How to halt global warming for $300bn

The world needs to spend $50 trillion on five areas of technology by 2050 to slash emissions and meet the Paris Agreement’s goal of halting global warming, Morgan Stanley analysts wrote in a report.

To reduce net emissions of carbon to zero, the world would have to eradicate the equivalent of 53.5 billion metric tons of carbon dioxide a year, according to the report, which identified renewable energy, electric vehicles, hydrogen, carbon capture and storage, and biofuels as the key technologies that could help meet the target.

Carbon emissions from fossil fuels hit a record last year, but estimates vary of how much it would cost to meet the Paris target of keeping the global temperature rise to within 2 degrees. The International Renewable Energy Agency says $750 billion a year is needed in renewables over a decade. United

Nations scientists say $300 billion spent on reclaiming degraded land could offset emissions to buy time to deploy zero-carbon technologies.

Here are Morgan Stanley's estimates for the five key technology areas and some of the companies leading the drive.

Renewables

- Renewable power generation will require $14 trillion by 2050, including investments in energy storage.
- Renewables would need to deliver about 80% of global power by then, up from 37% today, meaning an additional 11 000 gigawatts of capacity, excluding hydro-power.
- Solar energy's rapidly falling cost will make it the fastest-growing renewable technology over the coming decade with a 13% compound annual growth rate.
- Stocks that could benefit include: CGN New Energy Holdings Co., China Resources Power Holdings Co. and China Suntien Green Energy Co.

Electric vehicles

- With passenger cars currently pumping out about 7% of greenhouse gas emissions, some $11 trillion will be needed to build factories, expand power capacity and develop the batteries and infrastructure needed to switch to electric vehicles.
- With increased investment, annual EV sales could grow from 1.3 million units in 2018 to 23.2 million in 2030, lifting the total number of electric vehicles to 113 million by 2030 and 924 million by 2050.
- Some of the companies to watch: Beijing Easpring Material Technology Co., Rohm Co. and Panasonic Corp.

Carbon capture and storage

- Almost $2.5 trillion would be needed for technologies that capture carbon and store it.

- While it currently costs about $700 million to capture a million tons of carbon a year, the cost of building CCS plants is expected to drop 30% by 2050.
- With more than 200 000 megawatts of new coal-fired generation capacity under construction, CCS is the only option to offset the emissions of these plants, Morgan Stanley says.
- The bank’s top picks include Air Liquide SA and Bloom Energy Corp.

Hydrogen

- About $5.4 trillion is needed for electrolyzers to make the gas, which can help provide clean fuel for power generation, industrial processes, vehicles and heating.
- In addition, $13 trillion would be required to increase renewable energy capacity to power the plants.
- Another $1 trillion would be needed for storage, with additional investment for transportation and distribution.
- Leading players include: Johnson Matthey and Air Liquide.

Biofuels

- Almost $2.7 trillion should go into biofuels like ethanol, which are currently mixed with petroleum products but will spread eventually to areas such as aviation.
- About 4% of global transportation fuel will be biofuel in 2030.
- Ethanol, the most-used biofuel at the moment will grow at about 3% a year, while a type of biodiesel called hydro treated vegetable oil will achieve must faster growth, quadrupling production by 2030.
- Companies invloved include Neste Corporation and Sao Martinho SA.

The clean energy fast track

The global transition from carbon-intensive fossil fuels to cleaner, more reliable renewables like wind and solar is already well underway. But the big question – for the 2020s and beyond – is how fast it will happen. A slow transition would mean that energy-sector incumbents continue to flourish, and we would all but certainly miss the emissions-reduction targets enshrined in the 2015 Paris climate agreement. But if the transition is rapid, incumbents will experience varying degrees of disruption – the price of keeping the Paris targets well within reach. As matters stand, both scenarios are possible, representing two paths that lie before us.In a new report for the World Economic Forum's Global Future Council on Energy, we and our co-authors identify four key areas that will determine which path we take. The Speed of the Energy Transition offers compelling evidence that the transition is

coming fast, and that all stakeholders in the global energy system – which is to say, everyone – must start preparing.

One area where the gradual and rapid scenarios diverge is adoption of renewable energy. When will renewables start displacing incumbents? For markets, the key moment will be when renewables make up all of the growth in energy supply, as well as all the growth in electricity supply. That, most likely, will happen in the early 2020s, long before fossil fuels lose their dominant share of total energy supply. As renewables become the leading growth industries in the energy sector, financial markets will increasingly reallocate capital accordingly.

A second area concerns innovation in energy technology, and whether growth in new applications is linear (the gradual scenario) or exponential (the rapid scenario). Solar and wind are already cheaper than fossil fuels when it comes to generating electricity, and electric vehicles are close to challenging internal-combustion-engine cars on price. The evidence suggests that the barriers to growth for EVs in the foreseeable future are soluble. Moreover, new waves of innovation are forthcoming, in the form of nascent but already viable technologies such as green hydrogen energy. Prices for renewables will most likely drop far below those of incumbent energy sources – and fast – leading to exponential growth in green energy.

