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EUROPE

1. Fears Of 'New Dieselgate' Sparked By Lorry Emissions Investigation

A German environmental group has highlighted an “alarming” study suggesting that one in five lorries have defective or tampered with emissions reduction systems. The study, presented by Deutsche Umwelthilfe, found that of 140 Euro V and VI class lorries tested covertly while on the road, 20% breached the required standards for NOx emissions, leading to fears of foul play.

“If every fifth lorry tested doesn’t meet emissions standards, that is evidence that the emissions control system is defective or manipulated,” said Axel Friedrich, head of the DUH’s emissions unit.

A lower proportion of Euro VI lorries failed the tests than older Euro V models, 30% of which had “significantly higher NOx emissions values” than allowed, according to the green group.

“We cannot accept it,” Friedrich added. “Our current technology allows for vehicles of this emissions standard to be largely clean when travelling. That should not be undermined by dirty tricks by operators and a lack of inspections.”

The researchers collected the data by driving behind lorries on motorways in five German states and surreptitiously measuring their NOx emissions - a method known as ‘plume chasing’.

The results show “that real-world diesel emissions are being doctored not only for cars, but also for lorries”, said Jürgen Resch, head of the DUH and a veteran advocate of tougher action against air pollution by diesel engines.

The DUH says a lorry’s emissions reduction system can be manipulated by stopping diesel exhaust fluid from being sprayed, while the on-board monitoring system can be electronically tampered with to make it appear as if the system is operating as normal.

But unlike the ‘Dieselgate’ scandal, where car makers used ‘defeat devices’ to beat lab-based emissions tests for passenger vehicles and vans, green groups have accused individual lorry operators, rather than manufacturers, of being responsible.

Andreas Mossyrsch, chair of freight sector group Camion Pro, which supported the study, said the findings show operators playing by the rules face unfair competition to the tune of €1,000 per lorry a year. “These cases of tampering not only lead to a high environmental impact, but also to an existential threat from distorted competition,” he said.

Resch called for greater “political will” to set up better on-road emissions testing across Europe. “Vehicles with the high levels of pollutant emissions that we measured, which poison the air, must immediately be taken off the roads.”

2. Wave Of Legal Action Over Environmental Breaches in the EU

Several governments are on their way to court and others have been given final warnings over breaches to a raft of EU environmental legislation in the last infringements package of the outgoing Juncker Commission. Environment commissioner Karmenu Vella said the EU executive

“does not take decisions lightly” as Greece was referred to the EU Court of Justice for failing to adequately protect biodiversity.

The EU executive also announced a raft of measures for breaches of rules on air quality, with Bulgaria and Spain joining a growing list of referrals to the ECJ for failing to protect citizens from air pollution.

Spain has been in the news recently (see below) after Madrid's new right-wing administration decided to reverse the setting up of a clean air zone, which was part of a set of pledges that helped the country avoid a court action last year, when six others were referred to the ECJ. A Commission official said the decision to go to court was not a direct response to this reversal, but rather to persistent breaches of EU limits on NO₂ pollution in Madrid, Barcelona and Vallès-Baix Llobregat combined.

Croatia, Romania, Greece and Poland were also called out for failures to monitor effectively or limit air pollution. Vella said air quality was the EU's main health risk. “There is no more room for excuses; we need to see decisive action,” the commissioner said while urging governments to show the political will to tackle the problem.

3. Europe Heat Wave Smashes Temperature Records Across The Continent

A historic heat wave inflicted life-threatening temperatures on Europe and shattered all-time highs in multiple countries recently. Thermometers in Paris registered a jaw-dropping 108.7 degrees Fahrenheit (42.6 Celsius), according to Météo-France, the national weather service, breaking the previous record of 104.7 degrees (40.4 Celsius) set in 1947.

Belgium, Germany and the Netherlands all saw new national records on July 25th, beating highs set just the day before — with the Netherlands exceeding 104 degrees (40 Celsius) for the first time in recorded history.

Britain came just shy of its record. The Met Office in Cambridge measured 100.6 degrees (38.1 Celsius) in Cambridge. And London experienced its hottest day ever recorded in July, with temperatures recorded at 98.2 degrees (36.9 Celsius).

Those temperatures may not seem shocking by the standards of many regions in the United States, but in Europe, where air conditioning is relatively uncommon, they can be deadly.

“No one is safe in such temperatures,” said Agnès Buzyn, France’s health minister. “This is the first time that this affects departments in the north of the country.... populations that are not accustomed to such heat.”

“Heat waves are a serious problem for older and ill people,” Anton Hofreiter, leader of Germany’s Green Party in parliament, told Der Spiegel. He said Chancellor Angela Merkel’s government was not doing enough to support those affected and cited France as a role model.

The heat wave has been caused by a massive area of high pressure extending into the upper atmosphere, also known as a heat dome, that has temporarily rerouted the typical flow of the jet stream and allowed hot air from Africa to surge northward.

This system is set to migrate further north, parking itself over Scandinavia and possibly breaking records in Norway and Sweden before making a run at the Arctic, where it could accelerate the melting of already anemic sea ice.

In Paris, the heat reverberated off the pavement and the city's iconic stone facades. In an experiment, it took 10 minutes for a chocolate Eiffel Tower to melt in the sun.

