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.”

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.

Biden’s green push gives Detroit the cover to go electric

General Motors CEO Mary Barra just stomped on the electric-vehicle accelerator pedal. Call it the Biden effect.

Six months ago the automaker backed the Trump administration in a legal battle that could have neutered California’s longstanding right to set its own tougher carbon-emission rules. About two weeks after Trump lost, **GM withdrew from that fight** and two weeks after he left office, it pledged to match the state’s mandate to **sell only electric vehicles starting in 2035** — and do that all across the U.S.

Why the 180? Barra is getting a jump on President Joe Biden’s policies, which are expected to help GM and its rivals build and sell more EVs in the U.S. He wants to restore the $7,500

tax incentives that companies including GM and Tesla Inc. exhausted under Trump's watch, and Biden plans to build 500,000 charging stations across the country. That could make EVs more affordable and ease concerns of would-be buyers about battery-powered cars' driving range.

Some see GM's about-face on the politics of clean cars as less a calculated policy move than a recognition of longer-term global forces at work.

"They would not make an announcement this substantial just for political purposes," said Joe Britton, executive director of the Zero Emission Transportation Association, a Washington-based lobby group pushing for full adoption of EVs by 2030. "This is a clear sign that electric vehicles are going to be the future and that we're in a bull market for innovation right now."

Believe it or not, Biden's position has been met with a collective sigh of relief in some quarters of Detroit. The rest of the world is moving toward electric vehicles, and the Trump administration had no interest in easing that transition in the U.S.

While Trump was trying to prolong the era of combustion engines by watering down clean-air rules and resisting efforts to expand the EV tax credit, China's government has adopted rules and incentives that boosted EV sales in the world's largest car market. Almost all of the European Union's 27 member states have purchase or tax incentives for consumers who buy electric vehicles, and it's rapidly ratcheting up emission restrictions to penalize automakers that don't sell enough EVs in Europe.

As a result, China and the EU have jumped way ahead of the U.S. in EV adoption rates. Last year, of the 3.2 million EVs sold globally, 1.3 million were in China and 1.2 million were in the European Union and UK The U.S. accounted for just

328,000 sales, according to Swedish researcher EV Volumes.com.

That put Detroit's carmakers in a spot. They get most of their revenue and profits at home in the U.S., where EV sales have been minimal. And they need help with economies of scale sufficient to drive down battery costs and create profit margins.

Barra had been heading in this direction since 2017, when GM announced plans to build 20 different EVs by 2023, but most of them were bound for the Chinese market. GM accelerated that shift in November, promising **30 models by 2025 and an investment of $27 billion** in electric and self-driving cars with more models planned for the U.S. Ford Motor Co. has been stepping up its efforts as well, budgeting $11 billion for EVs and more fuel-efficient vehicles.

Biden's victory put some wind at the auto industry's back and makes the commitment to electric powertrains more palatable for their risk-averse corporate cultures.

Political convenience

Even so, there also is a hefty dose of political convenience involved in the decision to go all-in on EVs. GM, Toyota Motor Corp. and Fiat Chrysler Automobiles – now a part of Stellantis – went along with Trump in his legal fight with California, throwing a bone to a temperamental president and thereby extending their ability to churn out cash-cow gasoline-powered vehicles.

Officially, GM said it always wanted one national standard instead of different rules from Washington and Sacramento. It just so happens that the company picked Trump's watered-down option.

Critics of government subsidies were quick to see GM's move as a sign the market for EVs is maturing fast enough that no additional incentives are needed.

“GM is a publicly traded business and is making a strategic, calculated market decision,” Tom Pyle, a former Trump adviser and current president of American Energy Alliance, a free-market advocacy group, said in a statement. “In no way should any taxpayer be responsible for GM’s ability to achieve – or fail to achieve – their corporate goal of an all-electric light duty fleet by 2035.”

