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.

California’s cross-cutting climate strategy

We are parents, and one of us (Lenny Mendonca) is also a grandparent. We are keenly aware of how the intensifying impact of climate change could affect the futures of not only our children and grandchildren, but also of families throughout California and around the world. Thinking about the effects of climate change, however, doesn’t break our will; on the contrary, it only strengthens our resolve to work with California Governor Gavin Newsom to advance his vision for a more sustainable and inclusive economic-growth strategy in our great state.

In fact, California’s determination to act only grows as climate effects hit home. Our commitment to innovative climate solutions deepens even as US President Donald Trump’s administration attempts to demolish climate protections. (Trump has already taken action 129 times to repeal or weaken climate regulations. Attempting to revoke California’s long-

held authority to set its own auto-emissions standards is only the most recent manoeuvre.)

For example, on September 20, Newsom signed an executive order that seeks “to leverage the state’s $700bn pension investment portfolio and assets to advance California’s climate leadership.” The order “also directs multiple state agencies and departments to review and update overall operations, transportation investments, and use of the state’s purchasing power to advance groundbreaking climate goals.”

Indeed, staying focused on solutions is the only sensible – and moral – option. Just ask Californians living with a longer and more severe “fire season” than ever before, or owners of coastal homes and businesses trying in vain to find insurance to protect their buildings against sea-level rise, or inland residents facing more frequent extreme-heat days. And of course, as with all disruptions, the state’s low-income and disadvantaged communities will disproportionally feel the impacts of climate change. Without support, they will be the least able to adapt and build resilience.

That’s why California is committed to climate leadership through an all-hands-on-deck approach. That means not only reducing greenhouse-gas emissions, but also integrating housing and transportation planning, economic development strategies, and workforce investments. The goal is to achieve a carbon-neutral economy by 2045 while advancing a community-driven transition strategy that implements climate-resilience measures to address the effects Californians are feeling today.

In California, climate change, housing, and transportation are inextricably linked. Nearly 70% of employment growth from 2010 to 2018 was concentrated in the coastal areas around Los Angeles, San Diego, and San Francisco. But housing in those areas is unaffordable for most, meaning that many live far from their workplaces.

As a result, a growing number of Californians are now living a commuter’s nightmare, spending more time in their cars and less time with their families. And longer commutes mean that

California’s transportation emissions – which already account for 51% of the state’s total emissions – are on the rise.

So, beyond imposing stricter vehicle-emissions standards, Newsom has set a goal of building 3.5 mn new housing units by 2025. Working with the state legislature, his administration has allocated $1.75bn to boost housing construction by financing loans and tax breaks for developers of affordable housing, especially those building infill housing nearer to employment hubs.

At the same time, California’s Regions Rise Together Initiative – led by our two departments under Newsom’s direction – aims to create high-quality job opportunities in inland communities, not only in our state’s $50bn agriculture industry, but also in advanced manufacturing, software development, and professional services. In addition to reducing commuter emissions, this will help to ensure that the benefits that have already begun to accrue from our climate and clean-tech investments are more widely shared.

This is not a top-down directive to these regions. Instead, we are focused on finding ways to support the work on sustainable, inclusive growth already occurring across every region of California, while also investing in the critical infrastructure connecting our regions to one another.

For those who must commute, California is investing in its statewide rail network and a high-speed rail strategy. By attracting more investment, jobs, and residents, such infrastructure investments can catalyse the revitalisation of downtown areas that may have lost their vigor.

Meanwhile, to protect the one in 12 California homes facing severe wildfire threats, we are expanding our firefighting resources and investing in cutting-edge technology. Such measures should help to stem the rapid increase in the price of homeowner insurance, which has further aggravated the housing crisis.

Even as California promotes housing development, it is taking care to protect valuable lands, from farms to forests. As the Intergovernmental Panel on Climate Change recently

highlighted, land use must play a central role in climate strategies. If adequately managed and protected, soils and forest lands can store carbon, act as fire breaks for more developed areas, and mitigate flooding and droughts – all while providing valuable economic opportunities.

