

# The global climate finance challenge



The world will not avoid dangerous levels of climate change without a significant increase in investment. This commentary presents three priorities for climate finance for the achievement of Paris targets and protection of the world's most vulnerable communities.

The dust has now settled after the United Nations climate change conference (COP27) in Egypt, but there are still many unanswered questions about how to finance emissions reductions and adaptation. The world will not avoid dangerous levels of climate change without a significant increase in investment in developing countries. If these countries lock in dependency on fossil fuels and dirty technologies, they will be largest source of emissions growth in the coming decades.

Fortunately, such investment can not only reduce emissions and build resilience; it can also drive a new form of growth and

development that is much more attractive than the dirty and destructive paths of the past. It is therefore in developed countries' own interests to help these countries accelerate the transition to sustainable, inclusive and resilient economies.

We were commissioned by the Egyptian COP27 Presidency and the British COP26 Presidency to conduct an independent analysis of the financing that developing countries (other than China) will need by 2030 in order to realize the goals outlined in the Paris climate agreement. Our report, published during the first week of COP27, concluded that these countries' annual investment in climate action needs to increase immediately, from about \$500 billion in 2019 to \$1 trillion by 2025 – and to \$2.4 trillion by 2030. That investment will not only deliver on the Paris Agreement; it will also drive this new form of growth and advance progress toward achieving the UN Sustainable Development Goals.

We identified three investment priorities for climate finance. First, financing should go toward accelerating the energy transformation, particularly the deployment of renewables, as this is essential to keeping the Paris Agreement's targets within reach.

Second, we need increased investments in resilience to protect lives and livelihoods – particularly among the world's poorest communities – against the increasingly devastating effects of climate change, as well as effective, properly-funded mechanisms for addressing Loss and Damage (defined as costs that cannot be prevented by mitigation or adaptation).

And third, we urgently need to enhance biodiversity and conserve the ecosystems on which we all depend. Investments in nature represent vital contributions to both resilience-building and emissions reductions.

About half the financing for these investments could be met

from domestic public and private sources in developing countries, and an additional \$1 trillion or so per year could come from outside sources. While public sources of finance, both internal and external, will be essential, the largest share can come from the private sector, which will invest in order to secure attractive returns from the growing market for zero-emissions and climate-resilient goods and services, provided that the risks can be reduced and managed.

A stronger partnership between the private and public sectors can unlock new investment opportunities, manage risk, reduce the cost of capital and mobilise the necessary financing at a much larger scale. But this funding must come from the right kinds of sources, such as philanthropic foundations, the International Monetary Fund's special drawing rights (the IMF's reserve asset), or the sale of carbon credits.

Furthermore, grants and low-interest loans by developed-country governments should increase from \$30 billion in 2019 to \$60 billion in 2025. This funding will represent only a small share of the overall sums required, and it should be carefully targeted at priorities that will not attract significant investments from the private sector. To put this in perspective, \$60 billion would represent only about 0.1% of developed countries' projected economic output in 2030, or about 0.7% of the \$9 trillion that rich countries allocated over the past two years to cope with COVID-19.

Finally, the World Bank and other multilateral development banks have a critical role to play in achieving the Paris targets. Their annual investments in climate action will need to triple to \$180 billion by 2025, from about \$60 billion today, to realise co-financing with the private sector on the necessary scale, combined with support for public infrastructure.

The decision at COP27 to create new Loss and Damage funding arrangements recognises that additional investment by

developed-country governments is needed to help developing countries to limit the harm from more frequent and severe extreme-weather events, rising sea levels, desertification and other climate-driven problems. All countries are already suffering Loss and Damage from climate change, but the social and economic consequences can be far more devastating for developing countries, which face not only repair and reconstruction costs but also severe reductions in economic output, employment and living standards.

Loss and Damage also increases the risk that people in vulnerable and highly exposed parts of developing countries will be forced to migrate, further jeopardising social and political stability. If poor countries can become more resilient to climate impacts, and can recover from them more quickly and effectively, they will be able to invest more in low-carbon development and they will pose less of a risk to regional and global security and stability. Again, while developing countries have long argued, with justification, that rich countries should provide separate financing to developing countries as compensation for the Loss and Damage related to past emissions, doing so is also in rich countries' interest.

The 2020s are the crucial decade in the fight against climate change. Further delay would be profoundly dangerous. But all countries will need to advance the transition to carbon neutrality. The rich world must not only do much more to reduce its own emissions. It must also generate the financing needed to help others and to protect the world's poorer countries from a problem they did not create.