Big companies have long sought to position themselves in the most favorable light in Washington, regardless of which party’s candidate is in the Oval Office. Automakers are no exception. Former Ford CEO Mark Fields warned then-President Trump that overly tough mileage rules would put a million jobs at risk, a prelude to Trump’s rollback. And GM broadly touted its Chevrolet Volt plug-in after its 2009 rescue by the Obama administration, which later set a goal of putting a million electric vehicles on the road by 2015.

Carrot and stick

Trump and his Twitter account are now silenced. With Democrats running the White House and having a majority in both chambers of Congress, the prevailing wind is definitely blowing against Detroit’s status quo dependency on big sport-utility vehicles and trucks.

Biden’s plan also comes with a stick. Earlier this week, he vowed to reinstate vehicle emissions standards gutted by the Trump administration and set “new, ambitious ones that our workers are ready to meet.”

Doing so would aid GM’s electrification push and could encourage competitors to follow suit, said Joshua Linn, a senior fellow at Resources for the Future, a Washington think tank that focuses on environmental policy and economics.

“Companies don’t want to get out too far ahead of the market,” he said. “Having more ambitious policies, greenhouse-gas standards and maybe a national zero-emission vehicle program

will help support the entire market moving in that direction.”

GM’s worst nightmare is a scenario in which its commitment to EVs isn’t met with higher consumer demand, allowing rivals with less ambitious electrification plans to steal away business. Biden may be giving GM some of the cover it needs to proceed.

Wind Generation in Europe Rises to Record in 2020

Green Boom’s Hottest Trade in 2021 May Turn Out to Be Utilities

(Bloomberg) — After a bumper year for Europe’s renewable-energy stocks, underappreciated utilities shares are now gaining support from the market as 2021’s hot sector to play the clean power transition.

Helped by government policies such as the European Union’s Green Deal and investors’ environmental, social and governance concerns, renewable assets have strongly outperformed traditional utilities peers this year in the Stoxx Europe 600 Index. Turbine maker Vestas Wind Systems A/S has almost doubled in value, while U.K. electric company SSE Plc is up less than 3%.

Some strategists warn that opportunities in wind and solar stocks may be more uneven in 2021 as valuations appear stretched. Utilities may be a lower-risk way to buy into green energy growth than renewables equities, said Ursula Tonkin,

head of listed strategies at infrastructure investor Whitehelm Capital Pty Ltd.

“Over the long run, the tortoise will likely outperform the hare,” she said. “For every new solar, wind or battery installation, the grid has to expand to accommodate it.”

While coronavirus-pandemic winners such as tech shares are losing favor in the latest vaccine-fueled stock rally, sustainable companies have stayed in favor, also helped by November’s U.S. presidential election victory for Joe Biden, who pledged a clean-energy agenda. Still, utilities as a whole have gained only modestly so far this year.

Many utilities have positioned themselves to capitalize on opportunities in green energy after “cleaning up” their portfolios in the past few years, said Sam Arie, an analyst for the industry at UBS AG.

“We’ve gone from a world five years ago which didn’t really have climate goals in view to one where now those are the most important goals across all the sectors,” he said.

Investors will have to be more selective, with next year unlikely to be as “exceptional” as 2020 for the renewables segment, said Louise Dudley, a global equities portfolio manager at Federated Hermes Inc. Stocks such as Orsted A/S trade at about 53 times estimated earnings, versus 19 times for the Stoxx 600 Utilities Index. The Danish offshore wind-farm developer was recently downgraded at Bank of America Corp. and Royal Bank of Canada.

Investors are giving “insufficient credit” to utilities like SSE, Germany’s RWE AG, and Portugal’s EDP SA that balance spending on renewables with defensive earnings flow from electricity networks, RBC Capital analysts said in a 2021 outlook note for the utilities sector. Analysts tracked by Bloomberg see 16% upside for RWE and 6% for EDP, while average price targets are for at least 11% declines for Vestas and

peer Siemens Gamesa Renewable Energy SA.