A third key area is public policy. Will policymaking remain cautious, or will it become more dynamic and ambitious as new technologies create opportunities to improve the design and functioning of markets? Inertia being a powerful force, existing policies have been limited in scope. But history teaches us that there are tipping points: Once genuine change comes, it tends to be adopted rapidly across the board – as in the case of laws prohibiting smoking indoors.

Given that new technologies are already providing better

solutions for consumers' energy needs, policymakers inevitably will respond to their constituents' demands. Once enough politicians recognize that the energy transition is not expensive, and will actually boost competitiveness (thereby reducing prices), they will update the rules governing energy markets to make way for the change that is already underway.

The last key area is emerging markets, which could either follow the fossil-fueled path of developed countries, or leapfrog to newer energy technologies. Countries like China and India undoubtedly need to generate far more energy for their citizens, and there are almost 1 billion people worldwide who still lack access to electricity. But that doesn't mean emerging and developing countries have to opt for high-emission fossil fuels.

Just as mobile phones made landline telephony irrelevant in much of the developing world, increasingly affordable renewables can become the obvious first choice for generating energy.

From our perspective, the evidence clearly points to a rapid energy transition in the years ahead. The danger is that key stakeholders – whether policymakers or investors – will mistake which path we are on, and make poor decisions. If so, we will all have to bear the costs of stranded high-carbon assets and bad investments in obsolete technologies. Worse, we will have missed an early opportunity to achieve sustainability and minimize the risk of catastrophic climate.

Everyone – from innovative technology startups to energy incumbents and government policymakers – has a role to play in determining which path we take. If stakeholders recognize the rapid pace of the global energy transition already underway and embrace the change, we can still hit the Paris targets and have a planet that allows everyone to thrive.

Kingsmill Bond is the new energy strategist for Carbon

Tracker. Angus McCrone is chief editor of Bloomberg NEF. Jules Kortenhorst is CEO of the Rocky Mountain Institute. THE DAILY STAR publishes this commentary in collaboration with Project Syndicate © (www.project-syndicate.org).

The world’s biggest offshore wind farm could be cheaper than coal

The world’s biggest offshore wind park planned off the coast of England will probably in the next decade generate power more cheaply than by burning coal.

A number of offshore wind projects won contracts to sell power at guaranteed prices in a UK auction Friday. The price of 39.65 pounds per megawatt-hour (around R740) was 31% below the level in a similar auction two years ago.

The plunge highlights how offshore wind, which only a few years ago was a niche technology more expensive than nuclear reactors, is changing the economics of energy around the world. Both utilities and, increasingly, energy majors, are planning to spend $448 billion through 2030 on an eightfold capacity increase, according to BloombergNEF.

Projects from developers including SSE Plc, Equinor ASA and Innogy SE won offshore wind power-purchase contracts that will have the capacity to generate as much as 5.5 gigawatts of power, the government said. That includes a joint SSE-Equinor project off England’s east coast to build the biggest single offshore wind park in the world.

“The auction results today show offshore wind is in line with current power prices – it is already competitive with existing fossil fuel plants, let alone new fossil fuels,” said Deepa Venkateswaran, an analyst at Sanford C. Bernstein & Co. in London. “In the next auction in 2021 we will see costs go well below that of existing fossil fuel plants.”

One of the winning areas, known as Dogger Bank, is off the coast of Yorkshire. Three projects by Equinor and SSE were approved in the zone for a total generation of 3.6 gigawatts. Another 1.4 gigawatt project developed by Innogy was also approved in the same area.

Key step

Equinor’s success at the auction is a key step in its transition to becoming a broader energy company than just an oil and gas major. The state-controlled Norwegian company has a target of investing as much as 20% of its capital in new energy solutions by 2030.

“Dogger Bank, together with the recent award for Empire Wind in the US, positions Equinor as an offshore wind major,” said Pal Eitrheim, Equinor’s executive vice president for new energy solutions. “These projects provide economies of scale and synergies, making us an even stronger competitive force in offshore wind globally.”

SSE winning capacity will accelerate its shift away from a traditional utility to an energy company focused on renewable power and grids. The Scottish company has agreed to sell its UK domestic supply business to Ovo Energy.

The agreements give the projects a guaranteed buyer through what’s known as a contracts-for-difference mechanism. If the wholesale rate is lower than the set price, the government pays the developer the difference. If it’s higher, the company pays it back. UK month-ahead power is trading at 42.05 pounds per megawatt-hour, down 34% this year.

Even as wind power moves away from a reliance on government subsidies, the contracts could still play an important role going forward. The guarantee helps developers secure financing and also make the assets more attractive to institutional investors who want reliable returns. The next UK auction round is set to take place in 2021.

The Crown Estate said Thursday it plans to open the first contest in a decade for sites around the British coast that could draw as much as 20 billion pounds of investment in offshore wind.

