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EUROPE

1. Europe Tries To Rebuild with Less Vehicle Pollution

London Trial Finds Electric Vans Viable Alternative To Diesel

After a two and a half year pilot project to test the use of electric delivery vans in London traffic, the final report is now available. The test looked at the performance of larger electric vehicles in comparison to similar diesel models and small electric vans.

The Mayor of London's Office worked together with the logistics company Gnewt for the test. The partners used a converted eDucato from BD Auto as the large electric vehicle, while the smaller e-vehicle was the van from Voltia, based on a first-generation Nissan e-NV200. In total, the fleet comprised 26 electric vehicles, all of which were equipped with special telemetry hardware from Smart Fleet Carma.

The project also involved the installation of smart charging points in the depots to monitor the van's energy consumption and the charging behavior and its potential impact on the grid, also to evaluate the potential for bi-directional charging.

The data show that the tested electric delivery vans are a competitive and environmentally friendly alternative to diesel vans in terms of operational performance, costs, vehicle emissions and load on the electricity grid.

Expressed in figures, the energy costs were 75 per cent below the fuel costs for operating the diesel-powered comparison vehicles. The BEVs also consumed five times less energy per kilometer than their diesel counterparts. If the overall social costs of pollutant emissions are included, the Mayor's office comes up with socio-ecological benefits of 1.8 to 2.6 pence (2-3 cents) per kilometer driven in Greater London in a statement.

In total, only the test fleet saved 77.9 tons of CO₂ and 481.3 kilograms of NO_x in the test period from November 2017 to December 2019. The potential is enormous: Every day, around 280,000 trips are made in London (about a third of the total traffic volume) with commercial vehicles. The authors of the study calculate that these 281,000 trips could be made with approximately 112,000 e-vehicles.

Incidentally, the range was never a problem. Whereby in the case of the Voltia van used, even only the first generation of the Nissan e-NV200 forms the basis, which only requires 24 instead of 40 kWh battery capacity – today Voltia also offers the 40 kWh model. During the daily delivery journeys on the last mile, the e-vehicles would have consumed on average only around 30 per cent of their battery charge.

The fleet test also provides further indications of the efficiency of networked charging: thanks to the intelligent charge control, the required grid connection size could be reduced by half, according to the Mayor's office.

However, the conditions of the test were also good: the routes were very short, the average speeds in London traffic and last-mile delivery are very low.

Electric Cars Reach Record Market Share

Sales of electric cars were boosted in the first quarter of 2020 despite a slump in combustion engine passenger vehicles triggered by the economic impact of the coronavirus crisis.

Analysis by the International Council on Clean Transportation (ICCT) shows new car registrations fell by 53% in March 2020 compared to 2019, and year-to-date by 27%. Despite the dramatic drop in demand for cars, sales of electric passenger vehicles continued to increase, reaching an all-time high market share last month with an average of 10% for all manufacturers. Year-to-date, market share more than doubled to 7% from 3% in 2019, according to ICCT.

“Sales of electric vehicles seem much less impacted by the Covid-19 crisis, at least to date,” according to ICCT EU managing director Peter Mock.

EV sales growth have been boosted by a combination of tax incentives in key markets such as Germany, where EV share jumped from 4% through 2019 to 9% in March 2020 after the government increased its purchase premium from €4,000 to €6,000, and by EU CO2 emissions regulations which came into force on 1 January.

The new standards, which apply to EU and EEA members and the UK, require carmakers to cut average fleet-wide emissions to 95g CO2/km by 2021, with a phase-in period requiring 95% of each manufacturer’s least emitting new cars to be compliant in 2020.

While the Covid-19 economic crisis is expected to see demand for cars slump significantly over 2020, Mock said he expects “sales of electric vehicles remaining strong this year”.

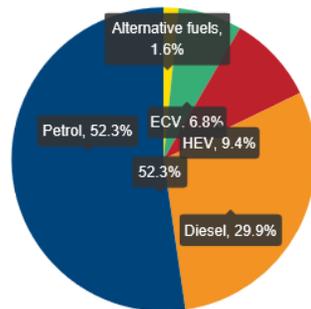
With tax incentives and increasing restrictions on urban access conventional cars, he said, “customers will value electric vehicles as an attractive alternative”.

According to ACEA, the industry association, in the first quarter of 2020, the electrically-

New passenger cars by fuel type in the EU
Market shares (%)



■ Petrol ■ Diesel ■ ECV ■ HEV ■ Alternative fuels



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chargeable vehicle (ECV) segment significantly increased its market share, rising to 6.8% (from 2.5% in Q1 2019) against the backdrop of an overall decline in passenger car registrations due to the COVID-19 outbreak. By contrast, according to ACEA, demand for diesel and petrol vehicles tumbled dramatically, although petrol-powered cars still account for more than half of the EU market.

During the first quarter of 2020, the number of diesel cars registered across the European Union plummeted by 32.6% to 738,392. Diesel now holds a market share of 29.9% (down from 33.2% for the first quarter of 2019). All the markets in the region went into decline, notably the four largest ones: Italy (-49.8%), France (-36.6%), Spain (-33.8%) and Germany (-23.0%).

With the vast majority of European dealerships closed in March as a result of the containment measures, demand for petrol cars also plummeted. Petrol sales contracted by 32.2%, from almost 2 million units last year to 1.3 million in Q1 2020. With the exception of Cyprus and Lithuania, all EU markets have faced double-digit drops so far this year.

From January to March 2020, electrically-chargeable vehicles (ECV) substantially benefited from the decline in diesel and petrol demand. ECV sales more than doubled (+100.7%) in the first three months of the year, totaling 167,132 cars registered across the EU. Both the battery-electric (BEV) and plug-in hybrid (PHEV) segments provided a strong boost to this growth (+68.4 and +161.7% respectively).

Hybrid electric vehicles (HEV) remained the best-sellers of the alternatively-powered vehicle segment, representing 9.4% of the total EU car market. 232,525 units were registered during the first quarter of the year (+45.1% compared to 2019).

Alternative fuels – which include those vehicles running on ethanol (E85), liquid petroleum gas (LPG) and natural gas (NGV) – had mixed performances. Demand for NGV cars strongly increased (+68.5%), while LPG registrations halved due to the contraction in the Italian market. Growth in the natural gas segment did not offset the drop in LPG, resulting in an overall decline of 30.4%

The four major markets all posted growth in total APV registrations from January to March this year. Germany and France stood out with demand increasing by 74.9% and 71.7% respectively, boosted by the outstanding performance of the plug-in hybrid segment.

In Germany, Europe's largest car market, showrooms have been open since late April, but demand is massively down and inventory levels unusually high in what is usually the strongest sales period, German dealership association ZDK said. Demand is down by at least 50% from a year earlier, according to more than half of the 1,357 dealers polled by ZDK.

Looking ahead, shifting to more electric cars will be made harder by the backlog of unsold combustion-engined vehicles. "There are between 750,000 to 1 million unsold cars sitting in German dealerships, the vast majority of them are conventional petrol and diesel cars," ZDK spokesman Ulrich Koester said.

Electric car sales in the EU, UK and EFTA countries reached 130,297 in January-March, ACEA said.

Germany extended its lead over Norway in terms of new electric car registrations, with a 63.3% rise. Sales in France jumped 145.6%, while Norway's declined 12.4%.

Carmakers need to sell more electric vehicles after EU lawmakers in December 2018 ordered them to cut carbon dioxide (CO₂) emissions by 40% between 2007 and 2021, and then by a further of 37.5% by 2030, or face fines.

Analysts at PA Consulting have forecast that, based on 2018 fleet average emission levels, manufacturers would need to sell more than 2.5 million extra electric cars, or a sales increase of 1,280% by 2021.

Carmakers are readying new electric and hybrid models to try to meet the targets. Volkswagen Group said in March 2019 it planned to launch almost 70 new electric models by 2028, starting

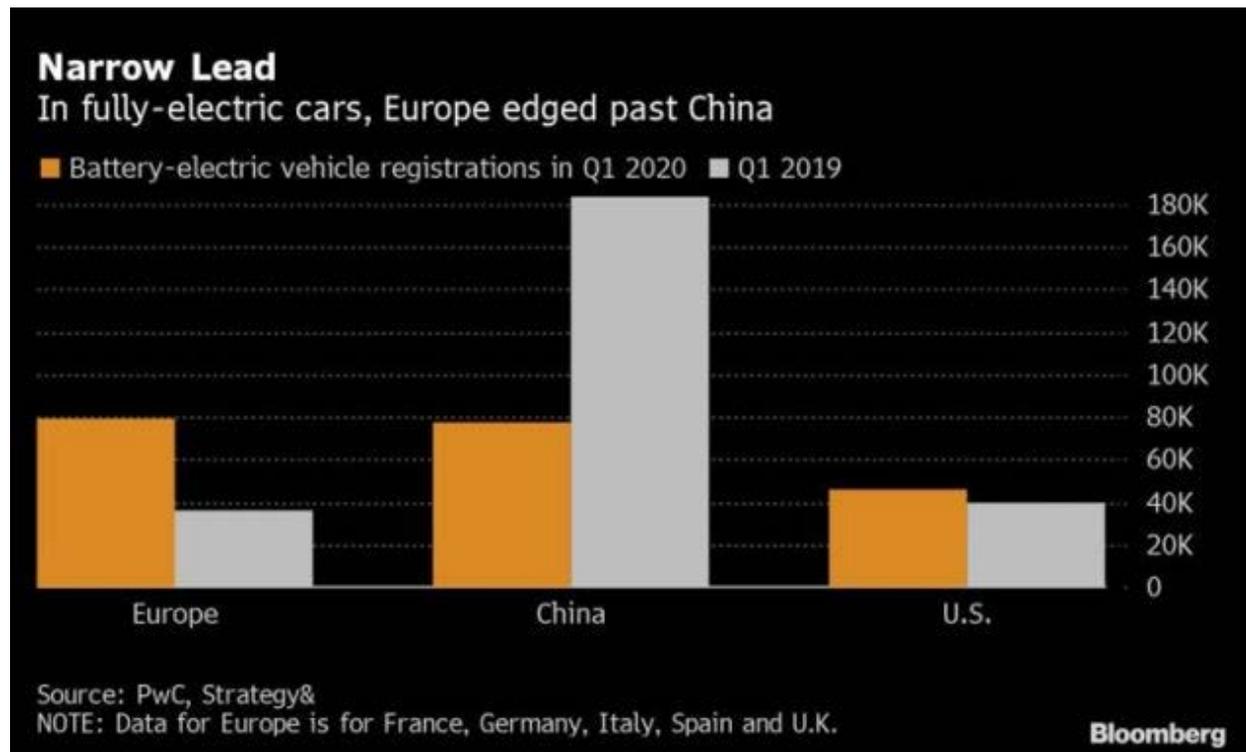
with its ID3 model which is set to hit showrooms in summer. BMW has said it plans to offer 25 electrified models by 2023, with more than half being fully electric and Fiat Chrysler Automobiles plans to offer 12 electrified models by 2021, including both hybrid and full electric vehicles of all types.

However, a lack of charging infrastructure will continue to hamper sales, and electric car sales will not overtake petrol and diesel models in the five largest Western European markets until 2030, forecasters at LMC Automotive have said.

The ACEA statistics showed quarterly sales of plug-in hybrid cars rose by 126.5% to 97,913 vehicles, with Germany again leading the way with a 258% leap to 26,419 cars.

Europe Surpasses China in Electric Vehicle Sales, Study Shows

Europe's five largest automotive markets edged past China in electric vehicle registrations in the first quarter of 2020, as China battled the outbreak of the coronavirus and imposed shutdowns countrywide, according to a study by PwC and its strategy consulting subsidiary Strategy&.

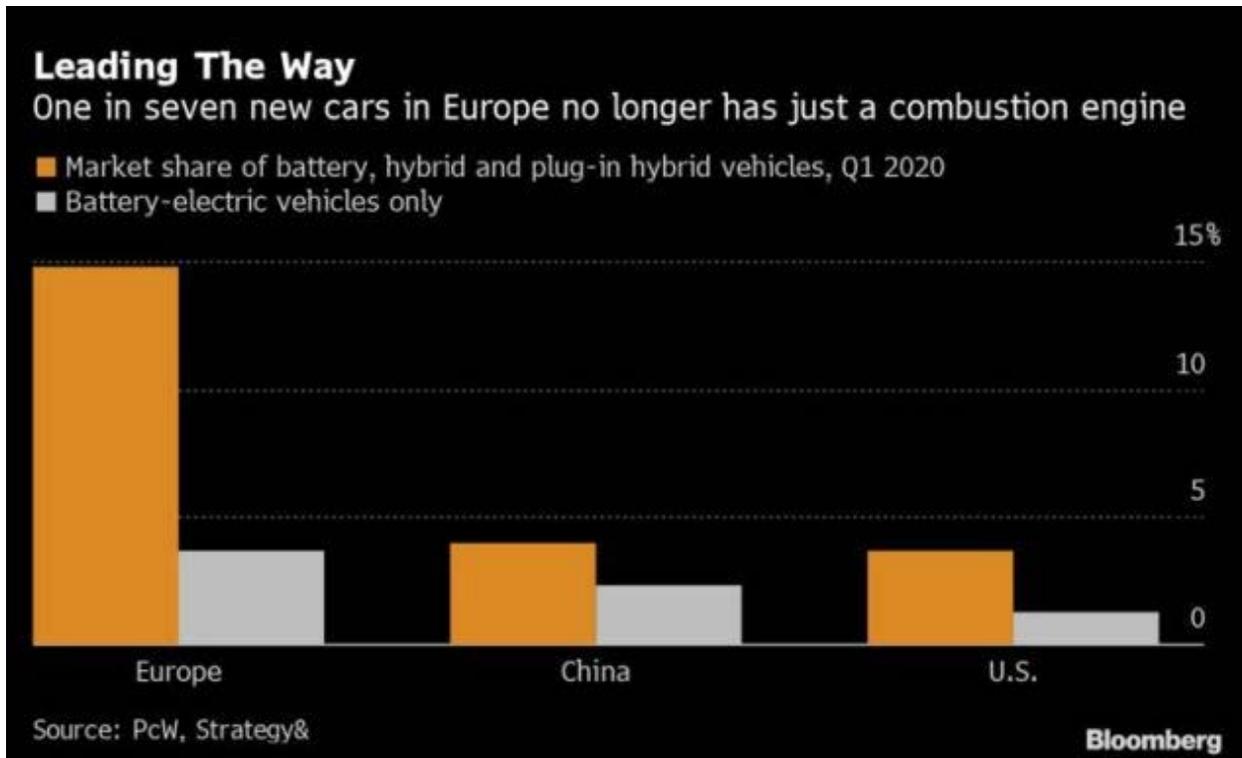


Germany, France, the U.K, Italy and Spain collectively registered 79,300 fully electric vehicles between January and March, narrowly edging past the 77,256 in China, the study found. Unit sales more than doubled in Europe in that period, compared with the first quarter of 2019. In China, sales fell by more than half in the quarter because of the lockdown.

The trend could see a reversal, as sheltering and lockdown requirements are expected to remain in place in most of Europe throughout the spring and restrictions in China gradually are lifting. More than 80% of China's almost 84,000 confirmed cases of Covid-19 have been in Hubei, of which Wuhan is the capital. The outbreak in the province peaked in mid-February; according to

official statistics, there are now almost no new infections occurring. That presents an opportunity for China to regain its position as the top market for EVs.

“The Chinese government is again introducing incentives for electric vehicles—both subsidies and tax breaks—and China also has the production capacity, so we believe that China will again take the lead in registrations later this year,” Felix Kuhnert, global automotive leader at PwC, said. Over the next few years, “it will be a neck-to-neck race between China and Europe, with the winner determined by political will, improvements in charging infrastructure, and quality and availability of electric vehicles,” Kuhnert said.



When hybrid and plug-in hybrid vehicles are added into the calculation, alternative energy autos already have the highest market share in Europe, the study said.

Many auto market segments typically rely on just a handful of models for the bulk of their sales. In the U.S., the battery-electric category is dominated by Tesla Inc.’s Model 3, with Toyota Motor Corp.’s Prius Prime leading in plug-in hybrids. Across Europe, Renault SA’s Zoe is by far the best-selling battery vehicle, ahead of Peugeot SA’s 208 EV and Volkswagen AG’s eGolf, while Mitsubishi Motors Corp.’s Outlander PHEV was the best-selling plug-in hybrid, according to the study.

In Europe, government support for alternative-power vehicles could mean that PwC’s earlier forecast heading into 2020 for 11 million electric passenger vehicle sales globally is achievable, Kuhnert said. The broader car industry will shrink by anywhere between 10% and 40% this year, the study estimates.

“We will see a cash-for-clunkers program in Europe, but with an ecological element,” Kuhnert said, referring to a government-funded effort to spur car sales. That could improve environmental

factors, such as air quality, and also help carmakers meet their carbon emission targets, he said, which in turn could “persuade consumers and voters that such incentives not only help the car industry in the long run, but also have very immediate benefits for society as a whole.”

Lockdowns Push European Sales To Record 78% Plunge In April

European passenger car sales slumped in April when the first full month with restrictions imposed to contain the coronavirus pandemic dragged sales to a record drop.

Registrations plunged 78 percent to 292,182 in the European Union, Britain and the European Free Trade Association (EFTA) countries, industry association ACEA said in a news release. The sales tally was the lowest number since ACEA began gathering data in 1990. In March, registrations fell 52 percent as lockdowns began to be introduced across Europe.

- Volkswagen Group's volume fell by 75 percent, with Seat brand down the most at 81 percent. VW brand's sales were down 76 percent, while Audi was down 77 percent, Porsche by 70 percent and Skoda by 67 percent.
- PSA Group's registrations dropped by 82 percent, with Peugeot and Opel/Vauxhall both down 83 percent, Citroen down 82 percent and DS down 74 percent.
- Renault Group registrations declined by 80 percent, with Dacia down 80 percent and Renault brand down 79 percent.
- Fiat Chrysler's sales plunged 88 percent, with Jeep registrations down 88 percent, Fiat down 87 percent and Alfa Romeo down 86 percent.
- Ford's sales dropped by 81 percent.
- Among Asian brands Nissan's registrations fell 86 percent, Hyundai was down 81 percent, Toyota 79 percent and Kia 78 percent.

Sales recorded double-digits fall in all European markets in April, with Italy and the UK both down 98 percent, Spain down 97 percent, France down 89 percent and Germany down 61 percent.

Dealerships have reopened in most markets and automakers have started reopening plants, fueling hopes that April will mark the trough, followed by a recovery. But European consumer behavior remains uncertain because of shaky investor confidence and concerns that restrictions could be tightened again in the event of a second wave of infections.

Automakers have warned that they will lose money because of the pandemic, which comes at a sensitive time. Manufacturers are increasing spending on electric vehicles to meet tougher emissions regulations and need profits from conventional cars to fund those investments.

Sales have dropped about 40 percent during the first four months, in a sign that a full recovery will take some time. European car sales are forecast to decline as much as 20 percent in 2020, according to Bloomberg Intelligence's Michael Dean.

UK Plans £250m Boost For Cycle Lanes And Fast-Track E-Scooter Trials

The government is expected to unveil a £250m investment in UK cycle lanes to encourage commuters to ride to work instead of using public transport, as part of the effort to prevent a resurgence of coronavirus. Grant Shapps, the transport secretary, is expected to make the funding announcement during his appearance at the upcoming Downing Street coronavirus briefing.

There are also plans to fast-track trials of the use of e-scooters on British roads, according to the Press Association. Currently, electric scooters – which can travel at up to 15.5mph – are banned on roads and pavements in the UK.

The government launched a consultation about legalizing e-scooters in March and would need to pass secondary legislation to legalize their use.

Campaigners have called for a fundamental redesign of the transport system to help prevent a bounce-back in air pollution levels once the lockdown ends.

Studies have shown that air pollution may play a role in higher Covid-19 mortality rates, with hearts and lungs weakened by dirty air.

In addition, in Italy, coronavirus was detected in air pollution samples by scientists who are investigating whether this could enable it to be carried over longer distances and increase the number of people infected.

Nine organizations¹ have written an open letter to the UK secretaries of state for transport and the environment, as well as the chancellor, leaders of local and regional authorities and city mayors. “It would be completely absurd if, after the unprecedented efforts and sacrifices made to save thousands of lives from Covid-19, we allowed thousands more to be cut short by the devastating impacts of toxic pollution,” the letter reads.

The group’s demands include wider pavements, protected cycle tracks and the installation of bus gates, bollards and planters to limit traffic in residential and shopping streets. The letter also calls for networks of low-traffic neighborhoods and for walking and cycling to be prioritized along main roads.

The campaigners also suggest introducing a 20mph speed limit in built-up areas and a ban on the sale of new petrol and diesel cars and vans by 2030.

Restrictions brought in to tackle the coronavirus pandemic have led to a huge drop in road traffic and a fall in air pollution of up to 60% in parts of the UK.

A YouGov poll commissioned by Greenpeace UK found 71% of people were concerned about the possibility of air pollution returning to pre-lockdown levels once restrictions are lifted. It also found that 58% backed the introduction of cycle lanes on urban main roads along with increased government funding for walking and cycling infrastructure.

The letter calls for immediate action to lock in some of the reduction in road traffic and the introduction of measures to ensure that “when the nation gets moving again, it does so in a cleaner, safer way”.

¹ Greenpeace UK, CPRE, Cycling UK, the Environmental Defence Fund, Global Action Plan, Living Streets, Possible, Transport Action Network, and Transport and Environment have signed the letter.

London's ULEZ And Congestion Charge Reinstated

London's Ultra-Low Emission Zone (ULEZ), Low Emission Zone (LEZ) and Congestion Charge were reinstated on May 18, after being suspended on March 23 due to the coronavirus lockdown. The lockdown saw several London Underground lines and bus routes closed so driving to work was encouraged. However, City Hall now wants commuters to walk or cycle to work and have also announced several streets will go 'car-free' for the foreseeable future.

As part of a government bailout deal for Transport for London (TfL), the Congestion Charge will increase to £15 from June 22 and the hours of operation extended as part of a package of temporary changes. TfL hopes this will encourage Londoners not to make unnecessary car journeys and could reduce journeys within the Congestion Charge Zone by a third.

TfL will be temporarily extending the Congestion Charge reimbursement scheme to continue to support NHS and care home staff. NHS and care home employees who work in the Congestion Charge zone will be reimbursed for journeys relating to coronavirus, including for their journeys to and from work.

Much Of Central London Could Soon Be Going Car-Free

Electric cars have been exempted from most attempts to regulate vehicular traffic in urban centers, but not a new London plan to create car-free zones. Cars—even those without tailpipes—will be banned from large areas of the British capital in order to create more space for pedestrians and cyclists, news network ITV has reported.

"These plans will transform parts of central London to create one of the largest car-free areas in any capital city in the world," the report said.

The move is primarily motivated by the need for social distancing during the coronavirus pandemic.

Transport for London (TfL), the city's transportation agency, hopes car-free zones will encourage people to ride bicycles or walk instead of using buses or subways.

Buses will be allowed in some car-free zones, but others will be closed to all vehicles. The report did not say where London's Black Cabs (some of which are now electric) fit into the mix.

London will also reinstate its Congestion Charge May 18 (See story above.) and its Ultra Low Emission Zone next month, the report said. The Congestion Charge will also increase to £15.00 (\$18.00) and its hours of operation will be extended, running from 7:00 a.m. to 10:00 p.m., 7 days a week.

While aimed at enabling social distancing, car-free zones could help reduce air pollution. Those who study air quality have noted some dramatic improvements during the coronavirus slowdowns, thanks to having fewer cars on the road. Air pollution is likely linked to higher death rates from the lung-related illness.

Taking large numbers of cars off the road is a simple and effective way to cut air pollution. One annual example: Israel sees reductions of up to 98% of nitrogen-oxide (NOx) emissions during Yom Kippur, when most of its population stays home.

With London's air historically very bad, but improving from the Congestion Charge this past decade, the question becomes how can the city hang onto any potential gains as it recovers?

Hybrids lost an exemption from the fee in 2016, and the United Kingdom plans to ban sales of new gasoline and diesel cars nationally by 2035.

Car-Free Zones' Launching in London

Following in the footsteps of leaders in Milan and New York City who are heeding global calls to #BuildBackBetter from the coronavirus pandemic, London Mayor Sadiq Khan on Friday unveiled plans to create "one of the largest car-free zones in any capital city in the world" to improve local air quality and encourage more walking and cycling.

"This is genuinely exciting," London-based author and physicist Helen Czerski tweeted of the plans. "Yes, of course, it will be disruptive (and like any change, there will be both winners and loser at the start). But it could also make London a far more human place and a new sort of city, with huge health benefits for everyone."

Environmentalists and public health advocates also welcomed the initiative. The UK branch of the advocacy group Greenpeace declared: "This is a great first step!"

Khan announced the upcoming transformation of central London streets — intended to help promote social distancing — in a joint statement with Transport for London (TfL). The government body will release more details in the weeks ahead, but the statement said roads between London Bridge and Shoreditch, Euston and Waterloo, and Old Street and Holborn may soon be limited to buses, pedestrians and cyclists.

Beginning Monday, the city will also reintroduce fee schemes for drivers that aim to cut pollution and help tackle the climate emergency: the low emission zone, the ultra-low emission zone, and the congestion charge — the last of which may temporarily increase next month.

Khan has made tackling London's polluted air a top priority since taking office in 2016. The Labor Party member released figures last month showing how air quality in the UK capital has "dramatically improved" in the wake of both anti-pollution measures introduced in 2017 and the city's pandemic-related lockdown.

"Covid-19 poses the biggest challenge to London's public transport network in TfL's history," Khan said Friday. "It will take a monumental effort from all Londoners to maintain safe social distancing on public transport as lockdown restrictions are gradually eased."

"That means we have to keep the number of people using public transport as low as possible," he added. "And we can't see journeys formerly taken on public transport replaced with car usage because our roads would immediately become unusably blocked and toxic air pollution would soar."