Another plus is attractive payouts. Investors would struggle to find another industry that delivers utilities' highly predictable, strong earnings growth alongside comparatively high dividend yields, UBS's Arie said.

Still, while 2021 may involve a "bumpier ride" for renewables, valuations for Vestas, Orsted and peers aren't likely to slide as their business growth forecasts are so positive, Whitehelm Capital's Tonkin said.

Green Competition

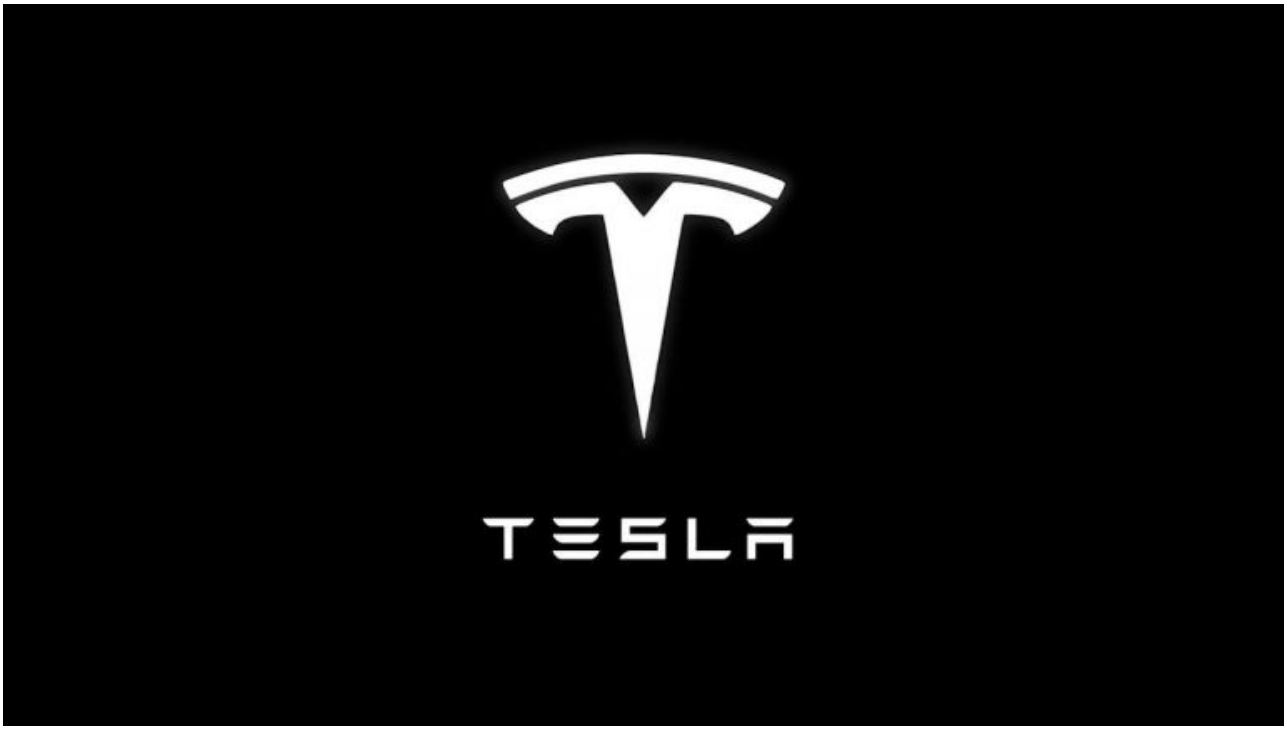
An additional concern for the pure renewables industry in 2021 is increasing competition, both from utilities ramping up spending and oil companies aggressively investing in green energy. This could pose a "real threat" to the economics of wind and solar, said Ulrik Fugmann, co-head of the Environmental Strategies Group at BNP Paribas Asset Management.

Others, however, are sanguine. James Smith, fund manager at the Premier Miton Global Renewables Trust, said oil companies that "seek projects simply for the sake of it" would put returns at risk at a time when the sector must strike a balance between operating core crude-oil assets, executing the shift to renewables and paying dividends.