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# Debunking Geoengineering

# Solar



Proponents of solar geoengineering say that lowering Earth's average temperature by reflecting sunlight into space will tackle global warming. But if we are to avoid a climate catastrophe, there is no substitute for phasing out fossil fuels.

BERLIN – As climate chaos threatens the Global North and the lifestyles of the world's richest people, we might expect to hear elites demand a rapid exit from reliance on fossil fuels. Instead, a controversial idea is coming to the fore: dimming the sun. Advocates claim that through science fiction-like methods, known as solar geoengineering, we can dial down the planet's thermostat by decreasing the amount of energy that reaches the atmosphere. The idea has gained enough traction for rich philanthropists to notice and for the White House to fund research. There's just one problem: it's a recipe for disaster.

One technological proposal currently making headlines is Stratospheric Aerosol Injection (SAI), with advocates claiming releasing aerosols into the upper atmosphere and bouncing

sunlight back into space would reduce surface temperatures. This idea is gaining traction at a time when some contend that we should be working on a plan B because it is too late to limit global warming to 1.5° Celsius as agreed in the 2015 Paris climate agreement. But giving up this ambition would be a gift to carbon polluters, as International Energy Agency Executive Director Fatih Birol recently explained, and the notion that solar geoengineering could ever be a plan B is false and dangerous.

Experts have repeatedly debunked the idea that we can “control” the earth’s thermostat. The world’s foremost authority on climate science, the Intergovernmental Panel on Climate Change, has warned that solar geoengineering is not a credible solution. Climate models show that masking global heating with sunlight reduction could bring massive changes in atmospheric circulation and alter rainfall patterns – such as the monsoon – with especially pronounced effects in countries that are already experiencing increasingly severe and frequent storms, droughts, fires, and other climate-related events.

To work, solar geoengineering technologies like SAI would require unprecedented international cooperation. Governments would need to align to get chemical-spraying airplanes off the ground, for example, implying that only powerful countries or military regimes could provide the necessary infrastructure. Chemical mining and production would require additional infrastructure on a massive scale. And all of this would need to be sustained for decades or longer. If a new government stopped an aerosol injection program after regime change, it could trigger a “termination shock” that sent global temperatures soaring, in line with existing greenhouse-gas levels in the atmosphere.

Despite this, Harvard University is set to test the equipment associated with SAI in the context of a controversial research project. But this method is effectively ungovernable. That is why hundreds of academics are calling for a Solar

Geoengineering Non-Use Agreement to block public funds for the technology, ban outdoor experiments, patenting, and deployment, and to counter support in international fora and policy discussions.

In addition to the technological and political limitations, prominent lawyers say solar geoengineering is at odds with international human rights and environmental law. If geoengineering changes weather patterns, it could infringe on people's rights to life, health, and a livelihood. Moreover, SAI could violate the legal duty to avoid causing transboundary environmental harm. A technology set to impact the climate on the global scale would also require everyone potentially affected to have a say – an impossible idea.

But if we know these schemes won't work, are full of risks, cannot be tested or governed, and delay near-term climate action, why are we seeing increased momentum and support for them? Put simply, they give big polluters a get-out-of-jail-free card and allow them to patent and profit from the relevant technologies and associated infrastructures.

Oil and gas companies have been researching and patenting (solar and other) geoengineering technologies for decades. In fact, most solar geoengineering models rely on large-scale deployment of Carbon Dioxide Removal to deal with the continued production and combustion of fossil fuels. Proponents of CDR offer carbon removal offsets to polluters, undermining long-term solutions and exacerbating the climate emergency. Worryingly, calls for CDR gained momentum at this year's COP27, which risks blowing a massive hole in the Paris agreement.

While geoengineering supporters often say it is in the interest of the disadvantaged Global South, the Global South isn't buying it. In fact, most groups in the global climate movement reject solar geoengineering entirely. Indigenous communities have rallied against solar geoengineering

experiments in places such as Alaska and Sweden. In reality, it is the richest and most polluting countries (especially the United States) that are researching and funding these technologies.

Once the world awakens to the reality that there is no quick fix to remove carbon from the atmosphere and no substitute for a rapid phaseout of fossil fuels, solar geoengineering might gain undeserved credibility as a last-ditch option – full of risks but supposedly without alternative. We must not allow that scenario to come true.

