Russia energy stocks get a boost from Biden’s green push

Bloomberg /Moscow

US President Joe Biden’s push to slash carbon emissions may inadvertently give a short-term boost to energy companies in one of the world’s biggest polluters.

Investors are betting that Russian oil giants such as Lukoil PJSC, Rosneft PJSC and Tatneft PJSC will rally as they mop up market share from rivals in the US and other countries seeking to switch to clean energy. An index of Russian energy stocks has returned 8% in dollar terms so far this year as crude prices rallied, compared with 2% for European oil and gas companies.

“Governments will likely limit global companies’ capacities to drill and extract resources,” said Eduard Kharin, who helps oversee $1bn of assets at Alfa Capital Asset Management in Moscow. “The global majors are entering a new market, a new industry where there are a lot of unknowns, and the return on capital is unclear.”

Russia is the world’s fourth-biggest carbon emitter, but

unlike other major polluters, the government doesn't have a plan to transition away from fossil fuels. Instead, its state-owned energy companies benefit from some of the world's lowest production costs and tax breaks, making them well placed to gain in the short term.

Global oil companies will stop investing in exploration and shift to clean energy, "but somebody still needs to produce oil," said Ekaterina Iliouchenko, a money manager at Union Investment Privatfonds GmbH in Frankfurt, who increased exposure to Russian oil stocks last year. "That'll be the Russians and Saudi Aramco".

Rosneft and Lukoil have been among the best performers in Russia's benchmark equity index so far this year, handing investors total returns of 15% and 12% in dollar terms. They've also outperformed an index of global energy stocks.

Of course, any benefits will be short lived if major economies are serious about speeding up the shift to clean energy to limit global warming. Biden is planning to set a net-zero target for the US for 2050, meaning that 70% of the world economy will soon have made commitments to be carbon neutral by the middle of the century.

Many international funds are also coming under increasing pressure to cut companies that contribute to global warming from their portfolios. President Vladimir Putin was quizzed at an online investment forum late last year over how his country plans to cut emissions, and Swedbank Robur subsequently excluded oil and gas companies from its Russia and Eastern Europe funds.

Rosneft this month signed an agreement with BP Plc to co-operate to produce "low-carbon solutions," but critics pointed out that the plan is at odds with the Russian company's focus on expanding hydrocarbon production.

Biden signed an executive order late last month suspending new oil and gas leases on public lands, directing federal agencies to purchase electric cars by the thousands and seeking to end fossil-fuel subsidies.

The move could hurt US shale producers, whose output helped

put a cap on gains in global oil prices in recent years.
A raft of European oil companies have recently set climate targets, with BP stunning investors by promising to eliminate emissions from its operations by 2050.

Denmark moves forward on North Sea ‘energy island’