Although this is high tourist season, major attractions such as the Place de la Concorde and Luxembourg Gardens were eerily deserted. People piled into movie theaters — in some cases for films they didn't especially want to see — because those were some of the only places to find air conditioning.

Twenty of France's administrative departments — from Paris north toward the English Channel — were placed on the highest possible alert level.

Elisabeth Borne, France's minister of sustainable development, urged citizens to cancel or postpone all unnecessary travel. The SNCF, France's state-owned railway company, allowed customers to exchange or cancel free of charge any Thursday travel to the 20 northern regions particularly affected.

In much of Europe, air conditioning has been seen as a luxury, and even an American-style indulgence. But that may be shifting as episodes of punishing heat become the new normal. "We are in a situation where people cannot live," said Sacha Gaillard, a technician with Les Bons Artisans, a French company that, among other things, installs air conditioners.

"[People] can't sleep at their apartments. Air conditioning is no longer a comfort. It's a necessity. It's as if people had no heat in winter," Gaillard said, noting that the company's air conditioning business across France has increased exponentially in the past five years.

Some Europeans continue to see air conditioning as a threat to the environment — as precisely the wrong response to crippling heat waves triggered by climate change.

There are also bureaucratic concerns. Many residential buildings in cities such as Paris are centuries old and classified as landmarks. Their facades cannot easily be altered without the express permission of city hall or an architectural union under the auspices of the Culture Ministry.

In the meantime, cities are coordinating impromptu measures for residents to cool off. Paris, for instance, has designated air-conditioned rooms in each arrondissement, or district, as well as outdoor swimming areas and parks that stay open around the clock.

Long-term, human-caused climate change makes extreme-heat events like this one more likely, more severe and longer-lasting, according to numerous scientific studies.

Globally, 2019 is on its way to being one of the top five hottest years since record-keeping began in the late 19th century. And, in part because of the hot weather in Europe, July may rank as the hottest month on record. June 2019 was already the hottest June to date.

The searing temperatures in Europe also heated up the political climate. German news magazine *Der Spiegel* reported on a plan by the Green Party — which has become a major political force partially due to its push to decrease emissions and combat climate change — to prepare Germany for future heat waves. In its policy paper, Green Party officials propose a "right to home office" for

all employees and a “right to be given the day off in case of excessively hot weather” for employees working outside.

The heat wave coincided with a visit of Swedish climate activist Greta Thunberg to France. She addressed the National Assembly, delivering a speech that triggered calls for boycotts from right-wing politicians. “You don’t have to listen to us,” Thunberg said in her address, “but you do have to listen to the science.”

4. Report: Climate Change Made Europe’s Mega-Heatwave Five Times More Likely

After a series of unusually hot summers, France and other parts of Europe recently experienced another intense heatwave that broke temperature records across the continent. (See story above.) For one group of climate scientists, the event presented a rare opportunity to rapidly analyze whether the heatwave — which made headlines around the world — could be attributed to global warming. After a seven-day analysis, their results are in: climate change made the temperatures reached in France at least five times more likely than they would be in a world without global warming.

The scientists with the World Weather Attribution project decided to act when they saw the heatwave coming and ended up performing a near real-time analysis while at a climate conference in Toulouse, France. As they met at the International Conference on Statistical Climatology, the city and most of the country baked — the southeastern town of Gallargues-le-Montueux broke national temperature records, hitting 45.9 °C on 28 June.

“We discussed our approach and gathered data and looked at climate models between talks,” says Friederike Otto, a climate researcher at the University of Oxford, UK. “It was really good to have our attribution group all in one place and discuss our work with others. We got a lot of helpful feedback from the meeting.”

To find out whether global warming has affected the likelihood of a real event, scientists look at existing weather records and compare them with models, including simulations of how the weather would behave in a world that wasn’t warming. The concept has matured since it was conceived more than a decade ago, but it is probabilistic by nature.

“Some say the uncertainties are too big,” says Otto. “There are indeed caveats, mostly to do with imperfect climate models. But even with large uncertainty bars, we think it is useful to provide quantitative evidence for how climate change is affecting extreme weather.”

Using their models, the researchers calculated that the average temperatures reached over the hottest three-day stretch in France — around 28 °C — were at least five times more likely because of climate change.

But in a second analysis that looked at historical temperature records over the past century, rather than models, the team calculated that the likelihood of such a heatwave in June has in fact increased 100-fold since around 1900, owing to the combined influence of climate change and other factors, such as air pollution.

The probability calculated by the models is likely to be an underestimate, say the researchers — who note that their study has not yet been peer reviewed. That’s because unlike the real-world data, the simulations are affected only by climate-related factors, and don’t represent aspects such as changes in cloud cover, land use, irrigation and air pollution, which all seem to have an

influence on temperature, says Robert Vautard, a climate researcher at the Laboratory for Climate and Environmental Sciences in Gif-sur-Yvette, France, who is part of the attribution team.

“Climate models are missing something when it comes to capture fairly short-lived heat events,” says Dim Coumou, a climate scientist at the Free University of Amsterdam who wasn’t involved in the study. “But that doesn’t make the results less alarming. Heat waves will strongly increase with climate change, and that’s a big problem for society.”