In fact, California's experience has shattered the myth that climate action must come at the expense of economic prosperity. With a sustainable and inclusive growth strategy, the state has achieved 114 consecutive months of economic expansion. Zero-emission vehicles are now our eighth-largest export.

The climate crisis, decades in the making, is as hard to solve as they come. Building resilience demands a cross-cutting approach. We're proud to work for a state that has committed billions of dollars to developing efficient and alternative transportation, to building affordable housing, to creating good jobs in inland communities, and to expanding health care to help more residents. California is resolute about providing the tools, technology, and leadership to ensure a better tomorrow, for generations to come. – Project Syndicate

*Kate Gordon is Senior Adviser on Climate to the Governor of California and Director of the Governor's Office of Planning and Research. Lenny Mendonca is Chief Economic and Business Adviser and Director of the California Office of Business and Economic Development.

Qatar urges switch to LNG to address climate concerns

Qatar has urged energy consumers across the globe to increasingly switch towards liquefied natural gas (LNG), which alone has four key characteristics to tackle environmental challenges.

Drawing attention to unprecedented recurrent climatic conditions, including mean temperatures, turbulent seasonal cycles and extreme events, HE the Minister of State for Energy Affairs, Saad biSherida al-Kaabi said it is time to take another look at natural gas and the number of advantages it has to make it a pivotal element in any strategy to tackle environmental challenges.

“It is versatile, flexible, economic, and clean. No other energy source can boast the combination of all these four qualities,” he told the 8th LNG Producer-Consumer Conference in Tokyo.

Al-Kaabi, who is also the president and chief executive of Qatar Petroleum, highlighted the country’s efforts to reinforce its position as the world’s leading LNG producer, which include the North Field expansion to increase the LNG production capacity to 110mn tonnes per year by 2024, and a major ship-building campaign to build up to 100 LNG carriers

over the next decade.

The LNG industry is very dynamic and invigorated, and it connects all corners of the world through hundreds of trade routes, and LNG receiving and regasification terminals, he said, adding, “we, in Qatar, are doing our part to keep this momentum moving forward for the benefit of our partner countries and their peoples.”

Stressing that Qatar was collaborating with many countries around the world to ensure the security of their energy supplies and the sustainability of their economic growth, he said Doha is also working with customers, industry players, and stakeholders for a sustainable, affordable and secure energy supply for all.

“Most importantly, we are providing a sustainable energy solution to environmental and climate change concerns, and responding to widespread global moves towards cleaner and more cost effective fuels,” he said.

Al-Kaabi pointed out that while Japan was celebrating 50 years since the arrival of its first ever LNG cargo, Qatargas has successfully delivered the 3,000th LNG cargo to JERA’s Kawagoe Terminal.

The LNG Producer-Consumer Conference is a global annual dialogue, launched in 2012, and organised by Japan’s Ministry of Economy, Trade and Industry, and the Asia Pacific Energy Research Centre.

It provides ministers, heads of international organisations, corporate executives, and other stakeholders with a venue to share the latest trends in the global LNG market and discussing opportunities and challenges with a view to its development.

Titans of business and politics pledge to fight global warming

Bloomberg/New York

Millions of people in 170 countries took to the streets to protest. World leaders lined up at the UN to pledge action. A 16-year-old girl, close to tears, shamed them for robbing her of a future.

The pressure to act on climate change is mounting. Titans of global business and politics gathered in New York this week for a series of events, including an unprecedented UN summit and the Bloomberg Global Business Forum, to acknowledge that more must be done – but fell short of saying exactly what will be done.

“Time is running out in the court of public opinion, because time is running out to address climate change,” New Zealand

Prime Minister Jacinda Ardern told heads of state and business chiefs at the Global Business Forum on Wednesday. “It’s right for them to hold our feet to the fire.”

The stakes have indeed never been higher. Temperatures have already risen 1 degree Celsius (2 degrees Fahrenheit) since the 1880s. The world must limit that warming to no more than 2 degrees above Industrial Revolution levels, the UN has warned, to avoid the most catastrophic of droughts, floods, mass migrations and conflicts. “You can just feel the groundswell of popular sentiment, that the urgency of this is elevated,” Goldman Sachs Group Inc chief executive David Solomon said during the forum.

