ones issued by the oil and gas companies, which focus on accurate portrayals of acreage, there is no overlap. In fact, virtually all of the line between Lebanese and Cypriot blocks precisely tracks almost a MBL line agreed which Nicosia and Beirut agreed to in the unratified agreement. The difference at the southern end of the trijunction point is very, very small.”

The smaller the gap, he explained, the easier it should be to finish defining Lebanon's EEZ.

"Since the lines are so close, setting a trijunction – the point where the Lebanese, Cypriot, and Israeli boundaries intersect – should be relatively easy," he said. "In addition, agreeing that trijunction in the south would automatically simplify the process of setting one in the north for Lebanon-Cyprus-Syria. And keep in mind: Lebanon has strong & friendly relations with both Cyprus and Syria, so these negotiations will be a lot friendlier than the ones with Israel, which had to be pursued indirectly via American mediation."

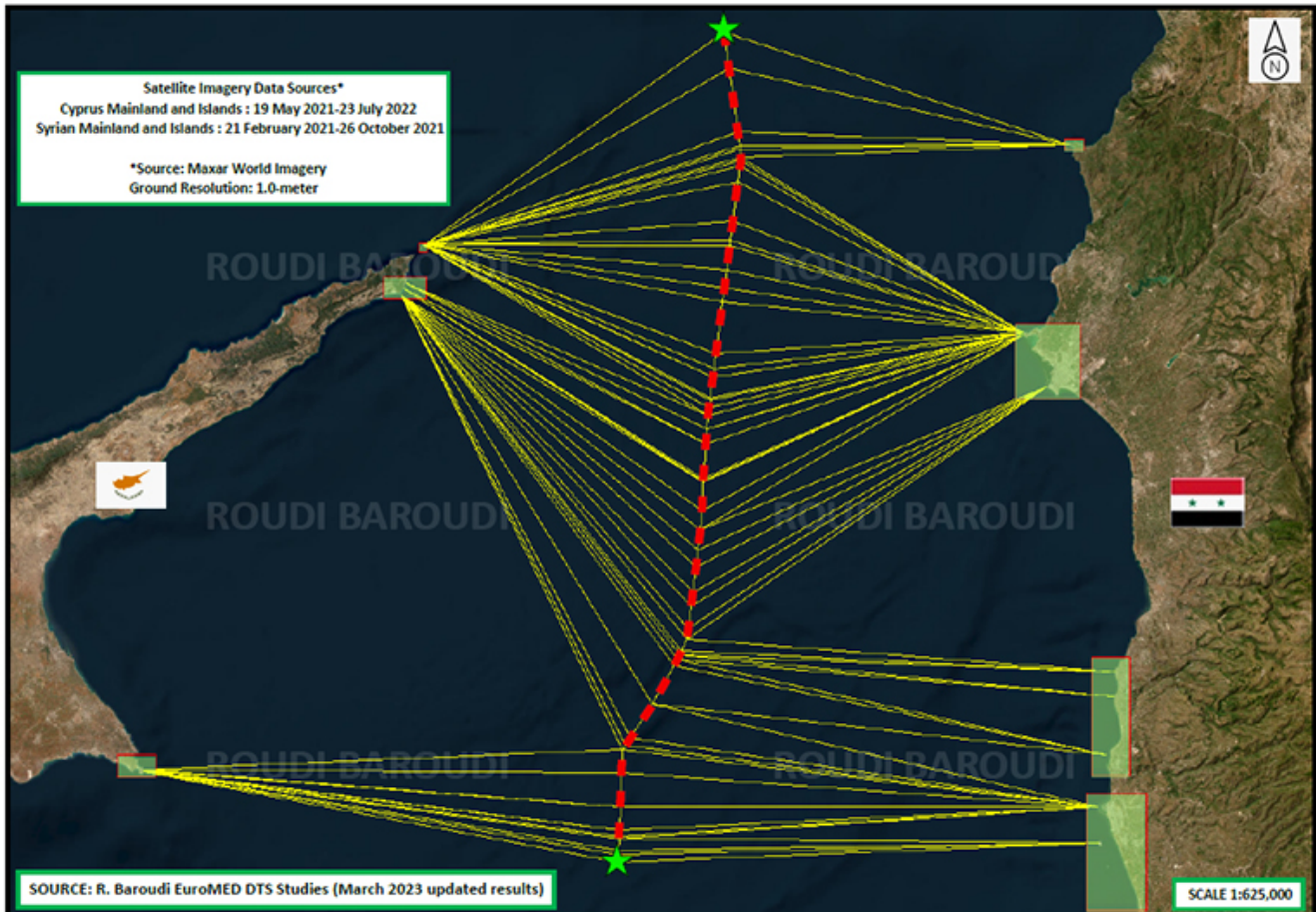
When asked about how any new diplomatic efforts might be affected by the long-running political paralysis in Beirut, where the presidency has been vacant since late 2022 because rival parties in Parliament can't agree on a successor to former President Michel Aoun, Baroudi said the quagmire only accentuated the need for action.