This means that we must not allow it to become normalized through policy debates, private initiatives, government proposals, and research. The science is clear: We can still prevent irreversible harms to ecosystems and human rights. But the only way to avoid further climate disasters is real climate action now. We must accelerate the transition away from fossil fuels – and leave the science fiction on the shelf.

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**Aramco in talks with investors on \$110bn Jafurah gas project**





Saudi Aramco has started talks with potential backers for its \$110bn Jafurah gas development, according to people familiar with the matter, as the oil producer plans to exploit one of the world's largest unconventional gas fields.

The state-controlled company is seeking equity investors that could help fund the development of midstream and downstream projects at Jafurah in the east of the kingdom, the people said, asking not to be identified as the information is private.

Aramco has reached out to private equity firms and other large funds that invest in infrastructure as part of the plans, which could offer stakes in assets such as carbon capture and storage projects, pipelines and hydrogen plants, the people said.

Investment bank Evercore Inc is advising Aramco on the plans, the people said. Talks are still at an early stage and details of the funding could change, the people said. A representative for Aramco declined to comment, while a spokesperson for Evercore didn't have an immediate comment.

The war in Ukraine has led to a frantic surge in demand for

natural gas, led by European nations that traditionally got their supplies from Russia. This has led to Gulf states embarking on ambitious plans to expand their gas output. Some companies have also look to boost their exposure, with Eni SpA considering a takeover of explorer Neptune Energy Group Ltd, Bloomberg News has reported.

Jafurah is a key part of Saudi Arabia's strategy to diversify its energy exports beyond oil. The field is estimated to hold 200tn cubic feet of raw gas, and Aramco expects to begin production there in 2025, reaching about 2bn standard cubic feet per day of sales by 2030.

A large portion of the gas produced there will be used to create so-called blue hydrogen, Energy Minister Abdulaziz bin Salman said last year. The process is where emissions associated with hydrogen production are captured and stored in the kingdom, allowing the fuel to then be exported as a clean energy source. The opening up of the Jafurah development to external investors would follow years of efforts to attract foreign capital into Aramco and some of its key assets. After a \$30bn initial public offering in 2019, the oil giant sold stakes in units that operate its network of oil and gas pipelines around the kingdom. The deals have raised about \$28bn for the company.

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**Global Star becomes first  
Nakilat vessel to deliver  
cargo to Escobar LNG Terminal**

# in Argentina



Nakilat-managed liquefied natural gas (LNG) carrier Global Star, with a carrying capacity of 173,400 cubic metres, has become the first Nakilat vessel to deliver cargo to Escobar LNG Terminal in Argentina. Escobar LNG terminal is located on the Parana River in Argentina. It has the capacity to handle 500mn cubic feet (mcf) of LNG a day and a peak capacity of 600 mcf.

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**Green power is the first domino**



As world leaders convene at the UN Climate Change Conference (COP27), it is obvious to all that bolder action is needed to avert disaster. The UN warns that global efforts to reduce greenhouse-gas (GHG) emissions remain insufficient to limit temperature increases to 1.5C, relative to pre-industrial levels.

To meet this target, decarbonising the power sector is critical. Electricity accounts for about 25% of the world's GHG emissions, and it also will play a critical role in decarbonising other sectors, such as buildings, transportation, and manufacturing. The challenge, then, is to achieve "24/7 carbon-free energy" (24/7 CFE): the total elimination of carbon from the electricity sector – at every hour of every day, in every grid around the world.

Research in the United States and Europe has shown that 24/7 CFE strategies have a greater impact on the decarbonisation of electricity systems than the current practice of purchasing electricity from renewable sources to match annual consumption patterns. Recent International Energy Agency modelling for India and Indonesia shows that hourly matching strategies lead to more diverse technology portfolios, with the clean, dispatchable generation and storage needed for net-zero transitions in the power sector. Critically, this approach

helps electricity systems shift away from fossil fuels by accelerating uptake of the full suite of carbon-free technologies needed to deliver around-the-clock clean power. Decarbonising energy systems worldwide is possible, but it will require collective action to accelerate the development and deployment of advanced clean-energy technologies. New investments, supportive public policies, and partnerships among stakeholders are all part of the solution. That is why the UN, Sustainable Energy for All (SEforALL), Google, and a diverse group of signatories launched the 24/7 CFE Compact in 2021. The compact represents a growing global community of stakeholders that are committed to providing the support, tools, and partnerships needed to make 24/7 CFE a reality everywhere.