For sale

The contracts also open up a track for investors to take stakes in some of these projects. Earlier this year, Iberdrola sold a stake in its 714-megawatt East Anglia One project to Macquarie Group Ltd. for 1.63 billion pounds (R30bn). Projects that have the backing of government-supported purchase agreements are often more attractive to investors who favor the guaranteed prices.

Innogy will likely sell a stake in it 1.4 gigawatt Sofia Offshore Wind Farm development in the Dogger Bank Area, according to Richard Sandford, the company’s director of offshore investment and asset management. The company hasn’t decided how big of a stake it will sell, but plans to make a final decision sometime next year. SSE also said it will look to sell equity in a 454-megawatt project in Scotland that it won a contract for in the auction.

Solar, wind power are so cheap they’re outgrowing subsidies

Bloomberg/San Francisco/New York

For years, wind and solar power were derided as boondoggles. They were too expensive, the argument went, to build without government handouts.

Today, renewable energy is so cheap that the handouts they once needed are disappearing.

On sun-drenched fields across Spain and Italy, developers are building solar farms without subsidies or tax-breaks, betting they can profit without them. In China, the government plans to stop financially supporting new wind farms. And in the US, developers are signing shorter sales contracts, opting to depend on competitive markets for revenue once the agreements expire.

The developments have profound implications for the push to phase out fossil fuels and slow the onset of climate change. Electricity generation and heating account for 25% of global

greenhouse gases. As wind and solar demonstrate they can compete on their own against coal- and natural gas-fired plants, the economic and political arguments in favor of carbon-free power become harder and harder to refute.

“The training wheels are off,” said Joe Osha, an equity analyst at JMP Securities. “Prices have declined enough for both solar and wind that there’s a path toward continued deployment in a post-subsidy world.”

The reason, in short, is the subsidies worked. After decades of quotas, tax breaks and feed-in-tariffs, wind and solar have been deployed widely enough for manufacturers and developers to become increasingly efficient and drive down costs. The cost of wind power has fallen about 50% since 2010. Solar has dropped 85%. That makes them cheaper than new coal and gas plants in two-thirds of the world, according to BloombergNEF.

“Solar got cheap,” said Jenny Chase, an analyst at BNEF. “It’s really that simple.”

Yet for all its promise, clean energy still has a long way to go before fully usurping coal and gas. Wind and solar still only accounted for about 7% of electricity generation worldwide last year, according to BNEF. And most wind and solar projects still depend on subsides. In the US, in fact, the solar industry is pushing to extend federal tax credits that are scheduled to decline over the next few years.

And then there’s the issue of round-the-clock power. Solar doesn’t work at night. Wind farms go idle when breezes slack. So until battery systems are cheap enough for generators to stockpile electricity for hours at a time, renewables can’t constantly provide power like coal and gas.

Perhaps nowhere is the push toward subsidy-free clean energy clearer than on arid expanses of Southern Europe. About 750 megawatts of subsidy-free clean-energy projects are expected to connect to the grid in 2019 alone, across Spain, Italy, Portugal and elsewhere — enough to power about 333,000 households, according to Pietro Radoia, an analyst at BNEF.

“The cheapest way of producing electricity in Spain is the sun,” Jose Dominguez Abascal, the nation’s secretary of state

for energy, said last year.

The road to subsidy-free renewables wasn’t easy for Spain. A decade ago, it offered developers a lavish feed-in tariff, prompting an uncontrolled boom that strained the national treasury. Spain slashed incentives and now has a hands-off energy policy.

China, the world’s largest renewable energy market, also propped up wind and solar for years. Now it’s shifting toward a more market-driven approach. Earlier this year, officials announced a plan to develop 20.8 gigawatts of renewable projects that can only profit from selling electricity into grids at prices equal to or less than coal. Plus, most wind farms built on land — as opposed to in the ocean — won’t be eligible for subsidies after 2021.

The picture is less clear in the US. Nearly every American wind and solar project remains eligible for subsidies through federal tax breaks, which are scheduled to decrease or phase out altogether over the next few years. Plus, dozens of states have renewable-energy quotas, forcing utilities to buy a certain amount of wind and solar.

Still, they’re starting to compete on their own. The proof is in the sales agreements. For years, clean-energy developers needed 20- or 25-year power-purchase contracts to ensure a return on investment. Now they’re building wind and solar farms with agreements for 15 years or less — with the expectation that projects will compete against gas- and coal-fired plants in wholesale markets after the deals conclude.

California weighs plan to

save tropical forests

By Julia Rosen /Los Angeles Times

The smoke is still rising from the Amazon as fires smoulder in the world's largest rain forest. The blazes triggered a wave of global outrage over the loss of precious trees. But California says it has a plan to keep tropical forests standing.