## CYPRUS-SYRIA MARITIME BOUNDARY LINE

### Cyprus vs. Syria Strict Equidistance MBL\*

\*100% Full Effect Line (red dashed line), using all relevant Cypriot coastlines and offshore islands (see close-up inset example), plus all relevant Syrian mainland coastlines and offshore islands (see close-up inset example). This MBL begins at the northern computed Cyprus-Türkiye-Syria Trijunction Point (upper green star) and terminates at the southern computed Cyprus-Syria-Lebanon Trijunction Point (lower green star). See the report for specific details on the geographic (longitude and latitude) coordinates of the MBL and Trijunctions, along with an explanation of the methodology used to produce the MBL and Trijunctions.



"Right now, Lebanon can't officially ratify into a new MBL agreement with either Cyprus or Syria because it requires a presidential signature, but that doesn't stop us from carrying out the necessary talks," he said. "In fact, we should be rushing to get all of this settled now so that when we finally fill the vacancy at Baabda Palace, we'll have everything ready for the new president's signature."

In addition to settling its maritime boundaries, Baroudi said Lebanon also had another reason to re-engage with neighboring countries.

"It's been almost ten years since Cyprus proposed a



unitization agreement (joint development agreement) with Lebanon for joint production from any deposits that straddle their shared MBL,” he recalled, “and the Lebanese paralysis has kept it from happening. We need to revive this process and get a deal in place. That way, again, once we have a president in office, we’ll be ready to hit the ground running, with no further delays, and start collecting the badly needed gas revenues”.

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## US gas pipeline accidents pose big, unreported climate threat



Last October, an Idaho farmer using a backhoe punched a hole into a 22-inch pipeline buried under a field, sending more

than 51mn cubic feet of natural gas hissing into the air. While the incident on Williams Companies' Northwest Pipeline was big, it was no anomaly along the roughly 3mn miles of natural gas pipelines crisscrossing the US.

Accidental pipeline leaks – caused by things like punctures, corrosion, severe weather and faulty equipment – happen routinely and are a climate menace that is not currently counted in the official US tally of greenhouse gas emissions, according to a Reuters examination of public data and regulatory documents.

Pipeline mishaps unintentionally released nearly 9.7bn cubic feet of gas into the atmosphere between 2019 and late 2023, according to a Reuters examination of incident report data maintained by the US Pipeline and Hazardous Materials Safety Administration (PHMSA).

That is the climate equivalent of running four average-sized coal-fired power plants for a year, according to an Environmental Defence Fund (EDF) online calculator.

Those emissions are currently not included in the nation's official greenhouse gas count because federal rules exempt large, unexpected leaks, and mainly only capture emissions from regular operations, according to the US Environmental Protection Agency (EPA).

The Biden administration aims to change that as early as next year under a set of rules proposed by the EPA to crack down on methane emissions from the oil and gas sector, and which would punish emitters with fees of \$900 to \$1,500 per metric tonne when they exceed a certain threshold.

Reuters relied on PHMSA data and interviews with researchers, company officials and regulators to provide new detail on the scale of greenhouse gas emissions from accidental pipeline leaks that could soon be added to the official greenhouse gas tally, as well as the potential cost to companies under the looming fees.

"I don't think the public or regulators have realised just how much methane has been lost from pipeline infrastructure," said Kenneth Clarkson, a spokesperson for the Pipeline Safety

Trust, a non-profit watchdog. "Newer studies have come closer to capturing the true amount of emissions and this has started catching the attention of policymakers."