So far, more than 200 attribution studies have examined whether climate change made particular events — including heat spells, droughts, floods and storms — more likely. Researchers have found that about two-thirds of the extreme events they analyzed were made more likely, or more severe, by the build-up of greenhouse-gases in the atmosphere. For example, an analysis of a heatwave that hit parts of Europe between May and July last year, which was less intense but longer-lived than the latest one, found that climate change had made its occurrence more than twice as likely in many of the places affected.

Some weather agencies now plan to make climate-attribution studies part of their public services. The German weather service and the European Union’s Copernicus Climate Change Service are preparing to routinely analyze the extent to which climate change influences weather in Germany and Europe, and to publish the results in near real time.

Public interest in climate-science information is rising sharply, thanks in part to youth protests urging action by adults — most notably the Fridays for Future campaign launched by Swedish teenage climate activist Greta Thunberg.

“I’ve been speaking to journalists at least every other day for months,” says Otto. “It’s crazy, but it has really become a central part of my work.”

5. Carbon Emissions Limits to Spark Electric-Car Production in EU

Production of battery and hybrid-electric vehicles in Europe is on track to multiply more than fivefold by 2025, with 2020 representing a “tipping point” for the market, according to a study released July 18. Based on forecast data from the IHS Markit research firm, 4 million additional battery and hybrid-electric vehicles will be introduced during the next several years, representing 20 percent of new-vehicle production, the nongovernmental organization Transport & Environment said in the study. The number of available models will increase from 60 to 333.

The report attributed the jump to the European Union’s new mandatory fleetwide limit of 95 grams of carbon dioxide per kilometer, which takes effect in 2020. Starting in 2025, emissions must fall an additional 15% compared to 2021 levels under a new European Commission rule.

“If carmakers stick to their plans, this [supply] will be more than enough to comply with the EU carbon dioxide standards for 2025,” the report said.

Although the supply-side numbers are good news for carbon emissions targets, Europe still needs stronger financing schemes and better charging infrastructure to ensure that electric vehicle purchases enter the mainstream, Transport & Environment analyst Lucien Mathieu said. “In many countries, it’s very complicated, or very long or very expensive, to have a charger installed in your home, for example if you live in a shared building,” he said.

Utilities such as Italy's Enel SpA and Electricite de France SA have pledged to build charging stations on public roads, but data show that 95% of vehicle charging takes place at home or work, according to Mathieu.

So far, early adopters have lived in houses where they could easily install chargers, but more mainstream buyers of the future are likely to live in apartments or condominium buildings—a problem that has to be addressed at the national level, the analyst said.

At the European level, a 2014 directive on alternative fuels for sustainable mobility that sets nonbinding infrastructure targets for member states will be up for review under the new European Commission. "It's absolutely essential that the revision of the directive is a priority," Mathieu said. "Europe should set new targets to have the infrastructure align with the EV market."

6. EU Member States Make Only Mixed Progress Latest Air Pollution Data Shows

European Union (EU) Member States have made only mixed progress in reducing emissions of the most harmful air pollutants, according to updated data published by the European Environment Agency (EEA). The data is from the annual EU emission inventory report sent to the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP).

The EEA report confirms, as highlighted in the recent EEA briefing on the EU's National Emissions Ceilings Directive, that after many years of declines, for more than half of the 26 pollutants monitored emissions increased slightly in 2017 compared to the previous year. Releases came from key sources such as agriculture, transport, industry and private households.

The report notes that between 2016 and 2017, emissions of nitrogen oxides (NO_x) and sulfur oxides (SO_x) dropped by 1.8% and 1.3% respectively. However, emissions of non-methane volatile organic compounds (NMVOCs) increased by 1.3%, carbon monoxide (CO) emissions by 0.2% and ammonia (NH₃) by 0.4%. Emissions of particulate matter, and several heavy metals and persistent organic pollutants also all increased slightly in 2017 compared to the previous year. In recent years, the rate of emission reductions has stagnated for many pollutants. And as noted, for a number, it has actually slightly increased. For example, ammonia emissions, which can lead to particulate matter formation in the atmosphere, have fallen less than emissions of the other main pollutants since 1990 and increased in each of the past four years.

The report also highlights the growing importance of the residential stationary combustion sector, which includes the burning of fuels in domestic stoves. This source makes a significant contribution to the total emissions of many pollutants and contributed 51% of fine particulate matter (PM_{2.5}) emitted directly into the air in 2017. Further, 42% of total carbon monoxide, 42% of polycyclic aromatic hydrocarbons, 24% of the dioxin and furan compounds and 16% of the heavy metal cadmium were released by this single source.

The LRTAP report tracks the emissions of key air pollutants over past years. It is submitted by the EU to the UNECE under the requirements of the Gothenburg Protocol to the LRTAP Convention, which aims to limit, and as far as possible, gradually reduce and prevent air pollution. The protocol also sets emission limits for a range of air pollutants that have to be met from 2010 onwards, which for Member States are either equivalent to or less ambitious than those specified under the 2010 EU NEC Directive. Air pollution is the single largest environmental risk to human health in Europe, causing respiratory problems and shortening lifespans. Poor air quality caused by air pollution can also harm vegetation and sensitive ecosystems. Moreover, several air pollutants also contribute to climate change.