The mayor urged all of the city's 32 boroughs to support the plans and work with officials to implement similar restrictions. He encouraged all Londoners to walk and cycle more while steering clear of public transit "unless it is absolutely unavoidable."

Khan also highlighted that the plans have benefits beyond ensuring the safety of transport in London as the city lifts coronavirus restrictions. "By ensuring our city's recovery is green," he said, "we will also tackle our toxic air which is vital to make sure we don't replace one public health crisis with another."

Theo Highland of Sustrans, a UK charity that works to make it easier for people to walk and cycle, called the initiative "a potential game-changer" and echoed Khan's call for boroughs to embrace efforts to make miles of roads across the city more walkable and cycle-friendly while reducing toxic traffic.

"TfL's bold and ambitious plans to get London moving at this critical time are exactly what's needed right now," said Highland. "All boroughs must now make the changes our streets need to give Londoners space to move around safely and build our spirited city's resilience as we begin to bounce back from this pandemic."

"Sustrans is also here to help local authorities wanting to transform their streets with new infrastructure and give their residents confidence to cycle," he added. "Taking immediate action will help tackle health inequalities, air pollution, and the climate emergency. And by making successful changes permanent we'll emerge from this pandemic as a healthier, happier, and fairer London."

The Guardian reported that David Miller of the C40 Cities Climate Leadership Group, which recently has helped coordinate similar plans in metro areas around the world, congratulated Khan "for showing the world what is possible when we reimagine our cities for the benefit and health of everyone."

"These measures announced in London today, including major car-free zones, will clean the air that Londoners breathe, improve public health both during the Covid-19 pandemic and long into the future, while also helping to avert the climate crisis," Miller said. "This is the future we want."

Brussels Wakes Up To Post-Lockdown Cycle Lanes

A four-lane motorway through the heart of Brussels' EU district has been transformed overnight to accommodate post-lockdown cyclists. Until this week the Rue de la Loi-Wetstraat was a four-lane, car-choked highway funneling motorway traffic through the European district of the Belgian capital. As if by magic everything changed recently after contractors worked through the night so that the people of Brussels could wake up to a cycling miracle.

With people expected to swap crowded buses and trains for a healthy cycle or walk, demand for road space for 'active transport' looks set to skyrocket in the coming months. And the European capital is among a group of cities leading the way in embracing measures to ensure a healthier city.

Brussels has already implemented a new 20km/h speed limit in the city center to protect vulnerable road users and pedestrians forced onto the street to ensure physical distancing, and the city has bold plans to do more.

The city's transport minister is Elke Van den Brandt, who has thanked a number of colleagues – including Paris Mayor Anne Hidalgo – for their "inspiration". Van den Brandt's plan includes 40km of new bike lanes in the Belgian capital.

But the European district cycle path has not been universally welcomed, with some motorists complaining that the area was already a traffic blackspot.

But Van den Brandt has defended the decision, pointing out that before the works were completed the street's 3000 daily motorists enjoyed 12 meters of street space, while the 2000 people who cycled were squeezed into just 5.5m.

Campaign groups have pointed out the inefficiency of using road space for private cars, often carrying just a single passenger, for many years.

The need to ensure physical distancing to protect our health means that Brussels is far from unique, with local authorities all over Europe rushing to put new infrastructure in place at record speeds.

- In Scotland £10 million has been set aside to support pop-up active travel infrastructure after witnessing increases in cycling of as much as 214% in the second half of March.
- Authorities in Hungary have written that “the decrease in automobile traffic provides an opportunity to improve Budapest’s bicycle transport network with rapid intervention” and opened new ‘pop up’ bike lanes on major boulevards through the capital.
- While Paris, which already had ambitious plans to improve walking and cycling, has announced 650km of new post-lockdown cycle lanes.
- Milan’s Strade Aperte project will see reduced speed limits, new and wider bike lanes and pavements and 35km of city center streets where private cars are no longer welcome.

With cycling still allowed during the lockdowns in some countries, and two wheels increasingly seen as the healthy choice for commuting for the foreseeable future, bike sales have increased in many parts of Europe.

In London, the BBC has reported some shops witnessing an 80% rise in bike sales since the corona crisis began and online bike stores reporting “floods” of orders in Belgium.

Empty city streets have led to reduced noise pollution, made urban areas safer for children to play and cut harmful air pollution during lockdowns. Many people living in cities will want to avoid a return to the pollution of ‘business as usual’ and demand that something positive emerges from the horror of the current crisis.

Ultimately, it will be the level of public support that decides how many of the ‘temporary measures’ being taken now could become permanent, positive features of the cities of the future.

Milan Announces Ambitious Scheme To Reduce Car Use

Milan is to introduce one of Europe’s most ambitious schemes reallocating street space from cars to cycling and walking, in response to the coronavirus crisis. The northern Italian city and surrounding Lombardy region are among Europe’s most polluted and have also been especially hard hit by the Covid-19 outbreak.

Under the nationwide lockdown, motor traffic congestion has dropped by 30-75%, and air pollution with it. City officials hope to fend off a resurgence in car use as residents return to work looking to avoid busy public transport.

The city has announced that 35km (22 miles) of streets will be transformed over the summer, with a rapid, experimental citywide expansion of cycling and walking space to protect residents as Covid-19 restrictions are lifted.

The Strade Aperte plan includes low-cost temporary cycle lanes, new and widened pavements, 30kph (20mph) speed limits, and pedestrian and cyclist priority streets. The locations include a low traffic neighborhood on the site of the former Lazzaretto, a refuge for victims of plague epidemics in the 15th and 16th centuries.

Marco Granelli, a deputy mayor of Milan, said: “We worked for years to reduce car use. If everybody drives a car, there is no space for people, there is no space to move, there is no space for commercial activities outside the shops.

“Of course, we want to reopen the economy, but we think we should do it on a different basis from before.

“We think we have to reimagine Milan in the new situation. We have to get ready; that’s why it’s so important to defend even a part of the economy, to support bars, artisans and restaurants. When it is over, the cities that still have this kind of economy will have an advantage, and Milan wants to be in that category.”

Milan is a small, dense city, 15km from end to end with 1.4 million inhabitants, 55% of whom use public transport to get to work. The average commute is less than 4km, making a switch from cars to active modes of travel potentially possible for many residents.

Work could start on an 8km stretch of Corso Buenos Aires, one of the city’s most important shopping streets, by the beginning of May – with a new cycle lane and expanded pavements. The remainder of the work will be completed by the end of the summer, officials say.

Janette Sadik-Khan, a former transportation commissioner for New York City, is working with cities including Bogota and Milan on their transport recovery programs. She says Milan, which is a month ahead of other world cities in the trajectory of the pandemic, could provide a roadmap for others.

“A lot of cities and even countries have been defined by how they’ve responded to historical forces, whether it’s political, social, or physical reconstruction,” she says.

“The Milan plan is so important because it lays out a good playbook for how you can reset your cities now. It’s a once-in-a-lifetime opportunity to take a fresh look at your streets and make sure that they are set to achieve the outcomes that we want to achieve: not just moving cars as fast as possible from point A to point B, but making it possible for everyone to get around safely.

“I know we’ll be looking to Milan for guidance from New York City.”

Pierfrancesco Maran, another of Milan’s deputy mayors, said: “We should accept that for months or maybe a year, there will be a new normality, and we have to create good conditions to live this new normality for everyone.

“I think in the next month in Milan, in Italy, in Europe, we will decide part of our future for the next decade. Before, we were planning for 2030; now the new phase, we are calling it 2020. Instead of thinking about the future, we have to think about the present.”

In the UK, Brighton started opening part of the seafront, Madeira Drive, only to pedestrians and cyclists from 8am-8pm. In Barnes, London, businesses and residents have coned off part of the road outside shopping parades to expand pedestrian space and help shoppers keep their distance from each other.

Meanwhile in the Republic of Ireland, Dublin is suspending loading bays and parking spaces to increase space for social distancing, by using removable plastic separators.

2. EU Court Adviser Advocates Broader Definition Of Vehicle Defeat Devices

Technologies used by Volkswagen to rig vehicle emissions tests should be considered illegal, an adviser to the EU’s top court said, advocating a broad definition that lawyers said could open the group to more legal challenges.

The Court of Justice of the European Union has been asked to rule in a French prosecution against the carmaker for allegedly deceiving purchasers of diesel vehicles, specifically on whether an “upstream” technology could be considered a defeat device.

Volkswagen had argued in favor of a restrictive interpretation, limiting the scope of that concept to technologies and strategies operating only “downstream” - concerning the emissions after the gases’ production.

Advocate General Eleanor Sharpston said that a defeat device should be interpreted as being any device which can influence both upstream and downstream vehicle emissions during tests.

Use of defeat devices to help a vehicle pass approval tests is illegal under EU law.

The opinion, if followed by Europe’s top court, could raise the possibility of more car owners taking legal action against Volkswagen and other firms, according to lawyers representing car owners. They said it broadened the interpretation of what constitutes an illegal “defeat device”.

Volkswagen said it did not expect the opinion and potential ruling to affect legal proceedings. These centered on whether car owners had suffered financial damage rather than a legal assessment regarding technology. “This question no longer plays a role in ongoing proceedings,” the company said.

The French case concerned an exhaust gas recirculation (ERG) valve, which can redirect some exhaust gases back into the air supply for the engine, to reduce final NOx emissions. The ERG was adjusted in tests using a device to allow emissions to remain below the regulatory ceiling, but according to an expert’s report the device would in normal conditions lead to the partial deactivation of the ERG and higher NOx emissions.

The court typically rules within two to four months of an adviser’s opinion. Judges follow them in the majority of cases but are not bound to do so.

Volkswagen announced recalls of almost 950,000 vehicles in France following the “dieselgate” scandal in which it admitted in 2015 to using illegal software to cheat U.S. diesel engine tests.

The scandal has cost Volkswagen more than \$30 billion in vehicle refits, fines and provisions.

3. German Judge Casts Doubt on VW’s Defense in Diesel-Damages Case

A German federal court judge cast doubt on Volkswagen’s reasoning after the carmaker urged the court to dismiss a claim for damages brought by an owner of a diesel powered VW Sharan family van. The proceedings were the first time that Germany’s Federal Court of Justice, or Bundesgerichtshof, heard arguments from a plaintiff seeking damages from VW because it had sold vehicles with manipulated diesel engines.

Any ruling in this landmark case will serve as a guideline for other cases.

Volkswagen has argued that because European authorities stopped short of taking VW cars off the road, compensation claims from customers were without merit. European authorities insisted that Volkswagen update its engine management software to ensure that anti-pollution filters are activated and fined Volkswagen for fraud and administrative lapses.

Presiding judge Stephan Seiters said several arguments brought forward by Volkswagen were not applicable and agreed that the sale of a vehicle with a manipulated diesel engine does provide sufficient grounds for a damages claim.

The Volkswagen customer who sued the company had already been awarded 26,000 euros in damages by a lower court. He sought even higher damages since he spent 31,500 euros on the car.

The court held that the car had lost in value since the customer was using it. VW has asked the court to dismiss the claim altogether.

“Unlike the preliminary views of the Federal Court, we do not share the view that the purchase of a vehicle gives grounds for damages,” Volkswagen said in a statement.

Because cars in Europe never lost their road worthiness certification, Volkswagen asked for the damages claims to be dismissed.

Even before installing new engine management software, Volkswagen’s cars had emitted lower levels of pollution than many competing products, VW said. “Where the damages are supposed to have occurred is not apparent to Volkswagen,” the carmaker said.

A ruling will be made at a later point in time, the judge said.

4. Market Manipulation Charges Against VW Bosses To Be Dropped

Volkswagen chief executive Herbert Diess and supervisory board chief Hans Dieter Poetsch have avoided trial over “market manipulation” allegations with an out-of-court settlement of nine million euros, the German car giant announced.

"According to the assessment of the supervisory board, it is in the best interest of the company for the proceedings to be terminated," VW said. It therefore agreed to pay €4.5 million (\$4.93 million) to settle the charges against each of the top executives, it said.

The case had been one of many legal entanglements that Volkswagen had found itself in over its stunning revelation in 2015 that it had installed devices in 11 million diesel vehicles worldwide to make them seem less polluting when they were undergoing emission tests.

Dubbed Dieselgate, the practices employed by Volkswagen led to a crisis in confidence for the entire automobile industry, especially since similar workarounds were soon found at other companies. The case has kept VW tied up in lawsuits ever since.

German prosecutors in September charged the two VW bosses, along with former chief executive Martin Winterkorn, with "market manipulation."

Prosecutors argued that the VW chiefs should have informed shareholders about the investigation into the so-called defeat devices as soon as they learnt of it, not wait until US authorities dropped the bombshell news on September 18, 2015, sharply driving down the VW share price.

In their statement, Volkswagen's board said that "both at the time of the indictment... and today, the criminal law advisors and representatives of the company asserted that the accusations of the public prosecutor's office against Mr. Poetsch and Dr. Diess are not founded."

It is not clear if the offer to drop the market manipulation case will be extended to Winterkorn, who ran the company from 2007 to 2015 and stepped down after the scandal came to light. In April last year, he was charged with serious fraud, unfair competition and breach of trust by prosecutors in Brunswick, alongside four other suspects. His lawyers have reiterated that he is "blameless in this matter" and "will continue defending himself".

The dieselgate scandal tarnished VW's reputation and has so far cost the company over €30 billion (\$33 billion) in fines, legal costs and compensation payments to car owners.

5. Airlines in EU Face Wait For Greenhouse Gas Emissions Clarity

It could be two years before airlines operating in the European Union learn how the international Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) pact to control aviation greenhouse gas emissions will work alongside the EU emissions trading system.

The EU must amend its emissions trading law to implement CORSIA, but an amendment would only be proposed in mid-2021 after an impact assessment, as part of a broader proposal on revising the emissions trading system, European Commissioner for Transport Adina Valean told the European Parliament's environment committee recently.

Rules on the implementation of CORSIA would then have to be agreed to by the European Parliament and the Council of the EU, which represents the EU's 27 member governments, a process that can take from one to two years.

That could take finalization of the rules perilously close to, or even beyond, the first deadline of November 30, 2022, when airlines must calculate and declare their 2021 offsetting requirements under CORSIA.

CORSIA was agreed to in October by the U.N.'s International Civil Aviation Organization and takes effect on January 1, 2021. It will require airlines to buy emissions credits for greenhouse gases that go above a baseline of their 2019-2020 emissions.

CORSIA could overlap with the EU emission trading system, under which airlines must obtain and surrender carbon allowances to cover emissions from their flights within Europe.

Late adoption of EU rules on CORSIA could mean airlines face uncertainty over which emissions fall under CORSIA and which under the emission trading system.

Emissions for flights within Europe, which are covered by the ETS, should not be counted when calculating emissions for the purposes of CORSIA, Airlines for Europe, which represents companies including Air France KLM, Finnair, and Lufthansa Group, said in a statement.

There is a long history of tension between the EU and international systems to reduce aviation emissions.

Initially, all flights into and out of the EU—including intercontinental flights—were included in the ETS, but the EU ultimately only included intra-European flights after protests from countries including Brazil, China, and the U.S.

In implementing CORSIA, the EU should not undermine it, because “this would provide the pretext for some major international players to bury CORSIA,” Valean said. “CORSIA will neither replace the ETS nor put our environmental ambitions at stake,” she said.

6. UK Transport Fuel Demand Slips To Multi Year Lows In March

Demand for key transport fuels in the UK fell to multi-years lows in March as sales in Europe's second biggest oil market began to slump due to travel restrictions to contain the spread of coronavirus.

Demand for jet fuel was the hardest hit by the lockdown measures, falling to 1.14 million mt in March, down 15% from year-ago levels and the lowest March level since 2002, according to official UK data submitted to the Joint Organizations Data Initiative (JODI).

The UK 's road fuel demand, which peaked in 2006, totaled 3.35 million mt in March, down 2% from year-ago levels and the lowest March level for gasoline and diesel demand since 2013, according to the data.

Combined, the data shows UK demand for the main transport fuels fell to 4.49 million mt in March, down 5.6% from year-ago levels and the lowest since January 2015.

Europe's second-biggest fuel market after Germany, the UK was officially put into lockdown on March 23. Market watchers expect April to see the most severe impact from the pandemic on oil markets with up to 30 million b/d of global demand contraction due to travel curbs and lockdowns.

Last week, government data showed transport use in the UK was down by around 60% or more for all transport types since February but showed an uptick in motor vehicle usage on April 20 to 41% of pre-lockdown levels.

Road transport accounts for more than half of oil demand in the UK with gasoline and diesel meeting around 98% of transport energy needs. Gasoline sales last year averaged 299,820 b/d and diesel sales averaged 546,770 b/d, according to Platts Analytics estimates.

Compared to February, the latest UK data shows imports of crude fell by nearly one-third to 2.54 million mt in March with a corresponding 44% decrease in crude exports. Demand for crude remained relatively stable on the low levels seen in February, however, as refinery production fell only 2.2% around 4.25 million mt, the data shows. The UK's production of crude and NGLs slipped to 2.04 million mt, down from 2.11 million mt in February.

7. First Drop In Number Of Diesel Cars On Britain's Roads Since Records Began

The number of diesel cars on Britain's roads has fallen for the first time in at least 25 years, new figures show. More than 111,000 fewer diesel cars were licensed in Britain in 2019 than in the previous year, according to Department for Transport data.

This is the first decline since records began in 1994.

The drop in demand for new diesel cars is well known, but the statistics indicate that many older models are being taken off the road too.

Some 12.29 million diesel cars and 18.82 million petrol cars were licensed last year. The totals include new and older models.

The number of alternatively-fueled cars, such as hybrids and battery electrics, reached 78,000.

Steve Gooding, director of the RAC Foundation, said: "These figures hint at a motoring milestone – the possibility that we have hit or even passed 'peak diesel' – due to the collapse in sales of new diesel cars together with the scrapping of older diesels, which have either come to the end of their useful lives or whose owners fear increasing restrictions on their use because of air quality concerns.

"Last year also saw the first drop in the volume of diesel fuel sold since the financial crisis."

Car manufacturers have partly blamed confusion over how diesel cars will be treated when clean air zones are introduced in towns and cities for their drop in popularity. Bristol City Council for example is bidding to ban privately-owned diesel cars from part of the city at certain times.

Vans – the vast majority of which are diesel-powered – bucked the trend, with an increase of 113,000 to 4.12 million last year.

Transport Minister Rachel Maclean said the number of new battery electric cars more than doubling last year demonstrates that "more drivers than ever before are choosing a greener path and making the switch".

8. Tire, Brake Dust Impacts on Non Exhaust Air Pollution Under Study

Air quality benefits from improvements in emissions technology associated with the latest vehicles and an increasingly urgent drive towards electric propulsion. Yet, even with the zero emissions technology promised by electric vehicles offering a vision free from nitrogen dioxide (NO₂) and fine particulate matter (PM_{2.5}) belching from internal combustion engines, there is one form of

airborne pollutant that the switch to electricity cannot avoid, namely non-exhaust emissions (NEE) from road traffic.

Particles are released into the air from brake and tire wear, road surface wear and road dust disturbed by a vehicle's motion - regardless of the vehicle type or its mode of power. NEE contributes to ill-health and premature mortality, yet there is no legislation in place to combat such emissions. Whilst legislation has driven down emissions of particles from internal-combustion vehicles, the NEE proportion of traffic emissions has increased in the UK.

Professor Roy Harrison OBE is a member of the UK Government's Air Quality Expert Group (AQEG) and contributed to a recent study which notes that particles from brake wear, tire wear and road surface wear currently constitute 60% and 73% (by mass), respectively, of primary PM2.5 and PM10 emissions from road transport, and will become more dominant in the future.

"Non-exhaust particles from road traffic are certainly a bigger source of pollution in the UK than tailpipe emissions and, as traffic volumes continue to grow, it is worrying that there is no regulation in place to govern NEE particles," According to Professor Harrison. "We have a UK target of switching entirely to electric vehicles – in terms of new sales – by 2035. The aim of this is to reduce CO2 and air pollutant emissions, but there is currently a debate around electric and internal combustion vehicles regarding NEE particles. Battery-driven cars are heavier but generate power under braking and should emit fewer particles as regenerative braking does not rely on frictional wear of brake materials."

Professor Harrison is part of the team working on a study to help clarify some of the uncertainty surrounding NEE particles, as emissions vary according to brake, tire and road-surface material, and driving style. These particles are also an important source of metals, such as copper and zinc, in the atmosphere - primarily associated with brake and tire wear, respectively.

"There are a number of ways to mitigate the creation of NEE particles – for example, reducing the overall volume of traffic, lowering speed on trunk roads and motorways, and promoting driving behavior that reduces braking and higher-speed cornering," explains Professor Harrison. "The resuspension of particles from the road surface can be reduced by road sweeping, street washing and applying dust suppressants to carriageways, although the impacts on airborne PM from trials of some of these approaches have so far proven inconsistent with short-lived benefits."

"The single most important step we can take, as recommended by the AQEG, is to recognize NEE as a source of ambient concentrations of airborne PM, even for vehicles with zero exhaust emissions of particles. We also need to work towards a consistent approach internationally for measurement of NEE and to update and narrow the uncertainties in emission factors."

9. Lowering Car Emissions With New EU Tire Labels

The EU has committed to cut its greenhouse gas emissions by at least 40% below 1990 levels by 2030 under the Paris Agreement. Road transport is responsible for about 22% of the EU's greenhouse gas emissions and transport is the only sector where emissions remain higher than in 1990. In order to reach climate neutrality by 2050, the EU wants to cut emissions from transport 60% by 2050, compared with the 1990 level.

Tires account for between 20% and 30% of a vehicle's fuel consumption, which means that choosing more fuel-efficient tires can help to reduce transport emissions. In order to help consumers make informed decisions, the EU is introducing a new labelling scheme for tires.

The labels would include information on fuel efficiency and wet grip, on a scale from A to G (similar to the energy labelling used for household appliances), as well as information about their external noise level, expressed in decibels.

Information on snow and ice grip can be added in the future, as well as information on mileage and abrasion (responsible for microplastic pollution) when a testing method becomes available.

Labels must be clearly visible to consumers, be on display in all situations where tires are sold, including online, and should provide a QR code for easy scan.

New tire labels will allow EU consumers to choose more fuel-efficient tires, which can lead to great savings for them in terms of spending as well as lower emissions. Road safety is improved through better wet grip while information on noise levels help lower noise pollution caused by cars.

The European Parliament and the Council of EU reached an informal agreement on the labelling scheme in November 2019. The Council formally endorsed the rules in February 2020 and Parliament's industry, research and energy committee voted in favor of them on 28 April. The Parliament as a whole must still approve the deal.

10. Scientists In Italy Find Coronavirus On Air Pollution Particles

In preliminary study, researchers detect distinct virus genes on airborne pollutants, suggesting disease could travel farther by air than previously assumed

It is still unclear whether the virus is viable or able to cause infections when carried by pollution, according to The Guardian, which first publicized the findings.

The study has not yet been peer-reviewed, but previous studies and experts suggest the premise could be valid and should be researched further. If true, the virus could travel farther by air than previously assumed. It could also explain the high rate of infection in heavily polluted northern Italy.

Italy has been hard hit by the pandemic, especially its northern region. The country has confirmed over 192,000 infections and nearly 26,000 deaths.

The research was headed by Leonardo Setti from Italy's University of Bologna. The research team detected a distinct COVID-19 gene on air pollution samples taken from an urban site, and an industrial site, in Bergamo province, near Milan. The finding was backed up by a testing procedure at a separate, independent laboratory.

Other research has showed that air pollution can carry microbes, and that airborne pollution particles probably carried other viruses, including those that cause bird flu, measles and foot and mouth disease, The Guardian reported.

The coronavirus circulates through droplets in the air spread by coughing or sneezing, and enters the body through the mouth, eyes or nose. It can remain viable on surfaces for hours to days and may be able to enter the lungs directly when inhaled.

Larger droplets carrying the virus land within two meters of the carrier, but smaller droplets can linger in the air for longer and move farther. It is unclear whether the smaller droplets can cause infections.

11. Four More EU Nations Back A Green Post-Coronavirus Recovery

Most climate and environment ministers in the 27-nation EU now back a call to put the European Green Deal at the heart of a post-coronavirus recovery after Ireland, Slovakia, Slovenia and Malta joined an appeal by 13 of their EU colleagues.

The original letter was issued on 9 April, when it was signed by representatives of 10 governments. France, Germany and Greece joined in the next two days and the latest round raises the total to 17.

The ministers urge Europe to remember the challenges of climate change when designing long-term strategies for a resilient recovery from the “unprecedented crisis” of the pandemic, which has killed more than 165,000 people worldwide.

Citizens’ assemblies on climate change seek to shape the post-Covid recovery

The now 17-strong letter says: “The focus is presently on fighting the pandemic and its immediate consequences. We should, however, begin to prepare ourselves to rebuild our economy and to introduce the necessary recovery plans to bring renewed, sustainable progress and prosperity back to Europe and its citizens.

“While doing so, we must not lose sight of the persisting climate and ecological crisis. Building momentum to fight this battle has to stay high on the political agenda.”

It adds that the Green Deal, an EU blueprint to reach net zero emissions of greenhouse gases by 2050, should be central to any resilient recovery. “The Green Deal provides us with a roadmap to make the right choices in responding to the economic crisis while transforming Europe into a sustainable and climate neutral economy,” they write.

“We should withstand the temptations of short-term solutions in response to the present crisis that risk locking the EU in a fossil fuel economy for decades to come.”

The original 10 signatories were Austria, Denmark, Finland, Italy, Latvia, Luxembourg, the Netherlands, Portugal, Spain and Sweden.

The latest additions mean that countries outside the appeal are Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Poland and Romania.

12. Why Is Ozone Pollution Persisting In Europe Despite Laws Reducing Precursors?

In Europe, despite laws limiting pollution from cars, trucks and factories, there has been little improvement in ozone air quality. An international team led by atmospheric scientist Meiyun Lin found the surprising chain of causes: As global climate change leads to more hot and dry weather, the resulting droughts are stressing plants, making them less able to remove ozone from the air.