When asked whether there’s enough information out there to determine his own bank’s exposure to climate change, Solomon said, “We’re working on it. The answer is we’re working on it.” It was a response that underscored both the heightened awareness among leaders that they will be held responsible for global warming and the work that still lays ahead of them.

The meetings were still “far too much a chance for people to beat their chests and say they’re making change,” said Brad Cornell, a business professor at the University of California at Los Angeles. “But who is making real change?”

The UN pointed to some change that came from its Monday summit: 77 countries committed to cutting greenhouse-gas emissions to net zero by 2050; 70 countries pledged to bolster climate action plans by 2020; more than 100 business leaders aligned themselves with the goals of the international Paris climate agreement; and 12 countries vowed to contribute to a fund to help developing countries adapt to climate change.

Nobody says that’s enough. UN Secretary-General Antonio Guterres, who organised the summit and called on world leaders to announce real plans at it, said as presentations concluded, “We need more concrete plans.”

The UN-backed Intergovernmental Panel on Climate Change released a report Wednesday with alarming findings on fast-accelerating and potentially irreversible deterioration of oceans and glaciers.

While some of the world's most powerful leaders sounded off on climate in New York, a UN panel convened almost 400 miles (600 kilometres) away in Montreal to continue a years-long debate over curbing emissions from airplanes. The group may decide on what kind of system to use to regulate them – a laborious and highly political process that went largely unmentioned in Manhattan. And yet there were signs in New York that the tide is turning in favor of real action.

At the conclusion of Monday's annual meeting of the Oil and Gas Climate Initiative, an industry-supported group that also met in New York, the majority of the member CEOs stuck around for a discussion on climate change. In all, nine were present at the talk, including the bosses of Exxon Mobil Corp and Chevron Corp who faced questions from students and activists as well as reporters.

"And they were listening," according to Felipe Bayon, CEO of Colombia's state-run oil giant Ecopetrol. "I'm very encouraged. As a citizen of the world, I think that a lot of things are possible."

Credited for inspiring the millions of young people who've rallied around climate change in recent days is Greta Thunberg. The teenage activist sailed to New York on a zero-emissions boat, climbed the stage at the UN summit and told the crowd of more than 300 presidents, prime ministers, CEOs, bankers and delegates that they've let down her entire generation by not acting on climate change. "You have stolen my dreams and my childhood with your empty words," she said on Monday. "How dare you!"

Anand Mahindra, chairman of India's Mahindra & Mahindra Ltd, said Thunberg gives him hope, as do all of the young people calling for change. It took the youth of the 1960s protesting the Vietnam War to wake everyone up to the fact that the war needed to end, Mahindra said. He's hopeful, he said, that they can do it again to win the fight against climate change.

The movement grew so big that even US President Donald Trump, who has called climate change a myth and vowed to pull America out of the Paris pact, made an unexpected appearance at the UN

summit. He stayed for 15 minutes and didn’t speak. China President Xi Jinping didn’t attend the summit at all – leaving the leaders of the world’s two largest polluters visibly absent from the presenters’ list.

During the Global Business Forum on Wednesday, business leaders repeatedly pointed the finger at government to step up and dictate what should be done. “The more there’s a clear policy framework,” Solomon said, “the more you’ll get a reaction and response.”

Samir Assaf, CEO of global banking and markets at HSBC Holdings Plc, had one idea: “The private sector can provide debt, and national development banks can provide guarantees.” To which moderator Christine Lagarde, the incoming president of the European Central Bank, responded: “So, the public takes the risk and the private takes the profits.”

Green investments are proving to be less of a risk and more of a moneymaker. Solar and wind power costs have plunged so deeply that they’re now the cheapest and most profitable form of new electricity in two-thirds of the world. CEOs of corporations worldwide are saving billions by cutting their plastic waste, using less, cleaner and cheaper energy and recycling.

The world will face a serious test next year. Under the Paris agreement, countries are expected to submit new, and ideally more ambitious, climate action plans every five years. The next presentations are due in 2020.

“There’s an enormous gulf right now,’’ said Kelly Levin, a senior associate at the World Resources Institute in Washington, “between current momentum and where we need to be.”