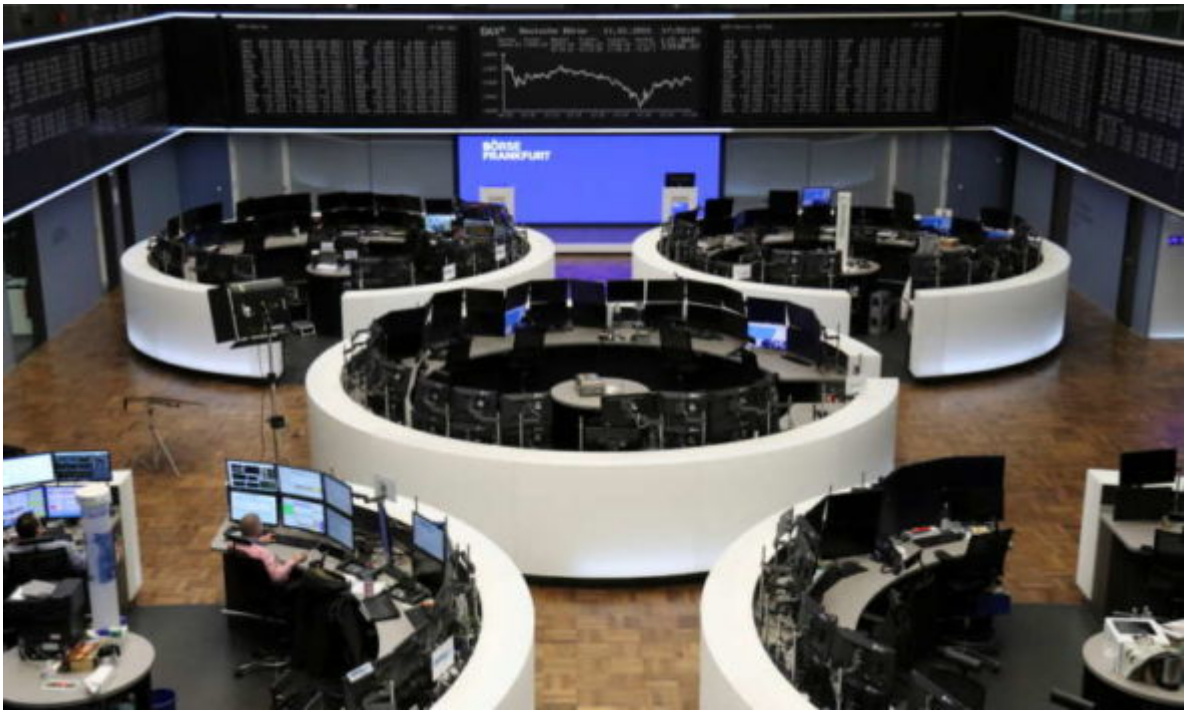
AFP/ Copenhagen

Denmark has said that it has approved plans to build an artificial island in the North Sea that could generate wind power for at least 3mn households.
Parliament in June adopted a political environmental framework aimed at reducing the country’s CO2 emissions by 70% by 2030, which included plans for the world’s first “energy hubs” on the island of Bornholm in the Baltic Sea and in the North Sea.
On Thursday, parliament went further by approving a plan to place the North Sea hub on an artificial island, with a wind

power farm that will initially supply 3GW of electricity.
That could later be scaled up to 10GW – enough for 10mn households – according to the ministry of climate, energy and utilities, much more than needed for Denmark's population of 5.8mn.
"Clearly this is too much for Denmark alone and this also why we see this as a part of a bigger European project," Climate Minister Dan Jorgensen told AFP, adding that Denmark wanted to also export excess energy to the rest of Europe.
Plans also include the use of "electrolysis" to extract hydrogen for use in the production of renewable fuels for things like maritime transport.
The island, "the largest construction project in the history of Denmark", is to be majority owned by the Danish government in partnership with private companies and is expected to cost around 210bn Danish kroner ($34bn, €28bn).
Rather than a traditional offshore wind power farm, the island will function as an "energy hub" allowing connections from other countries' wind power farms and cables to efficiently distribute the incoming energy.
Its final size is yet to be decided but it is expected to cover between 120,000-460,000sq m, according to the ministry.
The total number of wind turbines has not been finalised either, but estimates range between 200 and 600 units at "a previously unseen scale", with the tip of the blades reaching as high as 260m (850') above the sea.
While the project is a step in the plan to provide enough energy to electrify Denmark, Jorgensen also said they hoped the project could offer guidance for bigger countries looking to transition their societies in the face of climate change.
"We know that as a small country, only responsible for about 0.1 percent of the world's greenhouse gas emissions, it doesn't matter that much to the climate what we actually do in Denmark," he said. "We hope that it will have a bigger influence by influencing others."
The project's next steps include environmental impact assessments and talks with potential investors, so

construction is still some years off.
According to the ministry, initial construction is likely to begin around 2026 and finished sometime between 2030 and 2033.

Europe open: Shares lower as rally runs out of steam



(Sharecast News) – European shares were slightly lower on Tuesday as the rally of recent days ran out of steam.

The benchmark pan-European Stoxx 600 index fell **0.10%**, after gains driven by vaccine roll-outs and hopes the US Covid-19 relief package would make swift progress through Congress. Germany's DAX index was down **0.13%**, despite official data showing German exports rose in December.

In equity news, shares in Danish hearing aid maker Demant topped the gainers. The company said it expected to return to strong growth in 2021 as Covid-19 lockdowns were lifted and

reported earnings for the second half of 2020 above expectations.