Accidental leaks reported from PHMSA by the five biggest US pipelines between 2018 and 2022 showed that those incidents could have significantly increased the facilities' overall reported emissions, potentially resulting in fees of up to \$40mn under the proposal.

The operators of the five biggest pipelines include Berkshire Hathaway, TC Energy and Kinder Morgan.

Berkshire Hathaway's 14,000-mile Northern Natural Gas pipeline, for instance, reported unintended releases of natural gas to PHMSA during the five year period that were the equivalent of about 30% of the methane the facility reported to EPA during the period.

Williams, the owner of the pipeline that leaked in Idaho in October, reported unintended gas releases that amounted to about 15% of the methane it reported to EPA.

Berkshire Hathaway and Williams did not respond to requests for comment on Reuters' analysis or the EPA proposal.

TC Energy said reducing its methane emissions was a critical part of its business, but did not comment directly on the EPA proposal or Reuters' analysis.

Kinder Morgan said it does not exclude unintended emissions from its reports to EPA, even though it is not required to include them.

The Biden administration unveiled its batch of final rules aimed at cracking down on US oil and gas industry releases of methane at the United Nations COP28 climate change conference in Dubai in December, part of international efforts to curb releases of the gas.

Piped natural gas is typically around 90% methane, a greenhouse gas which is several times more potent in warming the planet than carbon dioxide during the relatively short time it remains in the atmosphere.

The new policies would ban routine flaring of natural gas produced by newly drilled oil wells, require oil companies to

monitor for leaks from well sites and compressor stations and establishes a program to use third party remote sensing to detect large methane releases.

The new reporting requirements for large leaks, meanwhile, are likely to be finalised later this year and take effect in 2025, the EPA told Reuters.

Under the proposal, companies will be required to report abnormal leaks of about 500,000 cubic feet of pipeline gas or more starting next year, a threshold significantly lower than what PHMSA requires.

The new reporting rules would also apply to big, unplanned emissions from other parts of the oil and gas industry, such as drilling operations, EPA said.

The fact that some large methane leaks have never been accounted for in US greenhouse gas inventories underscore concerns among environmental groups and scientific researchers that emissions from the fossil fuel sector have been vastly understated.

An Environmental Defense Fund analysis last year, for instance, estimated US pipelines leak between 1.2mn and 2.6mn tons of methane per year, or 3.75 to 8 times more than EPA estimates.

The EDF figure includes not just large mishaps but also pervasive smaller leaks on tiny distribution lines.

"The failure of EPA to account for these large events is a big driver of that discrepancy," Edwin LaMair, an EDF attorney who focuses on oil and gas regulations, said in an interview.

The Interstate Natural Gas Association of America, a pipeline industry trade group, said most incidents reported to PHMSA relate to safety systems operating as intended.

The group also pointed to an EPA analysis showing that most transmission and storage facilities may not meet the 25,000 metric tonnes of carbon dioxide equivalent per year emissions threshold required to pay the methane fee.

The EPA analysis said, however, that it was not yet possible to accurately estimate "the magnitude of emissions that will be reported and which facilities will report those emissions."

The pipeline industry has also said in public comments to the EPA about the new reporting rules that they could lead to double-counting of some emissions. – Reuters

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## **Greece Spearheads a Dynamic Energy Transition**



Countries have different energy priorities due to factors like the availability of energy resources, geopolitics, the population size, environmental considerations and excessive use of energy, the needs of industry, and the availability of technology.

The most representative energy priorities among countries, including Greece, revolve around energy security, reduction of greenhouse gas emissions, affordability, and avoidance of

deforestation. Construction of additional energy infrastructure and charging energy consumers with more taxes for excessive energy use constitute additional energy priorities. According to a market survey conducted by IPSOS in late 2022 that engaged 24 thousand people in 28 countries, the top energy priority was that of energy security followed by the development of cleaner energy sources, like wind and solar, and the affordability of energy.

The war on Ukraine brought energy security to the forefront of concerns for many regions, particularly Europe. Directly impacted countries, like Germany, have had to reactivate coal production and extend the operational lives of nuclear power plants to ensure efficient supply of energy to consumers.