The Climate-Change Debate Has Shifted, Not Ended

Is there still a debate over climate change? Yes and no. As a scientific matter, the issues of whether it’s happening and who’s to blame are long settled. But there’s no end to debates about what to do about it. Arguments about the need for and costs of action are playing out against a nonstop, live-on-TV drama of the massive storms, record wildfires and deadly heat waves already fueled by global warming.

1. What’s new in the climate debate?

For one thing, there’s been a revolution in renewable energy. The price of wind and solar has plunged in a way even its most ardent backers wouldn’t have dared dream 20 years ago. Bloomberg NEF projects that by 2050, renewable power will produce two-thirds of the world’s electricity, the same fraction that fossil fuel produces today. The world’s biggest

polluter, China, is taking far more aggressive action to reduce greenhouse gas emissions than was expected even a decade ago. A combination of slower economic growth and a drive for cleaner air have put China ahead of schedule for its emissions to peak by 2030.

2. How has the debate shifted?

There's robust argument over how to balance the effort put into mitigation versus adaptation. Mitigation gets most of the attention — the headline news from the 2015 Paris climate accord, for instance, was about the pledges different countries made to limit the release of greenhouse gases. But adaptation is becoming a pressing need as temperatures rise. Some communities are already trying to relocate away from rising waters. Storm-surge barriers and flood gates geared to climate change have gone up in Rotterdam and Venice. New York installed gates after parts of the city were inundated by the surge driven by super storm Sandy in 2012, and Houston, flooded by Hurricane Harvey's torrential rains in 2017, is considering new defenses. Even steps as small as providing air conditioners for the poor can play an important role in making cities livable in a hotter future.

3. What's the status of the Paris agreement?

Even though President Donald Trump intends to pull the world's biggest economy out of the accord, the U.S. is still participating in nuts and bolts discussions on implementing the voluntary pledges made by almost 200 countries. Coalitions of cities, states, businesses and universities in groups such as We Are Still In and America's Pledge have organized to keep progress going in the U.S. even if the country formally leaves the pact. (America's Pledge was co-founded by Michael R. Bloomberg, the founder and majority owner of Bloomberg LP, the parent company of Bloomberg News. He has told the New York

Times that he is considering a campaign for president.) The U.S. is currently seen as on track for its climate goals for 2020 but falling short of its longer-term pledges, as are the European Union and Japan, according to Climate Action Tracker, a research project.

4. What's Trump's argument?

Money. Trump said the Paris pact would hurt American workers and amounted to a "massive redistribution" of wealth from the U.S. to other countries. Meeting the Paris goals would conflict with his efforts to revive U.S. coal production. He's also moved to water down fuel-efficiency standards and proposed rolling back Obama-era regulations meant to force utilities to reduce emissions. Officials in his administration insist that U.S. economic growth is a more urgent priority than climate change.

5. Who's agreeing with him?

Influential groups of voters in countries where a shift away from dirty fuels has raised energy prices. In Australia, Malcolm Turnbull was pushed out as prime minister in August after conservatives in his party rebelled over his plan to write the country's Paris targets into law. Canadian Prime Minister Justin Trudeau in 2015 bowed to pressure to allow pipelines carrying carbon-heavy oil from tar sands to be expanded. Now his plan for a national carbon price to drive down emissions is under attack and is expected to be a focus for his opponents in 2019 elections.

6. How much would meaningful action cost?

It's hard to know, and there's a wide range of forecasts. The Deep Decarbonization Pathway Project, a research effort backed in part by a United Nations group, estimates that for 16 leading countries, meeting their Paris targets would require investments amounting to 0.8 percent of gross domestic

product a year by 2020 and 1.3 percent by 2050. The International Finance Corporation has estimated that the Paris accord opened up $23 trillion in investment opportunities for government and private industry by 2030. BNEF projects that half that much will actually be spent. Developed nations have committed to boost climate-related aid to poorer countries to $100 billion a year by 2020, including money from both public and private sources.