7. Spanish Judge Blocks Madrid Council Bid To Lift Car Ban

A judge has blocked an attempt by Madrid's new conservative council to lift restrictions on cars entering the city center, saying the measure should be maintained for now. The council, which took office following local elections in the spring and is led by the conservative People's Party, suspended the scheme on July 1 pending modifications to it.

That act marked the first reversal of an environmental regulation in a major European city and triggered protests and an appeal by environmental groups.

Under the low-emission scheme introduced by Madrid's previous left-wing council, only certain vehicles - primarily electric and hybrid cars - were permitted to enter the restricted central area of around five sq. km (two sq. miles). Other cars doing so without authorization were subject to fines.

In a preliminary ruling, the local court said the fines should stay in place while magistrates look into the case in more detail, as suspending them would have an immediate impact on the environment that could not be reversed.

"The municipal agreement does not offer any alternative to replace the suppression of the low-emission zone," the court judge said.

8. Fossil Fuel Vehicles Hitting A Dead End In City Centers Around the World

Ever since 2015, when Volkswagen AG was found by regulators to be rigging engines, harmful car emissions have come under intense scrutiny from consumers and regulators. Today, the tug of war between clean air in cities and people's mobility extends around the globe. Seattle plans to ban sales of new internal combustion cars by 2030. California introduced draft legislation in late 2018 to scratch sales of new fossil fuel vehicles by 2040 statewide. Other states have similar plans.

Municipalities in Europe have been on an even more accelerated push to get diesel cars, in particular, out of inner cities. Starting in 2024, a diesel car won't get you around Paris or Madrid as the capitals ban all passenger vehicles running on the fuel. (Madrid's program is under attack by a new government. See Story above). A few years later, all drivers of internal combustion cars will lose access in and around London, Rome and Barcelona, Spain. All told, some 24 European cities accounting for 62 million people are banning diesels over the next decade, including 13 cities that will strike off all combustion cars in a bid to stop failing emissions limits.

That future is already a creeping reality with bans in Madrid, Paris and Hamburg, Germany, on older diesel cars, leaving many consumers with little choice but to invest in hybrids or battery cars — and upending the car's promise of providing unlimited mobility for the masses.

In December, Madrid began restricting access to gasoline-powered vehicles made prior to 2000 and diesel vehicles prior to 2006. Come 2020, older diesel and gas-powered cars won't be allowed to enter at all. In Paris as of this month, authorities have locked out diesels older than 13 years during weekdays.

Around 12.6 million cars in Europe are affected by restrictions that already apply or are to be introduced by 2030, according to Berylls Consultancy. The number only includes cars registered

currently to city residents, leaving out millions of commuters. Diesel registrations have slid to 36% of total sales across Europe in 2018, down from more than half in 2015.

Buyers have been sticky on shifting to electric vehicles, favoring gasoline instead in light of patchy charging infrastructure, with less than 3% of sales making up hybrid or battery cars last year. It's a sobering foretaste for carmakers like Volkswagen, Renault and BMW betting on the electric shift and trying to gauge future buying behavior.

Even as city centers are shutting off, BloombergNEF still expects traditional cars to make up nearly half of all new-car deliveries in France in 2030, while electrified vehicles will account for 40% of demand in Germany. In the U.S., e-car sales should reach 60% by 2040, it estimates.

9. Paris Bans Old Diesels To Tackle Pollution

Paris has banned all diesel vehicles aged 13 years or over from the city center, the latest move in a campaign to tackle pollution on the city's streets. Diesel vehicles over 18 years old and petrol vehicles over 21 years old are already banned in Paris -- a measure that was extended to a new "low-emissions" belt surrounding the city.

Central Paris meanwhile went further by also banning diesel cars, trucks and motorbikes aged 13 years and over -- a move aimed at cleaning up the air in a city that is regularly shrouded in smog.

Motorists who flout the traffic restrictions in central Paris, which were given a trial during last week's heatwave, face a 68-euro (\$77) fine, rising to 135 euros for trucks and buses.

Beyond the city's boundaries, the authorities are also clamping down on polluters in the 47 districts that ring the central Paris region, which are home to around 5.5 million people. Unlike in central Paris, however, offenders in the suburbs, where car dependency is greater, face no punishment for the first two years of the ban. The government agreed to a two-year punishment-free "learning period" after resistance from some mayors who feared that the ban could rekindle the "yellow vest" protests, which erupted late last year among motorists furious over fuel price hikes.

Reflecting on the lessons learnt, a senior official for the greater Paris area, Patrick Ollier, told reporters: "We don't want to force the environment on people, but rather that it be accepted as the outcome of dialogue."

In France, air pollution causes 48,000 extra deaths a year, according to the health service, making it the country's second-biggest killer after smoking, ahead of alcohol.

Paris Mayor Anne Hidalgo has restricted car access and promoted walking and cycling in central Paris in a bid to banish the smog that periodically shrouds the capital. The city aims to phase out the use of diesel cars by the time it hosts the Summer Olympics in 2024.