The energy market "needs to grow very aggressively in the next two decades" to reach regulators' emission-cutting goals, said Harry Boyle, a portfolio specialist at sustainability-focused fund manager Impax Asset Management. "There should be ample room for all actors."

©2020 Bloomberg L.P.

Tesla market value tops $700bn for first time



ew York: Electric carmaker Tesla closed trading on Wednesday with a market value topping $700 billion for the first time.

The latest surge means the company is worth more than General Motors, Ford, Toyota, Honda, Fiat Chrysler and Volkswagen combined.

Tesla's share price ended with a gain of 2.8 percent to $755.98 for a total value of whopping $717 billion. That came after the stock saw a more than 700 percent ascendance in 2020 – a gain some analysts viewed as inflated.

The auto industry disruptor led by Elon Musk wowed Wall Street yet again over the weekend, reporting annual car deliveries of 499,550, just shy of its 2020 target of half a million, but well above analyst estimates.

The disclosure capped a year that saw Tesla report a series of profitable quarters and join the S&P 500, establishing the company as one of the world's most valuable businesses and elevating Musk to the second-wealthiest person behind Amazon CEO Jeff Bezos.

While industry analysts do not expect another massive surge in value this year, they remain optimistic about the company's sales prospects, even if the cars remain out of reach for many buyers.

The optimism comes as construction continues on new Tesla factories in Texas and Germany, which will join existing plants in California and Shanghai that are ramping up production.

Musk has expressed determination to cut the price for Tesla's electric cars, which currently start at $37,990 in the US market.

The Tesla chief is developing battery design, material and production innovations that combine to cut the cost per kilowatt hour by 56 percent.

That should enable Tesla to field a $25,000 model in "three years-ish," Musk said in September, adding, "it is absolutely critical that we make cars that people can actually afford."

And US sales could be helped by President-elect Joe Biden's commitment to green technology to combat climate change.

Countries seen needing to

invest $55tn to reach emissions target

Global economies will need to invest as much as $55tn through the middle of the century to meet an emissions goal and contain warming of the planet, according to a report by a group of executives from energy-intensive companies including ArcelorMittal SA, BP Plc and Royal Dutch Shell Plc. Reaching the net-zero carbon emissions target by 2050 will require large-scale electrification of industries, buildings, and transport, as well as the use of hydrogen and biofuels in areas that can’t be electrified, according to the Energy Transitions Commission. Using less energy to produce more and recycling material will aid the efforts. Building renewable power plants will take up a bulk of the estimated investment.

More frequent and severe natural calamities across the world have heightened the need to contain climate change and end the use of coal and other fossil fuels while expanding clean energy. That’s forcing some of the biggest fossil fuel users to recast their energy mix and adopt greener sources of power.

The Intergovernmental Panel on Climate Change said in a 2018 report that reaching net-zero CO2 emissions by mid-century will be key to limiting global warming to 1.5 degrees Celsius above pre-industrial levels. Humanity is on course to miss that mark, with the World Meteorological Organization saying there is a 20% chance that global temperatures will breach the limit in at least one of the next five years. The decarbonization strategy will involve phasing out of coal-fired plants, according to the report. Those that remain should be used as a peaking or a seasonal back-up to renewable power and should be retrofitted with carbon capture and storage. The report highlighted some challenges on the way. China, the world's biggest coal user, "is not yet on a clear path towards a net-zero economy and new coal investments are continuing despite evidence that renewables are now highly competitive on a new-build basis in most of China's provinces," it said. The nation can become a fully developed, rich economy with net-zero emissions by 2050 by rapidly deploy- ing renewable power projects and reducing its dependence on coal, according to the report. The country needs to double annual investments in solar and as much as quadruple investments in wind energy, along with accelerating the use of clean energy in industries and residential heating. India, the second-biggest coal user, is likely to see consumption of the fuel peak between 2027 and 2030, before gradually sliding down, Ajay Mathur, a co-chair at Energy Transitions Commission, said in a phone interview.