7. What are the stakes?

Because the warming process is cumulative, if by some magic all greenhouse gas emissions stopped tomorrow, researchers predict we may still be in for 1.5 degrees Celsius (2.7 degrees Fahrenheit) of warming this century – three times as much as we've seen since the mid-1990s. Climate Interactive, a research non-profit, calculates that even if the Paris pledges are met, we'd blow past the target of holding warming to 2 degrees above mid-19th century levels. If current emissions levels aren't reduced, warming could gallop past 4 degrees. Studies have projected changes ranging from more kidney stones, smaller goats and less sex in the short run, to swamped cities and widespread extinction of species in the decades ahead.

Italian Alpine glacier close to collapse, officials warn

ROME: Part of a massive glacier on the Italian side of the Mont Blanc mountain range is close to collapse after accelerated melting in the late summer heat, officials at a nearby town warned Wednesday.

This is the latest of a series of warnings about melting glaciers – in the Alps and elsewhere – as concern grows about the effects of climate change.

The mayor of the town of Courmayeur has ordered a local access road closed at night and limited access to the region below the glacier, which is popular with tourists, a town spokesman told AFP.

Town spokesman Moreno Vignolini dismissed "apocalyptic" reports in the media that it was threatening to smash down on the town itself. Below the glacier, he said, "there are no homes, only a few unoccupied chalets".

Part of the Planpincieux glacier in the Aosta Valley is in danger of crashing into a valley running parallel to the Courmayeur valley, said Vignolini. "With the strong heat this summer, there has been between August and the first half of September, an acceleration of the melting of the glacier, at an average rate of 35 centimetres (14 inches) a day, up to highs of 50-60 centimetres on some days,"

The chunk of the glacier concerned, which makes up between a fifth and a sixth of the total and weighs around 250,000 tonnes, was threatening to break away and crash down into the valley, he added.

“There is a problem with a part of the Planpincieux glacier located at Val Ferret, which is thought to be falling due to a large fracture between the, say, stable part of the glacier and this part,” the mayor of Courmayeur, Stefano Miserocchi, told AFP.

Late on Tuesday Miserocchi ordered the night-time closure of the access road to Val Ferret, on the Italian side of Mont Blanc.

He has banned walkers from the area below the glacier, which is popular with visitors and has three mountain refuges. Experts at the Fondazione Montagna Sicura (Safe Mountain Foundation), who have been monitoring the glacier for the Val d’Aosta region since 2013, alerted local officials to the latest developments.

“This glacier is atypical because it’s temperate, and so is influenced by the temperature of the water flowing below, which particularly exposes it to the global warming in progress,” said the foundation’s secretary-general Jean Pierre Fosson.

But he cautioned against alarmism, stressing that the preventive measures taken so far were for an “unprecedented situation” for a glacier in the region.

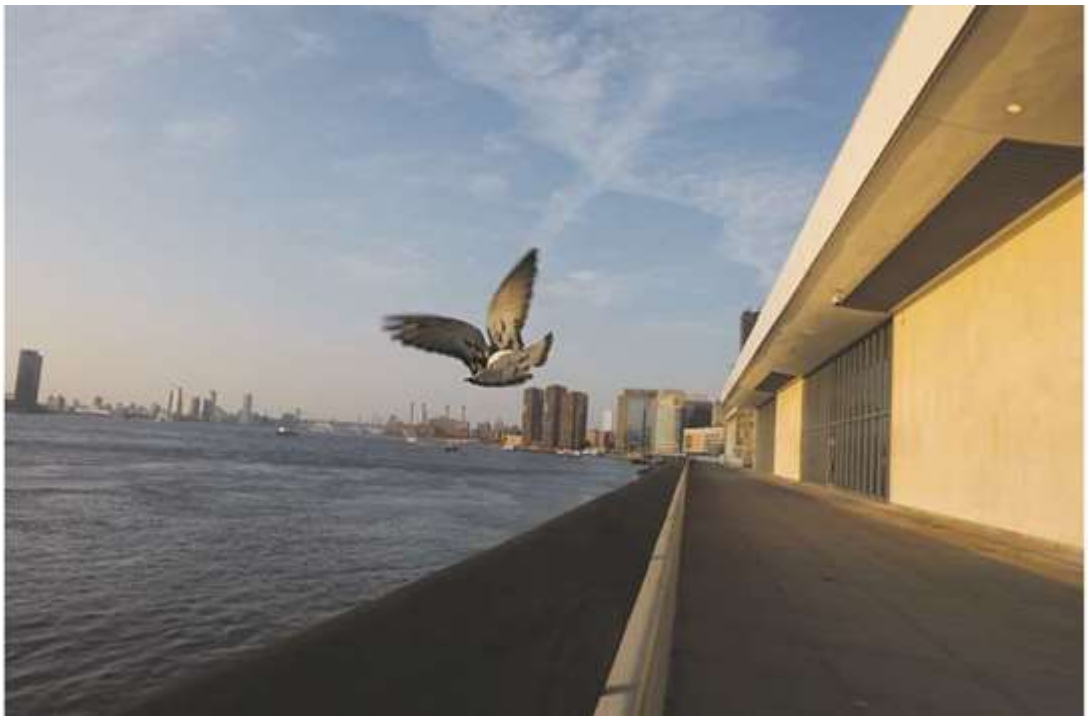
While it might break off in a single block, it could just crumble away or not break away at all, he added.