Shares in German leasing firm Grenke rebounded after Monday's slump, gaining **7%** after chief operating officer Mark Kindermann, resigned. He told the firm's supervisory board that it would be necessary to revise "preliminary assessments" of the firm's financial performance once audits had been completed.

UK online supermarket and logistics provider Ocado slumped despite reporting a **68.8%** rise in full-year core earnings.

Spreadex analyst Connor Campbell said "it appears investors have potentially been put off by Ocado's planned **£700m** in capital expenditure, and a subdued outlook for UK retail growth in the coming 12 months".

TUI ticked higher even as the travel company slumped to a €699m first-quarter loss as Covid-19 lockdowns continued to hammer demand.

Total SE rose **1.1%** after the company said earnings recovered in the fourth quarter as oil prices recovered, although a hit from writedowns on assets due to the Covid-19 pandemic saw it plunge to a **$7.2bn** net loss for fiscal 2020.

Overcoming climate challenge to human development

By Kanni Wignaraja/New York

In his autobiography, Singapore's founding father, Lee Kuan Yew, told the story of how leadership and grit transformed a tiny nation on a sandbar into an open, competitive, and prosperous metropolis.

In the decades since, Singapore has been governed by a famously efficient and graft-free political class, and it now boasts a highly skilled workforce. In the United Nations Development Programme's latest Human Development Index (HDI) – first conceived 30 years ago by the Indian Nobel laureate Amartya Sen and the Pakistani economist Mahbub ul Haq – the country ranks eleventh out of 189 overall.

But when the HDI is adjusted to consider carbon dioxide emissions and so-called material footprint (which measures the share of global extraction of raw materials in a country's final demand), Singapore's rank drops by 92 positions. No country has ever managed to reach a high level of human development with low resource use, and Singapore, having virtually no natural resources of its own, imports almost all of the commodities it needs. There is nothing unusual about this; Singapore is emblematic of growth across the planet. But the natural environment cannot sustain this form of growth and

development.

The intense pressure that our current development models are putting on local ecosystems is perhaps most clearly illustrated by the Covid-19 pandemic. A tiny pathogen has laid bare massive vulnerabilities and gross inequalities in even the strongest and most prosperous societies, with economic and social imbalances reinforcing the damage inflicted by the pandemic. As the disease spread, we learned that the collective action needed to confront such a challenge becomes far more difficult when domestic divisions and international rivalries prevail over global solidarity.

But while Singapore-style development is not sustainable, nor is it feasible to reframe development as a trade-off between people's livelihoods and saving trees. That is a central argument in the UNDP's new Human Development Report (HDR), which examines new or underused pathways to achieving human and environmental well-being. In the future, we must encourage countries to pursue prosperity while minimising their carbon footprint by applying the knowledge, science, and technology now at our disposal.

The report reimagines the future role of governments, but it is clear that they will not bear sole responsibility for the vital choices that must be made in the coming years. The HDR also calls for a socially and environmentally responsible private sector that regards embracing nature as being in its own interest and helps to reshape norms and incentives for climate action.

Four important areas for action stand out. First, cities – which account for 85% of energy output and 75% of CO2 emissions (estimates vary) – now need to pave the way for green renewal. The HDR highlights a role for cities as theatres for green action: pricing the true social cost of carbon, protecting green spaces and planting trees, and cleaning waterways and seas of the plastic garbage that is devastating marine life.

Second, in addition to action by cities and national pledges – including in the Asia-Pacific region – to become carbon-

neutral over the next few decades, ordinary citizens must adapt their ways of life. The HDR urges people to reconsider what they value highly, and to change what they consume and how they produce, commute, and invest. This is not impossible. Throughout history, we have seen that social norms and behaviour can change. Tobacco use, for example, has become socially stigmatised, leading to a decline in smoking, and mask-wearing has become the norm in many places during the Covid-19 pandemic.

Third, while behavioural change can stem from hard incentives (say, higher tobacco taxes) and regulations, it can also be inspired by collective calls to action, such as those urging large and small institutional investors to finance new green technologies.