Among the most recent to join the 24/7 CFE Compact is the Scottish government. "Scotland was the first country in the United Kingdom to declare a climate emergency, and indeed among the first in the world to recognise the importance of taking immediate and bold action," notes Scottish First Minister Nicola Sturgeon. "Governments must hold themselves to account in limiting global temperature rise to 1.5C. We are committed to putting accountability at the centre of all that we do. Our position is clear that unlimited extraction of fossil fuels is not consistent with our climate obligations." Similarly, just last month, Google and C40, a network of almost 100 cities, launched a first-of-its-kind 24/7 CFE programme focusing on regional electricity grids. With urban areas accounting for over half the world's population and more than 70% of global carbon dioxide emissions, cities have a critical role to play in driving the changes needed to tackle the climate crisis.

Developing and emerging economies will need more energy to bridge energy-access gaps, and to support economic growth and development. But as capacity expands, it must be clean. A 24/7 CFE approach can serve both purposes, providing both greater access and cleaner energy. We therefore must move faster to make 24/7 CFE cheaper and more accessible globally. According

to the latest IEA data, the number of people living without electricity will rise by almost 20mn in 2022, reaching nearly 775mn. Most of that increase will be in Sub-Saharan Africa, where the size of the cohort lacking access has nearly returned to its 2013 peak.

The world cannot achieve net-zero emissions without first ensuring universal electricity access. That will require annual investments of at least \$30bn – two-thirds of which will need to go to Sub-Saharan Africa – between now and 2030. Fortunately, not only is 24/7 CFE a moral imperative, but it also represents the most cost-effective option for connecting underserved populations.

Many of these populations will otherwise continue to rely on dirtier sources of energy. Small island developing states such as Nauru, Palau, the Bahamas, and Trinidad and Tobago, for example, all have electricity grids that depend heavily on inefficient, carbon-intensive technologies such as diesel generators. These countries' experience shows why 24/7 CFE must not be framed merely as a European or North American issue. It is a global one, and it has become increasingly urgent for developing countries on the front lines of climate change.

Implementing 24/7 CFE strategies globally will require not only funding but also measures to scale up the deployment of advanced technologies, to create more favourable market conditions, and to share best practices and data. If we can fully decarbonise our grids, the rest of the green transition should become cheaper and easier.

The 24/7 CFE Compact provides an opportunity to drive the much-needed policy change, investment, and research in this crucial next phase of climate action. We invite all governments, companies, and organisations to join us and help chart a more sustainable path toward a net-zero future. – Project Syndicate

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# Al-Kaabi takes part in GPCA 16th annual forum in Riyadh



HE the Minister of State for Energy Affairs Saad bin Sherida al-Kaabi took part in the 16th annual forum of the Gulf Petrochemicals and Chemicals Association (GPCA), which was held in Riyadh in Saudi Arabia.

The forum, which was inaugurated by Prince Abdulaziz bin Salman al-Saud, Saudi Arabia's Minister of Energy, was held under the theme 'Managing net-zero ambitions in the energy sector with growth'.

Delegates are taking part in discussions on developing policies to adopt a lower carbon strategy in the energy sector, driving the shift towards clean energy sources through innovative strategies, realising the future of the region to lead the evolution of 'carbon circular economy', and the way

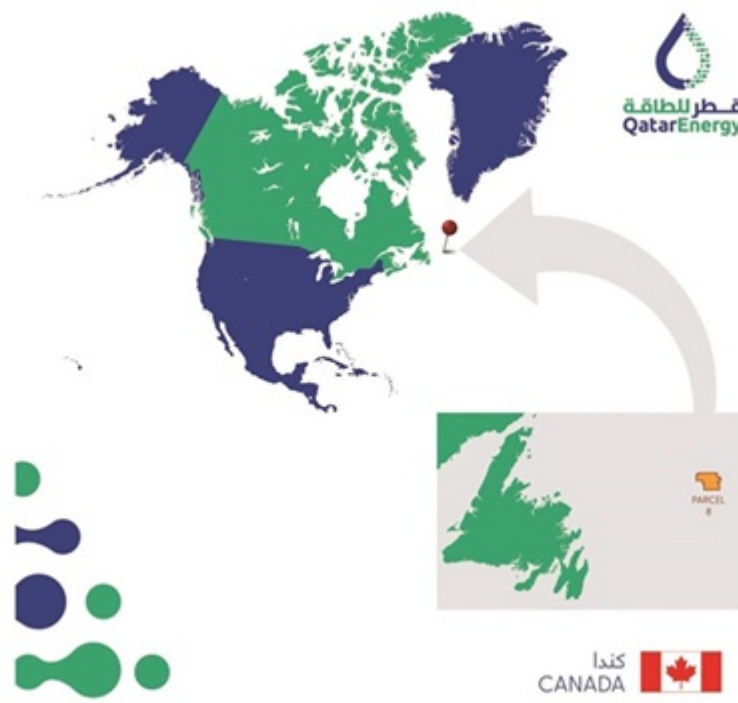
forward for the GCC to lead the development of a 'hydrogen economy'.