With hot and dry summers expected to become more frequent over the coming decades, this has significant implications for European policymakers, noted Lin, a research scholar in atmospheric

and oceanic sciences and the Cooperative Institute for Modeling the Earth System at Princeton University.

In a new study² published in *Nature Climate Change*, Lin and her colleagues demonstrated that vegetation feedbacks during drought worsen the most severe ozone pollution episodes.

The authors use observations and Earth system model simulations for the period 1960–2018 to show that ecosystem–atmosphere interactions, especially reduced ozone removal by water-stressed vegetation, exacerbate ozone air pollution over Europe. These vegetation feedbacks worsen peak ozone episodes during European mega-droughts, such as the 2003 event, offsetting much of the air quality improvements gained from regional emissions controls. As the frequency of hot and dry summers is expected to increase over the coming decades, this climate penalty could be severe and therefore needs to be considered when designing clean air policy in the European Union.

Such land-biosphere feedbacks have often been overlooked in prior air quality projections. This study quantified these vegetation feedbacks using six decades of observations and new Earth system model simulations developed at the Geophysical Fluid Dynamics Laboratory, a division of the U.S. National Oceanic and Atmospheric Administration located on Princeton’s Forrestal campus.

Lin and her colleagues found that severe drought stress can cause as much as 70% reductions in ozone removal by forests. “Accounting for reduced ozone removal by drought-stressed vegetation leads to a three-fold increase in high-ozone events — above 80 parts per billion,” Lin said. That is significantly worse than the European Union’s ozone target: 60 parts per billion, not to be exceeded on more than 25 days per year. For reference, the U.S. standard is 70 parts per billion, not to be exceeded on more than 4 days per year.

The European Union has established an extensive body of legislation to reduce regional emissions of smog-forming chemicals from member states, but despite 45% to 70% reductions in smog-forming chemicals across a 40-year period, summertime ozone levels measured in Europe actually climbed, especially during the 1980s and '90s. Based on their findings, Lin said, governments will need even stronger emission controls to lower ozone air pollution.

While this study focused on Europe, their findings have broad implications. Substantial reductions in ozone removal by vegetation were also observed during North America’s historic heat wave and drought in summer 2012, according to an earlier study by Lin.

Over the coming decades, as the climate warms, it will be increasingly important to account for vegetation feedbacks to determine the effects of extreme pollution events, she said.

13. Plummeting Pollution Exposes Transport’s Role In Air Quality Crisis

Evidence is emerging that air quality is improving as a result of the coronavirus restrictions. A study in Spain reported a fall of 55% in air pollution in the second half of March, and a series of satellite maps shows air pollution ‘falling dramatically’ across Europe. The figures have prompted new calls for stricter measures to control road traffic when the virus has cleared

² Lin, M., Horowitz, L.W., Xie, Y. et al. Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe. *Nat. Clim. Chang.* (2020). <https://doi.org/10.1038/s41558-020-0743-y>

Despite the EU passing its Air Quality Framework Directive in 1997, breaches of air pollution limits have been a regular feature of the past 20 years. Indeed, the European Commission has begun legal proceedings against 15 member states in which cities systematically exceed permitted levels of pollutants or lack adequate strategies to monitor and reduce air pollution. The move towards banning high-emitting cars from city centers has been part of the solution, with more than 250 European cities introducing Low-Emission Zones. But the drastic reduction in traffic caused by 'lockdown' restrictions introduced to fight Covid-19 is providing a demonstration of what happens when road traffic is heavily reduced.

Now the first evidence of improved air quality is appearing.

In Spain, T&E member Ecologistas en Acción has published a report on air monitoring between 14 March – the day Spain's government declared a state of emergency – and the end of the month. It shows that pollution levels caused by nitrogen dioxide (NO₂) in the most important Spanish cities had decreased by 55% compared with what is normal for this time of year. The analysis is based on official NO₂ data collected from 125 measuring stations in 24 cities as measured over the last decade.

The report shows the biggest reductions came from readings on the Mediterranean coast, where measurements resembled those normally found only in very rural areas. By contrast, Spain's northern coast reported less pollution decline, which Ecologistas says may be due to unidentified meteorological factors. The fact that Spain had high levels of atmospheric instability in March could have exaggerated the reduction in air pollution, as instability keeps air circulation high.

At the same time, the European Public Health Alliance (EPHA) published a series of maps based on satellite data provided by the European Space Agency which it says reveal how air pollution 'has fallen dramatically in cities across the world due to Covid-19 lockdown measures'. The maps show Madrid, Paris, Milan, Frankfurt, Brussels and other cities enjoying a reduction in average NO₂ levels in the period 5-25 March compared with the same period last year.

EPHA officials warned that air pollution over recent years has already damaged the respiratory systems of those currently suffering from coronavirus symptoms. It says that, despite the fall in air pollution levels in Milan, northern Italy is a pollution hotspot and is also the center of Europe's coronavirus outbreak.

This is supported by a new study from America, which claims to offer the first clear link between long-term exposure to air pollution and Covid-19 death rates. The study, done at Harvard University and based on an analysis of 3,080 counties across the US, reveals a 'large overlap' between Covid-19 deaths and diseases associated with long-term exposure to fine particulate matter, and specifically finds that areas with high PM_{2.5} levels are associated with higher death rates from the virus.

T&E's air quality manager, Jens Müller, said: 'The findings show unequivocally that in most cities, air pollution is caused largely by polluting vehicles, so it should come as no surprise that a reduction in road traffic improves the air. But this is nothing to rejoice about.

'The current drop in air pollution results from a health tragedy, and a lockdown is not a solution for clean air. However, what the findings do stress is the absolute need to avoid going back to levels of polluting mobility once the corona crisis is over. That means a clear roadmap towards the EU's new zero pollution target must be written into the legislation governing the European Green Deal.'

Similar falls are expected to be recorded for CO2 emissions and other greenhouse gases. The head of the Global Carbon Project, Professor Rob Jackson of California's Stanford University, has been quoted as saying he would 'not be shocked to see a 5% or more drop in carbon dioxide emissions this year, something not seen since the end of World War II.'

14. VW, Ford Forge Ahead With Technology Sharing to Save Costs

Volkswagen AG and Ford Motor Co. are pushing ahead with plans to team up on electric and self-driving vehicles even as the coronavirus derails other projects, according to press reports. The deal is expected to close by the end of next month, with both sides recognizing a need to share the large investments needed to develop battery-powered and autonomous cars.

The talks with Ford are progressing well, a VW spokesman said. Alan Hall, a representative of Ford's autonomous-car partner Argo AI LLC, said the plan is on track to close in the second quarter. Ford said separately it expects the same.

With the global pandemic bringing the automotive industry to its knees, both companies are keener than ever to move beyond an initial agreement to join forces on light commercial vehicles and mid-size pickups. Manufacturers are being forced to rein in spending amid falling demand for cars and sharing expenses for new technology can help ease the financial burden.

Moody's Investors Service revised its 2020 global auto sales this week to an anticipated slump of 20%, worse than its previous expectation for a 14% decline. "Our more-pessimistic view is largely based on the darkening outlook for the global economy," the ratings company said. The auto industry is "likely to resume growth in 2021 off a diminished base."

With demand shrinking and capital constraints mounting, the industry is going to be forced to consolidate the number of powertrain types they choose to develop going forward, said Dietmar Ostermann, a PwC senior partner.

"The transition into electric vehicles will actually be accelerated, because the industry cannot afford too many alternative propulsion systems going on at the same time," Ostermann, PwC's U.S. automotive advisory leader, said during a webinar hosted by Automotive News.

Under the plan, VW will invest about \$2.6 billion in Argo. That includes \$1 billion in funding and the \$1.6 billion Autonomous Intelligent Driving unit of the German company's Audi brand to compete with Alphabet Inc.'s Waymo and General Motors Co.'s Cruise unit.

VW's investment in Argo remains on track for the first half, Ford said in a statement.

Ford's strategy has been set back by the viral outbreak, with a multi-city commercial rollout of robotaxis and driverless delivery pods in the U.S. delayed until 2022. The company says it needs more time to assess the impact of the coronavirus pandemic on consumer attitudes toward self-driving and shared vehicles. It's also canceled plans to jointly develop an all-electric Lincoln model with Rivian Automotive Inc.

As part of the widened cooperation, Ford intends to produce at least one mass-market car in Europe based on VW's main electric-vehicle underpinnings, dubbed MEB, with more than 600,000 targeted deliveries over six years. VW's first car based on the new technology, the ID.3

hatchback, will be rolled out this summer. The SUV sibling called ID.4 is set to follow later this year.

The planned collaboration in the light commercial-vehicle segment focuses on mid-size pickups and vans that are scheduled to be launched as early as 2022.

15. Daimler and Volvo Launch Hydrogen Fuel Cell Truck Venture

Hydrogen fuel cell trucking took another step toward commercialization with Daimler Truck AG and Volvo Group creating a joint venture to pursue the technology. The heavy-duty truck companies said Volvo would contribute the equivalent of \$650 million for a half interest in the new company, which takes over the operations of Daimler's Mercedes-Benz fuel cell vehicle development and will be based in Germany.

"It is a very positive development and a really strong signal that truck makers/powertrain providers are seriously building the capability to provide zero emissions operations across all operating modes," said Bill Van Amburg, executive vice president and head of trucking programs for Pasadena-based clean transportation non-profit Calstart.

The companies said they are looking for a long-term solution for long-haul trucking that meets the vision of "sustainable transport and a carbon-neutral Europe by 2050."

But both companies sell trucks in the U.S. Technical advances made by the manufacturer in Europe typically appear in their North American offerings.

Daimler owns the Freightliner and Western Star brands. Volvo has Volvo and Mack trucks. Daimler is launching its eCascadia Freightliner electric truck in the US using technology from a Mercedes-Benz model developed in Germany. Volvo also is using technology developed in Sweden to launch an electric version of its VNR in the U.S.

Fuel cell technology is seen as a good application for long haul trucks. The vehicles can be fueled rapidly like a diesel truck. Battery-electric trucks take longer to charge. The fuel cell system also is lighter than batteries, avoiding a weight penalty for trucks that need to haul large loads.

"What is emerging, though not absolute, is a sense that urban and regional medium- and heavy-duty transport will likely be battery-electric and longer distance travel may move toward fuel cell electric," Van Amburg said. "The core powertrains are almost exactly the same – the difference is now to get electricity delivered to the powertrain."

Toyota, Nikola, Kenworth and others also are developing electric trucks. Toyota is in the process of building 10 prototypes based on two early trucks. The vehicles will go into service later this year hauling freight from the ports of Long Beach and Los Angeles to other points in Southern California.

"For trucks to cope with heavy loads and long distances, fuel cells are one important answer and a technology where Daimler has built up significant expertise through its Mercedes-Benz fuel cell unit over the last two decades," said Martin Daum, chairman of the board of management of Daimler Truck AG.

He called the venture a "milestone" in developing both fuel cell trucks and buses. Daimler and Volvo also build buses.

“Electrification of road transport is a key element in delivering the so-called Green Deal, a carbon-neutral Europe and ultimately a carbon-neutral world,” said Martin Lundstedt, Volvo Group’s chief executive. “Using hydrogen as a carrier of green electricity to power electric trucks in long-haul operations is one important part of the puzzle, and a complement to battery electric vehicles and renewable fuels.”

But Lundstedt said other companies will also have to push the technology and help develop a hydrogen fueling infrastructure to make fuel cell vehicles viable. That’s already starting to happen. California is in the initial stages of building a hydrogen fuel station network.

Hyundai is working with a joint venture in Switzerland to build stations for fuel cell trucks that will enter service there later this year. Hyundai plans to build 1,600 fuel cell heavy-duty trucks and has a contract to haul goods for Coop and Migros, Switzerland’s two largest retailers. The retailers will pay for the freight services, creating cash flow that will be used to build the fueling network.

In the U.S., Nikola is marketing all-inclusive leases for fuel cell trucks it plans to start testing in at customer fleets by the end of 2022. Production will come the following year. The lease payments will finance construction of a fueling network. Nikola will start with specific city pairs where it has customers and build out the network as it gets more customers.

16. Mercedes-Benz F-Cell SUV Axed, Halted For Cars

Shortly after announcing a joint effort with Volvo Trucks to develop hydrogen fuel-cell commercial vehicles (See story above.), Mercedes-Benz parent Daimler confirmed that it will end fuel-cell development for passenger cars.

That means the end of production for the Mercedes-Benz F-Cell crossover, which was only sold in small numbers, and not in the United States.

The higher manufacturing costs of fuel-cell vehicles—which Daimler estimated to be around twice that of comparable battery-electric vehicles—was a major factor in the decision, reported Automotive News Europe.

Daimler is also shifting fuel-cell development resources from Mercedes to its truck division as part of the new joint venture with Volvo Trucks (which is unrelated to the automaker of the same name).

The F-Cell was a version of the GLC crossover, but it also shared some components with the battery-electric EQC. Deliveries began in Germany in 2018. Like the EQC, the F-Cell was initially promised for the U.S. but placed on extended delay. While the U.S. missed out on the F-Cell, the EQC is at least still scheduled to arrive here in 2021.

The F-Cell was different from other fuel-cell vehicles so far in that it had a 7.4-kilowatt onboard charger and 13.5-kilowatt-hour battery pack, making it a plug-in hybrid. It had a range of 267 miles on hydrogen, with another 32 miles on the battery pack (based on the European testing cycle).

Combining plug-in capability and fuel cells is something Toyota has resisted for the next-generation Mirai because it doesn’t apply pressure to improve and use hydrogen infrastructure. Infrastructure remains a major obstacle for fuel-cell passenger cars. The current-generation Mirai

is only available in California, as that's the only state with sufficient fueling stations. Sales of the Honda Clarity Fuel Cell and Hyundai Nexo are limited to California as well.

Issues like this may explain why automakers are beginning to shift their focus to fuel-cell commercial vehicles. Honda has partnered with Isuzu to develop them, Toyota has built a small batch of prototypes, and Hyundai has shown a sleek concept truck.

17. All-Electric Garbage Truck Being Tested In The Netherlands

Garbage trucks will never smell pleasant, but at least it's possible to get rid of the stench of diesel exhaust. Dutch truck manufacturer DAF just released an electric garbage truck for testing in its home country.

First spotted by ChargedEVs, the DAF CF Electric 6x2 will be operated by waste disposal firm ROVA in the Dutch city of Zwolle.

The truck boasts 210 kilowatts (281 horsepower) and 1,475 pound-feet of torque, with a 170-kilowatt-hour battery pack. DAF did not quote a range figure but said range should be adequate for daily garbage runs. DC fast charging allows for an 80% recharge in 30 minutes, the manufacturer said in a press release.

The 6x2 configuration denotes six wheels, with two powered. The CF Electric 6x2 boasts a steerable trailing axle that should make maneuvering in tight city streets easier, DAF noted.

DAF said it previously tested 4x2 versions of the CF Electric with Dutch and German transportation firms and supermarket chains and has since begun limited sales of those models.

Garbage trucks seem like the ideal use of battery-electric powertrains, as they follow short, defined routes that involve a lot of starting, stopping, and idling. DAF isn't the only truck manufacturer to have figured that out.

Chinese firm BYD announced plans for an electric garbage truck in 2016, while Mack unveiled its own model in 2019.

Other types of municipal vehicles are getting electric powertrains as well. For example, the first full-size electric fire truck recently found a buyer—the City of Los Angeles.

Electric powertrains also hold promise for even larger vehicles—like heavy earth movers and mining trucks.

DAF is a division of American corporation PACCAR, which has tasked its other brands with developing zero-emission vehicles. Peterbilt has developed its own battery-electric truck chassis, while Kenworth has partnered with Toyota on prototype hydrogen fuel cell trucks.

NORTH AMERICA

18. CARB Details Tougher Proposed ZEV Mandate For Heavy-Duty Trucks

The California Air Resources Board (CARB) is detailing more stringent requirements in its landmark proposed rule requiring medium- and heavy-duty truck makers for the first time to sell

a minimum number of zero-emission models starting in model year 2024, drawing praise from environmentalists and continued opposition from manufacturers.

“Our initial reaction is that the structure of the rule has not changed and remains fundamentally flawed,” the Truck & Engine Manufacturers Association (EMA) said in an April 29 email comment.

“The rule still only consists of a naked sales mandate that would require traditional manufactures to sell a certain amount of zero-emission trucks,” the group adds. “It fails to include a corresponding mandate for the purchase of zero-emission trucks. Additionally, the proposed rule still does not to address the significant investments needed to establish a unique charging infrastructure for commercial trucks.”

In contrast, Patricio Portillo, transportation analyst at the Natural Resources Defense Council, says the “updated proposal shows CARB is listening to the experts instead of special interests,” according to an April 28 press release by a coalition of environmental and labor groups. “California continues to double down on essential environmental regulations that grow jobs and safeguard public health, while protecting our climate and the air we breathe.”

CARB is expected to give final approval to the “Advanced Clean Trucks” (ACT) regulation -- final revisions for which were released April 28 for a 30-day public comment period -- during its June 25-26 meeting.

In December, CARB directed its staff to significantly tighten the proposal before returning it for final approval, partially in response to months-long pressure from environmental, health and labor groups that argued the original plan would not cut enough conventional pollutants and greenhouse gases, and that board staff vastly underestimated the market for advanced technologies.

The final proposal reflects changes outlined by staff during a February workshop, according to a notice and summary of the changes.

Key aspects that were toughened from the original proposal include increasing the required percentage of zero-emission vehicle (ZEV) sales in California across all vehicle groups from MY24-30 and boosting percentage requirements from MY30-35 rather than keeping them constant during that period.

In addition, the measure includes pickup trucks in the ZEV sales requirement for the Class 2b-3 vehicle group beginning in MY24, rather than excluding them until 2027.

“This change will increase the number of minimum ZEVs required to be sold in the Class 2b-3 vehicle group in 2024 through 2026 and is supported by new information in recent market announcements showing that a number of zero emission pickup and additional van models will be commercially available from several manufacturers well before the 2024 model year,” the notice states.

Increases in the Class 7 and 8 heavy-duty tractor group sales percentages, according to the rule, “are necessary to ensure there are sufficient tractor sales to meet the goal of achieving an all zero-emission drayage fleet by 2035, which would directly benefit disadvantaged communities. In combination, these changes would increase ZEV sales in all vehicle size categories and would provide a clear path towards achieving carbon neutrality by 2045.”

According to the rule text, ZEV sales percentages required of manufacturers for pickup trucks are: 5 percent for MY24; 7 percent for MY25; 10 percent for MY26; 15 percent for MY27; 20 percent for MY28; 25 percent for MY29; 30 percent for MY30; 35 percent for MY31; 40 percent for MY32; 45 percent for MY33; 50 percent for MY34; and 55 percent for MY35 and beyond.

For Class 4-8 trucks, the ZEV sales percentages are: 9 percent for MY24; 11 percent for MY25; 13 percent for MY26; 20 percent for MY27; 30 percent for MY28; 40 percent for MY29; 50 percent for MY30; 55 percent for MY31; 60 percent for MY32; 65 percent for MY 33; 70 percent for MY34; and 75 percent for MY35 and beyond.

And for Class 7-8 heavy-duty trucks, the ZEV sales percentages are: 5 percent for MY24; 7 percent for MY25; 10 percent for MY26; 15 percent for MY27; 20 percent for MY28; 25 percent for MY29; 30 percent for MY30; 35 percent for MY31; and 40 percent for MY32 and beyond.

The environmental group coalition claims that by 2030 the regulation could result in roughly 100,000 zero-emission trucks on California roads, and as many as 300,000 in 2035.

CARB staff is also proposing changes to provide additional flexibility for manufacturers that produce a small number of tractors each year, and changes to ZEV and near-ZEV (NZEV) credit lifetimes “to align credit life for manufacturers with California’s Greenhouse Gas Phase 2 regulations,” the notice says.

NZEV credit would also be extended for an additional five years -- from 2030 to 2035 -- for vehicles that achieve more than 75 miles of all-electric range, staff notes.

Overall, the proposed changes “are necessary to meet Board direction by strengthening ZEV sales requirements consistent with vehicle availability and technological feasibility,” the notice adds. “These changes would ensure long-term market signals are placed to help achieve carbon neutrality in California by 2045. Additionally, streamlining and clarifying large entity reporting is necessary to meet Board direction and stakeholder concerns, while ensuring critical information is gathered to support future rulemakings.”

EMA says that while its member companies are “investing billions in developing zero-emission technologies and support expanding the market for heavy-duty ZEVs,” CARB’s final proposal “doubles down on a narrow and flawed regulatory structure. A more comprehensive approach, along the lines that we proposed to the Board in December, is needed to address the complex challenges of establishing a zero-emission commercial truck market in California.”

19. California Sues To Force Disclosure Of ZEV Preemption’s Air Effects

California has launched a suit to compel EPA and the Department of Transportation to disclose records supporting the Trump administration’s conclusion that the agencies’ September rule preempting state zero-emission vehicle (ZEV) regulations will not harm air quality.

The suit, California Air Resources Board (CARB) v. EPA and National Highway Traffic Safety Administration (NHTSA), was filed May 15 in the U.S. District Court for the District of Columbia. It urges the court to force disclosure of records related to any such air pollution conclusions under the Freedom of Information Act.

The state alleges that the two agencies are stonewalling requests for the information because they did not actually analyze the air pollution implications of their rule, which withdrew a 2013

waiver of federal preemption under the Clean Air Act that allowed California to enforce its ZEV rule and separate greenhouse gas standards for light-duty vehicles.

The agencies' rule also had the effect of blocking about a dozen other state ZEV programs, which were based on the California standards.

"On information and belief, EPA is refusing to comply with its obligations under FOIA in order to avoid admitting that it cannot locate any records supporting its conclusions," the suit says.

If such a statement were true, it could undermine EPA and NHTSA's defense of their preemption rule, by bolstering critics' arguments the administration arbitrarily attacked state programs, including by ignoring "compelling and extraordinary conditions" that justify California's ZEV program under the Clean Air Act.

In the September final rule, the administration offers the hotly contested claim that the Obama EPA lacked legal authority to grant the waiver for the programs in the first place. Essentially, the agencies argued that the programs were largely focused on climate change and not air quality, and that the ZEV standards have little criteria pollutant benefits given other regulations. California for decades has easily cleared the "compelling and extraordinary" bar by citing its infamous air quality problems.

But the administration's arguments rely on downplaying the air quality benefits of the ZEV programs. CARB's new lawsuit notes that neither EPA nor NHTSA "provided analysis supporting their conclusions of no criteria emissions impacts from" the rule.

The lawsuit comes in the wake of December requests to the agencies for "all emissions analyses and other records" to support claims that revoking ZEV authority would not boost emissions of criteria pollutants.

CARB also sought records from EPA with respect to the rule's effect on attainment of air quality standards, and from NHTSA with respect to the agency's conclusions that ZEV preemption would not disrupt the state's obligations to show transportation projects meet Clean Air Act "conformity" requirements.

But CARB in its lawsuit says failure to disclose the information violates FOIA. It urges the court to compel disclosure of the information, arguing it is both necessary to evaluate the rule's air quality conclusions and "useful for ongoing litigation on the merits of the" preemption rule.

Litigation against the preemption rule is still at an early stage, with parties sparring over when opening briefs will be due and experts suggesting a merits ruling by the U.S. Court Of Appeals for the District of Columbia Circuit is unlikely before the end of the current presidential term.

"We simply want U.S. EPA and NHTSA to show their work," Air Board spokesman Dave Clegern said in an email. "Without seeing this analysis, it is virtually impossible to determine how the two agencies concluded that putting millions of dirtier vehicles on the road would not have an impact on air quality."

"These actions are serious and consequential," the lawsuit said. "They threaten public health and the environment, undercut incentives for innovation that drive economic growth, and contravene the cooperative federalism structure established by Congress."

Neither agency would reveal the analysis supporting its actions, the California Air Resources Board said in its lawsuit. CARB filed Freedom of Information Act requests in December.

EPA said later that month it was processing the request, but by February had extended its due date to respond to Dec. 31, 2020.

“EPA did not identify any lack of clarity in CARB’s request or identify clarification or fees as the reason for the unauthorized unilateral extension of time by nearly a year,” the lawsuit said.

By contrast, the state said NHTSA never responded to the public records request at all.

Attorneys for the state want a judge to force the agencies to do new records searches and turn over documents, including a list of those withheld, by a date certain, and to award attorney’s fees and costs.

California is separately fighting the wavier revocation in the U.S. Court of Appeals for the District of Columbia Circuit.

The new suit also comes amid a separate but related battle between EPA and environmental groups seeking disclosure of the agency’s so-called “OMEGA” model for analyzing the costs of GHG requirements. (See story below.)

20. EPA, Critics Reach ‘Tentative Deal’ On Release Of Vehicle GHG Model

EPA and environmentalists appear to have reached a “tentative deal” for the agency in early June to release a computer model that could highlight questionable assumptions behind its rollback of vehicle greenhouse gas standards, assuming the government does not appeal an appellate ruling that requires disclosure of the data.

If the long-sought modeling is released on that schedule, environmental groups would have about three weeks to assess the information ahead of a June 29 deadline for filing administrative petitions to reconsider aspects of the vehicle rollback.

One source familiar with the case says such a filing would likely be “one of the earliest uses” of such data in challenging the joint rollback issued by EPA and the National Highway Traffic Safety Administration (NHTSA).

At issue is EPA’s “OMEGA” model used to evaluate the costs of technologies for curbing auto GHGs. While EPA has used that model in prior rules, its just-issued rollback relied instead on a NHTSA tool known as the Volpe model. And critics have cited the likelihood that independent analysis using the latest OMEGA model could undercut administration claims that Obama-era vehicle GHG standards are too costly.

The U.S. Court of Appeals for the 2nd Circuit in an April 1 ruling in Natural Resources Defense Council (NRDC) and Environmental Defense Fund (EDF) v. EPA overturned a district court ruling that the model was “deliberative” and exempt from disclosure under the Freedom of Information Act.

While some suggest the two sides might be nearing agreement on release of the model, sources also decline to rule out the possibility that the government could further delay its release by urging the full 2nd Circuit to rehear the decision.