10. UK Government Finds Traffic Pollution Not Just A Question Of Exhaust Fumes

With tighter regulation and a switch to electric vehicles driving down the tailpipe emissions of a range of pollutants, the UK is now targeting harmful particulate matter produced by brake pads and tires. "The UK government is now calling for industry to support the development of standardized methods for measuring emissions from these sources, leading to a new international standard for tire and brake wear," the environment ministry has announced.

While emissions of nitrogen oxides have fallen 29% and sulfur dioxide by 62% since 2010, the relative contribution of road traffic to particulate matter (PM2.5 and PM10) is set to increase, according to a report by the ministry's Air Quality Expert Group.

"Particles from brake wear, tire wear and road surface wear currently constitute 60% and 73% (by mass), respectively, of primary PM 2.5 and PM10 emissions from road transport, and will become more dominant in the future," the report concludes.

Environment minister Thérèse Coffey called on motor manufacturers to act: "Emissions from car exhausts have been decreasing through development of cleaner technologies and there is now a need for the car industry to find innovative ways to address the challenges of air pollution from other sources."

The Brussels-based campaign group Transport & Environment welcomed the UK government's initiative, noting that particle emissions from brakes and tires are not yet covered by any European regulation.

While the absolute level of emissions from these sources may not grow, their proportional contribution to overall vehicle pollution will increase as tailpipe emissions fall, said Florent Grelier, an engineer working with T&E. "As the discussions about post-Euro 6 regulation will start in the next months, this might be an opportunity to include such vehicle brake and tire particle emissions in an EU regulation," Grelier said.

The International Council on Clean Transportation (ICCT) recently called for the EU to extend the scope of emissions regulation, albeit not focusing on those associated with brakes and tires. However, publicly available documents suggest European Commission scientists have already been looking into ways to standardize the measurement of non-exhaust particle emissions.

At a workshop last October on preparations for future European light vehicle emission standards, the EU Joint Research Centre (JRC) presented data on the relative emissions from tires, suspension and brakes and announced a methodology for measuring the latter had already been developed.

11. French Regulator: Cleaner Vehicles Not Enough To Solve Air Pollution

A reduction in road traffic and a switch to greener transport modes are needed to curb air pollution in towns and cities, as cleaner vehicles alone will not be sufficient to solve the problem, the French environment and health agency Anses has said.

In a report on particulate matter (PM) pollution, the agency analyzed emissions scenarios in French cities by 2025. Despite some positive results, Anses concluded that technological advances alone, such as increased use of particulate filters and a move away from diesel engines, will not lead to sufficient improvements in urban air quality.

The public administrative body therefore "insists" that clean air policies should also aim to reduce road traffic by improving public transport and promoting alternatives such as walking and cycling.

Anses also reviewed the scientific literature on the health effects of air pollution since a landmark report by the World Health Organization (WHO) published in 2013. The data, the agency concluded, confirms or reinforces "with strong evidence" the link between air pollutants such as

PM2.5, such as from diesel fumes, and respiratory and cardiovascular disorders, or reduced life expectancy.

On this basis, Anses advocated continuing national and international efforts to reduce air pollution targeting road traffic, as well as the combustion of coal, petroleum products and biomass.

"The report shows that the health effects of air pollution are even worse than what current laws assume," said Jens Müller, air quality manager with the Brussels-based campaign group Transport & Environment.

"There are no safe levels of air pollution - as the WHO puts it - and it is time to define a path towards only zero-emission vehicles on our roads," according to Müller. "Mayors across Europe have understood this and taken strong measures, which should be supported and not hampered by EU policies."

Citizens and environmental groups in cities like Brussels and Madrid have been battling for stronger measures against air pollution. The European Environment Agency (EEA) revealed that over half of the EU's member states do not consider themselves to be on track to meet their 2020 goals to cut emissions of at least one significant air pollutant.

12. Parliament Moots Compulsory Low Emissions Zones In Cities

Some groups in the European Parliament are planning to draft a resolution by September calling on the next European Commission to promote or mandate the setting up of low emissions zones in European cities. "The aim is to put pressure on the new Commission," an official said after MEPs debated the issue recently, with representatives of the EU executive and the Council invited by the Socialists & Democrats group to state their positions on the issue.

Commissioner Christos Stylianides told MEPs it was actively enforcing existing clean air legislation and pursuing 30 infringement cases against 20 national governments for persistent breaches of EU limits on nitrogen and sulfur oxides (NOx and SOx) and particulate matter. However, Stylianides said the choice of measures used to tackle the problem lies with national governments and local authorities. "You know well that we at the European Commission cannot force any specific measures," he told MEPs.

"When the Commission takes infringement action against a member state, the goal is not to ensure that one measure or the other is implemented, be it a specific clean air zone, support for renewing the fleet, replacing old boilers in households or any other measures," the commissioner said.

Peter Liese of the center-right EPP said his group did not believe driving bans are the right solution. "Firstly, it impedes the lives of many citizens, who may not be able to buy an emissions-free or low-emissions vehicle," Liese said.