The Annual GPCA forum is the flagship petrochemical gathering in the Middle East, bringing together officials and executives of the leading petrochemical and chemical industry companies for an exchange of views on the current situation and future prospects.

The 17th GPCA Forum will be held next year in Doha.

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## QatarEnergy wins offshore exploration block in Atlantic Canada



QatarEnergy has announced a successful bid for Parcel 8 of the Orphan Basin, offshore the province of Newfoundland and Labrador in Canada, expanding its North American footprint. The Parcel 8 winning bid by QatarEnergy (30% working interest)



and ExxonMobil (operator, with a 70% working interest) was announced by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) as part of the 2022 Newfoundland and Labrador Call For Bids NL22-CFB01.

Commenting on this occasion, HE the Minister of State for Energy Affairs, Saad bin Sherida al-Kaabi, also the President & CEO of QatarEnergy said, “We are pleased to be the successful bidder in Parcel 8 offshore Canada, and look forward to maturing the lead prospect’s potential, testing an exciting play within a transparent and stable regulatory environment.”

Al-Kaabi added, “This successful bid demonstrates our ambition to further increase our footprint in the Atlantic basin, as part of our international growth drive. I would like to take this opportunity to thank the C-NLOPB for an efficient tender process, as well as our strategic partner, ExxonMobil, for their excellent co-operation in achieving this result.”

Located offshore Eastern Canada, Parcel 8 lies in water depths of 2,500 to 3,000 metres and covers an area of approximately 2,700 square kilometres.

The entry to the Parcel 8 license is subject to customary government approvals, QatarEnergy said yesterday.

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**North Field expansion: Recent LNG deals awarded to have positive medium-term impact**



Recent LNG deals awarded for Qatar's North Field gas expansion project will have a positive medium-term impact, facilitating an increase in LNG capacity by almost 65% to 126mn tonnes per year (mtpy) by 2027 from 77 mtpy now. Oxford Economics said in its latest country report. In the two weeks, Qatar secured multiyear supply agreements with China and Germany for LNG output set to be added in the first phase of the project due to be completed In 2026. Qatar's non-hydrocarbon sector recovery will slow in 2023 after a strong rebound this year, Oxford Economics said. "We see non-oil GDP growth of 7.6% this year, the fastest rate since 2015. The pace will then slow to 3.3% in 2023 as momentum eases once the World Cup concludes. This will still be stronger than the 2.7% expansion in 2021, which followed a decline of 4.7% in 2020," noted Maya Senussi, senior Middle East economist at Oxford Economics. The non-oil economy surged by 9.7% in Q2, up significantly from 5% in Q1. The latest survey data show momentum has eased from record high levels, but the influx of World Cup fans means non-oil activity should remain resilient at year-end. The latest figures show Qatar's tourist numbers neared 1.2mn in January-September, almost quadrupling relative to the same period in 2021, thanks to a surge in arrivals from other GCC countries as well as India, the US, and the UK. The World Cup event is estimated to attract more than 1mn visitors. This should lift

the total number of visitors this year above pre-pandemic levels (2.1mn). The month-long event, which started on November 20, has brought an influx of visitors, supporting activity, despite global headwinds. However, inbound travel to Qatar will decline in 2023. before a rise in regional arrivals spurs a recovery thereafter, the report said. Qatar is the world's second-largest LNG exporter (after the US). There is also heavy investment in gas-to-liquids, petrochemicals, a gas export pipeline, infrastructure, and tourism. Some \$200bn has been spent on infrastructure, partly related to the 2022 football World Cup, and partly to an expanding population and the country's long-term strategy, the Qatar National Vision 2030. In addition, Qatar is developing into a significant regional financial and educational centre, Oxford Economics noted.