An April 30 letter from NRDC and EDF to the district court suggests the government may have reached the point of diminishing returns in continuing to block disclosure, having already succeeded in blocking release of OMEGA during the extended rulemaking process.

The letter says “EPA consents” to the groups’ request that the district court compel release of OMEGA within 10 days after the appeals court issues its mandate implementing the April 1 ruling.

Under established procedures for the two courts, that would mean release of the model by June 5, taking into account an April 16 order from the 2nd Circuit, which declined the groups’ push to expedite issuance of the mandate but also warned EPA against expecting more time to decide on a potential appeal.

Under that timeline, the government has until May 18 to decide whether to pursue an appeal.

“You won’t know for sure whether EPA is going to seek rehearing until the May 18 deadline passes,” the source familiar with the case says, while also saying the environmental groups’ April 30 letter signals a “tentative deal” for release of the model.

Another source tracking the issue says that even if the government files an appeal -- in an effort to thwart groups’ use of the modeling results in reconsideration petitions -- critics of the rollback have other legal arguments available to them.

Those include a claim that EPA and NHTSA’s lack of consideration of the OMEGA tool is improper, an issue already raised during public comments.

There are also lingering questions about the extent to which the final rule’s downward revisions to estimated compliance costs for the Obama rules -- compared to the 2018 proposal that found relatively high costs -- might blunt the effect of publicly releasing the OMEGA data.

But sources have previously suggested that release of OMEGA would still open up the rollback to new scrutiny, particularly given that EPA’s modeling has generally offered a more optimistic take on the costs for complying with GHG mandates, compared with NHTSA’s analysis. “It will be even more clear to the public how dangerous and harmful to the economy this rollback really is,” NRDC’s Pete Huffman said April 1 in reaction to the 2nd Circuit ruling.

21. In Surprise, EPA & NHTSA Strongly Defend Trailer GHG Rule

EPA and the Transportation Department in a surprise move are urging a federal appeals court to uphold Obama-era greenhouse gas regulations for trailers that connect to heavy-duty, long-haul trucks, a move that comes after the agencies for years considered whether to scrap the trailer standards.

Environmental groups and states intervened in the case in order to defend the trailer GHG standards -- which comprise roughly 10 percent of the benefits of the agencies broader Phase 2 GHG rule for heavy trucks -- with the expectation that the Trump administration would not do so.

“The short answer is that we were not sure whether EPA and [the National Highway Traffic Safety Administration (NHTSA)] would defend the rule. It is good that they are doing so as we think their position is correct,” says Alice Henderson of the Environmental Defense Fund (EDF). She adds that in the early stages of the case, the agencies’ support for the standards was uneven. “Here,

however, they have offered a full-throated defense of the agencies' independent authorities to adopt the trailer standards. . . . At the same time, the brief reiterates that the agencies are reconsidering the standards, so we remain concerned that they will attempt to weaken or repeal them."

In an April 21 filing in *Truck Trailer Manufacturers' Association (TTMA) v. EPA, et al.*, before the U.S. Court of Appeals for the District of Columbia Circuit, the agencies say that in the 2016 final rule, "NHTSA exercised its discretion to determine that" the Energy Independence & Security Act (EISA) "is sufficiently broad as to permit the agency to regulate trailers as standalone vehicles as part of a fuel-efficiency program for heavy-duty vehicles. . . . That interpretation of the statute should be upheld."

It adds that the Clean Air Act "likewise authorizes EPA's regulation of greenhouse gas emissions from tractor-trailer vehicles. EPA has found that a tractor-trailer is a 'motor vehicle' within the meaning of the act."

The response brief, by the Department of Justice (DOJ) on behalf of both agencies, is the first time the Trump administration has weighed in substantively on the trailer GHG rule. The administration in December agreed to let the case resume, though it did not state at the time whether it would defend the rules on their merits. Previously, EPA did not oppose TTMA's 2017 request that the court stay its GHG rules.

The new DOJ filing adds that TTMA's argument that trailers should not be considered vehicles because they do not consume fuel does not mesh with EISA's definition of vehicles.

The group "fails to identify clear evidence that Congress sought to preclude NHTSA from exercising its statutory discretion to regulate trailers. Rather, the Association's arguments merely reflect ambiguity in the statute: Congress did not address the question of whether the agency could regulate trailers. Because the statute is ambiguous, and NHTSA's interpretation is a permissible one, the Association's concerns are properly directed to the agency, which is undertaking further rulemaking to address the issue."

The "further rulemaking" refers to TTMA's petition to reconsider the trailer portion of the rule, which both agencies accepted in August 2017. The court then put this case in abeyance the following month and held that EPA's trailer standards, which were to be implemented in 2018, could not take effect.

TTMA did not seek a stay of the NHTSA standards, which are slated to take effect in early 2021. That looming deadline prompted TTMA to ask the court to restart the case late last year, given the agencies had not publicly made progress on their administrative reconsideration.

The court filing also notes that EPA's GHG standards are "premised on the application of feasible emission-reduction technologies to both halves of the motor vehicle: tractors and trailers."

DOJ asks the court to grant the agencies Chevron deference to interpret ambiguous statutory language and uphold their interpretation that they have authority to regulate GHGs from trailers. It also urges the court to treat each rule as severable if it decides that one does not have authority.

The intervenors' brief will be filed by California, Connecticut, Iowa, Massachusetts, Oregon, Rhode Island, Vermont and Washington along with the Sierra Club, Natural Resources Defense

Council, Environmental Defense Fund, Center for Biological Diversity and the Union of Concerned Scientists.

These state and environmental groups warned December 13 that they may be the only parties to support the standards, noting that prior statements from the Trump EPA and NHTSA “leave significant uncertainty as to whether they will defend the rule under review.”

TTMA offered its own first-time legal arguments in a February 10 opening brief, including that the court should not give the agencies deference to claim authority to regulate GHGs from trailers. The brief also claimed that the D.C. Circuit “previously concluded in granting a stay, EPA lacks statutory authority to regulate trailers.”

The industry group added that EPA’s “unprecedented theory -- that trailers can be regulated as ‘incomplete vehicles’ -- is both legally and factually incorrect.”

22. Trucking Firm Details Claims In Suit Against CARB GHG Truck-Trailer Rules

A California trucking company that has previously successfully sued the state air board over its emission regulations is detailing arguments in a new challenge to the board’s greenhouse gas standards for medium- and heavy-duty trucks and trailers, charging officials violated environmental and procedural statutes during the approval process.

The California Air Resources Board (CARB) “completely side-stepped its obligations under [the] California Environmental Quality Act” (CEQA), “by finding the Proposed Amendments were ‘exempt’ from CEQA,” states an April 10 opening brief by attorneys representing the trucking company John R. Lawson Rock & Oil, Inc., in Fresno County Superior Court.

The company also argues CARB “declined to prepare a full economic analysis of the Proposed Amendments under the California Administrative Procedure Act” (APA). “Specifically, CARB asserted it need not prepare a” Standardized Regulatory Impact Assessment (SRIA) for the proposed amendments “because its provisions overlap significantly with federal regulations recently adopted by” EPA and the National Highway Traffic Safety Administration (NHTSA). “Both of these conclusions are erroneous.”

CARB’s Phase 2 truck rule largely copied existing EPA rules, though its trailer amendments went beyond federal requirements.

Initially filed in January 2019, Lawson’s case over CARB’s Phase 2 GHG rules for trucks and trailers could have broader ramifications for how CARB approves air quality rules and complies with CEQA, including during a sometimes controversial “15-day” change process that follows initial board approvals.

CARB’s process of changing regulations after the board has given them initial approval -- and sometimes allowing the executive officer to sign off on the final versions of rules -- has been the source of increasing controversy.

Some critics -- including Lawson’s attorneys -- allege that this process sometimes allows the board to skirt additional CEQA review following initial approvals, and that the changes CARB staff makes during the 15-day periods are often significant and should require additional board reviews and votes.

The judge in the case, Kristi Culver Kapetan, last May ruled that Lawson has standing to bring the suit but that the company's financial hardship and other claims were unripe. She allowed the case to proceed on the merits of the alleged CEQA and APA violations.

23. Cities And States Leading The Way On New Electric Vehicle Incentives

States, cities, and utilities from coast to coast are expanding programs to encourage EV adoption and new charging infrastructure. The pause in driving and reduced pollution during the pandemic is encouraging authorities to promote electric cars. These local efforts come as the federal government weakens emissions standards.

Chargers for Arizona Businesses

In Arizona, the Tucson Electric Power Co. is now covering up to 85% of the cost of installing electric vehicle charging stations for business customers and local nonprofits. The TEP Smart EV Charging program offers rebates of \$4,500 per charger for Level 2 chargers installed at workplaces, including retail shops, restaurants, and other businesses. The program also provides \$6,000 per port for Level 2 chargers installed by apartment and condominium complexes or by nonprofit organizations.

Businesses that install DC fast-chargers are eligible for rebates of up to \$24,000 per charging port, up to 75% of the project cost. The incentives were approved by the Arizona Corporation Commission last year, along with rebates for home customers who install EV charging equipment, and special residential rates for charging EVs during off-peak hours.

Chicago Requires Buildings To Be EV-Ready

The Chicago City Council passed an ordinance to ensure that more residential and commercial developments are equipped to support electric vehicles. At least 20% of parking spots must be ready for EV chargers in new residential buildings with five or more dwelling units and commercial buildings with 30 or more parking spaces. One of those spaces needs to be accessible for people with disabilities.

The Chicago Transit Authority's bus fleet will be all-electric by 2040.

Connecticut Wants 10x The Number Of Evs

Connecticut released a report in April that sets a path for getting at least 10 times as many electric vehicles on Connecticut roadways by 2025. The state is continuing to process rebates under the Connecticut Hydrogen and Electric Automobile Purchase Rebate program, or CHEAPR. Legislation passed last year established a new governing board for the program and \$3 million in annual funding from 2020 to 2025.

EVs with at least 200 miles of range get a \$1,500 rebate, while lower range electric cars and plug-in hybrids get a \$500 rebate. The Connecticut EV Coalition, an advocacy group, called on the state to increase funding for the program.

The state Public Utilities Regulatory Authority is concurrently conducting a major review of how best to integrate electric vehicles onto the grid.

Denver Creates EV Action Plan

Denver has released its “Electric Vehicle Action Plan.” By 2025, Denver’s government wants to see electric vehicles make up 15% of all vehicles registered in the city, with that share doubling by 2030. At its current pace, Denver would see about 83,600 EVs, or 10 percent of all registered vehicles, in the city by 2030.

The city has about 400 public charging spots, which are free. The plan calls for that number to grow to 4,000 stations.

State lawmakers passed a law in 2016 that forces car dealers to more than double their EV sales by 2030 — from 2.6% to 6.2% of statewide sales. But a statewide tax credit for EV buyers once worth \$5,000 will be worth half that next year. The new action plan recommends a tiered approach to rebates and incentives for electric vehicles to provide greater support for low-income residents, with options to opt for alternate modes such as e-bikes or transit pass incentives.

The precedent for these state and city initiatives was set in January when New Jersey Governor Phil Murphy signed Senate Bill 2252 into law. That initiated a rebate of up to \$5,000 per vehicle for the next 10 years.

New Jersey has about 25,000 registered EVs on its roads. The Senate bill sets the goal of 330,000 EVs on state roads by 2025, increasing to 2,000,000 by 2035. Senate Bill 2252 calls for 400 additional DC Fast Chargers, and a 1,000 Level 2 chargers.

The bill grants the Board of Public Utilities the authority to establish an incentive program for the purchase and installation of in-home electric vehicle charging equipment up to \$500 per person.

In January, Governor Murphy said, “By establishing aggressive goals and strong incentives for electric vehicles, we are repositioning our economy and state for a clean future.”

24. GM Closes In On The Million-Mile EV Battery

GM’s Ultium batteries, introduced in March, have stackable, pouch-style cells for flexibility. Multiple teams at the automaker are also working on such advances as zero-cobalt electrodes, solid state electrolytes and ultra-fast charging batteries, with plans to develop batteries that can rack up to 1 million miles.

General Motors is “almost there” on developing an electric vehicle battery that will last one million miles, a top executive said recently.

The automaker also is working on next-generation batteries even more advanced than the new Ultium battery that it unveiled in March, according to GM Executive Vice President Doug Parks, who was speaking at an online investor conference.

He did not specify a timeline for introduction of the million-mile battery but said “multiple teams” at GM are working on such advances as zero-cobalt electrodes, solid state electrolytes and ultra-fast charging.

Current EV batteries typically last 100,000 to 200,000 miles.

Reuters reported (See story below.) in early May that Tesla, in partnership with Chinese battery maker CATL, plans to introduce its own million-mile battery later this year or early next.

CATL provides battery cells to other vehicle manufacturers and has supply agreements in China with GM and its local partner SAIC Motor.

GM unveiled its Ultium advanced battery system in March. It recently said its \$2.3 billion battery production joint venture in Ohio with Korean partner LG Chem will be called Ultium Cells.

GM and LG Chem are pursuing a variety of ways to reduce battery costs, Adam Kwiatkowski, executive chief engineer of GM's electric propulsion systems, told another online investor conference. The partners are investigating such initiatives as investing in mines, hedging metals prices and partnering with metals refiners, he said.

GM Chief Executive Mary Barra reiterated earlier this year that the automaker intends to sell 1 million EVs a year in 2025 in the United States and China.

25. EPA's Potential Testing Tweak Could Be 'Backdoor' Vehicle GHG Rollback

EPA is weighing an industry-sought alternative on compliance testing procedures for its vehicle greenhouse gas standards that could effectively weaken the stringency of the program even beyond the agency's just-finalized rollback.

If EPA were to finalize the alternative approach, it is a "backdoor way of weakening the [GHG] standard," a former agency official told the press.

The option surfaces in a proposed rule signed by EPA chief Andrew Wheeler April 1 that would adjust vehicle GHG and fuel economy compliance testing to account for updated test fuels reflecting current gasolines that include ethanol.

The agency's testing proposal would generally not change the effective stringency of the separately promulgated vehicle fuel economy standards.

But an alternative approach included in the proposal would decline to make the adjustment with respect to the GHG requirements, despite a prior agency report, referenced in the proposed rule, showing that the new test fuels reduce carbon dioxide emissions by 1.6 percent on average.

By not accounting for the emissions improvement from the test fuels, a move by EPA to retain the test procedures could essentially negate the rollback's nominal requirement to curb GHGs by 1.5 percent annually -- largely returning the GHG program to the regulatory freeze that Trump officials first proposed to heavy criticism.

If the agency sticks with its core proposal, however, the standards' stringency would be unchanged, the former official adds, while also voicing no objection to the proposal's approach for calculating compliance with the Transportation Department's fuel economy rules.

The test procedure proposal has not yet appeared in the Federal Register, though once it does it will be subject to comment for 90 days.

At issue is a long-promised EPA plan to factor so-called “Tier 3” test fuels into compliance calculations for GHG and fuel efficiency standards, in the wake of a 2014 rule requiring the new test fuels as part of a broader update to light-duty vehicle criteria pollutant standards.

The test fuel changes were necessary to bring certification fuels in line with current gasolines that, among other characteristics, include ethanol. In contrast, the prior “Tier 2” test fuel does not.

EPA has already estimated that the fuel creates changes in emissions and performance -- on average lowering GHGs while also improving fuel economy -- meaning that the switch to a new test fuel would effectively modify the stringency of GHG and fuel economy limits unless additional steps are taken to “true up” testing procedures with the new test fuels.

26. CARB Approves Amendments to Reduce NOx Emissions in B20 Biofuels

The California Air Resources Board has conditionally approved a slate of regulatory amendments intended to more closely monitor the additives blended into B20 biodiesel that so far have not been deemed effective at mitigating oxides of nitrogen in the alternative diesel fuel.

However, opposition from biodiesel industry representatives persuaded the board to invoke its 15-day rule, giving CARB Executive Officer Richard Corey discretion to tweak the rule before it becomes official.

“I’m frankly a little taken aback by the response from our many friends and constituents in the biodiesel industry in this one,” CARB Chair Mary Nichols said. “I don’t think that was certainly where we started.”

In an April 23 presentation to the CARB board, staff members said that recent testing conducted by the University of California-Riverside on six additives to B20 biodiesel showed they failed to “effectively mitigate to the regulatory standard.”

“The test results raise significant questions both as to the specific additives addressed by the testing, and regarding how best to ensure appropriate performance of additives and formulations generally under CARB’s Alternative Diesel Fuel regulation going forward,” the university testers reported.

The university testing raised significant questions after six specific additives were tested, leaving the state’s environmental regulators pondering how best to ensure appropriate performance of additives and formulations generally under the ADF regulation going forward.

CARB’s alternative diesel fuels regulation, originally adopted in 2015, governs the introduction and use of B20 biodiesel, which currently accounts for from one-fourth to one-third of all biodiesel on the California market, according to Jim Guthrie of CARB’s Industrial Strategies Division.

“Biodiesel is one of the low-carbon fuels that has greenhouse gas emission benefits, and also has particulate matter benefits,” Guthrie told board members attending the April 23 virtual meeting. “However, biodiesel use in limited circumstances has been shown to increase NOx emissions, leading to air quality and public health impacts.”

NOx emissions from B20 biodiesel additives tend to be higher in older engines, according to CARB.

The modification to the regulation, which becomes effective January 1, calls for biodiesel fuel blending and emissions testing to be observed by independent state-licensed professional engineers at two emissions-testing labs, and tougher chain of custody requirements.

While the new regulation is aimed at biodiesel producers, truckers care about what is dumped in the biodiesel fuels they use, said Glen Kedzie, environmental affairs counsel for American Trucking Associations. "Fleets pay dearly to reduce NOx emissions, and we don't want to pay more for advanced technologies to offset NOx increases from the use of biodiesel," Kedzie said.

Biodiesel producers at the meeting spoke in opposition to the amendments, saying they were too hastily produced and could harm their businesses. "We have never been opposed to a CARB rulemaking or amendment package," Scott Hedderich, executive director at Renewable Energy Group Inc., told the board. "More time is needed to get this amendment right."

Hedderich said the agency's math used to calculate blends is wrong, the two-lab testing requirement is unprecedented, lab costs are excessive, and the new requirement reflects a lack of understanding of the market.

"We are concerned primarily with two issues about the ADF rule as it may present barriers to our business," Mary Solecki, representing World Energy, told the board. "These issues are the proposed blender issue and the dual lab certification."

The Truck and Engine Manufacturers Association also opposed the amendments. "Engine manufacturers remain concerned that the use of alternative fuels will negatively impact engines' ability to demonstrate compliance with in-use emission requirements and onboard diagnostic requirements given the potential disparity in fuel properties between alternative fuels and California petroleum diesel fuel," EMA wrote in comments to CARB earlier this year. "The lack of any evaluation of the long-term emissions influence of alternative fuels, during the development of both the previous rulemaking and the January 2020 proposal, continues to raise significant concerns."

27. Biden Calls For 'Aggressive' GHG Rules

Former Vice President Joe Biden, the presumptive Democratic candidate for president, is reiterating his pledge to require "aggressive" new climate change regulations for vehicles and the oil and gas sector if he is elected in November, while also issuing a new promise to hold a global climate summit early in his administration.

His campaign in an April 22 "fact sheet" outlines nine elements of his broader climate and environmental agenda, with many provisions restating portions of his plan that was first released last summer.

For example, the document renews a pledge that on "Day 1" of his administration, Biden would direct EPA to set "aggressive" methane limits for new and existing oil and gas operations. He also pledges "rigorous" fuel economy standards that would aim for all sales of light- and medium-duty vehicles to have zero emissions by an undefined date.

Heavy-duty trucks would require "annual improvements" in fuel efficiency.

Biden also restates a call for Congress to enact legislation in 2021 setting an "irreversible path" toward achieving economy-wide net-zero carbon emissions by 2050. The bill must also "require

polluters to bear the full cost of the carbon pollution they are emitting,” the document says, re-purposing language from Biden’s June 2019 plan that many observers interpreted as an allusion to carbon pricing.

On international climate efforts, Biden is making what appears to be a new promise to “convene a climate world summit” within his first 100 days in office -- or roughly the end of April 2021 -- to “directly engage the leaders of the major greenhouse gas-emitting nations of the world to persuade them to join the United States in making more ambitious national pledges, above and beyond the commitments they have already made.”

Additionally, Biden has been signaling that he will be enhancing his climate agenda in the coming weeks, including by setting shorter-term carbon reduction targets.

He recently created a “task force” with his former rival, Sen. Bernie Sanders (I-VT), to identify possible changes to this plan and has been reportedly consulting on the issue with former staffers to Washington Gov. Jay Inslee (D), who made climate change the centerpiece of his failed bid for the Democratic nomination last year.

While countries under the Paris Agreement had faced a December 2020 deadline to submit revised GHG goals, that deadline has been delayed because this fall’s United Nations climate conference in Scotland is postponed due to the coronavirus pandemic.

Some climate experts have said the postponement could have a silver lining in that it gives countries additional time to ramp up their GHG pledges, and Biden’s planned summit appears to align with this push.

“I don’t think that a crises-induced postponement is the thing to worry about. I worry about the development of political will at the highest levels in countries all over the world” to upgrade the ambition of their climate pledges, said Todd Stern -- President Barack Obama’s U.N. climate envoy and a key negotiator for the 2015 Paris accord -- during an April 20 Brookings Institution webinar.

Stern also noted that the U.S. political ambition on climate could dramatically reverse if Biden succeeds in denying a second term to President Donald Trump in the November 3 election.

Biden has long said he would quickly reverse Trump’s decision to leave the Paris deal, and that he would push other countries for tougher action on carbon emissions. However, his call for a new “summit” on the issue next spring appears to be new.

Release of the fact sheet came on the 50th anniversary of Earth Day, when Biden also rolled out a pair of high-profile, climate-focused endorsements: former Vice President Al Gore and Governor Inslee. Both said they believed Biden would make climate policy a top priority if elected, aiming to assuage concerns from environmentalists and others who have been uninspired by Biden’s approach to the climate issue.

“If there is any person in America who cares about the climate crisis and has any doubt whatsoever about the importance of voting for Joe Biden this November, I want to emphasize to that person in as strong a way as I possibly can: This is not complicated,” Gore told the Associated Press. “This is not rocket science. This is not a close call.”

Gore and Inslee's endorsements further a trend in which major Democratic figures are consolidating their support behind the party's likely nominee, after Biden recently earned the backing of two progressive former rivals -- Sanders and Sen. Elizabeth Warren (D-MA) -- as well as Obama.

Other elements of Biden's plan that he is highlighting are a push to boost spending on clean energy research and development; a target to halve the carbon footprint of U.S. buildings by 2035, including "deep retrofits"; requiring all agencies to create "solutions" to address environmental justice concerns; a pledge to hold "polluters accountable" through tough civil and criminal enforcement; creating 10 million jobs tied to clean energy and infrastructure deployment; and providing health and economic aid to fossil fuel-dependent communities.

28. SCAQMD Awards Volvo \$2M To Test Electric Heavy Equipment



Volvo Construction Equipment was awarded a \$2 million grant for a commercial pilot of the company's electric, zero emission excavator and electric wheel loader in California. The grant, administered by the South Coast Air Quality Management District (South Coast AQMD), is funded by the U.S. Environmental Protection Agency's (EPA) Targeted Air Shed Grant Program, which helps agencies develop plans and conduct projects to reduce air pollution in areas with the highest level of smog and soot in the United States. South Coast AQMD is responsible for attaining state and federal standards by improving air quality in the South Coast Air Basin of California.

Volvo CE will invest another \$1.5 million on top of the awarded amount, which will raise the total project amount to \$3.5 million.

The grant aims to accelerate the deployment of zero emission technologies for off-road mobile equipment, which is one of the major contributors to nitrogen oxide (NOx) emissions in the South Coast Air Basin. The South Coast AQMD region includes Orange County and major portions of Los Angeles, San Bernardino and Riverside counties, including the Coachella Valley.

“Off-Road Construction equipment accounts for 43 tons per day of NOx emissions in the South Coast Air Basin,” said Wayne Nastri, executive officer for South Coast AQMD. “We look forward to working with Volvo as they pave the way for the development of zero emission technologies in this sector.”

Volvo CE’s electric compact ECR25 excavator and L25 wheel loader are currently being developed and tested in Europe. Volvo CE will adapt some configurations previously developed for the European program and demonstrate the machines in real-life applications for a minimum of six months in California. Tests will start during the second half of this year – September for the excavator and December for the wheel loader. Three customers in the South Coast Air Basin area will be selected to test the machines. The results of these demonstrations, together with customer feedback, will be reported to South Coast AQMD.

29. Supreme Court Declines Review Of Suit Testing RFS Compliance ‘Point’

The Supreme Court has declined to hear refiners’ appeal of a suit testing the compliance “obligation point” in EPA’s renewable fuel standard (RFS), letting stand three U.S. Court of Appeals for the District of Columbia Circuit rulings that upheld the agency’s refusal to shift the RFS’ compliance burden from refiners to fuel blenders.

The decision, announced in the justices’ May 18 order list, shifts attention back to pending D.C. Circuit suits over the 2019 and 2020 RFS rules where the obligation point is an issue. And it could also increase the focus on the compliance burden in EPA’s pending 2021 RFS proposal undergoing White House review.

Refiner Valero and the American Fuel and Petrochemical Manufacturers (AFPM) previously filed a petition for certiorari with the Supreme Court asking it to review EPA’s refusal to consider moving its compliance burden to other entities, such as fuel blenders. Their petition cited three rulings by the D.C. Circuit in which the lower court upheld EPA’s refusal to move the obligation point, either in its annual RFS rules setting biofuel blending volumes for the coming year, or in an agency reconsideration proceeding.

The petitioning refiners argued that EPA far exceeded its statutory authority under the Clean Air Act by declining to regularly review whether the compliance obligation fell on the correct parties. But the May 18 decision to deny cert in the case lets the rulings -- and EPA’s position on retaining the existing obligation point -- stand for now.