BP Clean Energy Push Starts

With 5-Year Dash on Solar, Wind

BP Plc’s journey from oil major to clean energy giant will start with a five-year sprint to dramatically boost wind and solar power.

By 2025, the company intends to have approved more than 20 gigawatts of renewable energy projects, an eightfold increase from 2019, Dev Sanyal, BP’s executive vice president of gas and low-carbon energy, said in a online presentation on Tuesday.

Most of that would be solar — putting BP on a par with today’s biggest generator of electricity from the sun. The company also plans big investments in wind, following on from last week’s $1.1 billion deal with Equinor ASA.

“With falling costs comes real growth,” Sanyal said. “Renewables have become the fastest growing source of energy

and we see this continuing over the next decade and beyond."

This rapid expansion would just be the start of the London-based oil giant's transformation into a low-carbon integrated energy company. Chief Executive Officer Bernard Looney has pledged to eliminate all net greenhouse gas emissions from BP and its customers by 2050.

A series of presentations this week aims to show he can achieve this while still delivering competitive returns. Investors may need some convincing, after seeing their dividends cut in half last month.

Trading Gains

BP's in-house trading operations are at the heart of Looney's pledge to move away from fossil fuels without sacrificing profits. Renewable energy projects typically gives returns of 5% to 6%, Looney said, but the company's expert traders can add about 2 percentage points to that.

Lightsource BP, which currently manages about 2 gigawatts of solar plants, is already achieving returns of 8% to 10% and "we actually believe it can do better," Looney said. Access to low-cost funds, and integration with the rest of BP and its project management experience can boost returns, said Sanyal and Looney.

BP will gradually expand its electricity trading over the next five years, increasing the amount of power it buys and sells annually by about 40% to 350 terawatt hours.

Of the 20 gigawatts of renewable energy capacity BP intends to begin developing over the next five years, 83% will be solar, 15% wind and 2% bio-energy, Sanyal said.

That much solar would give BP about the same capacity as is currently owned by the world's biggest operator, China's State Power Investment Corp. Ltd, according to data from

BloombergNEF.

Solar power will be crucial for achieving the breakneck pace of growth BP laid out. It is relatively quick to install, taking as little as 18 months from concept to construction, Sanyal said. That’s much faster than massive offshore wind farms, which can take a decade to plan and construct.

By 2030, BP plans to have taken the final investment decision on 50 gigawatts of low-carbon energy capacity, and be trading 500 terawatt hours of power each year.

On bio-energy, the company says it will more than double its 2019 production to 50,000 barrels a day by 2025, and 100,000 by 2030. These fuels will help sectors that are hard to electrify, like aviation, marine and heavy goods vehicles, Sanyal said.
BP currently makes biofuels in a joint venture with Bunge Ltd. in Brazil, produces biogas in the U.S. and processes some renewable fuels within its refining portfolio.

“We see these businesses as generating returns of around 15% or higher,” Sanyal said. “It competes well within our disciplined financial framework.”

The Solar-Powered Future Is Being Assembled in China

On a recent morning in central China, workers in blue jumpsuits and white masks placed clamps around a bar of shiny metal and fed it into a powerful cutting machine. The bar was an ingot made of polysilicon, a heavily refined cousin of the same material that makes up sand. Inside the cutter, it was sliced into thousands of small squares slightly larger than a CD case and thinner than a thumbnail. These wafers would then be shipped on to other factories to be infused with conductive elements such as phosphorous and boron, then wired into cells and assembled into panels—the base unit of solar energy generation.

The owner of this factory, Longi Green Energy Technology Co., is the world's largest producer of solar wafers and the world's largest solar company by market value. As of the end of last year it created about 1 of every 4 wafers made anywhere on the planet, and since then it's announced at least five projects to expand its factories or build new ones. Despite a pandemic that may slow the growth of new solar power installations for the first time in decades, Longi expects its production capacity by the end of 2020 to have increased by two-thirds compared with 2019.