### **Electricity Generation from Renewables**

Despite challenges associated with the war on Ukraine, Greece has emerged more resilient by enhancing reform of its energy market and accelerating deployment of renewables in accordance with the National Climate Law of 2022. The Climate Law signals concrete milestones for Greece's energy transition with most prevalent the reduction of greenhouse gas emissions by 55 percent by 2030 and, achievement of net zero emissions by 2050.

The Climate Law also foresees a total phase-out of lignite generated electricity by 2028. Notably, Greece ranks 2<sup>nd</sup> out of the 27 EU member states in the reduction of electricity generation from certain solid fossil fuels; lignite generated electricity decreased by 57,7 percent in the first 8 months of 2023 compared to the same period of 2019 according to the Greek Independent Power Transmission Operator (IPTO).

The reduction of the use of solid fossil fuels has been offset by the accelerated development of renewable sources of energy, construction of critical energy infrastructure, and promotion of plans for Greece to position itself as key hydrogen hub in

Europe. It is only in four years that Greece enhanced the installed capacity of renewable energy plants, accounting for 50 percent of electricity generation, with a clear target for electricity generation from renewables to reach 80 percent by 2030. The Greek solar photovoltaic market has gained most traction with 1.4 GW of new photovoltaic projects connected to the grid in 2022 and with anticipation of 10.9 GW to be added during the period of 2024-2027 according to the latest report by industry association Solar Power Europe.

### **The Offshore Wind Challenge**

Wind energy in Greece has been surpassed by photovoltaics in new and total installations primarily due to delays in the licensing process. The largest onshore wind power plants include the 336 MW onshore Evia Wind Farm of Ellaktor located in Evia, Central Greece; the 330 MW Kafireas wind farm of Terna Energy on the island of Evia; and the 153MW Imathia Kozani Wind Farm under development by 547 Energy LLC, located in West Macedonia. Greece's revised National Energy and Climate Plan (NECP) sets a clear target of 2 GW for onshore wind capacity and 2.7 GW for offshore wind capacity by 2030.

Greece swiftly moves forward to tap for the first time ever its offshore wind potential in pursuance of the national offshore wind farms development program that incorporates 25 eligible development areas in the Ionian, Aegean, and the East Mediterranean Seas.

An environmental impact assessment that has been completed by the Hellenic Hydrocarbons and Energy Resources Management Company includes maritime zones of over 2,712 square km where floating technology will be employed for the offshore wind farms in full compliance with environmental safeguards striking a balance between offshore wind energy, national security, and tourism.

Offshore wind energy falls under the creation and development

of new markets along with carbon dioxide CO<sub>2</sub> capture and green hydrogen production.

## **Unlocking the CO<sub>2</sub> Storage Potential**

Clean hydrogen can prove to be commercially viable due to the use of CO<sub>2</sub>. CO<sub>2</sub> can be transported from where it is produced, via ship, truck or in a pipeline, and be used in commercial applications such as food and beverage production, metal fabrication, and cooling.

The majority of commercial applications center on the direct use of CO<sub>2</sub> by turning it into chemicals and construction materials. Liquid CO<sub>2</sub> can also be transported to an underground site where it can be permanently stored under strict environmental standards. The capture and storage of CO<sub>2</sub> contribute to the decarbonization of heavy industries and the development of clean hydrogen.

It is in this context that Greece swiftly moves to identify potential areas for CO<sub>2</sub> storage, with the most mature option being that of Prinos basin. Specifically, under Greek and European legal contexts, an exploration permit has been awarded to medium-sized Energean Oil & Gas for CO<sub>2</sub> storage in the depleted Prinos field evaluated as the best option because of its depth and structure.

Prinos is scheduled to be operational from the fourth Quarter of 2025 as small-scale project with capacity of up to 1 million tons (MT) of CO<sub>2</sub> annually and with plans to increase capacity from the fourth Quarter of 2027 up to 3 MT of CO<sub>2</sub> annually. Areas with saline aquifers, mafic rocks and oil and gas fields throughout Greek territory are evaluated as potential storage sites.