The German MEP, along with MEPs from other groups, called instead on the Commission to take stronger action to clean up dirty cars still on Europe's roads in the wake of the Dieselgate scandal, where car makers cheated in lab-based pollution tests. "Some things have been done but the car industry does need to take its responsibilities seriously. We must make sure that there is the possibility for retrofitting to help with emissions problems," Liese said.

S&D lawmaker Christel Schaldemose, by contrast, gave the example of Madrid – now the scene of legal wrangling after the new center-right city council decided to cancel its low emissions zone – as an example of the need for tougher EU legislation. “We need to make it possible for member states to be able to introduce a ban on petrol cars and diesel cars if there is a need for them to do that in order to create cleaner air and better health, and it needs to be possible to go further,” Schaldemose said.

UK MEP Caroline Voaden, of the newly formed liberal bloc Renew Europe, hinted at what could be heated debate in the parliament before a resolution on the issue is put to the vote. “There are some in this chamber who deny that this is a European issue and say the EU should not tell member states what to do, but air pollution does not respect national borders,” Voaden said.

The European Commission is currently reviewing the EU's Ambient Air Quality Directive, the main piece of legislation that applies to air quality in cities, where the bulk of the pollution comes from traffic, but also in some areas district and domestic heating. The executive rebuffed earlier this year a suggestion from Germany's transport ministry that limits on NOx pollution might be too strict.

13. Euro 6 Warning Issued For Low-Emission Zones

Cities using, or planning to use, the Euro 6 standard as the basis for their low-emission zones (LEZs) will not deliver the air quality improvements they expect, AIR (Allow Independent Road-Testing) has warned. Currently, Euro 6 is the European benchmark standard for vehicle emissions, while vehicles which meet the standard receive unrestricted access to LEZs.

AIR sounded the alarm after the UK's Driver and Vehicles Standards Agency (DVSA) published a report recently which found that some Euro 6 cars produce on the road up to 20 times the emissions limit for nitrogen oxides (NOx) in laboratory tests. AIR said that independent, road-based vehicle emissions tests – like their own AIR Index – would be better at tackling ‘dirty’ Euro 6 vehicles and helping cities comply with legal air pollution limits.

Nick Molden, co-founder of the AIR Index, said, ‘Cities who in good faith are using or plan to use Euro 6 as the threshold for access policies will not deliver the air quality improvements expected and will not solve their breach of urban air quality in the time required.

‘The DVSA's latest test results confirm the importance of independent testing to provide confidence and transparency about actual emissions during on-road driving. It highlights again that not all Euro 6 cars control NOx emissions to the same degree.’

The DVSA's 2018 Vehicle Emissions Testing Program found that several Euro 6 vehicles approved under the routine NEDC system, conducted in laboratory settings, failed more stringent WLTP and RDE tests which are based on real-world use.

During WLTP testing, Nissan's Qashqai diesel vehicle emitted over 17 times more NOx in real-world use than legal EU limits, while the Renault Kadjar diesel went 13 times over the limit. Diesel versions of other vehicle models were found to produce NOx emissions several times over legal limits, while the Mercedes E-class diesel was the only car found to be within the limit.

Nissan came under fire from the DVSA for its refusal to retrofit the vehicles to reduce their emissions, as the DVSA called the company's approach ‘unacceptable’.

AIR said that currently, it is not aware of a single Clean Air Zone (CAZ) or Ultra Low-Emissions Zone (ULEZ) operating in Europe which discriminates between clean and over-emitting Euro 6 vehicles.

The DVLA's findings will come as a problem for cities which plan to rely on schemes like LEZs to reduce their illegal levels of air pollution.

14. Mixed Picture For Wind Power Deployment So Far In 2019

Europe added 4.9 GW of new wind energy capacity in the first half of this year, up from 4.5 GW in the same period in 2018, an industry report has shown. However, while offshore had “a good start to the year” the rate of onshore wind turbine installation was “poor”, the trade association WindEurope said as it published the latest data.

The first six month of the year saw 1.9 GW of new offshore power, compared to 1.1 GW in the same period last year, with the UK (931 MW), Denmark (374 MW), Belgium (370 MW) and Germany (252 MW) in the lead. Onshore installations, conversely, were down from 3.3 GW in the first half of 2018 to 2.9 GW this year. Germany, in particular, recorded its worst result since 2000.

“Eleven gigawatts of onshore wind are stuck in the permitting process in Germany. And the transition to auctions, where so-called ‘community projects’ were allowed to bid in auctions without a permit back in 2017, has been messy. Many of these projects still need to be built,” explained WindEurope’s chief policy officer Pierre Tardieu.

The lobby group expects deployment to pick up in the second half of the year, with significant capacity due to come online in Sweden and Norway, as well as in Spain. Of all European countries, France saw the most activity in onshore wind, with 523 MW deployed between January and June, the report says.

As capacity across Europe continues to grow, renewable wind power is challenging the dominance of conventional fossil fuels. In a soon to be released report, the UK-based think tank Sandbag, which specializes in carbon pricing, is set to report that coal generation was down 19% year-on-year in the same period, a fact it attributes partly to the ongoing roll-out of wind power.

Confirming a recent assessment by the European Court of Auditors, however, WindEurope warns that the rate of installations seen so far this year is not enough to meet the EU renewable energy target of 32% by 2030, nor a mooted goal of achieving carbon neutrality by 2050. The group urged EU countries to provide more details on promoting renewables in their National Energy and Climate Plans.