This week, state officials will consider a proposal to protect these forests by steering billions of dollars to countries such as Brazil. The money would fund government efforts to fight deforestation and promote sustainable industries that don't involve chopping down and burning trees. And it would come from companies that offset their own emissions by purchasing carbon credits through markets such as California's cap-and-trade programme.

Preserving tropical rain forests is essential to combating climate change – around the world, roughly a third of the greenhouse gases released each year come from clearing forests. And backers say this plan is the best way to funnel much-needed cash toward that crucial task.

Others agree on the pressing need to halt deforestation, but

they say California's plan is a dangerously misguided way to do it. In their view, it would simply allow polluters to keep on polluting without doing anything about the true drivers of forest loss: rising demand for products such as beef, soy and palm oil.

The issue has divided scientists, environmental groups and indigenous leaders who say the Tropical Forest Standard, or TFS, has ramifications far beyond the Golden State. California is a leader on climate change, and approving the TFS could inspire other states, countries and companies to adopt a similar approach.

"This is a critical moment," said ecologist Christina McCain, who heads the Environmental Defense Fund's climate initiatives in Latin America. "The world is watching."

The TFS wouldn't be the first attempt to fund forest protection through carbon offsets. Several international programmes have employed them as a way to preserve and restore forests while lowering the cost of reducing emissions in wealthy countries and funding sustainable development in poorer ones.

Some of these projects succeeded, but others never came to fruition, leaving the fate of the carbon they promised to store in limbo. Many also spelled disaster for people who live in the forest.

Indigenous groups fell prey to unscrupulous "carbon cowboys" who used questionable methods to secure the rights to native land – and its potentially lucrative carbon. People were kicked out of their territories by governments eager to launch conservation projects without local interference.

In any event, the programmes never attracted enough money to reach their intended scale, said Louis Verchot of the Center for International Forestry Research, who has studied previous initiatives.

"It wasn't what you would call a real enabling environment," he said. "That's where things are stuck right now."

Can the Tropical Forest Standard do better? Its backers certainly think so. They've spent the last decade trying to

learn from past mistakes.

The TFS lays out criteria for certifying state, provincial or national governments that want to sell forest offsets, leaving no room for carbon cowboys. Participating governments must commit to reducing deforestation, and they'll only receive credit for the forest they spare beyond their baseline goal.

Plans must be posted publicly, and progress must be closely monitored and independently verified.

"There will be a ton of eyes on it," said Jason Gray, the head of California's cap-and-trade programme.

Governments also have to prove that local stakeholders – especially indigenous groups – have a say in the programme and stand to benefit from it. The Brazilian state of Acre, which has spent years developing partnerships with tribes, is often cited as a model.

"Indigenous peoples are very well-informed and prepared not to let their rights be violated," said Francisca Oliviera de Lima, a member of Shawadawa People who works at Acre's state-run Climate Change Institute. "We are in favour of this California programme."

The TFS tries to address other problems, such as leakage, which occurs when suppressing deforestation in one place simply pushes it elsewhere. That would be difficult to get away with in a state that's part of the programme, said Steve Schwartzman, senior director of tropical forest policy at EDF, a leading supporter of the TFS.

In addition, the TFS mandates that participating states and provinces pony up extra credits as insurance, in case fires or other natural disasters accidentally release carbon that was stored for offsets.

With these safeguards in place, proponents argue the TFS could finally allow real money to flow toward fighting deforestation. Today, less than 1.5% of funding to fight climate change goes to forest protection, according to a new analysis by a coalition of scientific organisations and environmental groups.

That has bred frustration in countries such as Brazil, where

the government had reduced deforestation by upping enforcement of protected areas but where low levels of investment have failed to create new economic opportunities for farmers, loggers and miners who obeyed the rules, said Dan Nepstad, executive director of the Earth Innovation Institute.

With the TFS, offset money could fund things such as community centres, fish ponds for aquaculture and government programme to support sustainable farming practices.

For California, the reward is the chance to drive greenhouse gas reductions far beyond what the state could accomplish at home, Nepstad said: “The TFS lays out the framework for magnifying that tenfold.”

Critics of the TFS object to almost everything about it, starting with the very idea of offsets.

He and other opponents say California’s cap-and-trade programme already relies too heavily on offsets – polluters can use them to cancel up to 8% of their emissions in the state – and argue that the TFS would take things even further in the wrong direction.

Chief among their concerns is the legitimacy of tropical forest credits.

Barbara Haya, who studies offset programmes at the University of California, Berkeley, worries that leakage will still be a problem, since activities shut out of a participating state can still shift to other states or countries.

It’s also hard to ensure that the programme will dole out credit only for carbon savings that wouldn’t have happened anyway. Haya examined two decades’ worth of data and found that a quarter of potential partners would have been able to generate offsets under the TFS’s rules due to declining deforestation rates, even though their progress clearly wasn’t due to the programme (it didn’t yet exist).

Then there’s the fear that, despite the TFS’s insurance provision, the carbon that was supposed to offset a polluter’s emissions will end up in the atmosphere eventually, either in a bad fire season or after a change in political leadership reverses a country’s deforestation policies.