Longi and the other Chinese companies that dominate

solar—collectively they control at least 60% of global capacity for every step in the supply chain—are playing a risky game. The short history of the solar industry is a tale of repeated boom and bust, with abrupt technological and policy developments rendering multibillion-dollar investments obsolete. Industry leaders one day have, again and again, become bankruptcy filers the next.

The bet in China is that this time is different. Plunging costs have left solar the cheapest form of energy in parts of the world. Subsidies are disappearing as it becomes more competitive with other forms of electric generation, making demand less dependent on political decisions. And advances in energy storage are opening a tantalizing possibility: that solar could, in the near future, replace fossil fuels in many places. “We believe the solar market will maintain the trend of rapid growth,” says Li Zhenguo, Longi’s billionaire president. A physicist by training, he founded the company in 2000, naming it for a university principal who’d impressed Li with his academic rigor. “Current global production capacity, including Longi’s, is nowhere near enough to meet the coming demand.”

Longi dates to a time when Chinese solar manufacturers were relying primarily on cheap labor to undercut more established players from the U.S. and Europe. That strategy can collapse once wages rise, as they have in China. But, in Li’s telling, Longi was focused on coming up with a product that could compete in the longer term.

That aim led the company to make a momentous choice early on. There are two ways to make the blocks that solar wafers are sliced from: by cooling molten silicon into one homogeneous structure or encouraging it to crystallize from different points. The first approach, known as mono-crystalline, provides greater conductivity and efficiency. But it’s more expensive than multi-crystalline products, which most manufacturers favored in their efforts to compete with cheap

fossil fuel generation.

Li decided that Longi, which in its early years relied on other companies to turn its wafers into cells and panels, would focus on mono fabrication, even if it meant losing out on short-term sales to less-expensive producers. For a long time the choice was eccentric; as recently as 2014, mono made up only 20% of the market. But around that time, China began to heavily subsidize solar installations, turbocharging demand and providing manufacturers with an incentive to compete on technology, not just cost. As its clout grew, Longi expanded vertically, and now it competes in nearly every part of the supply chain. The subsidies "transfused blood to the manufacturing sector," says Yali Jiang, a BloombergNEF analyst in Hong Kong.

It's now clear that Longi's bet paid off. Li estimates mono will account for 90% of the market in 2020—a development that's helped the company establish a commanding position. Part of the explanation is that, as costs have fallen, planners have placed a higher priority on mono's superior efficiency. This preference is reflected in Longi's $37 billion market capitalization on the Shanghai stock exchange, by far the highest of any solar company. Its success, Li says, came from picking a technological horse early, sticking with it, and "looking for measures to rapidly put it into production."

As dominant as Longi might appear, no one stays on top of the solar industry for long. Yingli Green Energy Holding Co. was the world's biggest maker of solar panels as recently as 2013, but aggressive borrowing to fund new production combined with a plunge in solar equipment prices drove it to the brink of collapse. In all, about 180 solar manufacturers have exited the industry or gone bankrupt in the past four years, according to Jiang.

Longi is trying to avoid their fate by not overextending

itself financially. It’s managed to keep a lid on labor costs by boosting productivity, sometimes at the cost of the so-called green jobs that politicians in China and the West love to promote. At a wafer plant not far from Longi’s headquarters in the ancient imperial capital of Xi’an, producing 350 megawatts’ worth of product required about 1,000 people in 2010. Today its output is equivalent to 6,000 megawatts, with the same number of employees. At a nearby panel plant, the company’s smallest, only 100 or so workers are needed to operate a facility the size of 10 basketball courts. During a recent visit, the company was testing a packaging system that could allow it to get rid of forklift drivers and other logistical staff.