Private money must match public funding, reinforced by plugging local and international tax loopholes and withdrawing unnecessary subsidies. The subsidy on fossil fuels alone costs the world economy $5 trillion a year. In the Asia-Pacific region, such subsidies can equal more than 50% of a country's health or education budget. The right taxes on carbon, financial transactions, and extreme wealth can raise an additional $200 billion annually for green investments, according to the Sustainable Development Solutions Network's report on SDG costing and financing for low-income countries. Financial constraints clearly need not impede the transition to a green economy.

Finally, we must understand that nature is not our adversary. The HDR documents 20 cost-effective actions related to forests, wetlands, and grasslands that can lead to 37% of the mitigation needed to keep global temperatures within 2°C of pre-industrial levels. Reforestation alone accounts for two-thirds of this potential. Recognising and protecting the local communities that are nature's stewards will be key. The contribution of the Amazon's indigenous peoples to preserving forest storage capacity, for example, now equals the per capita greenhouse-gas emissions of the top 1% of global emitters.

Sen and Haq’s original index of human progress introduced a new way to measure how well societies manage to reach their potential. When adjusted for planetary stress today, however, the index shows how their choices are being radically constricted. Instead of passively awaiting our fate, we must use our knowledge, reason, and agency to establish new development models and shape our collective fortunes. – Project Syndicate

* Kanni Wignaraja is UN Assistant Secretary-General and UNDP Regional Director for Asia and the Pacific

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Solar Stocks Have Been Thriving—Here’s Why That Could Continue

The solar industry has been on a tear. Several stocks in the sector hit all-time highs last month. Investors seem eager for

more solar companies to go public. But is this surge more sustainable than prior booms?

Earlier boom times ended painfully. Several renewables companies went public in 2014 and 2015—or spun off their operating power-plant units—amid a clean-tech wave. But the collapse of SunEdison Inc.—the world's largest renewables company before its 2016 bankruptcy—stung the solar industry. Some investors began prioritizing profitability over growth. No solar companies went public in the U.S. between late 2016 and early 2019, according to Bloomberg data.

Now, clean-tech companies are going public at a dizzying pace. Since October, at least two solar companies have gone public via initial offerings and another agreed last month to do so through a merger with a blank-check company. They join several electric-vehicle and battery companies that have also gone public with special purpose acquisition companies. There have been 32 clean-tech SPAC deals over the past 12 months, according to Pavel Molchanov, an equity analyst at Raymond James.

One big reason: It became clear early in the pandemic that solar wouldn't just weather this difficult time, but possibly thrive during it. By mid-December, the U.S. was projected to install a record 19 gigawatts of new solar capacity last year, according to Wood Mackenzie and the Solar Energy Industries Association. Meanwhile, a sustainability-focused index that includes some solar companies, the WilderHill Clean Energy Index, last year surged more than 200%, topping the 58% gain in 2019. California-based SunPower Corp. rose as much as 14% on Friday, and is up about 70% this year. And the underlying drivers propelling clean tech look sturdy in the near-term: supportive policies in Europe and the U.S., a push to green electric grids as well as trillions of dollars in funds focused on the energy transition.

"It's a mega-trend that's essential for the future of this

world," says Jeff McDermott, head of Nomura Greentech.

But the success and future promise of the industry doesn't mean that solar has become an easy business for executives—or for investors. Active Solar, for instance, was the best-performing stock-picker in Europe last year with a 183% return, but did so after twice losing most of its investors' money. Guinness Atkinson Asset Management, an investment management firm, found that the total rate of return of the median stock among solar-equipment companies was 98% last year, but -32% in 2018. In fact, among all of the clean-tech sub-sectors it studied, the total rate of return for solar equipment was the lowest between 2010 and 2020 at 65%.

Installation "volumes are going through the roof, but profitability can be quite different," Molchanov says. "We have seen countless companies that have grown revenue rapidly over the years but profitability has been pressured." There remains "relentless commoditization including margin compression" that affects multiple solar segments, including modules, inverters and power-supply agreements.