Others contend that the TFS is based on flawed economic reasoning. So far, the price of carbon offsets on exchange markets is just too low to compete against the forces of global commerce, which make land more valuable than trees, said Tracey Osborne, a geographer at the University of Arizona.

And while advocates for indigenous communities applaud the TFS's social safeguards, some of them say it will be nearly impossible to ensure they are being honoured from afar.

Governments in many tropical countries have a long history of corruption, said Alberto Saldamando, an advisor to the Indigenous Environmental Network. He worries the TFS will only heighten the incentive to coerce or threaten indigenous groups to participate in programmes that don't always serve their interests.

"Carbon, instead of being a poison, is a value, and that perspective leads to all kinds of abuses," he said.

Opponents raised all these issues last fall, when California's Air Resources Board first met to consider the standard. It opted to delay a vote and asked legislators to gather input from both sides. If the board endorses the standard when it meets on Thursday, it won't mean that credits generated under the TFS will be used in the state's market right away; governments that want to participate would first have to qualify, and then CARB would have to decide whether to accept tropical offsets, Gray said. The motivation to propose the standard now is "to set a very high bar" for forest offset programmes in general, he said.

Regardless of whether California ever uses the TFS in its own cap-and-trade programme, CARB's approval would be a powerful endorsement of forest offsets and a setback for efforts to zero out greenhouse gas emissions, opponents said.

Critics would rather see the state focus on other strategies for preserving forests, such as empowering indigenous groups to protect their lands and pressuring companies to rid their supply chains of goods associated with deforestation. (California lawmakers are considering a bill that would

require government contractors to do so.)
Haya and more than 100 other researchers laid out their objections to the TFS and submitted them to CARB. Last month, senator Bob Wieckowski, D-Fremont, released his own letter imploring the board to reject it.
But supporters are speaking up, too.
In June, four Assembly members encouraged CARB to approve the standard as long as it commits to "vigorous and proactive monitoring" of any government that uses it. More than 100 scientists also penned an open letter endorsing the TFS. — Tribune News Service

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Germany Inc waits on Merkel's CO2 plan: Here's what's at stake

Bloomberg Berlin/Frankfurt

Chancellor Angela Merkel is working on an investment package worth perhaps €50bn ($55bn) that aims to get German efforts to cut carbon emissions back on track.

Merkel's Christian Democrats are trying to thrash out a common position with their coalition partners, the Social Democrats ahead of a cabinet meeting on September 20. The outcome of those negotiations will have profound consequences for a range of companies from utilities to airlines as well as the chancellor's increasingly controversial balanced budget.

Germany is way behind on its climate efforts and saw a series of protests this year demanding more action to stem emissions and another demonstration is scheduled for Saturday in Frankfurt. With wildfires sweeping the east of the country and record temperatures disrupting summer travel, the governing parties were punished in local elections as support for the Greens surged.

While opinion polls show that climate change has surpassed immigration as the German public's No 1 concern, the government abandoned a self-imposed target to lower CO2 emissions by 40% from 1990 levels by next year. After struggling to rein in coal-fired power generation, emissions will be just 32% lower in 2018 and Germany risks missing its legally binding EU goals.

Coalition strains

The coalition parties know they need to step up their climate action, but they don't agree on how much or how fast.

The SPD want more aggressive measures, such as a carbon tax and new debt to finance climate projects. Merkel's CDU favours market mechanisms such as the Emissions Trading System, which lets companies buy or sell their carbon allowances. The CDU also wants to tap private capital more heavily to help finance the measures.

The plans announced so far would be enough to derail Merkel's prized balanced budget if the government ended up footing the bill and Sueddeutsche Zeitung reported on Friday that the program could stretch to as much as €75bn.

That’s why CDU Economy Minister Peter Altmaier is proposing an investment fund seeded with €5bn of government money. To lure investors and win round the German public, he wants to guarantee a 2% return — that’s more than you make from a 10-year Greek bond.
But SPD Finance Minister Olaf Scholz, who’s looking at a possible campaign to succeed Merkel, doesn’t like the idea and his party has threatened to bring down the government if it doesn’t get something it likes.

C-Suite winners and losers
For German executives, there’s a lot riding on the outcome.
Electricity producers like EON SE and RWE AG could benefit if the policies encourage households to ditch gas heating and diesel cars in favour of electric options. Firms that use a lot of electricity could also benefit, as well as companies that make electric heaters, cars and energy-efficiency products like smart meters.
Firms that can’t easily cut CO2 emissions out of their business model are likely to lose out. While companies like Thyssenkrupp AG and Volkswagen AG already have sweeping carbon-reduction strategies, dialysis machine-maker Fresenius emitted 1mn tonnes of carbon dioxide last year and doesn’t yet have a goal to significantly reduce that.
If the CDU plan to impose a trading scheme instead of a carbon tax wins out, that would give the government flexibility to help out companies and consumers when the economy slows. Officials could increase the supply of the emissions permits during a recession to lower costs for companies, or cut supply during a boom.