Cost-cutting can’t fully neutralize the other major threat to China’s solar industry: politics. The U.S. and European Union have periodically targeted Chinese manufacturers with anti-dumping tariffs since the early 2010s, claiming that subsidies allow them to sell below cost. The U.S.-China trade war kicked off in 2018 with duties on panels, and India, which is trying to reduce the economic influence of its giant neighbor, recently extended tariffs that had been set to expire on Chinese solar products.

China’s solar industry is nonetheless growing rapidly. According to BloombergNEF data, at the end of 2019 Chinese panel factories had an annual capacity of 193 gigawatts, 60% more than was installed worldwide in that year. Planned expansions could increase that total by more than half.

There’s an argument to be made that Chinese solar leadership is at worst benign and at best a source of considerable innovation. The raw materials for panels are inexpensive and abundant, and it would be easy for companies in places such as Malaysia and Vietnam to set up factories if Chinese producers raised prices. The hothouse atmosphere of China’s industry, meanwhile, has encouraged manufacturers to drive down costs. Measured per watt of output, the average price of panels has

plunged 91% since 2010.

Solar optimists believe developments such as these might leave the world on the verge of an inflection point. In many places, generating electricity from the sun is now significantly less expensive than doing so from coal or natural gas. (Picking a location with sunny weather, as well as cheap land and financing, helps a lot, too.)

There's also been significant progress on the technology's biggest problem: that it can only generate electricity when the sun is out. When solar was primarily a supplement to traditional power plants, that wasn't a major concern, because power demand tends to peak in daytime. But it becomes a serious constraint as more panels are installed, creating a daytime surplus that's not useful at night. Engineers are refining a huge range of storage technologies, from improved batteries to "pumped storage" systems, which use solar electricity to send water uphill during daylight hours, releasing it through turbines when needed.

None has yet emerged as a game-changing solution, but Li is bullish on batteries, and he expects that a combination of live generation and storage will be enough to replace fossil fuels around the clock in at least some locations within a decade. He predicts that demand for solar installations will triple by 2025, to 300 gigawatts a year, before hitting 1,000 gigawatts in 2030. Those projections are wildly optimistic, however: BloombergNEF expects the 2030 figure to be closer to 200 gigawatts annually.

Whatever the rate of growth, the economics of the solar market "have significantly improved in the past decade," Li says. Now, "energy is going to be more electrified, and electricity will be cleaner." *—With Dan Murtaugh and Feifei* Shen

Green energy’s $10tn revolution faces oil crash test

In 2014, when the price of oil last crashed, the world’s governments had no agreement in place to fight climate change. The following year leaders signed the Paris accord. Green investments have soared since then. Some $1.2tn has been poured into renewable energy, and global electric vehicle sales reached 2mn last year. Bloomberg NEF expects as much as $10tn poured into clean energy by 2050. The accord also marked a cultural watershed, with emissions targets now policed by a growing environment movement that’s shaping politics from Germany to India. In a sign of the times, activist Greta Thunberg and Tesla Inc founder Elon Musk are now two of the most famous people in the world. So when this week Saudi Arabia and Russia joined in a price war that wreaked havoc on global markets already rattled by the coronavirus, it looked like the major oil-producing nations reasserting their supremacy in the short term. Instead, it may prove to be another step in a longer-term trend towards ending oil’s power