NORTH AMERICA

15. Major Automakers Strike Climate Deal With California, Rebuffing Trump Rollback

Four automakers have struck a deal with California to produce more fuel-efficient cars for their U.S. fleets in coming years, undercutting one of the Trump administration’s most aggressive climate policy rollbacks. The compromise between the California Air Resources Board and Ford, Honda, Volkswagen and BMW of North America came after weeks of secret negotiations and could shape future U.S. vehicle production, even as White House officials aim to relax gas mileage standards for the nation’s cars, pickup trucks and SUVs.

Mary D. Nichols, California's top air pollution regulator, said in an interview that she sees the agreement as a potential "olive branch" to the Trump administration and hopes it joins the deal, which she said gives automakers flexibility in meeting emissions goals without the "massive backsliding" contained in the White House's current proposal. "What we have here is a statement of principles, intended to reach out to the federal government to move them off the track that they seem to be on, and on to a more constructive track," Nichols said, adding that the companies approached California officials last month about a potential compromise.

In a joint statement, the four companies said their decision to hash out a deal with California was driven by a need for predictability, as well as a desire to reduce compliance costs, keep vehicles affordable for customers and be good environmental stewards. "These terms will provide our companies much-needed regulatory certainty by allowing us to meet both federal and state requirements with a single national fleet, avoiding a patchwork of regulations while continuing to ensure meaningful greenhouse gas emissions reductions," the group said. Last month, 17 U.S. and foreign auto firms asked the Trump administration and California Gov. Gavin Newsom (D) to "resurrect" talks aimed at finding a middle ground, but the White House rejected the overture.

Recent public pushback against the proposal includes not only the letter from the auto companies but objections from a bipartisan group of 24 governors representing 52 percent of the U.S. population and 57 percent of the economy.

The governors "stand together in calling for one strong, national clean car standard and support preserving state authority to protect our residents from vehicle pollution. Strong vehicle standards protect our communities from unnecessary air pollution and fuel costs, and they address the largest source of carbon pollution in the United States. We commit to continue working together to support a strong national standard and issue the "Nation's Clean Car Promise." Climate change is one of the foundational challenges of our time, and to truly address it, America needs cleaner and more efficient transportation solutions. Countries around the world already are stepping up to meet this challenge. The United States has been a clean car leader and must continue to lead in both policy and innovation. We must unite to ensure a strong, science-based national standard, in California and across the country, that increases year-over-year, provides certainty for automakers and consumers, reduces greenhouse gases, and protects public health. We call for a common-sense approach that protects the role of states at the negotiating table and establishes a strong, national standard that:

- Achieves continuous, meaningful annual reductions in greenhouse gas emissions and criteria pollutants while saving consumers money.
- Provides regulatory certainty and enhances the ability to invest and innovate by avoiding extended periods of litigation and instability.
- Preserves good jobs in the auto sector and keeps new vehicles affordable for more Americans

Implementing one strong, national standard as outlined in the Nation's Clean Car Promise is in the best interest of states, automakers and consumers. It also shows the world that America is a leader on transportation and environmental protection. We will not compromise on our responsibility to protect the health of our communities, our climate, and the savings consumers stand to gain at the pump. We will continue to pursue additional concrete actions to fulfill this duty and defend against any threats."

The deal comes as the Trump administration is working to finalize a huge regulatory rollback that would freeze mileage requirements for cars and light trucks next fall at about 37 miles per gallon on average, rather than raising them over time to roughly 51 mpg for 2025 models — the level that the industry and government agreed to during the Obama administration. The rule would also revoke California's long-standing authority to set its own rules under the Clean Air Act, a practice the federal government has sanctioned for decades.

The White House argues that more lenient standards would lower the sticker price of vehicles and encourage Americans to buy newer, safer cars. But California has vowed to enforce stricter requirements to lower greenhouse gas emissions, and the auto industry itself has implored the Trump administration to try to find common ground with California.

Under the new accord the four companies, which represent roughly 30 percent of the U.S. auto market, have agreed to produce fleets averaging nearly 50 mpg by model year 2026. That's just one year later than the target set under the Obama administration, which argued that requiring more-fuel-efficient vehicles would improve public health, combat climate change and save consumers money at the gas pump without compromising safety.

The share of America's auto market affected by the new terms could grow significantly if other automakers also join the deal. Last month, the Canadian government also pledged to align mileage requirements for its auto market with California rather than the Trump administration.

As part of the new agreement, California has pledged to certify vehicles from the four automakers and provide the firms with additional flexibility in how they meet each year's emissions goal. The firms will improve their fleet's average efficiency by 3.7 percent a year, as opposed to about 5 percent dictated under the Obama-era rules.

Now that the transportation sector has emerged as the single largest source of greenhouse gas emissions in the United States, the future gas mileage of the country's auto fleet will have a profound impact on the nation's carbon footprint. According to the State Energy & Environmental Impact Center at the New York University School of Law, the Trump administration's plan to freeze mileage standards between 2020 and 2026 would increase greenhouse gas emissions by between 16 million and 37 million metric tons during that period. That's the equivalent of adding between 3.4 million and 7.8 million cars on the road.