The overlapping trends of decarbonization and electrification—plus the struggles of oil—attracted many investors to solar last year. That's a far cry from 2016, when the experience of SunEdison soured many on the industry. The company had fueled its ascent on financial engineering and cheap debt before its 2016 bankruptcy.

Nearly five years later, the price of solar power has fallen markedly, such that the resource is now the cheapest in many markets. (This is obviously a plus for solar's competitiveness, but not necessarily the best development for manufacturers). Solar companies are increasingly confident that investors will reward them for focusing on just a few things—power-plant ownership, installations, panel-making, or components—rather than feeling the need to be vertically integrated like once before.

One major change is how clean power and other climate-forward businesses are now seen outside the industry. More than ever before, these companies are seen as a financial opportunity—not just good public relations.

— With assistance by Drew Singer, and Will Wade

Green Energy Firms to Help Power Spanish IPO Revival in 2021

Spain's national stock market, home to a solitary listing in 2020, is gearing up to host a flurry of green energy providers in the coming months.

At least four companies including Repsol SA are working on possible initial public offerings of renewable assets in Madrid, according to people familiar with the matter. Driving

the trend is an increasingly environmentally-conscious investor base and a national government intent on generating power from sustainable sources.

“The public market is paying more than the private sector for these types of assets now. This is in stark contrast to 18 months ago,” said Inigo Gaytan de Ayala, global head of equity capital markets at Banco Santander SA. “Time is of the essence and first-mover advantage is critical. Companies want to move swiftly and make the most of this favorable window.”

Companies that produce renewable energy have raised $336 million via IPOs on European exchanges over the last 12 months, according to data compiled by Bloomberg. By far the largest listing came from Soltec Power Holdings SA, a green power generator and manufacturer of certain devices for solar panels.

Soltec’s was the only IPO on a Spanish exchange in 2020, when the coronavirus crisis kept many companies and investors away from public markets. The deal pipeline is looking decidedly healthier this year, with Capital Energy, Opdenergy SA and Ecoener Emisiones all weighing plans to list in the country in the spring, the people said, asking not to be identified discussing confidential information. Two other privately-owned renewables firms are also considering IPOs, one of the people said.

Representatives for Capital Energy and Ecoener said the companies were analyzing possible IPOs, though no final decisions have been taken. Spokespeople for Opdenergy and Repsol declined to comment.

Political Push

“The strong level of activity Spain is currently enjoying in the renewable segment is probably a combination of different factors,” said Angel Arevalo, global head of advisory at Banco Bilbao Vizcaya Argentaria SA. Among these, he said, are the

country’s large renewable resources, falling generation costs and “strong local political commitment to alternative energy.”

Spain’s government has been working to boost renewable power in its generation mix from around 50% today to 70% by 2030, and 100% before 2050. Last month, Spain held its first power auction in four years and awarded 3 gigawatts of new wind and solar capacity. The country is set to become a recipient of European rescue funds to help rebuild its economy in the wake of the Covid-19 pandemic and a large allocation of these could go to clean energy projects.

“Spain is structurally a great base for renewable companies, particularly for firms that focus on solar energy given climate,” said Jerome Renard, head of European equity capital markets at Bank of America Corp. “The country saw investments in that industry very early on, and therefore benefits from a whole ecosystem of expertise.”

So far in Spain, stock performance from the sector has been stellar.

Shares in Soltec have risen 137% since it went public. Grenergy Renovables has also more than doubled from when the Spanish power producer moved from the country’s alternative market to main exchange in late 2019. BBVA’s Arevalo said renewables in Spain were offering “better returns for investors compared to other geographies.”

Mainstream Asset

Investment banks are also preparing to pick up more mandates tied to sustainable energy initiatives. Gonzalo Garcia, co-head of investment banking at Goldman Sachs Group Inc. in Europe, the Middle East and Africa, said in a January interview that the shift toward renewables would be one of the key market themes for banks this year.

Capital Energy is working with Goldman Sachs and UBS Group

AG to gauge investor interest ahead of its potential share sale, a person familiar with the matter said. Repsol is working with JPMorgan Chase & Co. on its renewables IPO plan, people said.