to hold the world to ransom. The price of a barrel of oil remains an important economic indicator. But the relentless push to move away from fossil fuels suggests that its geopolitical impact is likely to be softer than in the past, with the imperative to combat global warming assuming its place. “The impact of the oil price on broader economic growth has been decoupling ever since the 1980s,” said Shane Tomlinson, deputy chief executive officer at environmental think tank E3G. “We could see exceptional movements in the oil price in the next few months, but I don’t think that changes the fundamental need to address climate change.” Oil’s fall to some $35 a barrel from $55 just last week has major implications for addressing climate change. Low prices incentivise more use of oil; it squeezes the budgets of oil companies, putting clean-energy projects in doubt; and some governments feel pressured to prop up struggling oil companies. All that drives up emissions, which is bad news for global warming. However, if low prices are sustained this time, there might be big positives for fighting climate change. Renewable energy is a more mature industry than five years ago. As it becomes a less risky investment, it has attracted big investors who are showering a lot of cash and building some projects that rival the capacity of conventional power plants. At the same time, oil exploration is becoming less viable economically, with an increased risk that even those projects that go ahead no longer yield good returns and with worries about stranded assets growing. “Now it doesn’t make sense to reduce your investment in renewables if the oil price crashes,” said Mark Lewis, head of sustainability at BNP Paribas Asset Management. “It’s more logical to reduce your investment in oil.” That reality points to a broader change in investor sentiment since Paris that aff ects companies and governments alike. A number of large investors have come together under groups such as Climate Action 100+ to demand companies put sustainability at the heart of their business models, and that isn’t likely to change. Tesla has eff ectively become a proxy for how the green economy is viewed by

investors. Musk has demonstrated that a mass-market electric car is viable, prompting all the major carmakers to follow his lead. He's building his latest plant outside Berlin, in a show of his intention to take the fight to the heart of Europe's leading luxury car producer. Tesla is after all the world's second-most valuable carmaker by market value after Toyota Motor Corporation. For governments worldwide, pressure for policy measures has mounted as the issue increasingly resonates, in part due to the kind of direct action and media campaigning espoused by Greta Thunberg. Low oil prices off er one reason to heed that voter call, since it's a good time to end fossil-fuel subsidies or to raise taxes on consumption of fossil fuels. Such a move can also help avoid the sorts of destabilising anti-government protests seen in France, Iran and Ecuador when energy-price increases were proposed. It could even be done in a way that "protects or even benefits poorer households and communities," said Helen Mountford, vice president of climate and economics at the World Resources Institute. The goal of reaching out to "left-behind" communities is a dynamic driving policy from the post-Brexit UK to South Africa and swaths of Latin America that suff ered waves of unrest late last year. During the last down cycle, between 2014 and 2016, when oil briefly dipped below $30 per barrel, India cut annual fossil-fuel subsidies from $29bn to $8bn and even raised taxes on consumption. Some of the money raised was diverted to renewable-energy subsidies, after setting an ambitious goal to deploy as much as 175GW of mainly solar and wind power by 2022 — about twice the power generation capacity of the UK. "Many countries are pursuing electrification and decarbonisation to make them less dependent on the volatility of oil markets," said Adnan Amin, former director general of the International Renewable Energy Agency. "This kind of event will only reinforce that momentum." Also since 2014, the power of Opec's 14 nations to shape the market has been weakened by the impact of US shale production. (Opec's Vienna base is home to an Austrian government that now includes the Greens as junior coalition

partner.) The US – which is not a member of the group – became an oil exporter again on the back of its shale revolution, surpassing Russia and Saudi Arabia in 2018 to regain its status as the world's biggest producer. President Donald Trump has cheered America's energy resurgence as an example of taking back control. However, the collapse in oil prices weakens the shale industry's ability to pump at a profit and even pushes some of the producers toward bankruptcies, adding to economic uncertainty surrounding the virus that may hurt Trump's re-election bid, says Amin. Since Trump unilaterally pulled the US out of the Paris agreement, it could yet tilt the presidential race in favour of a candidate more in favour of climate action. In Brussels, meanwhile, European Commission President Ursula von der Leyen doubled down on European Union plans to achieve climate neutrality by 2050, despite the emergence of what she called "unforeseen challenges." "Today it's no longer the question if there will be a European Green Deal or whether the EU will become climate- neutral but the question is how we're proceeding and how far-reaching will the transition be," Von der Leyen said on Monday. That stance is understandable given that EU citizens say they want the bloc to focus on tackling climate change and preserving the environment as its No 1 priority, according to a recent Eurobarometer survey for the European Parliament. "Clearly we cannot ignore what's going on globally," said EU Environment Commissioner Virginijus Sinkevicius on Bloomberg TV. The global "climate emergency didn't go anywhere."