Cheap air travel
Merkel’s Bavarian sister party, the CSU, is proposing a minimum price on airline tickets and all the parties have signalled they’d like to see airfares rise. That could actually benefit Germany’s flagship carrier Deutsche Lufthansa AG. Europe’s biggest airline is fighting off low-cost

challengers like Ryanair, Easyjet and Wizz Air, and its budget unit, Eurowings, is losing hundreds of millions in euros as it tries to match their bargain-basement fares.

A price floor would be easier for Lufthansa to absorb than for the low cost carriers whose business strategy centres on having aircraft more than 95% full. Indeed, Lufthansa chief executive officer Carsten Spohr has called for an end to loss-leading fares that he said are stoking demand for needless flights that raise pollution and make the industry an easy target for climate campaigners.

“You only have to look at what happened when the first 2011 aviation tax in Germany was introduced,” Ruxandra Haradau-Doeser, head of airline research at Kepler Cheuvreux, said. “Ryanair cut capacity by one third.”

The CSU also wants to cut the taxes on rail travel.

Europe’s climate fight

Merkel wants something to show abroad as well.

Her climate decision comes three days before UN Secretary-General Antonio Guterres holds a summit in New York to encourage countries to make good on their commitments under the Paris Climate Accord and to make their goals more aggressive. Berlin’s renewed push dovetails with efforts by Ursula von der Leyen, the incoming president of the European Commission, to focus attention on the climate. Von der Leyen, who previously served as Merkel’s defence minister, wants to make Europe the first climate-neutral continent by 2050.

German plans to put a price on emissions from transportation and heating is in line with von der Leyen’s plan to extend the EU carbon market, the biggest in the world, to cover transport and construction.

But more broadly, von der Leyen and Guterres need Germany to deliver. If Europe’s biggest emitter can’t meet its goals, the EU is unlikely to either. And that would be a disaster for the global push to limit climate change.

The clean-energy fast track

Kingsmill BondAngus McCrone Jules Kortenhorst| The Daily Star
The global transition from carbon-intensive fossil fuels to cleaner, more reliable renewables like wind and solar is already well underway. But the big question – for the 2020s and beyond – is how fast it will happen. A slow transition would mean that energy-sector incumbents continue to flourish, and we would all but certainly miss the emissions-reduction targets enshrined in the 2015 Paris climate agreement. But if the transition is rapid, incumbents will experience varying degrees of disruption – the price of keeping the Paris targets well within reach. As matters stand, both scenarios are possible, representing two paths that lie before us.In a new report for the World Economic Forum's Global Future Council on Energy, we and our co-authors identify four key areas that will determine which path we take. The Speed of the Energy Transition offers compelling evidence that the transition is

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will respond to their constituents' demands. Once enough politicians recognize that the energy transition is not expensive, and will actually boost competitiveness (thereby reducing prices), they will update the rules governing energy markets to make way for the change that is already underway.

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From our perspective, the evidence clearly points to a rapid energy transition in the years ahead. The danger is that key stakeholders – whether policymakers or investors – will mistake which path we are on, and make poor decisions. If so, we will all have to bear the costs of stranded high-carbon assets and bad investments in obsolete technologies. Worse, we will have missed an early opportunity to achieve sustainability and minimize the risk of catastrophic climate.

Everyone – from innovative technology startups to energy incumbents and government policymakers – has a role to play in determining which path we take. If stakeholders recognize the rapid pace of the global energy transition already underway and embrace the change, we can still hit the Paris targets and have a planet that allows everyone to thrive.

Kingsmill Bond is the new energy strategist for Carbon Tracker. Angus McCrone is chief editor of Bloomberg NEF. Jules

Kortenhorst is CEO of the Rocky Mountain Institute. THE DAILY STAR publishes this commentary in collaboration with Project Syndicate © (www.project-syndicate.org).

Can power napping solve electric car charging challenge?

TUTTGART, Germany (Reuters) – Automakers around the world are pushing hard for new networks that can charge electric cars fast. In Europe, some power companies and grid operators are testing whether it might be smarter and cheaper to move into the slow lane.

A 15-month study of electric car charging behavior in Germany has concluded that consumers can be persuaded to accept slow, overnight recharging that could help avoid brownouts from surges in electricity demand or costly upgrades to power grids.

The prospect of millions of EVs hitting the roads as governments gradually ban new diesel and gasoline cars is seen as a major challenge for power companies, especially in Germany which is switching from nuclear and coal to less predictable sources of energy such as wind and solar.

The small study in the wealthy Stuttgart suburb of Ostfildern-Ruit though has helped alleviate the concerns of some grid operators that too many electric vehicles (EVs) charging at peak times could cause network crashes.

The engineers at Netze BW, the local grid operator behind the trial, found that all the households involved came around to leaving their electric cars plugged in overnight and only half ever charged simultaneously.