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**Trafigura to secure US LNG supply for Germany in US\$3Bn deal**



Some US\$3Bn in US LNG will make its way into the German gas grid as part of a four-year loan deal between the German Government, more than 25 banks including Deutsche Bank and commodities trader Trafigura.

The supply has been agreed based on the loan facility that is partly secured under Germany's United Financial Loan programme, through the German Export Credit Agency Euler Hermes Aktiengesellschaft.

The loan has been jointly arranged and underwritten by Deutsche Bank and another unnamed international bank and syndicated to more than 25 banks in a transaction that was, according to Trafigura, "1.6 times oversubscribed".

"The loan will support a new commitment by Trafigura to deliver substantial volumes of gas into the European gas grid, and ultimately into Germany, over the next four years.

Trafigura will supply the gas to Securing Energy for Europe (SEFE), which was recently recapitalised by the German Government. The first gas delivery took place 1 November 2022 and Trafigura will primarily use existing quantities from its

global gas and LNG portfolio to help secure gas supplies to SEFE. The agreement included a review of Trafigura's environmental, social and governance policies and performance," a statement from the trader said.

"We are proud to be contributing to Europe's energy security by supplying this significant volume of gas to Germany backed by our extensive portfolio and long-term US LNG contracts," said Trafigura head of gas and power trading Richard Holtum.

About 50% of Germany's natural gas has been supplied by Russia in recent years, and as a result, Germany has enacted emergency energy measures, announcing multiple LNG import terminals, including five based on FSRUs, since the start of Russia's war against Ukraine.

In April, the German Finance Ministry approved spending €2.94Bn (US\$3.09Bn) to fund the FSRUs, with Uniper and RWE signing 10-year charter deals on behalf of the German Government to secure two FSRUs each from Höegh LNG and Dynagas and an additional FSRU coming from US-based Exceleerate Energy.

The two Höegh LNG 170,000-m<sup>3</sup> FSRUs will be deployed in Germany, one at Wilhelmshaven and another at Brunsbüttel as the country's first LNG import hubs.

The 5Bn-m<sup>3</sup> Höegh LNG FSRU is scheduled to arrive at the turn of the year. However, due to the grid capacities, only about 3.5Bn m<sup>3</sup> (about 4% of Germany's gas requirements) of natural gas per year can then be transported via this pipeline before the construction of a new 55-km pipeline is completed.

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# QatarEnergy, ConocoPhillips sign deal to supply LNG to Germany



Deal signed to supply Qatar LNG to Germany QatarEnergy, ConocoPhillips sign deal to supply LNG to Germany Qatar's first long-term LNG supply deal with Germany was announced Tuesday with QatarEnergy signing two LNG sale and purchase agreements (SPAs) with ConocoPhillips affiliates for the delivery of up to 2mn tonnes per year for at least 15 years.

Pursuant to the two SPAs, a ConocoPhillips wholly-owned subsidiary will purchase the agreed quantities to be delivered ex-ship to the LNG receiving terminal, which is currently under development in Brunsbüttel in northern Germany, with deliveries expected to start in 2026.

The LNG volumes will be sourced from the two joint ventures between QatarEnergy and ConocoPhillips that hold interests in

Qatar's North Field East (NFE) and North Field South (NFS) projects.

The SPAs were signed by HE the Minister of State for Energy Affairs, Saad Sherida al-Kaabi, also the President and CEO of QatarEnergy, and Ryan Lance, Chairman and CEO of ConocoPhillips at the QatarEnergy headquarters in Doha Tuesday.

Speaking at the signing ceremony, al-Kaabi said, "We are pleased to sign these agreements with our partner ConocoPhillips to supply up to 2mn tonnes per year of LNG to Germany from the two QatarEnergy-ConocoPhillips joint ventures in the NFE and NFS LNG expansion projects respectively, starting in 2026.

"These agreements are momentous for several reasons. They mark the first ever long-term LNG supply to Germany with a supply period that extends for at least 15 years, thus contributing to Germany's long-term energy security. They also represent the culmination of efforts between two trusted partners, QatarEnergy and ConocoPhillips, over many years, to provide reliable and credible LNG supply solutions to customers across the globe, and today, to German end-consumers. This is a concrete demonstration of QatarEnergy's resolve to provide reliable energy supplies to all major markets around the world, and of our commitment to the German people."