The Foundation monitors 180 glaciers in the Val d’Aosta region and this kind of thing is unavoidable, said Fosson. “Every year we see two square kilometres (0.8 square miles) of ice disappear” he said. “And it is getting worse with the increasingly hot summers and autumns.”

According to a landmark assessment approved by the 195-nation Intergovernmental Panel on Climate Change (IPCC), accelerating melt-off from glaciers and Earth’s ice sheets atop Greenland

and Antarctica are driving sea level rise. Since 2005, the ocean has risen 2.5 times faster than during the 20th century, threatening island nations and coastal cities. The rate at which the waterline rises will quadruple again by 2100 if carbon emissions continue unabated, the report found. On Sunday, dozens of people dressed in black attended a symbolic funeral march on a Swiss mountainside to mark the disappearance of an Alpine glacier on Pizol mountain. A study by Swiss researchers released earlier this month suggested that the Aletsch glacier – the largest in the Alps – could disappear completely by the end of the century if nothing was done to rein in climate change.

Oil CEOs push carbon-capture efforts ahead of climate talks



Reuters/New York

A group of 13 major oil companies charted out a plan yesterday to promote investments in carbon capture, use and storage (CCUS), ahead of a gathering in New York.

Oil chiefs grappling with growing demand for action to fight climate change have looked to invest in carbon-capture and sequestration techniques that some executives, including Occidental Petroleum Corp CEO Vicki Hollub, say could make drilling carbon neutral.

With fossil fuel development growing worldwide, the oil and gas industry faces growing criticism from activists concerned about accelerating climate impacts from melting ice caps to sea-level rise and extreme weather.

Scientists say the world needs to halve greenhouse gas emissions over the next decade to avoid catastrophic warming.

Carbon sequestration technology traps carbon in caverns or porous spaces underground.

A number of oil and gas CEOs say the technology will be crucial to meeting goals set in the 2016 Paris agreement on climate change to reduce global emissions.

“A lot of people don’t even know what CCUS is. I think the world is going to hear more and more and more about it,” BP plc CEO Bob Dudley said. “I don’t think we can meet the Paris goals without CCUS.”

The group, known as the Oil and Gas Climate Initiative (OGCI), said it aims to double the amount of carbon dioxide stored globally by 2030.

The group is also taking steps to reduce methane emissions.

The group formed in 2014 to support efforts to reduce greenhouse gas emissions.

Its gathering will be held on the sidelines of a climate summit, where United Nations Secretary-General Antonio Guterres says he is banking on new pledges from governments and businesses to abandon fossil fuels.

Last Friday, millions of young people flooded the streets of cities around the world to demand urgent steps to stop climate

change.
Many, including 16-year-old Swedish activist Greta Thunberg, have criticised governments and industries for not doing enough.
The OGCI group said in a statement that carbon-capture technologies could be expanded to more efficiently trap large amounts of carbon released by facilities such as power plants, which could then be used in oil recovery and, ultimately stored – thus, removing it from the atmosphere.
The group plans to work with others to put carbon-capture techniques into operation in the US, UK, Norway, the Netherlands, and China.
Later yesterday, , it was set to sign a declaration of collaboration with certain energy ministers and other stakeholders, to commit to efforts to expand carbon storage.
The companies, which include Exxon Mobil Corp, Chevron Corp and BP, account for 32% of global oil and gas production.
They have agreed to cooperate to accelerate reduction of greenhouse gas emissions.
Separately, almost 90 big companies in sectors from food to cement to telecommunications are pledging to slash greenhouse gas emissions, organisers said.