Under the RFS, refiners and importers must blend increasing volumes of biofuels into the fuel supply with lower greenhouse gas emissions than unblended gasoline. As “obligated parties,” they must demonstrate compliance by surrendering compliance credits, or renewable identification numbers (RINs), to EPA sufficient to cover their blending obligations. Smaller refiners that lack the capacity to blend their own biofuels have long argued that this places them at a competitive disadvantage to larger oil firms that blend their own biofuels and hence generate their own RINs. Smaller “merchant” refiners are forced to buy RINs at sometimes inflated prices, increasing their operating costs.

30. CASAC Chair Cox Decries ‘Bogus’ COVID-19 Air Pollution Study

Tony Cox, chairman of EPA’s influential Clean Air Scientific Advisory Committee (CASAC), is attacking as “bogus” a recent Harvard University study linking exposure to elevated levels of air pollution with worsened health outcomes from COVID-19 infection.

That study found that even small increases in fine particulate matter (PM_{2.5}) exposure is associated with a statistically significant increase in the COVID-19 death rate. It is the first study to examine the link between long-term particulate matter exposure and coronavirus risks in the U.S., and the results are consistent with other peer-reviewed studies finding a correlation between COVID fatalities and air pollution in Europe and, most recently, a preliminary analysis in Louisiana's Cancer Alley.

Cox made his remarks in an interview published April 27 in the Washington Examiner, which also featured a defense of the study by co-author Francesca Dominici, a senior researcher at the Harvard T.H. Chan School of Public Health.

An avowed skeptic of EPA's risk assessment methodology and of epidemiological studies, Cox has recently led the CASAC through reviews of federal air quality standards for particulate matter (PM) and ozone. EPA has issued a proposal to leave the PM standards unchanged, relying on a CASAC majority opinion shaped by Cox for support. The plan overrides advice from EPA staff scientists and former CASAC panelists to tighten standards for fine PM, or PM_{2.5}, which is blamed for many of the adverse health impacts associated with PM.

The Harvard study tied historic exposure to elevated levels of air pollution, and specifically PM_{2.5}, to worsened health outcomes from the current COVID-19 pandemic. It has already been cited by Democratic lawmakers and environmentalists to attack Trump EPA deregulatory air rules. However, the study has not yet been peer-reviewed.

Cox in the April 27 interview said, "To me, this whole thing is a bogus piece of analysis," adding that, "It was rushed out without being properly vetted. It's technically unsound. It has sensational policy implications, none of which are trustworthy. I would have zero confidence in the published results of this study because its interpretation, design, and analysis are fundamentally flawed."

Cox in his tenure as CASAC chair has consistently warned that epidemiological studies on air pollution are too prone to "confounding" by other factors, such as underlying health conditions, weather or other pollutants. He argues for a tougher standard to claim "causation" of health effects, rather than merely "association" with health outcomes.

In the case of worsened COVID-19 outcomes, confounding factors might include higher population density and low socio-economic status in polluted areas, along with reduced access to healthcare, poor diet and high incidence of underlying health conditions, for example. Differentiating the role of air pollution in such a situation is therefore complex. Cox suggests the Harvard paper merely illustrates that "crowding matters" in the spread of COVID-19.

Dominici in her interview with the Examiner defends her findings as consistent with those of other studies around the world and says that the evidence raises a "red flag" that policymakers should not ignore. She said that in fact the team considered potential confounding variables such as population density and separately analyzed urban and rural counties, with "very similar" results.

According to H. Christopher Frey, who has studied air pollution for over 30 years and chaired EPA's Clean Air Scientific Advisory Committee from 2012 to 2015, the Harvard study linking fine particulate matter exposure and worsened coronavirus outcomes "is no doubt the first of more to come." He said the Harvard researchers behind this study previously published epidemiological research showing the harmful effects of human exposure to fine particles, which is part of a robust science indicating deadly impacts of fine particulate (or particle) air pollution.

“What is lost in the media coverage of the recent Harvard study is the strong causal link between human exposure to fine particles — before, during, and after the pandemic — and premature death,” Frey told the press. “There is strong evidence, based on multiple peer-reviewed studies that span a wide range of locations, population demographics, housing characteristics, and so on, that exposure to fine particles at levels below the current air quality standards causes premature death and numerous disease outcomes.”

But for Cox, who now leads the EPA advisory committee that Frey formerly chaired, the Harvard study’s findings are not convincing. “I would have zero confidence in the published results of this study because its interpretation, design, and analysis are fundamentally flawed,” he told the Washington Examiner.

“The statistical models developed by the Harvard team ignore crucial real-world interactions among risk factors, such as that PM2.5 cannot kill people where there are no people to kill,” Cox explained. He said the models also “omit crucial information and demographic variables” that could help explain reported associations. “For example, the model omits a variable, the ‘rural-urban continuum,’ that could help examine whether the reported association between PM2.5 and COVID-19 mortality risk is explained by the fact that both are higher in more crowded areas,” he said.

A group of 10 agriculture and biofuels organizations called out Cox’s dismissive comments in a May 8 letter to EPA Administrator Andrew Wheeler, a former coal industry lobbyist.

“The Harvard School of Public Health has done work with EPA for years. It is shocking to see the Clean Air Scientific Advisory Committee be so dismissive of such a highly respected independent party,” a spokesman for the group said in a press release. The letter also points to Cox’s close association with the American Petroleum Institute, with the letter describing him as “the proverbial ‘fox in charge of the chicken coop.’”

Tony Cox is a statistician focusing on risk analysis and is president of Denver-based consulting firm Cox Associates. He has a long history of consulting work on behalf of corporate clients including in the tobacco, fossil fuel, and chemical industries. His industry ties include work in service of tobacco giant Phillip Morris and trade associations such as the American Chemistry Council, National Mining Association, and the American Petroleum Institute (API).

Cox “has a history of attacking established research on the health risks of air pollution,” according to press reports, and his approach has been to emphasize scientific uncertainty and to question standard risk assessment. He has published studies, for example, that question the relationship between levels of fine particulate matter (PM2.5) and mortality rates.

One of those studies, published in 2017 in the journal *Critical Reviews in Toxicology*, was not only sponsored, but also copy-edited, by API, a major oil and gas industry trade group. According to E&E News, “Cox denied that API influenced his work and said the organization did not suggest any substantive changes.” Cox has done other research backed by API into air pollution and health risks, as well as the carcinogenic risks of benzene, a chemical in gasoline.

When asked whether his past industry funding sources could affect his research approach and stance on health risks of air pollution, Cox said the short answer is no. He defended his adherence to what he calls “sound science” that demands a “more exacting” analysis and higher burden of proof compared to the traditional weight-of-evidence approach. “I believe that adhering to

principles and methods of sound science, which leave no room for what funding sources believe or want, serves both science and the public interest far better than other approaches, and will continue to apply that approach in reaching conclusions,” Cox told the press.

The Harvard study, which links the type of fine particulate air pollution produced by cars and power plants to higher COVID-19 mortality rates, has been submitted for review and publication to the New England Journal of Medicine.

EPA’s Science Advisory Board (SAB) has been tasked with conducting a “rapid review” of a series of scientific issues surrounding COVID-19, including a “long-term” need to look into “Can particulate matter in the atmosphere serve as a vehicle for the transmission of SARS-CoV-2” -- the virus that causes COVID-19, according to an EPA “charge document.”

The panel will attempt to answer, “Does exposure to air pollutants, including wildland fire smoke or other air pollutants (e.g. ozone, particulate matter, diesel exhaust, pollen) increase the susceptibility to respiratory viruses like SARS-CoV-2? Or exacerbate existing COVID-19 infection?”

SAB will meet by teleconference to discuss these and other issues related to the disease. Cox is a member of SAB, which is chaired by Texas state toxicologist and frequent critic of EPA Michael Honeycutt.

31. Oil Industry Seeks To ‘Caution’ EPA, SAB On Use Of PM, COVID-19 Study

The oil and gas industry is urging EPA and its Science Advisory Board (SAB) to refrain from relying on a controversial study by Harvard University researchers concluding that exposure to particulate matter (PM) air pollution can increase the lethality of COVID-19 as the sole basis for determining research needs to address the virus.

As SAB prepares to hold an emergency meeting on EPA’s emerging coronavirus research strategy, the American Petroleum Institute’s (API) senior policy advisor Uni Blake wrote in an April 27 letter to “caution the Agency and panel from relying solely on the findings from this and similar studies to determine where to allocate resources and time.”

A review of the Harvard study, authored by Wu et al., “revealed some limitations that need to be addressed, especially, if the Agency chooses to pursue this line of research,” Blake wrote. She noted that the study “is among the few to preliminarily associate COVID-19 mortality with long-term PM2.5 exposures,” adding that it has not yet undergone peer-review.

And she suggested that some research questions EPA is already considering that rely in part on the study may be “premature.”

The Harvard study, led by Xiao Wu, finds that even small increases in long-term exposure to fine particulate matter (PM2.5) can increase health risks from COVID-19. The study has gained significant attention especially since EPA Administrator Andrew Wheeler announced earlier this month that the agency is planning to retain the current PM standards. Critics have also faulted the agency’s recent final rule discarding the legal basis for its regulation governing power plant mercury emissions, which has a co-benefit of limiting PM.

Citing the Harvard study, a group of 84 House lawmakers wrote Wheeler recently that this “flies in the face of scientific evidence linking air pollution to lethal COVID-19 outcomes.” But Wheeler

and his supporters have pushed back. For example, the administrator recently noted that the study has not been peer reviewed.

API makes a point similar to Cox's in arguing that Wu and colleagues "recently updated their findings and dropped the associated increase in COVID-19 cases from 15% to 8%, within two weeks of study's publication. An action that suggests some fragility in the overall study results and sets a precedent that the findings will likely continue to change due to the preliminary nature of the work."

Given API's concerns with the study, the group calls to SAB's attention two of the long-term research questions EPA proposes to investigate, "Does exposure to air pollutants, including wildland fire smoke or other air pollutants (e.g., ozone, particulate matter, diesel exhaust, pollen) increase the susceptibility to respiratory viruses like SARS-CoV-2? Or exacerbate existing COVID-19 infection?" and "Are there particular health risk factors (aside from preexisting conditions) that make certain individuals or subpopulations more sensitive or vulnerable to COVID-19, e.g., characteristics of the built environment, seasonal allergies, chronic exposure to aerosolized pollutants, demographic conditions, etc.?"

API says that while EPA's first question, a long-term research question EPA indicates ORD has already begun work on, "has merit, reliance on the existing body of COVID-19/air pollution literature ... is premature. The data used to inform this research is incomplete; therefore, the literature findings are preliminary and cannot be used to draw policy inferences. We urge the Agency to review the studies within the context of the study's limitations. If a decision is made to proceed, the limitations need to be addressed."

API points SAB members to an appendix in which the group lays out a series of concerns with the Wu study's design.

Regarding the second EPA research question, another long-term question but not one ORD has initiated work on, API urges EPA to the extent that it can to "work with other federal agencies in providing insight into the effect of emissions on public health outcomes, EPA studies should incorporate or at least consider the role of non-environmental factors on COVID-19 health outcomes to determine the appropriate policy action."

32. Senator Carper Connects Pollution to the Pandemic

A new report from the top Democrat on the Senate Environment and Public Works Committee connects the dots between the coronavirus, air pollution, and the EPA's actions since the pandemic took hold.

Early evidence hints that people who have experienced just one microgram per cubic meter of long-term exposure to particulate matter, and who are also infected by the virus, have an 8% greater likelihood of death, according to the report, released by Sen. Tom Carper (D-Del.).

One reason could be that people with irritated upper respiratory airways are more vulnerable to the virus, the report said. It also listed seven rules, proposals, or guidance documents the EPA has issued since March 1—ranging from mercury standards to wood heaters—that Carper said will make air quality worse.

"What we need is an EPA that harnesses all of its resources to help us better understand any links between air pollution and COVID-19 risks and takes steps to address them. Instead, what

we have is an agency taking actions that will increase air pollution and put public health at even greater risk,” Carper said in a statement.

Wheeler and the EPA pushed back against the report in a statement. “This staff report is nothing more than a pandemic of political propaganda,” Wheeler said in the statement. “I am proud of our agency’s efforts throughout this pandemic and nothing a politician says can diminish the hard work from our entire team. “

Carper also asked EPA Inspector General Sean O’Donnell for an investigation into whether EPA officials improperly circumvented the Clean Air Act while working on the final Safer Affordable Fuel-Efficient Vehicles rule. “My office has also documented a number of new concerns associated with the finalization of the rule,” Carper wrote in the letter including whether the agency violated the Clean Air Act and other requirements by failing to disclose several major concerns from EPA staff over the rollback of the final vehicle greenhouse gas standards.

“While I previously asked that you commence such an investigation after I learned of potential irregularities associated with the recent finalization of the [rollback of vehicle standards], I now have additional information and have obtained documents that confirm such wrongdoing,” Carper writes.

The senator is also releasing a slew of documents related to the rulemaking -- including a January 30 presentation from EPA staff charging a draft final rule included “factually incorrect statements, denigration of EPA’s past work, and unnecessary conclusions that [DOT] models are ‘superior.’”

At the time, EPA staff said they had only seen the rule’s preamble but had not yet seen the draft final regulatory text, cost-benefit review and environmental impact statement (EIS). The EIS sections on health impacts, climate change and air quality “would be most relevant for EPA’s review,” the staff said.

That document and others were not included in the regulatory docket, in what Carper has previously said appears to violate past practice that relevant materials for a rule be submitted to the White House Office of Management & Budget (OMB) during inter-agency review, and released once a rule goes final.

Carper in February urged EPA’s IG to look into indications that EPA staff concerns were not being provided to OMB, in an apparent effort to suppress them and withhold them from the public docket, potentially violating the Clean Air Act’s disclosure requirements.

While the EPA staff concerns were omitted from the formal docket, materials that were included underscored last-minute scrambles to shore up the legal and factual rationale for the policy, including recently added provisions seeking to justify the plan’s modest top-line stringency.

Environmentalists have also been pressing EPA on the issue, with the Environmental Defense Fund (EDF) earlier this month threatening to file suit over EPA’s failure to release the internal staff comments.

But Carper’s recent letter cites a series of “new concerns.”

They include indications that DOT was the sole author of most, if not all, of the draft final rule submitted to OMB; that four hard copies of EPA concerns were sent to DOT on Feb. 5 but were never included in the public docket; that DOT never addressed the concerns; and that significant

last-minute changes to the document after it was signed represent an “unprecedented” process, raising transparency and potential legal issues.

“These materials describe a fundamentally and legally flawed rule created by what may be the most procedurally problematic process my office has ever reviewed,” Carper writes.

The request comes as litigation against the rollback of vehicle GHG standards has been either filed or expected within the next several weeks, and as Democrats are raising broader concerns that the agency’s environmental rollbacks are particularly concerning given links between air pollution exposure and worsened health outcomes from the coronavirus pandemic.

33. The Trump Administration Is Reversing Nearly 100 Environmental Rules

After three years in office, the Trump administration has dismantled most of the major climate and environmental policies the president promised to undo. Calling the rules unnecessary and burdensome to the fossil fuel industry and other businesses, his administration has weakened Obama-era limits on planet-warming carbon dioxide emissions from power plants and from cars and trucks, and rolled back many more rules governing clean air, water and toxic chemicals. Several major reversals have been finalized in recent weeks as the country has struggled to contain the spread of the new coronavirus.

In all, a New York Times analysis, based on research from Harvard Law School, Columbia Law School and other sources, counts more than 60 environmental rules and regulations officially reversed, revoked or otherwise rolled back under Mr. Trump. An additional 34 rollbacks are still in progress.

All told, the Trump administration’s environmental rollbacks could significantly increase greenhouse gas emissions and lead to thousands of extra deaths from poor air quality each year, according to energy and legal analysts reports the Times.

Listed below is each rule regarding air pollution and emissions that has been targeted for reversal over the past three years:

Completed

- 1) Weakened Obama-era fuel economy and greenhouse gas standards for passenger cars and light trucks.
- 2) Revoked California’s power to set stricter tailpipe emissions standards than the federal government.
- 3) Withdrew the legal justification for an Obama-era rule that limited mercury emissions from coal power plants.
- 4) Replaced the Obama-era Clean Power Plan, which would have set strict limits on carbon emissions from coal- and gas-fired power plants, with a new version that would let states set their own rules.
- 5) Canceled a requirement for oil and gas companies to report methane emissions.
- 6) Revised and partially repealed an Obama-era rule limiting methane emissions on public lands, including intentional venting and flaring from drilling operations.
- 7) Loosened a Clinton-era rule designed to limit toxic emissions from major industrial polluters.
- 8) Revised a program designed to safeguard communities from increases in pollution from new power plants to make it easier for facilities to avoid emissions regulations.
- 9) Amended rules that govern how refineries monitor pollution in surrounding communities.

- 10) Weakened an Obama-era rule meant to reduce air pollution in national parks and wilderness areas.
- 11) Weakened oversight of some state plans for reducing air pollution in national parks.
- 12) Relaxed air pollution regulations for a handful of plants that burn waste coal for electricity.
- 13) Repealed rules meant to reduce leaking and venting of powerful greenhouse gases known as hydrofluorocarbons from large refrigeration and air conditioning systems.
- 14) Directed agencies to stop using an Obama-era calculation of the social cost of carbon that rule makers used to estimate the long-term economic benefits of reducing carbon dioxide emissions.
- 15) Withdrew guidance directing federal agencies to include greenhouse gas emissions in environmental reviews. But several district courts have ruled that emissions must be included in such reviews.
- 16) Revoked an Obama executive order that set a goal of cutting the federal government's greenhouse gas emissions by 40 percent over 10 years.
- 17) Repealed a requirement that state and regional authorities track tailpipe emissions from vehicles on federal highways.
- 18) Lifted a summertime ban on the use of E15, a gasoline blend made of 15 percent ethanol. (Burning gasoline with a higher concentration of ethanol in hot conditions increases smog.)
- 19) Changed rules to allow states and the E.P.A. to take longer to develop and approve plans aimed at cutting methane emissions from existing landfills.

In progress

- 1) Submitted notice of intent to withdraw the United States from the Paris climate agreement. (The process of withdrawing cannot be completed until November 2020.)
- 2) Proposed relaxing Obama-era requirements that companies monitor and repair methane leaks at oil and gas facilities.
- 3) Proposed eliminating Obama-era restrictions that, in effect, required newly built coal power plants to capture carbon dioxide emissions.
- 4) Proposed revisions to standards for carbon dioxide emissions from new, modified and reconstructed power plants.
- 5) Began a review of emissions rules for power plant start-ups, shutdowns and malfunctions. One outcome of that review: In February 2020, E.P.A. reversed a requirement that Texas follow emissions rules during certain malfunction events.
- 6) Opened for comment a proposal limiting the ability of individuals and communities to challenge E.P.A.-issued pollution permits before a panel of agency judges.
- 7) Delayed issuing a rule limiting greenhouse gas emissions from aircraft. (The E.P.A. acknowledged it is legally required to issue the rule but has not done so yet. The delay is being challenged by environmental groups.)
- 8) Proposed limiting pesticide application buffer zones that are intended to protect farmworkers and bystanders from accidental exposure.

34. NRDC Launches Suit Over EPA Rule Scrapping HFC Leak Requirements

The Natural Resources Defense Council (NRDC) is filing suit over EPA's decision to scrap Obama-era standards to fix leaks on equipment that use hydrofluorocarbon (HFC) refrigerants that act as potent greenhouse gases, a policy that has earned bipartisan support on the Hill.

On May 11, NRDC filed a petition for review of EPA's March 11 final rule rescinding a 2016 decision to extend leak repair mandates under section 608 of the Clean Air Act to HFCs and other "substitutes" for ozone-depleting substances (ODS).

NRDC, which has long been critical of the Trump EPA's approach to HFCs, filed its suit in the U.S. Court of Appeals for the District of Columbia Circuit.

"This rollback makes no sense, except to the Trump EPA in its unrelenting drive to put polluters ahead of people," NRDC climate program director David Doniger said in a statement. "The EPA would rather allow these easily prevented HFC emissions equal to carbon pollution from 625,000 cars hit the atmosphere every year, than require technicians take reasonable steps to find and fix leaks."

The group has previously flagged EPA projections that the rollback would save industry about \$39 million annually, though companies would be forced to buy an additional \$15 million in chemicals to replace those that had leaked, leading to a net savings of \$24 million.

EPA also estimated the rule would cause an additional 3 million metric tons of carbon dioxide-equivalent emissions, though it declined to monetize the effect of those emissions.

The final rule argues EPA lacked authority for the 2016 requirements because only certain elements of section 608 cover ODS substitutes. It concludes leak repair requirements -- including testing appliances when adding new refrigerant, fixing leaks and conducting periodic follow-on inspections -- do not apply to such substitutes but rather only to appliances that still use ODS or a blend that includes those chemicals.

HFCs do not harm the stratospheric ozone layer but have been found to be potent short-term GHGs, and a 2016 global agreement aims to phase down use of the chemicals.

The rollback aligns with arguments raised against the Obama-era rule by the National Environmental Development Association's Clean Air Project (NEDA/CAP), which sued over that measure and urged the Trump administration to reconsider the regulation. NEDA/CAP members include major corporations across a variety of manufacturing sectors, including Boeing, BP, Caterpillar, Eli Lilly and Co., Koch Industries, Occidental Petroleum, Weyerhaeuser and others.

However, bipartisan legislation that would give EPA several new authorities to control HFCs would -- among other things -- direct the agency to issue such leak requirements for HFC-containing equipment.

The bills also would gradually phase down HFC production over 15 years through an allowance and trading program and authorize the agency to establish "sector-based use restrictions."

The legislation enjoys significant bipartisan support in the Senate, as well as backing from environmentalists and industry groups such as the U.S. Chamber of Commerce and National Association of Manufacturers.

Even so, some key Republicans -- such as Senate environment committee Chairman John Barrasso (R-WY) -- and the White House are opposed to the HFC legislation as drafted, creating hurdles for enactment in the current Congress.

A May 11 statement from the Air Conditioning, Heating & Refrigeration Institute, which supports the HFC bill, says NRDC's suit is "emblematic of the pervasive lack of regulatory certainty regarding HFCs, with [industry] and the millions of American jobs it represents caught in the crossfire."

The group argues that “swift enactment of federal HFC legislation is needed to put the United States on a clear pathway toward an orderly transition to next generation refrigerant technologies.”

35. House Memo Says EPA Unable To Answer Key Queries On Science Rule

EPA officials are unable to answer fundamental questions about how the Trump administration’s controversial proposed rule limiting the use of some scientific studies in agency decisions would be implemented or legally justified, according to a memo Democratic staff prepared for lawmakers, intensifying criticism of the controversial proposal.

In the April 30 memo prepared for House science committee Chairwoman Eddie Bernice Johnson (D-TX), the staff say that officials from EPA’s research, general counsel and congressional affairs offices who briefed Democratic committee staff twice last month were unable to answer questions regarding the proposed rule’s legal basis, how its restrictions would apply to the reanalysis of existing regulations, how to implement data storage necessitated by the rule’s requirements, or even whether a cost-benefit analysis of the rule will be conducted.

“EPA was largely unable to address these issues and frequently declined to answer questions, admitting that the Agency had simply not considered the issue this far into the rulemaking process,” the memo states. “They explained that they hoped public commenters would provide the requisite insight on key implementation details. . . . EPA’s inability to answer basic questions about the rule’s operation and implementation reflects the ill-conceived nature of the ‘Strengthening Transparency’ rule.”

In addition, the memo says that EPA officials provided several first-time clarifications during the April 2 and 14 briefings, including that the rule’s new mandates would extend to statutorily mandated reviews of existing regulations, such as air quality standards, and that the burden of complying with the new restrictions on studies’ use will fall on their authors, not the agency.

Johnson distributed the memo to Democratic members of the committee April 6. “Due to the current extraordinary situation, during which the opportunities for the committee to publicly engage with the Agency on the rule may be limited, I am attaching the staff memo to this letter so that you may review its contents,” she wrote in a cover letter.

EPA declined comment on the memo, saying it was not addressed to the agency. But in the past officials have justified development of the rule, saying it is needed to increase transparency and bolster scientific underpinnings of its decisions. “Strengthening transparency by improving access to data can lead to an increase in the quantity and the quality of evidence that informs important regulatory science and policy decisions,” Administrator Andrew Wheeler said in an April 28 statement.

EPA’s proposal generally seeks to bar the agency from relying on any scientific studies or information where the underlying data and models are not publicly accessible for replication attempts, though the administrator has latitude to make exemptions on a case-by-case basis.

The proposal was first issued by former Administrator Scott Pruitt, based on bills pushed by former science committee Chairman Lamar Smith (R-TX). While Smith’s bills passed the House, they were not taken up in the Senate.

EPA's original proposal, issued in 2017, drew widespread criticism over its potential prohibition on use of several types of information that cannot be released publicly, such as studies relying on personal medical information, confidential business information, or those studies where such permission was not obtained from study participants. In addition, many critics lambasted the agency for failing to provide a legal justification for the plan.

In response, the agency earlier this year issued a supplemental proposal, though that has also drawn significant criticism, especially after the agency expanded the universe of data subject to the rule and also sought to use an obscure 1966 federal law, known as the Federal Housekeeping Statute, to justify the measure. Critics have charged that the law does not cover EPA and even if it did, it was not intended for use in the way the agency is proposing.

In addition, EPA advisors last month urged the agency to provide "greater clarity" on the broad scope of its controversial plan, as well as additional guidance for when the administrator can exercise proposed authority granting discretion to waive the limitations in some cases.

EPA is currently taking comment on the supplemental proposal through May 18, though Democrats, environmentalists and others have urged the agency to extend this deadline and others beyond the end of the national emergency over the COVID-19 pandemic.

Johnson, for example, sent Wheeler a new request for extension May 6, arguing that the rationale for EPA to extend the comment period from its original April deadline to May 18 -- the pandemic -- remains an ongoing problem. EPA in a statement declined to extend the deadline, saying the current extension is sufficient.

Even as Johnson seeks an extension, she and her staff are stepping up their criticism of the proposal. For example, they note in the memo that EPA staff made clear that the burden of implementing the rule will fall on external researchers whose studies the agency wants to rely on in its regulatory decision making, as well as a secure data center operated by the Centers for Disease Control and Prevention (CDC).