## **Prospects of a Hydrogen Hub for Europe**

Green hydrogen production and transportation falls within the priorities of the Greek National Energy and Climate Plan. It



is estimated that little investment is required, primarily in the form of developing compression stations, for the conversion of the existing national network to transport hydrogen. Extensive cross-border pipelines like Interconnector Greece-Bulgaria (IGB) and Trans Adriatic Pipeline (TAP) have the potential to transport hydrogen.

Proper energy infrastructure can guarantee that massive imports of hydrogen from the Middle East and North Africa are directed to Europe via Greece. The European Union has declared that as the Ukraine war goes on it will have to import 10 MT of renewable hydrogen annually until 2030.

The first major hydrogen project that meets demands of industrial production has been launched in the north-west of Saudi Arabia, in a region called NEOM, that has been declared an exclusive renewable and hydrogen zone. The Neom Green Hydrogen Company project constitutes an 8.4-billion-dollar green hydrogen and green ammonia production facility that will integrate 4 GW of wind and solar energy to produce 600 tons of carbon-free hydrogen per day. Large-scale production of renewable hydrogen from the NEOM region is expected to begin in 2026, and green hydrogen will be exported in the form of green ammonia.

Overall, Greece fosters an effective energy transition with a blend of renewable energy pathways and a match of CO<sub>2</sub> storage and hydrogen transportation. It is with no doubt that important targets and deliverables are on the horizon.

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# Opec sticks to oil demand view, nudges up economic growth



LONDON, March 12 (Reuters) – OPEC on Tuesday stuck to its forecast for relatively strong growth in global oil demand in 2024 and 2025, and further raised its economic growth forecast for this year saying there was more room for improvement.

The Organization of the Petroleum Exporting Countries said in a monthly report that world oil demand will rise by 2.25 million barrels per day (bpd) in 2024 and by 1.85 million bpd in 2025. Both forecasts were unchanged from last month.

A further boost to economic growth could give additional tailwind to oil demand. OPEC's 2024 growth forecast is already higher than that of the International Energy Agency (IEA), and the two are further apart than they have been for at least 16 years in their demand views.

In the report, OPEC said a "robust dynamic" for economic growth towards the end of 2023 was expected to extend into the first half of 2024 and raised its 2024 economic growth

forecast by 0.1 percentage points, following a hike last month.

"While some downside risks persist, a continuation of the expected momentum from the beginning of the year could result in additional upside potential for global economic growth in 2024." OPEC said in the report.

"The 2024 and 2025 growth trajectories of India, China, as well as the United States, could exceed current expectations." OPEC has stuck to the same demand growth figure since making its first 2024 prediction last July.

Conflict in the Middle East and supply outages have supported oil prices in 2024, although concerns about continued high interest rates have weighed. Brent crude on Tuesday was trading around \$82 a barrel.

A rise in prices in February took place as oil market fundamentals continued to strengthen, OPEC said in the report, adding that geopolitical tensions also supported prices.

OPEC now sees world economic growth of 2.8% in 2024, supported by the expectation of a continued easing in general inflation throughout this year. It kept next year's forecast steady at 2.9%.

"It is anticipated that domestic political and geopolitical developments will likely not significantly impact the growth momentum," OPEC said.

## **BULLISH OPEC, CAUTIOUS IEA**

For this year, OPEC's expectation of oil demand growth is much more than the expansion of 1.22 million bpd so far forecast by the IEA. The IEA, which represents industrialised countries, is scheduled to update its forecasts on Thursday.

OPEC believes oil use will keep rising for the next two decades, while the IEA predicts it will peak by 2030 as the world shifts to cleaner energy. The two have clashed over this and related issues such as the need for more oil industry investment.

According to a Reuters analysis of IEA and OPEC monthly reports dating back to 2008, the 1.03 million bpd gap in their February demand growth forecasts was the biggest in per-barrel terms for this point in the year.

OPEC and the wider OPEC+ alliance have implemented a series of

output cuts since late 2022 to support the market. A new cut for the first quarter took effect in January and earlier this month was extended to cover the second quarter.

The OPEC report also said that OPEC oil production rose by 203,000 bpd in February to 26.57 million bpd led by Nigeria and Libya, despite a new round of voluntary output cuts by the OPEC+ alliance that started in January.