Representatives for Goldman Sachs, JPMorgan and UBS declined to comment.
“In the past, renewables used to attract specialist investors with a focus on the energy sector,” said Renard at Bank of America. “It has now become completely mainstream, reaching a much wider base of investors.”

Qatari ministries to hold joint press conference at 9pm on Wednesday

Doha

The Ministry of Public Health (MoPH), Ministry of Interior and Ministry of Commerce and Industry will hold a joint press conference at 9pm on Wednesday during the ‘Social Distance’ programme, Qatar Television announced on Tuesday through a tweet.

The press conference comes in the wake of a sharp increase in Covid-19 cases in Qatar and calls by the authorities concerned to follow precautionary measures to prevent a second wave of the virus.

Last week, senior health officials addressed a press conference on the rise in new Covid-19 cases and hospitalisations. They urged the public to comply with the measures laid down by the MoPH in this regard.

Turkey wealth fund ready to spend after year of M&A

A Turkish flag flies on a passenger ferry with the Bosphorus in the background in Istanbul. Turkey’s sovereign wealth fund plans to invest $15bn in industries including energy, petrochemicals and gold mining as part of a programme designed to reduce the economy’s vulnerabilities.

Carbon-Neutral Or Green LNG: A Pathway Towards Energy Transition

LNG producers have started to look for ways to minimise or counterbalance their carbon footprints, says Dr Hussein Moghaddam, Senior Energy Forecast

Analyst, Energy Economics and Forecasting Department

According to the latest, 2020 edition of the GECF Global Gas Outlook 2050, the demand for natural gas is expected to rise by 50% from 3,950 billion cubic metres (bcm) in 2019 to 5,920 bcm in 2050, as gas remains the cleanest-burning hydrocarbon. In spite of that, meeting global targets for climate change mitigation is one of the biggest challenges. Significant emissions are released through the combustion of gas to drive the liquefaction process, while any carbon dioxide (CO^2) detached before entering the plant is frequently emitted into the atmosphere.

Subsequently, investors, regulators, and customers exert mounting pressure on the gas industry, as it needs to do more to accomplish climate objectives and focus on reducing emissions.

More than 120 countries have already developed a climate risk strategy that sets target to reduce greenhouse gas (GHG) emissions to net-zero by 2050. As natural gas has a central role to play in mitigating carbon emissions, LNG producers have started to look for ways to minimise or counterbalance their carbon footprints, thus ongoing LNG decarbonisation efforts are likely to expedite. Accordingly, top LNG producers, traders, and consumers have indicated their plans in order to decarbonise the LNG supply chain. This is being done in two ways: by offsetting emissions from individual cargoes retrospectively, as well as by building low-emission liquefaction terminals. As a result, the “Green LNG” term has appeared as a new product within the LNG industry.

The carbon-neutral or Green LNG market is an emerging prospect whereby “Green” indicates either the reduction of GHG, or the offset of GHG emissions, linked to some, or all elements of the LNG value chain – from production of upstream gas and

pipeline transportation, to liquefaction, transportation, regasification, and downstream utilisation of natural gas.

Companies in the LNG value-chain can diminish GHG emissions in numerous ways. For instance, by using biogas as feedstock; by decreasing emissions from upstream, pipeline, and liquefaction facilities; by applying renewable energy to power their liquefaction plants; respectively, by using carbon capture, and storage (CCS), or carbon capture, utilisation and storage (CCUS) technologies by reinjection of CO^2 into the subsurface after it had been detained during the processing of the feed gas before liquefaction.

Therefore, it should be taken into account that carbon-neutral does not mean that the LNG cargo generates zero emissions, rather that LNG sellers can counterbalance their GHG emissions by obtaining offsets to compensate for all or part of their GHG emissions or the utilisation of carbon credits, which reinforce reforestation, afforestation or other green projects.

It is worth nothing that last year the leaders of the G20 endorsed the concept of the circular carbon economy (CCE) and the GECF is the part of this process. The CCE aims to include a wide range of technologies such as CCS/CCUS as a way to promote economic growth and to manage emissions in all sectors.

In contrast, Qatar Petroleum (QP) is the company that applies a combination of strategies to reduce its emissions. Its future LNG production will be low-carbon based, as the company is building a CCS facility alongside its 126 mtpa liquefaction capacity expansion by 2027.