“Since the experience with the project we have become a lot more relaxed. We can imagine that, in future, half of the inhabitants of such a street own electric vehicles,” said Netze BW engineer Selma Lossau, project manager for the study.

Still, with limited EV battery ranges for now, slow, overnight charging doesn’t get around the problem of how to persuade drivers to ditch petrol cars altogether.

Without a network of fast-charging stations offering quick refueling, drivers may be wary of using EVs for long trips – which is why some automakers want lots of fast-charging stations to encourage the widespread adoption of electric cars.

‘CHANGED MY OUTLOOK’

Slower, or delayed, charging has already gained traction in Norway, Europe’s leading EV market, where nearly 50% of new car sales are zero-emission vehicles.

A study by energy regulator NVE showed that Norway faces a bill of 11 billion crowns ($1.2 billion) over the next 20 years for low- and high-voltage grids, substations and high-voltage transformers – unless it can persuade car owners to charge outside peak afternoon hours.

The investment cost to the country of 5.3 million people could drop to just over 4 billion crowns if cars are charged in the evening, and may fall close to zero if batteries are only plugged in at night, NVE said.

NVE is now working a tariff proposal which will penalize peak-hours charging. Tibber, a Norwegian power company, already offers cheaper electricity for EV charging if you let it decide when your car is charged while firms such as ZAPTEC offer ways to adjust charging to the available grid capacity.

Some of the 10 households participating in the Stuttgart trial said they initially wanted to keep topping up their cars for fear of running out of juice, but soon adapted to leaving the power company to handle it as it saw fit overnight.

An electric car parks next to a charging station in Ostfildern near Stuttgart, Germany, August 19, 2019. Picture taken August 19, 2019. REUTERS/Ralph Orlowski

“At the start, I did not want to take any risks and charged frequently in order to feel secure. Over time, I changed my outlook,” said Norbert Simianer, a retired head teacher who drove a Renault Zoe during the trial. “I grew used to the car and became more at ease in handling the loading process.”

Simianer and his neighbors were given electric cars and 22 kilowatt (kW) wall-boxes for their garages, alongside two

charging points in the street, all free of charge.

In return, they gave up their normal cars and allowed Netze BW, which is a subsidiary of German utility EnBW (EBKG.DE), to monitor and carry out a deferred and down-scaled charging process during a seven-and-a-half-hour period overnight.

Netze BW tried various options, either slotting cars in at the maximum 22 kW charging flow one after another, or lengthening the charging time for individual cars by adjusting the power flow, or combining both methods, Lossau said.

The participants, who used apps to check the status of their car batteries, grew accustomed to the lack of instant charging capability because their vehicles could always handle their everyday commutes of up to 50 km (31 miles).

EnBW said nine of the 10 households in the trial on Ostfildern-Ruit's Belchenstrasse had opted to keep the wall-boxes and most were exploring leasing electric car.

TWO-WAY STREET

Lossau said monitoring 10 households did not in itself provide the "empirical mass to draw conclusions for the load profile of all of Germany".

She also said there would need to be better two-way communication between EVs, the grid and consumers for the system to function efficiently on a large scale.

"There will have to be more exchange of information between e-cars and the grid to update the loading status in real-time, because otherwise, there can be the wrong impression about the speed of loading," she said.

Utility companies developing so-called vehicle-to-grid (V2G) services, however, are struggling to persuade some automakers to use technology that allows two-way flows of information, and power, between batteries and grids.

Carmakers such as Volkswagen (VOWG_p.DE), Daimler (DAIGn.DE) and Ford (F.N), for example, are prioritizing one-directional fast-charging instead to overcome consumer resistance to EVs.

Japan's Nissan (7201.T) has been leading the way among carmakers exploring V2G though Germany's BMW (BMWG.DE) has now decided to develop it too, saying cooperation between cars and grids will be key to making e-mobility ready for mass markets.

"It is about making sure there is enough supply for the electric cars and that the lights do not go out elsewhere," a BMW spokesman said. "The cars don't just load when it's best for the market, but they can also supply power back to the grid to help even out demand spikes."

"There has to be more progress on the data exchanges, however. It is not yet the standard," he said.

Nevertheless, the Ostfildern-Ruit trial has raised hopes that power grids might be able to cope with an influx of electric cars, especially if the consumers play ball.

Even if drivers resist overnight charging, suppliers of software and equipment to power grids, such as Germany's Siemens (SIEGn.DE), are also looking at safer and more efficient ways to manage how and when power is used to charge cars.

MORE DATA PLEASE

The German city of Hamburg, for example, started a three-year pilot project this month with Siemens to pre-emptively identify overloads on transformers and along cables, and manage EV charging points accordingly.

"Loading processes offer so much flexibility that the overload on the networks can be reduced by deferring loading times or reducing the load that is supplied," said Thomas Werner, expert at Siemens Digital Grid.