But the staff memo argues that reality is at odds with the Federal Housekeeping Statute.

The supplemental proposal asserts the Federal Housekeeping Statute's authority "because the rule is 'a rule of internal agency procedure' that would 'not regulate the conduct or determine the rights of any entity outside the federal government'," the memo says.

But staff argues EPA's briefings are inconsistent with the legal theory -- and agency officials were unable to explain that inconsistency in the briefings.

"[G]iven the Agency's explanation of the new obligations that would be placed upon external researchers to make their own data and models publicly available and determine the levels of restricted access that would apply to different categories of data, Committee staff asked how these obligations could be consistent with a rule of internal agency procedure. EPA did not have an answer, merely stating that the precise role for researchers within the framework established by the rule was not yet finalized and that comments from the public could consider this question. The Agency's response did not address the logical inconsistency," says the memo.

EPA was also unable to satisfy committee staff on the question of "how EPA intends to handle and store the enormous amount of data that would be made publicly available under the rule. . . .

Two years after the publication of the proposed rule, the Agency still does not have a plan for how to carry out one of the most obvious implementation duties associated with the rule.”

And the agency was unable to address committee questions regarding any “reanalysis” that third parties could conduct of studies the agency is using, a term that replaces the original proposal’s undefined term requiring “replication” of study results.

The supplemental document defines “reanalyze” as “to analyze exactly the same data to see if the same result emerges from the analysis by using the same or different programs and statistical methodologies that were originally used to analyze the data.”

But the committee memo criticizes the definition for not explaining “how any reanalysis would be integrated into EPA’s rulemaking process for significant regulatory actions. During the briefing, EPA was unable to answer questions regarding how the Agency would handle a reanalysis conducted by a third party. . . . EPA also did not know how the absence of peer review for a reanalysis would influence the incorporation of those findings. . . .”

EPA staff were also unable to answer committee questions regarding whether a cost-benefit analysis will be conducted for the rule, as is required for most major agency regulations. The Congressional Budget Office had previously estimated that Smith’s bill would cost as much as \$250 million to implement.

Agency staff did provide clarification the committee sought on some points, such as confirming the rule would apply to “statutorily mandated reviews of existing standards, such as the National Ambient Air Quality Standards (NAAQS).”

EPA also provided first-time details on how it envisions “tiered” access to sensitive data to work for the purposes of the rule, an area where it sought consultation from SAB. By releasing sensitive underlying data to a secure repository where it can be accessed by approved researchers, EPA seeks to address concerns about public access to sensitive information while still meeting the terms under the new restrictions it is proposing.

But the memo notes that the agency for the first time told committee staff that the “burden of implementing this proposal would be on researchers.” It described the agency’s “envisioned implementation” as EPA officials contacting researchers involved with a study the agency wants to consider for regulatory actions with the outside researchers then being “responsible for managing the logistics of making the data and models publicly available in a manner that complies with the rule, in consultation with EPA staff.”

EPA officials also described for the first time the significant role to be taken on by CDC’s secure data enclave, which would host any such data or models for EPA’s use “on its own servers, with CDC personnel . . . reviewing research proposals submitted by members of the public seeking to conduct their own analyses of study data and determining the level of access to grant.” Committee staff notes this is the first time the agency has “described an implementation scenario that would potentially place such a large responsibility on an outside agency.”

36. Trump EPA’s Constraints on Science Advisers Unlawful: Court

The Trump administration violated the law when it tightened membership requirements for powerful EPA advisory boards, the D.C. Circuit has ruled. The decision is a critical victory for environmental groups and scientists who have denounced the EPA’s updated approach for years.

Advisory boards affected by the policy have advised the Trump administration on multiple major regulatory decisions since EPA issued the directive in 2017.

Earthjustice attorney Neil Gormley, who represented the challengers in the case, called the decision “a resounding win for science.”

“What we’ve seen is a return to bedrock principles here: the bedrock principles that administrative agency action is reviewable, that EPA’s decision should be guided by science, and that EPA needs to justify all its actions in a rational way,” he told Bloomberg Law.

A three-judge panel of the U.S. Court of Appeals for the District of Columbia Circuit agreed with Physicians for Social Responsibility and other groups that said the Environmental Protection Agency’s decision to block its grant recipients from serving as advisers conflicted with federal ethics regulations and the Administrative Procedure Act.

The EPA failed to explain why it adopted a policy that conflicted with recommendations from the federal Office of Government Ethics (OGE), the appeals court said. “The Administrator’s failure to address OGE and EPA’s contrary conclusions is especially glaring given that the prior regime existed, in part, for the very purpose of facilitating the critical role played by EPA’s scientific advisory committees,” Judge David S. Tatel wrote in the opinion.

“As noted above,” he added, “EPA operates pursuant to multiple statutory mandates requiring that its decisions rest on various formulations of ‘the best available science.’”

The EPA issued the contested directive in 2017, barring anyone who receives EPA grant money from serving on teams of outside experts that advise the agency on important scientific and technical issues, including air quality, chemicals, and environmental justice.

The agency said the change was necessary to eliminate potential pro-agency bias on the boards. Critics said the policy was designed to keep the most qualified experts off advisory committees and make room for industry-friendly replacements.

Physicians for Social Responsibility, the National Hispanic Medical Association, the International Society for Children’s Health and the Environment, and three scientists sued over the policy in 2017, lost their case in district court, and appealed to the D.C. Circuit.

Other challengers filed lawsuits in Massachusetts and New York. The U.S. District Court for the Southern District of New York struck down the EPA’s policy in a pair of recent decisions, and a federal appeals court revived the Massachusetts case in March.

The status of the EPA’s membership policy for advisory boards is now in limbo.

The earlier New York court decision scrapped the 2017 directive entirely, but the EPA still can appeal that ruling.

The D.C. Circuit ruling remanded the case to a lower court to sort out what should happen to the policy as a result of the legal deficiencies. The Trump administration could ultimately opt to request reconsideration from the D.C. Circuit.

Gormley, the Earthjustice lawyer, said his clients will push to nix the 2017 policy. Various EPA decisions rooted in advice of reconstituted advisory boards could face added legal vulnerability,

“especially if you can make a connection between the flaws in the policy and the review by a scientific advisory committee whose membership was skewed,” he said.

Former Administrator Scott Pruitt issued the policy in 2017, arguing in part that it was needed because agency grant recipients can create the potential or reality of potential interference with their ability independently and objectively serve” as an advisor. But critics charged that it unlawfully allowed EPA to “purge” then-current members and stack its advisory committees with deregulatory advocates.

37. Senators Offer Bipartisan Bill To Boost Electric Car Refueling

Sens. Tom Carper and Lamar Alexander have introduced a bill that would expand and extend a tax credit for clean refueling infrastructure. A current investment tax credit for such infrastructure including electric charging stations and hydrogen refueling stations expires December 31

The Carper-Alexander bill would extend the credit for eight more years while expanding it by increasing the cap on such investments. The current credit applies to only one charging station in a public parking garage

The new bill would let the credit be applied to each station while increasing the cap from \$30,000 to \$200,000

38. Waste Management of Southern California to Pilot Electric Truck

Waste Management of Southern California has announced that it will soon begin the pilot of an all-electric collection truck in the City of El Cajon. The Peterbilt 520EV Class-8 battery-electric automated side loader is being tested in collaboration with Transportation Power Inc., Peterbilt Motors Company and the California Energy Commission as a demonstration project to help determine the feasibility of electrically powered trucks for use in waste collection.

“As advocates for sustainability, we’re excited to test this truck as one more way we are working for a more sustainable tomorrow,” said Kristine Costa, municipal and community affairs representative for Waste Management of San Diego. “We’re grateful for the collaboration with such great organizations and thrilled to be testing it in a city that shares our values and commitment to the environment.”

Currently, Waste Management operates the largest heavy-duty fleet of near-zero emission vehicles in North America. This testing of zero-emission battery-electric technology is part of the company’s commitment to be an industry leader in the “cleanest and greenest” transportation.

39. Daimler Expands Electric Truck Initiative in North America

Daimler Trucks North America is continuing to push into commercial electric vehicles. Working with Burlingame, Calif., electric powertrain component maker Proterra Inc., Daimler’s Freightliner Custom Chassis Corp. showed off the MT50e, a new all-electric delivery truck chassis at the NTEA Work Truck Show in Indianapolis recently.

The companies want to leverage the e-commerce boom by developing a quiet, zero-emission vehicle that can work in urban areas that have strict emissions and noise regulations.

The truck is based on Freightliner's MT platform. It will have a Proterra battery system with 226 kWh of energy capacity. That would allow the truck to have a gross vehicle weight rating of 16,000 to 23,000 pounds, with no reduction in cargo capacity, the companies said. The truck will have more than 125 miles driving range and can fully charge in three hours with an SAE J1772 CCS DC fast-charging system.

The MT50e will be the first offering in a broader portfolio of electric trucks. Other models will target pick-up and delivery, and the bakery and linen industries.

Meanwhile, Daimler is making more electric Freightliner trucks available for customer testing in North America. It is adding six heavy-duty Freightliner eCascadia and two medium-duty Freightliner eM2 vehicles to the customer test fleet.

Over the next two years, 14 different customers from multiple industries would use the electric trucks for daily hauling needs. The customers represent a significant opportunity for Daimler as trucking starts a slow transition to electric and other zero-emission vehicles. The customers in the test program operate 150,000 heavy and medium-duty trucks in the U.S., according to Daimler. The electric trucks will be used in a variety of regions.

These new vehicles are in addition to 30 Freightliner eTrucks that started a larger test program last year.

The initial reviews of Daimler's electric trucks are good. But companies are worried about the expense of building infrastructure to charge the vehicles.

Freight and logistics company NFI is testing 10 Freightliner eCascadia in Southern California. It is driving them between the Long Beach and Los Angeles ports and distribution depots in the Inland Empire, 50 to 75 miles away. After six months of testing, it plans broader adoption and is building out charging infrastructure, the company said. It expects to be running as much as 40 percent electric trucks within three years. Eventually, it will transition to an all-electric fleet, said Bill Bleim, NFI's senior vice president of fleet services.

NFI also is participating in a Volvo electric truck pilot program.

Penske Truck Leasing also is testing Freightliner electric trucks. It is running electric Freightliners in daily delivery operations within California's Inland Empire. The electric vehicles make multiple, daily store deliveries on a dedicated route.

Daimler, NFI and Penske are using the trucks in a pilot program with the South Coast Air Quality Management District in Southern California. The goal is to improve air quality in the region. The agency is providing about \$16 million to fund the program partially.

Daimler said it will begin selling the Freightliner eCascadia and the eM2 late next year.

ASIA PACIFIC

40. China 6 Standards Delayed

The transitional PN limit in China 6 emission standard for LDVs will be implemented on Jan 1, 2021, adjusted from its original implementation date of July 1, 2020; LDVs produced (or imported) to meet the China 5 emission standard can be sold till Jan 1, 2021 in regions that have not adopted

the China 6 emission standard. Without approval, regions cannot implement the above standard in advance.

The announcement was made by NDRC (NDRC 2020-684).

Below is the list of regions that have adopted China 6 early. It is believed that the majority (66%) of China 6 vehicles sold to these regions so far were compliant with the PN11 limit. It is doubtful if these regions will go back to PN12 limits. However, with the above announcement, there is no literal guarantee.

Province	City	Vehicle Category	Fuel Type	Stage	Effective Date
Beijing	Beijing	LDV All	Petrol	6b	Jan-21
Guangdong	Shenzhen	LDV All	Petrol	6b	Jul-19
Guangdong	Shenzhen	LDV All	Diesel	6b	Nov-18
Guangdong	Guangzhou	LDV All	All	6b	Jul-19
Shanghai	Shanghai	LDV All	All	6b	Jul-19
Tianjin	Tianjin	LDV All	All	6b	Jul-19
Chongqing	Chongqing	LDV All	All	6a	Jul-19
Hebei	All	LDV All	All	6a	Jul-19
Henan	All	LDV All	All	6a or 6b	Jul-19
Henan	All	LDV Urban	Diesel	6a	Jul-19
Guangdong	All	LDV All	All	6b	Jul-19
Shandong	All	LDV All	All	6a or 6b	Jul-19
Shanxi	Eight cities	LDV All	All	6a	Jul-19
Hainan	All	LDV All	All	6a	Jul-19
Anhui	All	LDV All	All	6a	Jul-19
Shaanxi	Central area	LDV All	All	6a	Jul-19
Sichuan	All	LDV All	All	6a	Jul-19
Zhejiang	All	LDV All	All	6a	Jul-19
Jiangsu	Nanjing	LDV All	All	6a	Jul-19
Sichuan	All	LDV All	All	6a or 6b	Jul-19

41. China Reports 'Incomparable' Improvements In Air Quality

China's air quality saw "incomparable" improvements in the first quarter of this year as a coronavirus outbreak led to rapid declines in industrial activity and transportation, an environment ministry official said. The number of "blue sky days" rose by 6.6 percentage points in the first quarter of 2020, said Liu Bingjiang, head of the air pollution office at the Ministry of Ecology and Environment.

"That was a level we didn't even dare imagine," he said, noting the target for the whole 2016-2020 period was 3.3 percentage points.

China has for several months been grappling with a coronavirus outbreak, which has spread around the world, forcing governments to impose strict lockdowns, severely hurting economic activity. With millions staying home, concentrations of small particles fell by nearly 15% in more than 300 Chinese cities in the first three months of the year, according to official ministry data.

Emissions in the city of Shanghai fell by nearly 20% in the first quarter while Beijing's average emissions levels stood still in the first three months of the year, the data showed.

In Wuhan, where the pandemic originated, monthly averages of particulate matter emissions dropped more than a third.

Normally the country's smoggiest province, Hebei also saw PM2.5 concentrations, a measure of air pollution, fall 15.7% in the first four months of 2020. The province, however, attributed the drop to its crackdowns on pollution rather than the coronavirus.

China has gradually loosened the lockdown since late March in several cities and Liu said the resumption of normal economic activity had not led to a noticeable decline in air quality so far.

He also attributed the improvements in China's air quality to its strenuous anti-pollution efforts over the last few years. China declared "war" on pollution in 2014 after a spate of outbreaks of smog in Beijing and other regions and has been strict to punish those breaking the rules.

The country normally sets targets over the October-March winter heating period, forcing cities to make improvements in air quality compared to the previous year.

But Liu said the steep declines in emissions brought about by the virus would make it too difficult for cities to make further year-on-year cuts next winter, so China would not make the targets a "decisive element" of compliance over the period.

He said China would continue to eliminate small-scale coal use this year and further promote the replacement of coal by gas or electricity in households throughout northern regions, noting that the policies and financial support were now in place.

China is currently working on a new anti-smog plan that would further target ground-level ozone pollution, a rising health risk caused mainly by vehicle exhaust fumes and sunlight.

It will also extend the "blue sky" campaign to other regions, including Jiangsu, Anhui, Shandong and Henan, he said.

42. Beijing, Neighboring Regions Take Coordinated Action Against Air Pollution

Beijing, its neighboring port city Tianjin, and Hebei province simultaneously started implementing tougher regulations against air pollution recently. The new regulations mainly target mobile pollution sources such as heavy-duty diesel trucks and non-road mobile machinery, which emit a large amount of pollutants despite their relatively small numbers compared with passenger vehicles.

The regulations, which were passed by the legislatures of the three regions in January after one and half years in the making, marked the first cross-region legislation effort to improve air quality in China.

As significantly, they signaled a new level of coordination among Beijing, Tianjin and Hebei in pursuing green development, over six years after China's decision-makers initiated a key strategy to coordinate the development of the regional city cluster.

Air quality in Beijing, Tianjin and Hebei continued to improve in recent years as the regional authorities intensified efforts to prevent and control air pollution.

In 2019, the number of good air quality days in Beijing totaled 240, 64 more than in 2013, the year a national action plan was issued by the State Council to fight air pollution. The average concentration of PM2.5 hit a record low of 42 micrograms per cubic meter.

In 2018, Tianjin only saw 10 days of heavy air pollution, 39 days fewer than in 2013. And the number of good air quality days in Hebei grew to 208, 79 more than in 2013.

"The sky used to be very dusky. Now the air quality is much better. We can often see the blinking stars at night," said Wu Xianyun, a resident in Renxian County in Hebei.

However, despite these improvements, vehicle emissions, especially those coming from heavy-duty diesel trucks, remain the primary source of PM2.5 in Beijing and its surrounding areas.

Beijing has about 240,000 heavy-duty diesel trucks and coaches, accounting for less than 4 percent of the capital's over 6.4 million motor vehicles. But they contribute to over 70 percent and 90 percent, respectively, of all the nitrogen oxide and particulate matters emissions from the city's motor vehicles.

"Based on data from vehicle checks, it remains a serious problem that emissions from heavy-duty diesel trucks exceed the standard level," said Zhang Qing, deputy director of Beijing's municipal legislature in January. "They cause significant difficulties to the task of reducing emission."

Moreover, the frequent cross-region travels of heavy-duty diesel trucks have also posed a challenge for regulators to track violators and enforce emission-related regulations.

The new regulations lay much emphasis on tackling the long-standing headache of cross-region law enforcement in emission violation cases. According to the regulations, Beijing, Tianjin and Hebei will make concerted effort on the prevention and control of emission violations and step up joint consultations and law enforcement.

The three regions will also set up an information-sharing platform to boost coordination in the monitoring and management of emission violators.

"After the implementation of the regulations, Tianjin will share with Beijing and Hebei its blacklist of vehicles that violate emission standards, and vice versa," said Jin Xiangjun, vice mayor of Tianjin, in late April.

"Violators detected in one region will face restrictions in the other two, which will force violators to do emission revamp," Jin added.

To better enforce the new regulations, legislatures in Beijing, Tianjin and Hebei plan to organize a cross-region inspection on the coordinated implementation of the regulations, according to Zhang.

The coordinated legislation move has also helped raise awareness among the public about making their own contributions to reducing vehicle emission. "It is the responsibilities of all of us to protect the environment," said a motorist surnamed Zhang in Hebei. "We should all be the

promoters of green transportation means in an effort to reduce vehicle emission and make our homeland more beautiful."

43. Air Quality Continues To Improve In Beijing In 2019

Air quality in Beijing continued to improve last year as the municipality intensified efforts to prevent and control air pollution, according to a communique released by the Beijing Municipal Ecology and Environment Bureau.

The concentrations of major air pollutants fell remarkably in 2019, said Liu Wei, an official with the bureau. The average concentration of PM2.5 hit a record low of 42 micrograms per cubic meter, while those of sulfur dioxide, nitrogen dioxide and PM10 were 4, 37 and 68 micrograms per cubic meter, respectively, according to the communique.

In 2019, the number of good air quality days in Beijing totaled 240, or 65.8 percent of the total, 64 more than in 2013, the year a national action plan was issued by the State Council to fight air pollution. Throughout the year, the capital only saw four days of heavy air pollution, 54 days fewer than in 2013.

Beijing actively advanced international exchanges and cooperation and shared green development experience on multiple platforms last year. A UN Environment report launched last March hailed the improvement of air quality in the metropolis, said Liu.

44. China Sentences Company Leader for Ozone-Depleting Chemical Use

An insulation company representative has been sentenced to 10 years in prison for illegal use of a banned ozone-depleting substance, China's Ministry of Ecology and Environment said in a statement. China stiffened penalties and stepped up enforcement against illegal use of ozone-depleting substances after reports in 2018 indicated its foam insulation industry was a likely source for higher emissions of the banned chemical trichlorofluoromethane (CFC-11) detected in East Asia.

The ministry's statement said it was the "first case in the domestic polyurethane foam industry where a criminal sentence had been given for illegal ODS (ozone-depleting substance) use, fully reflecting China's 'zero tolerance' for illegal use or production of ODS."

A study published in the journal Nature in May 2019 indicated that two provinces, Hebei and Shandong, accounted for an estimated 40% to 60% of those increased emissions between 2014 and 2017.

Qi Erming, the legal representative of Huzhou Deqing Minghe Thermal Insulation Material Co. Ltd., was arrested along with four others from the company after inspectors found inconsistencies between the company's ledgers, receipts, and what it was allowed to use on its environmental impact assessment documents in mid-2019.

Inspectors discovered that the company had purchased and used 849.5 metric tons of CFC-11 over a three-year period up to mid-2019 and sold the polyethers it produced, which are used to make foam products, to companies in Jiangsu, Henan, and Shandong provinces, according to the environment ministry.

The company was fined 700,000 yuan (\$99,000) and had to forfeit 1.4 million yuan (\$200,000) in illegal income, according to the statement.

A court in the city of Huzhou in eastern China's Zhejiang province issued the verdict on March 6 but the government had not previously disclosed it and released no further information about the other people arrested.

Discoveries of increased CFC-11 emissions in recent years, and the possibility that they came from China, have raised questions about authorities' commitment toward enforcing the Montreal Protocol, the international treaty that aims to phase out of all chlorofluorocarbon production by 2010.

CFCs were used in air conditioners, spray cans, foam, and other products. They damage the ozone layer, which protects Earth from harmful solar radiation.

China is expected to submit a final report on its actions against CFC-11 production and use by December 2020, when the executive committee of the Multilateral Fund for the Implementation of the Montreal Protocol is expected to regroup to discuss compliance.

45. Cleaner China Air Saved More Lives Than Covid Claimed, Study Finds

Lockdowns around the world, enforced with the objective of slowing the spread of Covid-19, have also visibly reduced air pollution. How many lives have been saved as a result of reduced pollution? A new study³ has quantified that for China: An estimated 12,125 deaths were prevented during China's countrywide ban on traffic mobility between February 10 and March 14. The study found that this is higher than the lives lost to the pandemic — 4,633 as of May 4. The paper was published in 'Lancet Planetary Health'.

The researchers agreed that the findings cannot be directly applied to other countries but felt that reduction of air pollution levels have likely brought health benefits in those countries, too. "Although our findings cannot be directly applied to other countries due to different severity of and responses to COVID-19, as well as differing air pollution levels and population characteristics, reduced air pollution levels have been detected in other countries such as South Korea, India, Italy, Germany, Spain, and the US after their own lockdowns," the study's first author Kai Chen, assistant professor at the Yale School of Public Health, told reporters.

"However," he added. "I want to point out that this way of having clean air through massive quarantine and travel restrictions is not sustainable and likely to be only temporary for a short period of time."

The estimates are based on changes in daily concentrations of two air pollutants — nitrogen dioxide and PM2.5 — in 367 Chinese cities from January 1, 2016 to March 14, 2020. The researchers calculated the changes in air quality in 2020 (during quarantine versus before quarantine) and compared these findings with corresponding changes in the same periods (lunar calendar) for 2016 to 2019. Accounting for these earlier years helped factor in the already declining pollution levels in China on account of the country's clean air policy. For calculating the

³ "Air Pollution Reduction And Mortality Benefit During The COVID-19 Outbreak In China", Kai Chen, Meng Wang, Conghong Huang, Patrick L Kinney, Paul T Anastas, Open Access Published May 13, 2020, DOI: [https://doi.org/10.1016/S2542-5196\(20\)30107-8](https://doi.org/10.1016/S2542-5196(20)30107-8)

deaths prevented due to reduced levels of these two pollutants, the study used equations based on the findings of another recent study.

Because of the quarantine, nitrogen dioxide was found to have dropped by 22.8 micrograms per cubic meter in Wuhan and 12.9 micrograms/cubic meter in China, while PM2.5 was found to have dropped by 1.4 micrograms/cubic meter (Wuhan) and 18.9 micrograms /cubic meter (China). The improved air quality during the quarantine period, calculations showed, prevented 8,911 nitrogen dioxide-related deaths (65% of these from cardiovascular diseases and COPD) and 3,214 PM2.5-related deaths (73% from cardiovascular diseases and COPD).

“The lessons we learn from this dramatic reduction in air pollution (are) that if we can reduce air pollution and address climate change as aggressively as we are fighting COVID19, but in a more sustainable and healthier way (e.g., using clean energy rather than fossil fuels), we can still prevent the enormous health burdens of air pollution and climate change without having the devastating consequences of a coronavirus pandemic,” Chen said. “To move forward, we need to build a more sustainable and climate-friendly society. This will require strong political will, enhanced international cooperation, and unprecedented societal mobilization.”

46. China's Auto Market Rebounds In April But Slumps in Early May

Retail growth in China's auto market rose to -5.6 percent in April, the second high in the past 20 months — a decent performance showing the market is in recovery, according to the China Passenger Car Association. CPCA said given that retail growth stood at -20 percent in January prior to the COVID-19 outbreak, and -80 percent in February, the growth rate in April has basically ensured a rebound trend of China's auto market.

CPCA contextualized the V-shape curve of retail growth in April against a background of product destocking in every link of the auto industry chain and the unleashing of pent-up demand in previous months.

As of early March, major automakers outside Hubei have mostly resumed operations, those in Hubei have also begun a return to normal since late March. This led to destocking and releasing orders, one of the reasons for the rebound.

The second reason for the rebound in retail growth is people's concern over a long-tail effect caused by the global pandemic situation. More potential consumers have chosen to buy a car for safer travel. Some preexisting car owners chose to replace their vehicle with a better one out of the same concern.

As for the third reason, CPCA thought consumption stimulus policies advanced by national or local governments drove hesitating buyers to pay for a car.

CPCA said the V-shape rebound is not yet solid. Recovery in tertiary industries is still taking place in a cautious manner. It takes time to see income recovery of consumers. As credit and loans surge, anticipation in home price hikes should be also kept in mind to prevent a vicious circle of save money – buy a house – tighten consumption.

Vehicle sales in China fell in the first 10 days of May according to the China Association of Automobile Manufacturers. In the first 10 days of the month, while vehicle output industrywide rose 2 percent to roughly 429,000, sales dropped nearly 14 percent to some 351,000, the trade group said.

The decline in early May suggests the rebound recorded in April has ended abruptly.

Auto sales rose 4.4 percent to 2.07 million in April, ending 21 months of consecutive declines.