As part of its new sustainability strategy, QP has announced that its aim is to reduce the emissions intensity of its LNG facilities by 25% by 2030. The capture and storage of CO^2 from its LNG facilities of about 7 mtpa by 2027 is another goal.

Furthermore, QP aims to drop emissions at its upstream facilities by at least 15%, as well as cut flaring intensity by over 75% by the end of this decade. Additionally, by 2030, QP is attempting to abolish routine flaring, and by 2025, the company would like to minimise fugitive methane emissions along the gas value-chain by establishing a methane intensity target of 0.2% over all of its facilities.

In certain supply contracts of the company, environmental considerations are incorporated as well. In November 2020, QP signed the first long-term deal with “specific environmental criteria and requirements”, which was designed to minimise the carbon footprint of the LNG supplies with Singapore’s Pavilion Energy, and to provide 1.8 mtpa of LNG over a 10-year period.

In order to fulfil the objectives of decreasing GHG emissions, CCS also helped the case in Australia. Chevron is the operator of the 15.6 mtpa Gorgon LNG offshore Western Australia and has injected more than 4 million tonnes of CO2 in the CCS facility since its commissioning in August 2019.

Meanwhile, NOVATEK has embraced a long-term methane emissions reduction target by 2030 in Russia, mainly to diminish methane emissions per unit of production by 4% in the production, processing and LNG segments. Moreover, the company aims to decrease GHG emissions per tonne of LNG produced by 5% [5]. In this regard, NOVATEK and Baker Hughes, which provides engineering and turbomachinery at Yamal LNG, signed an agreement to introduce hydrogen blends rather than solely running methane from feed gas into the main process for natural gas liquefaction to reduce CO2 emissions from NOVATEK’s LNG facilities.

Bio-LNG will have a significant role in the coming years to form the heavy road and water transport in the Netherlands. The construction of the first Dutch bio-LNG installation was launched in Amsterdam last November. Renewi (the waste management company), the Nordsol (for processes the biogas

into bio-LNG) and Shell (to sell this bio-LNG at its LNG filling stations) have developed this project. Biogas is made up of roughly 60% methane and 40% CO2. An additional CO2 cutback takes place due to the recycling of the CO2 by-product in the market, which results in a 100% CO2 neutral fuel [7].

Inpex, which is Japan's biggest oil and gas producer, has recently disclosed its strategy to become a CO2 net-zero company by 2050 by developing its renewable and hydrogen energy together with the utilisation of carbon capture technologies. Japan has also stated in October 2020 that the country would become carbon-neutral by 2050.

Two major LNG importer regions, namely Asia-Pacific and Europe, have already set policies regarding long-term decarbonisation targets. It is worth noting that most of the carbon-neutral LNG cargoes have been supplied by companies are in Asia to a certain extent, where carbon policies and investor pressure are fairly fragile.

According to the 2020 Edition of the GECF Global Gas Outlook 2050, it is forecasted that LNG imports to Asia will increase to about 800 bcm (585 mt) by 2050, and with 71% of global LNG imports, the region is set to be the driving engine for global LNG demand growth. As concerns with air quality rise in numerous Asian countries, the most realistic solution to attain a decarbonised society in the future by minimising the level of CO2 on a global scale, is the combination of natural gas and renewable energy. Thus, emissions and cleaner-burning fuels are going to be the centre of attention.

Europe could be the predecessor for carbon-neutral LNG in the long-term, by sticking to its new methane strategy, which was revealed by the European Commission (EC), and in accordance with their 2050 carbon-neutral goal. Importantly, the EC suggested LNG producers to engage with their international partners to explore possible standards, targets, or incentives for energy supplies to the EU.

Which part of the LNG value-chain should take responsibility?

An LNG seller will probably need to diminish and offset GHGs, which emphasises the need for robust offset markets in order to be completely carbon-neutral through the entire LNG value-chain.

Accordingly, this highlights challenges for legacy LNG projects with limited means to decrease carbon, making them dependant on expensive market mechanisms. LNG producers have to keep the balance between the competitive fuel pricing and the expensive emissions reduction initiatives. Therefore, the question of who pays the additional costs to produce Green LNG is yet to be decided.