“This happens through the digitization of hardware and software and with communication technology,” he said.

Using software to help protect aging power networks from predictable surges could also avoid costly hardware upgrades to parts of the 1.7 million km of distribution grids in Germany.

With few than 100,000 electric-only cars in Germany at the moment, there is little threat of blackouts from over-demand. But the Transport Ministry in Berlin envisages up to 10 million electric cars on the roads by 2030.

The number of charging points across the country also only stands at 21,000. That’s up 50% over the last year but still barely a fraction of future needs.

Next up for Netze BW is a trickier test.

Managing the power for 10 households with electric cars in a suburban street of 22 homes is one thing, now the power company is launching a study of car charging behavior in an apartment block with 80 flats, where quarrels over access are likely.

It is also looking at a study in rural areas, where the longer cables required present challenges in maintaining stable voltages for charging.

But that’s still only part of the story. Lossau said power companies would have to work more closely with carmakers to fill knowledge gaps and exchange information.

“It can only work if we get more data from each other.”

Additional reporting by Lefteris Karagiannopoulos in Oslo; editing by David Clarke

Total starts biofuel plant in France to take on Eni and Neste

Total SA started production at a new biofuel plant in southern France, taking on rivals such as Neste Oyj and Eni SpA for a share of Europe's biodiesel market. The refinery, in La Mede near Marseille, will process vegetable oil, animal fat and used cooking oil to produce as much as 500,000 tonnes a year of so-called hydrotreated vegetable oil, or HVO, which is blended by distributors with diesel to meet government biofuel requirements.

However, the project has been criticised as it will use palm oil for almost half its main feed- stock at the start. "Our

biorefinery will allow us to make biofuels in France that were previously imported," Bernard Pinatel, Total's head of refining and chemicals, said on Wednesday in a statement in which he championed the role of biofuels in cutting carbon emissions. In a September report, Total said it wanted to take more than 10% of the European market for HVO production. It has spent €275mn ($310mn) since 2015 transforming the unprofitable La Mede oil refinery into a biofuel plant, a conversion similar to one carried out by Italy's Eni in Venice. Finnish companies including Neste operate the most HVO capacity in Europe. Total's refinery has been controversial for its planned use of palm oil, whose production in countries such as Indonesia is slammed by environmental groups for causing deforestation.

Use of the oil also denies Total French tax breaks that apply to other renewable fuels, meaning the facility can't compete with European peers, Chief Executive Officer Patrick Pouyanne has warned. The oil major has lobbied the government for a change of stance on the tax break, arguing that it's working with palm-oil producers that are certified under a European Union system that tracks sustainable practices and respect for human rights. Total's plant will use as much as 300,000 tonnes of palm oil a year, and at least 50,000 tonnes of French-grown rapeseed. An analysis by the Palm Oil Transparency Coalition shows European palm-oil importers are unlikely to be able to ensure that the products they sell are "deforestation-free" by a self-imposed goal of 2020. Only about a third of the palm oil imported into Europe by the survey respondents could be traced to the plantation it came from, according to the report.

Tesla in talks with LG Chem on battery supply in China

Reuters Seoul/Shanghai

US electric vehicle maker Tesla Inc is in advanced talks with South Korea's LG Chem Ltd to source batteries for vehicles to be made in its Shanghai plant, a person familiar with the matter said.

The move represents a push by Tesla to diversify sources of the key component for its electric vehicles from its exclusive supplier, Japan's Panasonic Corp.

Another source said LG Chem agreed to supply batteries for Tesla's China plant, without elaborating.

LG Chem is expanding its China battery capacities and modifying some manufacturing facilities in Nanjing to make a different type of auto battery, according to the first source.

The company currently mainly makes pouch-type auto batteries, but as a major battery maker, it is not hard for it to revamp facilities to make cylindrical auto batteries that Tesla uses, the source and separate people familiar with the matter added.

The source said Tesla is still likely to use Panasonic

batteries in the initial phase of production and source from other suppliers including local names in the future. A third person said Tesla may source batteries from CATL later, as the Chinese battery maker does not have much experience in making cylindrical batteries used by Tesla.

All of the sources declined to be identified because of the confidentiality of the deal.

Tesla did not immediately respond to Reuters' request for comment.

LG Chem and CATL declined to comment. Tesla chief executive Elon Musk said in November the US company would manufacture all its battery modules and packs at the Shanghai factory, which will make Model 3 and Model Y cars, and planned to diversify its sources.

LG Chem has signed battery material supply agreements with China's Huayou and Tianqi, as the South Korean battery maker is trying to expand its foothold in China.

It said it would set up a joint venture with a unit of China's Geely on batteries.

China has scrapped its so-called "white list" of recommended battery suppliers, which did not include foreign firms when it was first published in 2015 to spur a domestic battery sector, a decision foreign companies said could open up the world's biggest market for electric vehicle batteries.

Panasonic has said it could supply batteries to Tesla's Chinese plant either from Japan, the United States or China