Coal may outlive climate change but can’t survive the drought

Bloomberg/Vienna

Asia’s prolonged binge on coal is making the grids that transmit power to a third of the world’s people brittle and prone to failure.

That’s the conclusion of new research in the peer-reviewed journal Energy & Environmental Science.

More than 400 gigawatts of new coal-fired capacity in Asia are at risk as climate change dries out water sources necessary to cool those plants, according to the study.

“Coal power development can expect reduced reliability in many locations across Asia,” Edward Byers, one of the report’s authors, said by e-mail. “This is further evidence of coal power’s increasingly recognised incompatibility with current international and national climate and sustainable development policy.”

Summer heatwaves and reduced rainfall have been closing water-cooled power plants across the world as the impact of climate change exacerbates the nexus between water and energy supply. Asian utilities building coal plans could find themselves increasingly competing with industry and consumers for scarce water resources.

“This planned capacity adds 30% more to the existing coal-

fired generation capacity, and will engender substantial water requirements and amounts of pollutants that can exacerbate global climate change and regional air pollution," the researchers wrote.

Thermal power generation could fall as much as 16% globally in the next three decades because of water shortages, they concluded. Researchers used hydrological and climate models as well as data from the Global Coal Plant Tracker to reach their conclusions. Different warming scenarios ranging to as high as 3 degrees Celsius (5.4 Fahrenheit) were considered. The world is currently on a warming trajectory that may hit 5 degree Celsius by the end of the century.

When is change a 'crisis'? Why climate terms matter

By Emma Vickers New York

The discussion around changing weather is changing. Anodyne

references to “climate change” and “global warming” are being scorned by those who think it’s time for more drastic talk, and action, on the environment. They prefer more urgent terminology in hopes that it translates to more urgent action.

1. What new terms are part of the discussion?
Young demonstrators around the world are demanding that their governments declare climate “emergencies,” going so far as to skip school on Fridays to hold so-called climate strikes. The UK’s Guardian newspaper, which champions environmental issues, said in May that it was changing its house style to prefer “climate emergency,” “climate crisis” or “climate breakdown” over “climate change” (as well as “global heating” over “global warming”). Editor-in-chief Katharine Viner said “climate change” sounds “rather passive and gentle when what scientists are talking about is a catastrophe for humanity.”

2. Is it showing results?
Maybe. In a poll by the Washington Post and the Kaiser Family Foundation, 38% of US adults termed climate change “a crisis,” while an equal number called it “a major problem but not a crisis.” The Democratic leadership of the US House of Representatives this year established a Select Committee on the Climate Crisis, which aims, by March 2020, to publish a blueprint for keeping the gain in the Earth’s temperature to less than 1.5 degrees Celsius (2.7 degrees Fahrenheit). When Democrats last held a majority in the House, in 2007, they created a similar committee but called it the Select Committee for Energy Independence and Global Warming. It was abolished when Republicans regained control of the House in 2011.

3. Isn’t this just semantics?
Literally, yes. And it could be argued that much more tangible steps are being taken: With a changing atmosphere already upon us, use of electric cars is growing, renewable energy is already cheaper than coal in many places (and is becoming cheaper), many investors are uprooting carbon from portfolios and more and more people are eating less meat. But activists

argue that stronger words can focus attention on the planet in a new way, and that rallying cries can prompt corresponding action.

4. What sort of action?
By mid-2019, local and national governments representing 206mn people had declared “climate emergencies,” according to the Climate Emergency Declaration Petition, a campaign group. It says in most cases, that means the government commits to develop an action plan within six months. The student climate strikers who advocate use of “emergency” want governments to commit to switching to 100% renewable energy as soon as possible, preferably by 2030.

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