As noted, the balance of carbon emission is feasible for any LNG facility and can lead to carbon-neutral LNG cargoes. Although, this is probably not a sustainable long-term process and does not directly cope with the project's emissions, it is a good transformation for general LNG decarbonisation.

However, the GECF proposes that both sellers and buyers have to contribute to achieving emission targets. The discussions with respect to these issues should involve all LNG industry players, such as sellers, buyers, traders and policymakers, respectively. A more focused perspective that targets minimising emissions in upstream and liquefaction might be more feasible for LNG producers. This will also associate with the already ongoing efforts from them, as they have to control their carbon footprints under more pressure from the public and investors.

In conclusion, as LNG demand keeps expanding, the demand for Green LNG will grow as well. Green LNG can help ensure that natural gas preserves its role as a crucial part of the energy mix, supporting climate goals over the energy transition period. As stated in the 2019 Malabo Declaration, at the 5th GECF Summit of Heads of State and Government in Equatorial

Guinea [10], the GECF Member Countries, reiterate the strategic role of the development, deployment and transfer of advanced technologies for more effective production, and the utilisation of natural gas to enhance its economic and environmental benefits.

QP sees LNG bunkering a promising solution for shipping industry

Qatar Petroleum is actively pursuing to replace its existing bunker fuel for ships with LNG in a phased manner, which will significantly reduce QP's total shipping emissions in the LNG value chain by around 28%. Once the fleet is converted to LNG, the total CO2 reduction through this initiative will amount to approximately 1.9mn tonnes of CO2 equivalent per year, QP said in its Sustainability Report.

With a growing population, the demand for transport is anticipated to expand. More emissions also cause poor air quality, causing adverse effects on the environment and human health.

Meeting the increasing demand for transport while reducing emissions will only be achieved with a variety of solutions and technologies, such as lower-emissions liquid fuels, biofuels, and natural gas.

“More than ever, we are committed to decarbonise the transport sector by shipping LNG to destinations in a cost-effective, efficient and environmentally friendly way,” QP said.

In 2019, QP and Shell entered into an agreement to establish an LNG bunkering venture. The creation of a joint venture company, owned equally by both parties, demonstrates QP’s firm commitment to curbing emissions from the transport segment.

On the role of natural gas in power generation, the report said the electricity share of total energy demand is around 19% but is responsible for 40% of the overall energy sector’s GHG emissions. When generated from lower-carbon energy sources, increased use of electricity will support emission reduction in the power sector, as well as in end-use industries through indirect emissions.

In addition, the combustion of fossil fuels and coal releases several pollutants that negatively affect air quality. QP monitors pollutants at affiliated power plants via a continuous emissions monitoring system (CEMS).

As of 2019, natural gas remains the only fuel to be burnt in gas turbines in Qatar, where pollutant levels are significantly lower than from oil or coal, making natural gas the key to maintaining good air quality.

“We strive to further enhance the environmental benefits of gas-fired plants, eg through lowering NOx emission,” the report noted.

“We consider the industrial sector to be crucial for providing vital products for daily lives, from aluminium, steel, and cement to food packaging, paints, and others. However, metals, cement, chemicals and transport industries are also

significant consumers of energy and hence emitters of GHG emissions.

“In 2019, the industrial sector accounted for 52% of domestic gas consumption and 19% of total CO2 emissions in Qatar (metals and petrochemicals only). Reducing energy demand and emissions from the industrial sector over the long term, without impacting economic and social development goals, will require effective implementation of energy efficiency strategies, switching to lower carbon fuels and raw materials, and leveraging the best available technologies for GHG reduction.

“Our use of cleaner gas in these industries offers an unrivalled advantage to operate at significantly lower GHG emission and pollutant levels compared to those in coal or oil-based industries. Besides, the use of natural gas in industry has other significant benefits: gas almost completely combusts, while coal produces large volumes of ash and slag, which require costly handling and disposal and gas boilers supplied by pipelines do not require on-site fuel storage, loading, or waste disposal,” QP said.