In the first four months, auto sales across the country slumped 31 percent to 5.76 million because of the COVID-19 outbreak that ravaged China from late January to early March.

47. GM, SAIC Sales Rebound In April As Market Recovers

General Motors' sales in China saw double-digit growth in April, its two local ventures said, as the world's biggest auto market continued to recover from the coronavirus.

GM's joint venture with SAIC Motor Corp, which manufactures Buick, Chevrolet and Cadillac vehicles, said April sales grew 14 percent compared with a year earlier. It said it sold 111,155 cars and light trucks in April, including exported vehicles.

SGMW, a separate GM venture with SAIC and Guangxi Automobile Group which produces no-frills minivans and has started to make higher-end vehicles, said sales jumped 14 percent to over 127,000 last month.

GM, which is China's second-biggest foreign car company after Volkswagen Group, said sales in China fell 43 percent in the first three months of 2020 compared with the same period last year.

To attract customers, GM and SAIC have hired social media celebrities to promote new models and are offering free medical masks to customers.

China's biggest automaker SAIC, which sold more than 6 million cars and light trucks last year, said sales rose 0.5 percent compared to the same period last year. As well as the GM venture, it also builds its own brand cars and operates a venture with Volkswagen.

48. BYD New Energy Vehicle Sales Slump In January-April

China's leading new energy vehicle (NEV) manufacturer, BYD, saw its NEV sales tumble in the first four months of 2020, company data showed. The firm sold 35,187 NEVs in the January-April period, down 63.79 percent from the same period last year, BYD said in a statement filed with the Shenzhen Stock Exchange.

In April alone, the number of NEVs sold by the firm stood at 12,995, up from 12,256 in March.

From January to April, BYD sold 93,082 vehicles in total, down 40.11 percent year on year.

49. Tesla's Secret Batteries Aim To Rework The Math For Electric Cars And The Grid

Electric car maker Tesla Inc plans to introduce a new low-cost, long-life battery in its Model 3 sedan in China later this year or early next that it expects will bring the cost of electric vehicles in line with gasoline models, and allow EV batteries to have second and third lives in the electric power grid.

For months, Tesla Chief Executive Elon Musk has been teasing investors, and rivals, with promises to reveal significant advances in battery technology during a "Battery Day" in late May.

New, low-cost batteries designed to last for a million miles of use and enable electric Teslas to sell profitably for the same price or less than a gasoline vehicle is just part of Musk's agenda, people familiar with the plans told the press. With a global fleet of more than 1 million electric vehicles that are capable of connecting to and sharing power with the grid, Tesla's goal is to achieve the status of a power company, competing with such traditional energy providers as Pacific Gas & Electric and Tokyo Electric Power, those sources said.

The new "million mile" battery at the center of Tesla's strategy was jointly developed with China's Contemporary Amperex Technology Ltd (CATL) (300750.SZ) and deploys technology developed by Tesla in collaboration with a team of academic battery experts recruited by Musk, three people familiar with the effort said.

Eventually, improved versions of the battery, with greater energy density and storage capacity and even lower cost, will be introduced in additional Tesla vehicles in other markets, including North America, the sources told the press.

Tesla's plan to launch the new battery first in China and its broader strategy to reposition the company have not previously been reported.

Tesla's new batteries will rely on innovations such as low-cobalt and cobalt-free battery chemistries, and the use of chemical additives, materials and coatings that will reduce internal stress and enable batteries to store more energy for longer periods, sources said.

Tesla also plans to implement new high-speed, heavily automated battery manufacturing processes designed to reduce labor costs and increase production in massive "terafactories" about 30 times the size of the company's sprawling Nevada "gigafactory" — a strategy telegraphed in late April to analysts by Musk.

Tesla is working on recycling and recovery of such expensive metals as nickel, cobalt and lithium, through its Redwood Materials affiliate, as well as new "second life" applications of electric vehicle batteries in grid storage systems, such as the one Tesla built in South Australia in 2017. The automaker also has said it wants to supply electricity to consumers and businesses but has not provided details.

Reuters reported exclusively in February that Tesla was in advanced talks to use CATL's lithium iron phosphate batteries, which use no cobalt, the most expensive metal in EV batteries. CATL also has developed a simpler and less expensive way of packaging battery cells, called cell-to-pack, that eliminates the middle step of bundling cells. Tesla is expected to use the technology to help reduce battery weight and cost.

The sources said CATL also plans to supply Tesla in China next year with an improved long-life nickel-manganese-cobalt (NMC) battery whose cathode is 50% nickel and only 20% cobalt.

Tesla now jointly produces nickel-cobalt-aluminum (NCA) batteries with Panasonic at a "gigafactory" in Nevada, and buys NMC batteries from LG Chem in China.

Taken together, the advances in battery technology, the strategy of expanding the ways in which EV batteries can be used and the manufacturing automation on a huge scale all aim at the same target: Reworking the financial math that until now has made buying an electric car more expensive for most consumers than sticking with carbon-emitting internal combustion vehicles.

“We’ve got to really make sure we get a very steep ramp in battery production and continue to improve the cost per kilowatt-hour of the batteries — this is very fundamental and extremely difficult,” Musk told investors in January. “We’ve got to scale battery production to crazy levels that people cannot even fathom today.”

Tesla has reported operating profits for three quarters in a row, driving a near-doubling of its share price this year. Still, Musk’s ambitious expansion plans depend on increasing both profit margins and sales volume.

A number of the technical advances made by Tesla and CATL in battery chemistry and design originated at a small research lab at Dalhousie University in Halifax, Nova Scotia. The lab has been run since 1996 by Jeff Dahn, a pioneer in the development of lithium-ion batteries for electric vehicles and grid storage.

Dahn and his team began an exclusive five-year research partnership with Tesla in mid-2016, but the relationship dates back at least to 2012.

Among the critical contributions from Dahn’s lab: Chemical additives and nano-engineered materials to make lithium-ion batteries tougher and more resistant to bruising from stress such as rapid charging, thus extending their life.

The cost of CATL’s cobalt-free lithium iron phosphate battery packs has fallen below \$80 per kilowatt-hour, with the cost of the battery cells dropping below \$60/kWh, the sources said. CATL’s low-cobalt NMC battery packs are close to \$100/kWh.

Auto industry executives have said \$100/kWh for battery packs is the level at which electric vehicles reach rough parity with internal combustion competitors.

Battery expert Shirley Meng, a professor at the University of California San Diego, said NMC cells could cost as little as \$80/kWh once recycling and recovery of key materials such as cobalt and nickel is factored in. Iron phosphate batteries, which are safer than NMC, could find a second life in stationary grid storage systems, reducing the upfront cost of those batteries for electric vehicle buyers.

In comparison, the new low-cobalt batteries being jointly developed by General Motors Co and LG Chem (See story above.) are not expected to reach those cost levels until 2025, according to a source familiar with the companies’ work.

50. China Appoints New Justice And Environment Ministers

China has appointed Tang Yijun as the new head of the Ministry of Justice and Huang Runqiu as the head of the Ministry of Ecology and Environment, following the announcement of the schedule of China’s annual meeting of its top legislature.

The appointments were made by the Standing Committee of the 13th National People’s Congress (NPC).

Huang has been promoted from his previous position as vice minister of ecology and environment, replacing Li Ganjie, who became vice-party secretary for Shandong Province earlier this month.

Earlier, the Standing Committee of the 13th NPC said the top legislature will start its annual session on May 22, more than two months later than originally planned. The gathering is usually scheduled to start on March 5 but was postponed due to COVID-19.

The COVID-19 epidemic prevention and control situation in China is improving steadily, and the normal economic and social life is gradually resuming, according to a statement issued by the NPC Standing Committee on Wednesday.

With various factors taken into consideration, the conditions for convening the NPC annual session at an appropriate time are set, said the statement.

51. China To Extend but Reduce Subsidies On New-Energy Vehicles 10%

China will cut subsidies on new energy vehicles such as electric cars by 10 percent this year, the finance ministry said recently, following a decision last month to continue providing incentives to buy cleaner light vehicles. The government had announced plans in 2015 to end the subsidies this year but said in March it would extend them.

China has set a target for NEVs, which include plug-in hybrids and hydrogen fuel cell vehicles, to account for a fifth of auto sales by 2025, compared with 5 percent currently, as it seeks to cut pollution and cultivate the domestic auto industry.

Under the new plan, China will extend subsidies on NEVs to 2022, and exempt sales taxes for two years. However, the subsidies will apply only to passenger cars costing less than 300,000 yuan (\$42,376). That is likely to exclude premium electric vehicles such as those built by Germany's BMW and Daimler.

Tesla, which started delivering cars from a \$2 billion Shanghai assembly plant in December, said in a statement it has cut the starting price for Standard Range Plus Model 3 sedans to 271,550 yuan (\$38,463.17), after receiving 20,250 yuan per car as EV subsidies.

China will in principle cut subsidies by 20 percent in 2021 and 30 percent in 2022, the finance ministry added.

But it will not reduce subsidies on commercial NEVs for public purposes this year.

China is the world's biggest car market, where more than 25 million vehicles, including 1.2 million NEVs, were sold last year.

The government will raise the requirements for the driving range and power efficiency of cars that qualify for the subsidies, the statement said.

It also said regulators would support the sale of cars with swappable batteries, a technology that has been pursued by Chinese electric vehicle makers Nio Inc. and BAIC BluePark.

In addition, when the authorities buy vehicles for government use, they will prioritize NEVs, it added.

The new policy is effective from April 23.

"This extending of subsidies will give the industry long term support but is unlikely to impact short term sales much," said Cui Dongshu, secretary general at China Passenger Car Association.

Global automakers including Volkswagen, General Motors and Toyota are ramping up EV production in China to meet stricter government regulations.

Sales of NEVs fell for a ninth month in a row in March and were down over 50 percent from a year earlier, according to data from the China Association of Automobile Manufacturers, as demand for vehicles plunged due to the coronavirus crisis.

52. Toyota Initiates EV Rollout in China

Toyota Motor Corp., a laggard among global automakers in introducing electric vehicles in China, is launching this week its first EV in the market -- the battery-powered version of the Toyota C-HR crossover -- with plans to roll out two more EVs this month.

The electric C-HR has a starting price of 225,800 yuan (\$31,893) after government subsidies, according to its manufacturer, GAC-Toyota, Toyota's joint venture with GAC Motor Co.

The Lexus UX 300e crossover, Lexus' first full-electric model, hit the market Sunday, April 26. As with all Lexus models sold in China, it will be imported.

The launch date for the battery variant of the Toyota Izoa crossover, which will be built at Toyota's partnership with China FAW Group Corp., has not been disclosed.

The three electric crossovers share the Toyota New Global Architecture known as TNGA. Each is powered by a 54.3-kWh lithium ion battery pack with a range of 400 kilometers on one charge, according to Toyota's China office.

Toyota plans to launch 10 EVs in China by 2025.

Toyota Motor Corp.'s first-quarter China sales fell 16 percent to 101,800, with the results negatively impacted by the coronavirus outbreak, though the company did not break out results for the Toyota and Lexus brands during in the period.

In 2019, the Japanese automaker delivered 1.62 million light vehicles, a gain of 9 percent from 2018, with 1.42 million Toyota deliveries and volume of 200,000 at Lexus.

53. China's Shenzhen To Ban Outdoor Barbecue, Control Exhaust Emission

The southern Chinese city of Shenzhen will ban outdoor barbecues across the city, in a bid to prevent and control air pollution, according to the municipal ecology and environment bureau. According to an action plan issued recently, activities of outdoor barbecue will be investigated and punished by law.

The government of Shenzhen plans to curb the average concentration of PM2.5 within 25 micrograms per cubic meter and ensure the air quality index maintains at least 96 percent in 2020.

Other pollution control measures to achieve the goals will also be implemented in the city, including containing exhaust emissions from automobiles and ships.

The city plans to phase out 60,000 old and obsolete vehicles and improve the public transportation network in the downtown areas by the end of 2020, as part of the emissions reduction efforts.

54. South Korea Fines Mercedes, Porsche And Nissan For Diesel Emission Cheating

South Korea's Ministry of Environment will issue fines and file criminal complaints against Mercedes, Nissan and Porsche, after finding a multitude of diesel-powered vehicles (14 nameplates in total) equipped with illegal software.

The vehicles, sold between 2012 and 2018, will have their certification revoked within this month, before being issued a recall notice, as per The Korea Herald.

The biggest fine will be administered to Mercedes-Benz Korea, to the tune of 77.6 billion won (the equivalent of \$63.4 million), while Porsche Korea and Nissan Korea will be fined 1 billion won (\$817,300) and 900 million won (\$735,600) respectively.

Mercedes' fine is the largest-ever imposed by the Korean government on automakers, completely eclipsing the 14.1 billion won (\$11.5 million) Audi Volkswagen Korea had to pay back in November of 2015.

Among the 37,154 Mercedes models facing scrutiny are 12 different nameplates that include the likes of the C 200d, GLC 220 d 4MATIC, GLC 250 d 4MATIC and the ML 250 BlueTEC 4MATIC. Nissan's fine relates to 2,293 units of the Qashqai featuring illicit software, while Porsche is said to have followed the same recipe with 934 units of the Macan S Diesel.

"The Ministry of Environment continues to toughen diesel car emissions standards to reduce fine dust caused by diesel cars and we plan to strictly review and manage illegal emissions fabrication," said Keum Han-Seung, a ministry official.

However, Mercedes-Benz Korea issued a statement refuting the government's findings, claiming: "The reason we used the function in question is we have justifiable technological and legal grounds for its use," adding that the government's decision doesn't affect any newer models.

Some of the Mercedes models tested were found to generate roughly 13 times more NOX than the standard limit of 0.08 g/km, while the Qashqai and the Macan generated 10 times and 1.5 times more than the standard, respectively.

Since 2016, Mercedes-Benz has sat atop the imported car market in Korea and had record-high sales last year since its entry into the domestic market in the mid-1980s. In 2019, it sold 78,133 vehicles, up by 10.4 percent from the previous year. It also set a record for selling over 100,000 units of the E-Class priced at least 70 million won here, three years after its launch.

"It is not an exaggeration that many Korean customers have related the luxury, sophisticated image of Mercedes-Benz Korea to its quality products.

But following the government's latest announcement, customers may shift their interest to other imported car brands that can substitute for Mercedes-Benz," an industry insider told The Korea Herald.

Others also compared the latest emissions-rigging scandal to Audi VW's "Dieselgate," which rocked the industry in 2015.

In 2015, Audi VW was found to have used software to cheat on diesel emissions tests on some 11 million cars of 15 diesel models. Along with the fine, this led to a sales suspension of two years, significantly harming the automaker's sales and standing here.

According to Korea Automobile Importers and Distributors Association data, in 2015, Audi VW sold the third most foreign cars with flagship models A4, A6, Tiguan and Golf, accounting for 28 percent of market share. BMW and Mercedes-Benz had held 19.6 percent and 19.3 percent of market share, respectively.

But in 2017, the sales figure halved. Zero VW cars were sold in 2017, while only 962 Audi cars sold here.

Market experts viewed that the latest scandal may influence the industry to face a market contraction.

"It is undeniable that Mercedes-Benz has significantly contributed to expanding the country's imported car sector in terms of size as well as volume. It is an imported car brand but also one that leads Korea's car market, which is why it may face more responsibility" said Daelim University automotive engineering professor Kim Pil-soo.

But he went on that in the long term, Mercedes-Benz's overall sales won't be shaken, given the characteristic of the Korean consumers. "Even during the latest outbreak of COVID-19, the sales of imported carmakers like Mercedes-Benz, in fact, inched up. Korean consumers find environmental issues not closely related to which cars they drive," he said.

55. ACT's Greenhouse Emissions Could Rise Without Action On Cars, Report Finds

Greenhouse gas emissions could again rise in the Australian Capital Territory (ACT) after the territory achieves a 100 per cent renewable electricity supply if rapid action is not taken to curb transport emissions, a new government report has warned.

The report, the ACT Greenhouse Gas Inventory 2018-19, found transport emissions were the single largest source of pollution in the territory, and had increased by 1.6 per cent from 2017-18 to 2018-19.

The report found there had been an 18 per cent decrease in total emissions in the territory from the previous year, dropping from 3129 kilotons of carbon dioxide equivalent to 2568 kilotons.

ACT emissions in the last financial year were 13 per cent lower than an adjusted 1990 baseline level of emissions.

The switch to 100 per cent renewable electricity generation will mean the territory will meet its target of a 40 per cent emissions reduction on 1990 levels by 2020, a spokesperson for the Environment, Planning and Sustainable Development directorate said.

Transport emissions made up 41 per cent of total emissions, followed by electricity (31 per cent), gas (14 per cent), industrial processes (9 per cent) and waste (3 per cent), the report said.

Despite a growing population, the amount of carbon dioxide equivalent emitted for each person fell from 7.52 tons in 2017-18 to 6.07 tons in the last financial year.

The report found there was a "serious risk" the territory's emissions could rise after its electricity supply was 100 per cent renewable.

"At that point, road transport and natural gas emissions would almost certainly account for over 80 per cent of total ACT emissions, exclusive of [land use emissions]," the report said.

"The ACT's Climate Change Strategy 2019-2025 clearly acknowledges the challenges which transport and gas combustion emissions present. Continuing the decline in ACT emissions will depend on rapid implementation of the array of measures set out in the strategy."

Although per capita fuel energy consumption has remained "virtually unchanged" for six years, population growth has seen fuel consumption rise.

Since 2012-13, total fuel use has grown 12 per cent while fuel greenhouse gas emissions have grown by 14 per cent in the same period, a difference driven by an increase in diesel use.

"What this comparison shows is that either, firstly, the greater efficiency of diesel engines compared with petrol (spark ignition) engines is insufficient to offset the higher specific emissions of diesel fuel, or, secondly, vehicles on average are becoming larger and less fuel efficient, so that the average fuel efficiency of the fleet has deteriorated, notwithstanding the switch to diesel. It is likely that both factors are contributing," the report said.

The ACT government's climate change strategy released last year, includes car-free days and targets for shifting more car journeys to public transport or active travel.

Electricity emissions fell by 41 per cent from 1468 kilotons of carbon dioxide equivalent, the standard unit of measurement of carbon footprints, to 863 kilotons between 2017-18 and the last financial year.

Wind generation grew from 23 per cent to 43 per cent of the territory's electrical energy flow in the same period.

56. Shipowners Brace For S Korea's New Emissions Rules Amid Pandemic

Shipowners are starting to gear up for South Korea's stricter environmental emissions rules despite having no time to draw breath after transitioning to IMO 2020 and grappling with the coronavirus pandemic that has caused an unprecedented slowdown in global export trade.

South Korea will require the use of bunker fuel with maximum 0.1% sulfur content while berthing and anchoring from September 1 at some ports and areas such as Incheon, Yeosu, Busan and Ulsan.

A more significant change will come in 2022, when it will become mandatory to use fuel with maximum 0.1% sulfur content in South Korea's emission control areas, not just for berthing or anchoring, an industry source said, adding this would result in a significant jump in demand for low sulfur marine gasoil.

"There is a big impact on us - from September, we have to use more [quantity of] expensive oil," a shipowner source in South Korea said.

South Korea is a mid-size player in the Asian bunker fuel market, with marine fuels sales in the range of 7 million-9 million mt/year.

Such restrictions have already been implemented in a handful of other Asian countries, including China, but South Korea's regulations loom as the global coronavirus pandemic creates logistical bottlenecks in supply chains and lockdowns restrict movements of ships and people.

"Many countries are in lockdown and in Southeast Asia, where we operate, many factories are closed. Even though South Korea can export, sending cargoes out to other countries is difficult," a second shipowner source said, adding that blank sailings - cancelled bookings - are currently the norm.

However, South Korea's changes do not pose insurmountable challenges, market sources said. "It's not a problem for us [to meet the 0.1% cap]. We have already signed contracts with suppliers and traders to secure the supply," a third shipowner source said.

Low marine fuel prices on the back of the collapse in crude oil prices have cushioned the blow to shipowners of the reduction in demand due to lockdowns.

South Korea delivered Marine Fuel 0.5%S averaged \$245.39/mt over April 1-29, sharply lower than \$490.20/mt in the first quarter, S&P Global Platts data showed. Similarly, 0.1% MGO for delivery at Busan/Ulsan averaged \$283.32/mt over April 1-29, almost halving from \$535.05/mt in Q1, Platts data showed.

Fuel switchovers have also become common as shipowners have garnered sufficient experience from meeting the IMO 2020 global sulfur mandate, which will make the operational challenges of meeting South Korea's tightened rules less cumbersome, market sources said

"The IMO 2020 was a much bigger challenge but shipowners have adapted fairly well... and most shipowners are already preparing for the new rule, so compliance will not likely be a problem," another industry source said.

South Korean refiners are also well placed to meet the demand for cleaner fuels - to the extent of having to reduce runs due to the demand destruction caused by the COVID-19 pandemic, sources said.

The country's No. 2 refiner GS Caltex, which operates four crude distillation units (CDUs) with a combined capacity of 800,000 b/d, has brought forward scheduled CDU maintenance while Hyundai Oilbank, which runs two CDUs with a combined capacity of 520,000 b/d and a 170,000 b/d condensate splitter, has lowered its run rate to 90%, Platts reported earlier.

S-Oil Corp., which runs three CDUs with a combined capacity of 250,000 b/d and a 89,000 b/d condensate fractionation unit, said it currently has no plans to reduce run rates, but may do so if demand weakens further, Platts reported at the time.

There has been unprecedented demand destruction in Asia as a result of the coronavirus pandemic, causing many refiners to cut run rates. While COVID-19 initially wreaked havoc in Chinese markets, commodity trends in the country seem to be showing signs that it is getting back in business. Other countries in the region, meanwhile, are still on lockdown and even extending quarantine periods. Is China the only respite for crude sellers under the current

circumstances? S&P Global Platts editor Avantika Ramesh and analysts Oceana Zhou and Daisy Xu discuss.

57. Coronavirus In India May Spark Clean Air Movement

Delhi residents could not believe the city's new "alpine" air quality. It was only less than half a year ago when Delhi's air quality deteriorated to "unbearable levels," according to authorities. Because of the pollution, schools were closed; flights had been diverted; and the people were told to wear masks, keep windows and doors shut, and avoid polluted areas.

Fourteen cities in India, including Delhi, are among the 20 most polluted in the world. Over one million Indian deaths are estimated to occur each year from diseases associated with air pollution. Man-made activities in industries, crop and trash residue burning, roads, construction, and motor vehicles all contribute to pollution.

Due to the lockdown, federal pollution control officials reported a significant air quality improvement in 85 cities. Urban Emissions head Sarath Guttikunda wants to take advantage of the unprecedented opportunity to study how air pollution levels changed by the pandemic. Urban Emissions is a private research group that provides forecasts on air quality.

Guttikunda's research team studied data produced by roughly one hundred air quality monitoring stations set up all over the country. They concentrated on Delhi, which has over 20 million residents. During the previous winter, levels in Delhi was over 20 times higher than the safe limit set by WHO.

PM 2.5 is by far the most dangerous particle in Delhi's air. PM 2.5 increases susceptibility to cardiovascular and respiratory diseases; it is primarily spewed by combustion from vehicles, fires, and power plant operations. Urban Emissions found that Delhi's PM 2.5 levels went down to 20ug/m³ with an average of 35 during the 20-day lockdown period. Average monthly levels between the years 2017 and 2019 were four times that level.

Guttikunda noted that the level of 35 during a time when local emissions are limited indicates that a minimum of 70% of air pollution is generated locally. And the significant reduction in PM 10, which was mainly due to dust from roads, construction, and vehicle emissions, was due to 90% of all vehicles disappearing from the road.

Centre for Research on Energy and Clean Air's Sunil Dahiya also tracked levels of air pollution during India's lockdown. He says that clean and breathable air is quickly achievable if fossil fuel burning is significantly reduced.

Council on Energy, Environment, and Water CEO Arunabha Ghosh hopes the current experience could trigger a demand for clean air. Crises usually trigger policy changes, such as the 4-day pea-souper in London spurring the passing of the Clean Air Act, the APEC blue efforts by China, and the Super Cool Biz energy campaign in Japan after the Fukushima disaster.

India can also use the inevitable stimulus to kickstart green industries. After all, experts say that renewables create more jobs than the fossil fuels and coal, and India has created almost 100,000 new jobs in the wind and solar energy industry. Also, the significant price reduction of oil can provide rebates for factories to install equipment for emission control.

Ghosh says India needs to learn the economic lessons brought by the pandemic in terms of sustainable development and jobs; cleaning the air may be the key. He adds that if China could reduce 32% of air pollution in less than five years, India can do it too and pledge 80% pollution reduction in 80 of its cities by India's 80th independence anniversary in 2027.

58. Singapore Finds High Degree of Compliance with IMO 2020 Sulfur Rules

Singapore's Maritime and Port Authority (MPA) has reported that it is seeing a high degree of compliance with the new IMO 2020 fuel sulfur cap. In the first quarter of the year - the first three months after the new rule took effect - 96 percent of ships inspected were found to be using compliant fuel.

In the first quarter, MPA conducted a total of 326 inspections in the Port of Singapore. During these inspections, MPA found 12 ships, which were not fitted with scrubbers, using fuel that slightly exceeded the new sulfur limit of 0.5 percent. The agency believes that this was likely due to remaining residues of high-sulfur fuel in the ships' fuel oil tanks and piping.

"It is expected that in time, the fuel oil tanks and piping will be properly flushed with the continual use of compliant fuel," MPA assessed. The vessels' ship managers and flag states were informed of these non-compliance incidents, but detentions were not issued.

An additional two ships were found to be using non-compliant fuel. They were detained and only permitted to leave after switching to 0.5 percent sulfur content bunkers.

Singapore has banned the discharge of wash water from open-loop scrubbers, and the inspection program discovered no violations. No ship installed with an open-loop scrubber was found to be operating this equipment in the Port of Singapore. As a flag state, Singapore has received about 30 reports of scrubber malfunction from its flagged ships.

"By engaging the industry proactively, providing the necessary technical guidance and maintaining an adequate supply of compliant fuel in Singapore, we have ensured a high degree of compliance with IMO 2020 sulfur regulations. Singapore will continue to play its part to make shipping clean and sustainable," said Goh Chung Hun, MPA director of marine.

Due to collapsing demand for oil and oil products, the price spread between standard heavy fuel oil and very low-sulfur fuel oil has dropped dramatically. On a recent day, VLSFO was only \$33 a ton (20 percent) more than HFO at Rotterdam.

59. New Zealand Sticks To 2030 Climate Target While Waiting For 1.5C Advice

New Zealand has reaffirmed its existing 2030 climate target, despite UN expectations on countries to toughen their goals before the end of the year.

In a submission to the UN on Earth Day, the New Zealand government said the country's newly established and independent Climate Change Commission would make recommendations "in early 2021" over whether and how its climate plan could be changed "to make it consistent with the 1.5C temperature goal" – the tougher global warming limit of the Paris Agreement.

New Zealand previously committed to reduce emissions by 30% below 2005 levels by 2030. At the end of 2019, it passed a law that sets a net zero goal for all greenhouse gases in 2050 except biogenic methane (mostly from sheep and cattle), which is to be cut 24-47% from 2017 levels.

Climate Action Tracker ranks New Zealand's current 2030 pledge as "insufficient" to hold warming to 2C – the minimum level of ambition agreed in Paris.

Under the Paris Agreement decision texts, countries are invited to communicate or update their 2030 climate plans, also known as nationally determined contributions (NDCs), and submit their long-term decarbonization strategies "by 2020", which is widely interpreted as by 31 December.

So far, only the Marshall Islands, Suriname, Norway, Moldova and Chile have submitted stronger medium-term plans to the UN. Other countries such as Switzerland and Japan have merely reaffirmed previous climate pledges.

UN Climate Change is due to take stock of collective ambition at the next round of climate talks, known as Cop26 – and how far it falls short of what is needed to achieve the Paris accord's goals. Current commitments put the world on course for more than 3C of warming.

While Cop26 has been postponed due to the coronavirus pandemic, from November 2020 to an unspecified date in 2021, the timeline for upping national pledges is unchanged.

Writing in the British newspaper The Times, Sergio Costa, Italy's environment minister, and Alok Sharma, UK minister for business, energy and industrial strategy and Cop26 president designate, said both countries would submit enhanced NDCs. "We call on every country to do the same," they wrote.

The UK is to host Cop26 while Italy will oversee preparatory events, including a youth event.

In practice, the coronavirus pandemic is likely to delay some countries' submissions as travel restrictions and social distancing rules have prevented NDC coordination meetings and workshops from taking place.

Even before Covid-19 struck, there were political headwinds to raising ambition – not least among the world's two biggest emitters. President Donald Trump is withdrawing the US from the Paris pact, relieving pressure on China to up its game. Experts predict Beijing will wait for the outcome of November's US election before making any new commitments.

Speaking at the Placencia Ambition Forum, organized by the Alliance of Small Island States, UN climate chief Patricia Espinosa said: "We can't forget that difficult days are the daily reality for many because of climate change. We must therefore continue to drive ambition and make sure NDCs are as robust as possible."

The forum was held online, rather than in Belize, as travel was cancelled to slow the spread of Covid-19.

In its submission, New Zealand said it remained "fully committed to ambitious national and global climate action to achieve the aims of the Paris Agreement, to supporting efforts aimed at limiting warming to no more than 1.5C above pre-industrial levels, and to building resilience to the impacts of climate change with a focus on our Pacific neighbors".

Earlier this month, the country's Climate Change Commission outlined six principles to deliver an economic recovery from the pandemic that keeps New Zealand on track to achieve its climate goals.

In recent years and under prime minister Jacinda Ardern's leadership, New Zealand has been keen to be seen as a progressive voice in climate diplomacy and a leader on climate action. "We've led the world before in nuclear disarmament and in votes for women, now we are leading again," declared climate minister James Shaw when the bill committing the country to achieve carbon neutrality was approved by parliament in November.

New Zealand's three-year election cycle means Kiwis are going back to the poll in a general election planned for September this year.

60. BYD, Toyota's Hino Team Up On Electric Commercial Vehicles

Electric vehicle maker BYD is partnering with Toyota Motor Corp.'s Hino Motors truck unit to develop electric commercial vehicles, as BYD deepens electric collaboration with Japan's top automaker. The partnership will focus on electric buses and trucks, in addition to BYD and Toyota's joint development on electric passenger cars.

Shenzhen-based BYD, which is backed by U.S. investor Warren Buffett, has been building electric commercial vehicles including London's electric double-decker buses and electric road sweepers in Beijing.

Hino is developing battery electric trucks but has not marketed a fully electric model. Hino makes trucks in China with Guangzhou-based GAC, which is also a partner of Toyota.

Toyota, which expects to achieve half of its vehicle sales from electrified models by 2025, has been developing its own EV batteries and has been tapping new suppliers to avoid a shortfall in supply as demand for electrified vehicles is expected to increase in the coming decades.

AFRICA

61. Air Pollution Rises 'Significantly' In Major African Cities

A new study in three major African cities has found air pollution has increased 'significantly' over the past 45 years. Unlike Europe, Africa is not well-equipped with air quality monitoring infrastructure, so scientists used visibility data for capital cities in Ethiopia, Kenya and Uganda as a substitute measurement.

They discovered a significant reduction in visibility since the 1970s, where Nairobi shows the greatest loss (60%), compared to Kampala (56%) and Addis Ababa (34%) – due to increased particulate matter (PM) emissions from vehicles and energy generation.

Correspondingly, PM pollution levels in the three cities are estimated to have increased by 182%, 162% and 62% respectively since the 1970s to the current period.

University of Birmingham experts published their findings in Environmental Research Letters. They are now calling for a systematic approach to understand the causes and effects of air pollution in urban East Africa – allowing improvements in air quality to co-exist with sustainable future economic development.

The researchers compared changes in pollution to population growth and GDP statistics – finding increased PM levels linked to increases in national GDP and populations in all three study cities.

They also discovered distinct variations in seasonal visibility, which are largely explained by changing PM sources and sinks in rainy and dry seasons. Visibility was lowest during the dry months and highest in wet months. At all study sites, visibility was higher on Sundays – due to reduced traffic and industrial emissions.

Report co-author Dr. Ajit Singh said: ‘Evidence indicates that ambient air quality in urban African locations is often poor, because of high rates of urbanization and population growth leading to large-scale construction, increased energy use, vehicle emissions and industrialization.

‘PM air pollution is a major concern in East Africa because of its impact on human health. There are few air quality monitoring networks, resulting in little long-term air quality data, but visibility measured at major cities can be used as a proxy for PM pollution.

‘We’re tremendously proud of our work in East Africa and the analysis techniques we developed to study Nairobi, Kampala and Addis Ababa are translatable to other parts of the world where air quality data is limited.’

GENERAL

62. World Bank Calls For ‘Green’ Focus In COVID-19 Recovery

The World Bank has unveiled a set of draft recommendations for governments crafting COVID-19 stimulus measures that urge them to prioritize environmental sustainability and decarbonization in their recovery plans, warning that funding “declining” or high-risk projects risks dragging down the economy with stranded assets.

The draft document, urges policymakers to focus on a range of sustainability concerns alongside immediate economic issues, including resilience, adaptive capacity, “fundamental market failures” like subsidies and pricing that leaves out externalities such as climate change, and the broad category of “decarbonization and sustainable growth, and long-term risk.”

“The choices that governments make to restart their economic engine, including the long-term social, economic, and environmental co-benefits they seek to achieve through their stimulus investments, will be extraordinarily consequential in ensuring that they can build back stronger and better,” reads an April 14 blog post by Stéphane Hallegatte, the World Bank’s lead economist, and Stephen Hammer, global director for its climate change team.

While the post does not explicitly urge against sending stimulus funds to fossil fuel companies, it warns that “It will be particularly important to ensure that investments from stimulus packages do not impose large stranded asset costs on the economy in coming decades, for instance because they bet on declining technologies or place projects in high-risk flood zones.” The threat of renewable energy and carbon limits turning oil, gas and coal investments into stranded assets is a long-standing concern for those sectors and their investors.

And it calls for policy-makers to focus on “Decarbonization and sustainable growth trajectory, with actions to support and disseminate green technologies, like grid investments that facilitate the use of renewable energy and electric vehicles, or low-tech options like afforestation and landscape and watershed restoration and management.”

Those recommendations align with calls for a “green recovery” from environmentalists, public-health groups and others, who have warned that the economic impacts of the current pandemic are similar to what climate change will bring.

The World Bank does not call for specific measures, but urges policy-makers to ask whether their plans are “consistent with and supportive of existing long-term decarbonization targets and strategies . . . create or amplify a lock-in of carbon-or energy-intensive development patterns . . . [or] remove or reduce financial market, tax, or regulatory obstacles to decarbonization,” among other environmental factors.

It also encourages plans that “boost resilience to natural disasters, for instance through hardened infrastructure, use of nature-based solutions (such as mangroves to protect against coastal floods), or efforts to relocate infrastructure out of harm’s way.”

While national and international responses to the downturn are still in their early stages, the blog post says there are already indications that at least some governments plan to follow their recommendations. “There are encouraging signs from some countries -- including China, Germany, and South Korea -- that are looking at green elements as part of their recovery,” they write.

1. UN Development Chief Calls For Green Shift Away From ‘Irrational’ Oil Dependence

Post-coronavirus stimulus packages must shift the economy away from its “irrational” oil dependence to a greener future, according to Achim Steiner, head of the UN Development Program (UNDP). He said it would be impossible simply to reactivate the pre-Covid-19 global economy in the way that billion-dollar bailouts helped revive growth after the 2008 financial crisis.

“You have an opportunity to either invest in returning to yesterday’s economy or to invest into tomorrow’s economy.”

Steiner said that the plunge in benchmark US oil prices to lows of around minus \$40 a barrel highlighted a need to break dependence on fossil fuels and move to greener energies such as solar and wind power.

“The fact that the lifeblood of our economy for much of the last 100 years has been dependent on a substance (whose price) oscillates literally in a few months by 200%, sometimes 300% ... is in itself an illustration of how irrational our energy has become,” he said.

He said that nuclear power had also failed to live up to promises of being a cheap and safe source of energy. Nuclear power “is a 20th century technology that is on the way out. Fossil fuels are rapidly moving in that direction.”

In government planning “there are thousands of possibilities in our daily economic transactions to insert the DNA of a low-carbon transition and recovery strategy. These are the possibilities we now need to test,” he said.

He noted that the Austrian government, for instance, said this month that state aid for Austrian Airlines should support climate policy targets. Similar opportunities to shape a greener future existed in all stimulus packages.

At the same time, he said that many countries, especially developing nations dependent on oil exports, needed to safeguard jobs and would need time to reform. “You can’t talk a terrible crisis into a rosy opportunity,” he said. “We need to now have governments and markets design their strategy of exiting from fossil fuels over a period of probably 50 years, but with increasing and accelerating pace.”

This week, the International Renewable Energy Agency (Irena) estimated a deep decarbonization of the world economy by 2050 requires total energy investment up to \$130 trillion. It would boost cumulative global GDP gains above business-as-usual by \$98 trillion between now and 2050 and have benefits such as quadrupling renewable energy jobs to 42 million, Irena said.

Steiner said a green transition would also help reduce climate change and air pollution that kills millions of people a year. There were also risks that fossil fuel reserves would become stranded assets, that were unusable and worthless for investors.

Steiner was head of the UN Environment Program at the time of the financial crisis and urged the adoption of a Global Green New Deal in 2009 to shift economies away from fossil fuels, one of the first uses of an idea that has since caught on far more widely.

In 2009, the reaction “was still a very partial and relatively limited green stimulus” even though nations including China, the United States, the European Union and South Korea and others invested billions of dollars into green measures.

And Covid-19 “isn’t a crisis we can solve with bailouts,” he said. “This time we are not going to see a return to a pre-Covid normal. It’s not just about getting back the economy we had before.”

“This is not a black swan, this is not Rumsfeld’s unknown unknown,” he said of the pandemic, referring to former US Defense Secretary Donald Rumsfeld who spoke of “unknown unknowns” when discussing uncertainties about Iraq’s weapons arsenal.

“We have just been catapulted into that domain where oil is something that we actually cannot use,” Steiner said.

63. First Quarter Of 2020 Is Second Warmest On Record

This year is shaping up to be one of the warmest years on record – if not the warmest. This is particularly noteworthy because 2020 is likely to see neutral El Niño/La Niña conditions that will play little-to-no role in boosting annual temperatures.

The first three months of 2020 were the second warmest on record, behind only the super-El Niño-fueled 2016. The past 12 months were also nearly tied for the warmest 12-month period on record. Near-record sea surface temperatures have driven extensive coral bleaching during the southern hemisphere summer.

Global temperatures are currently running at or above the level projected by the generation of climate models featured in the 2013 Intergovernmental Panel for Climate Change (IPCC) fifth assessment report (AR5).

Global sea level continues to rise in 2020. This is being driven by melting glaciers and ice sheets, as well as the thermal expansion of water as it warms. Arctic sea ice currently is on the low end

of its historical range after seeing the joint-second lowest minimum Arctic sea ice extent on record in 2019, while Antarctic sea ice is closer to normal levels for this time of year.

64. Shell 'Net Zero' GHG Goal Could Set Petroleum Sector Standard

Weeks after Shell drew criticism for “greenwashing” with overstated climate efforts in its 2019 annual report, the large international energy company now says it will aim to achieve “net zero” greenhouse gases by 2050, potentially setting a new standard for the industry.

But some environmentalists are skeptical of the commitment and say the only way for Shell to significantly curb its GHGs is to halt all oil and gas drilling.

Shell CEO Ben van Beurden announced the net zero goal in an April 16 statement, saying, “Society’s expectations have shifted quickly in the debate around climate change. Shell now needs to go further with our own ambitions, which is why we aim to be a net-zero emissions energy business by 2050 or sooner. Society, and our customers, expect nothing less.”

The statement quotes Peter Ferket, Chief Investment Officer of the Robeco asset management firm, as saying, “It proves that the strong and committed engagement of institutional investors with Shell can help accelerate the pace of change to deliver the goals of the Paris Agreement. It raises the bar and sets out an approach for others in the oil and gas sector to follow.”

Ferket is also the co-lead of Climate Action 100+, a major initiative by sustainability non-profit Ceres to bring investor pressure on important GHG emitters.

Climate Action 100+ issued its own statement welcoming Shell’s announcement. Stephanie Pfeifer, a member of the group’s steering committee and the CEO of Institutional Investors Group on Climate Change, said, “Investors will now look to other energy companies to match, and build on, the welcome ambition Shell is showing. Engagement with Shell will also continue as investors support the company in taking the steps needed to align its business with the goals of the Paris Agreement.”

Greenpeace United Kingdom’s climate campaign chief Richard George told The Guardian: “A credible net-zero plan from Shell would start with a commitment to stop drilling for new oil and gas. Instead, investors are being fobbed off with vague aspirations that don’t tackle Shell’s monstrous carbon footprint and pass the buck to Shell’s customers to offset their emissions.”

65. IATA Starts Discussions With ICAO On Changing CORSIA Baseline

As IATA’s regular updates on the Covid-19 impact on the air transport industry become increasingly pessimistic, many analysts are warning of an extended crisis with global air traffic not returning to previous levels for some years. IATA has raised its previous forecast on industry losses in 2020 by 25% to \$314 billion and a near halving of passenger traffic (RPKs) and capacity. The airline industry body has already started discussions with ICAO on changing the CORSIA baseline to avoid including 2020 emissions in the calculation, which would lead to an increased offset purchasing requirement during the course of the 15-year scheme. Both the EU and the US have shown some sympathy with the request. However, the European mood is that airlines should not escape their climate responsibilities as a result of the coronavirus pandemic and that aid should come with strings attached.

The CORSIA baseline is to be calculated as the average of the emissions from international flights for 2019 and 2020, designed to iron out minor fluctuations between the two years. A forecasted 45% reduction in capacity in 2020 compared with 2019 would have a major impact on the baseline that would impose an economic burden on the industry, said IATA in a recent position paper.

An IATA spokesperson told GreenAir the trade body had spoken with a senior representative from the ICAO secretariat about its proposal to use only emissions from 2019 as the baseline. He said it was his understanding that ICAO “wanted to understand IATA’s position better”.

Any change to the baseline calculation would have to be approved by ICAO’s governing Council, which is next due to meet in session in June. IATA is keen for a decision to be made by then as it may impact the willingness of certain countries to join the voluntary pilot phase starting next year.

The early signs are that major participating countries are open to the move. An FAA official familiar with the CORSIA process at ICAO told GreenAir: “Changes to the baseline are highly likely once there’s a chance to review the situation and those can be done without disrupting CORSIA’s rollout.”

EU Transport Commissioner Adina Vălean told the press that Europe had to implement CORSIA “to show that we are true to our word” and added “I’m sympathetic towards airlines because I know how hard the industry has been hit and we need to maintain its competitiveness. If discussions evolve, we’ll take stock of them.”

Prior to the global crisis, IATA forecast CORSIA would mitigate around 2.5 billion tons of CO₂ between 2021 and 2035, an annual average of 164 million tons. ICAO’s own previous analysis estimated the industry would need to offset around a total of 104 million tons of CO₂ in the 2021-2023 pilot phase, rising to 216 million tons in the 2024-2026 first phase.

Among the various fuel sectors, oil consultancy Rystad Energy expects jet fuel to be hit the hardest by the pandemic, with global demand falling by almost 31% year-on-year, from an average 7.2 million barrels per day in 2019 to around 5 million bpd. It forecasts demand in April to be as low as 2.6 bpd and in May 2.4 million bpd. Jet fuel prices in Singapore have fallen by 61% over the last two months.

Jet fuel consumption may not recover fully even in 2021 as travelers remain concerned about long-haul vacations and businesses get used to online meetings, said Per Magnus Nysveen, Rystad’s Head of Analysis.

According to an IATA analysis in December, global carbon emissions in 2019 – from domestic as well as international flights – totaled an estimated 915 million tons, with a projection of 936 million tons in 2020. IATA is now estimating a fall this year in terms of capacity – aircraft movements – in the order of 45%, suggesting global emissions in 2020 from the sector could amount to around 500 million tons in total.

In 2015, around 65% of global aviation fuel consumption was from international aviation, a proportion which ICAO expects to remain stable out to 2050. CORSIA does not cover emissions from domestic aviation, which are the responsibility of individual States under the Paris Agreement.

A further outcome of the pandemic for CORSIA, although to some extent this may have happened anyway, is that a number of countries have extended the deadline for airlines and other aircraft operators reporting their CO2 emissions for 2019 to their national authority.

T&E has revealed that Europe's largest low-cost carrier Ryanair, which in 2018 became the first airline to join the top ten list of emitters within the EU Emissions Trading System (EU ETS), climbed up the table last year to seventh place as a result of a 5.9% increase in emissions. Airline carbon emissions grew 1.5% overall in 2019, it said, in contrast to other sectors covered by the EU ETS, which declined 8.9% overall.

Former EU Climate Commissioner Miguel Arias Cañete agrees that taxpayer help for airlines hit by the current crisis should come with conditions. "It must be conditional, otherwise when we recover we will see the same or higher levels of carbon dioxide [from flying]," he told The Guardian.

66. Hapag-Lloyd, Maersk Beat IMO's 2030 Greenhouse Gas Target By A Decade

Hapag-Lloyd has reduced emissions per TEU-kilometer by 50%, and Maersk by 41.8%, from 2008 levels, beating the International Maritime Organization's (IMO) industry target of 40% emissions reduction by 2030, according to their respective 2019 sustainability reports.

Hapag-Lloyd plans to reduce emissions by 20% (from 2016 levels) per TEU-kilometer in 2020 through the conversion of ships to low-sulfur fuels and investments in digital transformation efforts.

Maersk reported it remains on track to achieve full decarbonization by 2050.

Before the coronavirus outbreak began, one of the foremost concerns in the maritime industry was meeting IMO 2020 compliance requirements by the January 1 deadline. At the time, the cost of sourcing and switching vessels over to low-sulfur fuels was top of mind for shippers and carriers concerned about rising prices.

Since then, the COVID-19 outbreak has compounded costs and disruption. While Hapag-Lloyd has hinted at revenue difficulties to come later in 2020, Maersk has already suspended its earnings guidance for the year, citing coronavirus-related disruptions.

But some experts, including Dan Hubbell, shipping emissions campaign manager at the Ocean Conservancy, remain optimistic about the industry's ability to maintain progress on sustainability efforts. "There still seems to be every intention of keeping to the timelines envisioned in the [IMO] Initial Greenhouse Gas Strategy," he told Supply Chain Dive via email.

Studies show consumers favor environmentally friendly companies and shipping options. Forty-eight percent of consumers are more concerned about environmental sustainability and 55% are more likely to purchase environmentally friendly products as a result of the COVID-19 outbreak, according to a survey of 1,000 shoppers conducted by Kearney.

Ninety-five percent of Hapag-Lloyd's vessels now run on low-sulfur fuel, according to its report, producing 70% fewer emissions compared to when they ran on traditional crude. CEO Rolf Habben Jansen said the company "will continue to focus on additional improvements, including technological and digital innovations as well as further reductions in the emissions of our fleet."

The next step for the carrier is to transition from low-sulfur to LNG or biofuels, Jörg Erdmann, senior director of sustainability management at Hapag-Lloyd, told Supply Chain Dive via email. The company plans to convert one of its large container ships, "Sajir," to an LNG propulsion system in Q4 this year.

"LNG is a bridge technology as sustainable marine fuel for the midterm," he said. However, "In the long term perspective, we need to look further into alternative fuel solutions based on synthetic production ... biofuel as a drop-in is the fastest and much easier solution to kick-start sustainable marine fuel."

However, these investments require financial resources, in addition to cooperation with industry partners in order to bring sustainability innovations to scale in ocean shipping.

"Comparatively, the main challenge in decarbonizing shipping is not at sea but on land," John Kornerup Bang, chief advisor for climate change at Maersk, said in its sustainability report. "The technological changes inside the vessels are minor compared to the massive innovative solutions and fuel transformation that must take place in the fuel supply chains to produce and distribute entirely new energy sources."

The creation of this infrastructure has been stymied in part by the COVID-19 outbreak and resulting disruption.

"Sustainability is a marathon rather than a 100-metre sprint. Given this fact, the issue will remain on our strategic agenda for the long term and be given high priority — also and especially in 2020, which has been an unusual year for all of us," Jansen said.

67. ICCT: Five Ways For Governments To Green Airline Bailouts

It's a horrible time to be in the airline business. The coronavirus pandemic has taught us new lessons about the vulnerability of airlines to disruption. A 70% reduction in scheduled flights year over year has led governments mobilizing to bail them out.

The US coronavirus relief act (Cares Act) directed \$50 billion to keep US carriers afloat through September 2020. France recently announced a €7 billion bailout of Air France with some environmental conditions, including that the airline cut its carbon intensity by 10% from today's levels in 2030, halve CO2 emissions from flights within mainland France, and use at least 2% of alternative jet fuel by 2025.

What might a "green" airline bailout look like? Here are five key strategies:

- Accelerate the retirement of excess, carbon intensive capital stocks
- Catalyze new investments in low and zero carbon technologies
- Build durable funding mechanisms to support continued investments
- Limit future emissions growth through meaningful targets
- Empower consumers to demand sustainable flying options

Let's consider each of these in turn.

The traffic boom of the past decade, combined with the sudden evaporation of demand under Covid-19, leaves behind extra aircraft that will not be used for the foreseeable future. Some of

those are already being retired today, others will need a push to the scrap heap. A fuel efficiency standard for in-service aircraft or scrappage incentives could help take up the slack.

In their place, we'll need to jumpstart large new investments to mature, develop, and deploy low and zero carbon aircraft and fuels. That calls for an Apollo-style program for advanced aircraft and engines, truly sustainable biofuels, and synthetic jet fuels generated from renewable electricity.

Ambitious new programs are needed to mature alternatives to conventional "wing and tube" aircraft as well as hybrid, electric, and hydrogen powered aircraft. Support should also go to "drop in" alternative fuels generated from wastes, cellulosic feedstocks, and renewable electricity. These fuels should provide at least a 70% lifecycle reduction in greenhouse gas emissions compared to conventional jet.

Governments can lead but can't shoulder all of the expense – we'll need durable, industry funded mechanisms for continued investments. Those could come from a fuel levy, emissions trading, or carbon tax on airlines with revenue earmarked for research and development (R&D).

Another approach attracting attention in the UK in particular is for a frequent flyer levy, as championed by A Free Ride campaign. This could generate funds for R&D from the most frequent fliers, and also provide public health benefits by curbing excessive, high frequency flights that increase the risk of global pandemics.

We'll also need ambitious but achievable emission limits to backstop these investments.

Airlines have already agreed to offset most growth in international CO₂ from 2020. This could be expanded to include domestic aviation and to transition away from offsets, which are incompatible with long-term decarbonization.

Because low carbon aviation technologies will need decades to mature, capping aviation emissions now means balancing future traffic growth with improvements in fuel efficiency. As a point of context, between 2013 and 2018, airline traffic in the US grew three times faster than fuel efficiency improved. Global traffic grew six times faster.

Finally, we need to empower consumers to reward more sustainable carriers by addressing a persistent lack of transparency in airline emissions.

Consumers should be able to vote with their money to support lower emitting airlines. Most people aren't aware that the carbon intensity of flights linking the same city-city pair can vary by more than 80%. Mandatory reporting of emissions by flight would help environmentally conscious consumers choose more fuel-efficient flights while providing needed market pull for the technologies discussed above.

Success is by no means guaranteed, and a rush to define terms can lead to unintended consequences. For example, under the US Cares Act, airlines are operating large numbers of "ghost flights" in part due to requirements that they maintain minimum air service levels to underserved airports.

There will also be a strong headwind to investments in new aircraft and clean fuels now that fossil jet fuel prices have fallen by two thirds since February. But, like it or not, Covid-19 is forcing a reboot of the aviation industry. Let's make it a lasting one that works for the planet as well.