Trump officials have consistently rejected the idea that the federal government should adopt policies aimed at weaning Americans off fossil fuels. The National Highway Traffic Safety Administration's own analysis of its proposed mileage freeze projected that the increased greenhouse gas emissions from the move would not make a major difference because the world was on track to warm by 7 degrees Fahrenheit by the end of the century anyway.

Sen. Thomas R. Carper (D-Del.), who convened private meetings between industry, administration and California officials over the past year and-a-half, hailed the agreement. "We cannot begin to credibly address the climate crisis without taking meaningful steps to try to keep our country on a path that would reduce emissions from the transportation sector, which is our nation's largest source of global warming pollution," he said.

Within days of Trump's inauguration, the world's largest automakers urged the president to revisit the standards that President Barack Obama had finalized just before leaving office, which required the industry to increase the average fuel efficiency of the cars and light trucks they sell across the country each year.

But California, which sets its own tailpipe standards, insisted that it would forge ahead with stricter mileage requirements. Thirteen states and the District of Columbia have pledged to follow California's lead, and several of them are already challenging the Trump administration's move.

While Nichols said she floated a similar deal last year to the Trump administration, the White House announced in February that it had broken off talks with California, saying state officials had "failed to put forward a productive alternative" to the White House's plan. For their part, California officials said substantive talks never really began, and concluded that the administration was never serious about negotiating.

While the new agreement will require car companies to meet stricter targets than under the Trump administration's proposal, it also could provide a hedge in case a Democrat wins the presidential election next year. California regulators committed to maintaining the tailpipe standards even if control of the White House flips.

In addition, automakers will receive significant credits for adopting climate-friendly technologies. Under both California's and the federal government's fuel economy program, firms can receive credits toward meeting annual targets several ways, including cooling cars more effectively through less-polluting refrigerants and selling more electric vehicles. Under the new accord, the participating companies will be able to tap into more generous credits than would have been available under the Obama-era rules.

In a statement, Governor Newsom called on the Trump administration to reconsider its position. "There are few issues more pressing than climate change, a global threat that endangers our lives and livelihoods," Newsom said. "I now call on the rest of the auto industry to join us, and for the Trump administration to abandon its regressive proposal and do what is right for our economy, our people, and our planet."

While EPA and the Transportation Department say the plan will not change their rollback plan, the California-industry deal nonetheless could put pressure on the administration and other auto companies to embrace a compromise:

Major environmental groups and Democrats are urging other automakers to join the pact. "Other automakers should follow Ford, Honda, BMW, and Volkswagen and oppose the Trump administration's dangerous rollback of clean car standards," Sierra Club said in a statement.

Further, House Energy & Commerce Committee Chairman Frank Pallone (D-NJ) noted that "every automaker has the opportunity to join this agreement, and I encourage them to do so. This deal should form the basis for federal policy, and I will be working to make sure it does."

16. States Say EPA Vehicle GHG Plan Omitted Required Consultation

New York and 11 other states that have adopted California's vehicle greenhouse gas standards are charging that EPA and the Transportation Department (DOT) falsely claimed they consulted with states on their proposal to preempt the states' regulatory authority, in violation of an executive order requirement.

The states' argument, in a July 23 letter to EPA and DOT's National Highway Traffic Safety Administration (NHTSA), is paired with a formal request to withdraw the agencies' proposal

because it lacks the required state consultation under a Clinton-era executive order (EO) 13132 on federalism, and a request under the Information Quality Act (IQA) to admit that the agencies did not conduct the consultation.

The states justify their claims based on recently received documents from EPA and NHTSA. New York early this year filed litigation after it said the agencies had not responded to its requests for documents under the Freedom of Information Act (FOIA).

Despite a claim in the agencies' vehicle preemption proposal that they complied with EO 13132's requirements, the agencies' recent FOIA responses "now confirm that neither EPA nor NHTSA consulted with our states 'early in the process of developing their preemption proposals,' nor have they consulted with our states about the preemption proposals at any subsequent time."

The letter adds: "Thus, the agencies' assertions that they complied with [EO] 13132 in developing the proposed rule are false."

The states say the documents -- which NHTSA provided May 29 and EPA provided July 9 -- show the agencies are only "employing a notice-and-comment process," but that the EO's requirement for "early" consultation with states on any plan to preempt state authority "is over and above the minimum due process mandated by the Administrative Procedure Act."

The states thus urge EPA and NHTSA to withdraw the preemption proposal, because the plan's "devastating impacts" on public health and state authority "demand nothing less."

Further, the states say that a formal correction under the IQA is necessary "for the benefit of all stakeholders, including, but not limited to, reviewers at the Office of Information and Regulatory Affairs, states affected by the preemption proposal, and members of the public, as well as to create an accurate record for any reviewing court."

In addition to New York, states signing the letter are Colorado, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, Oregon, Pennsylvania, Vermont and Washington. All of those states have adopted California's vehicle GHG rules using section 177 of the Clean Air Act, which allows them to copy any California vehicle emission standard that is tougher than the federal government.

EPA and NHTSA's proposal -- in addition to preempting California and other states' authority under air act section 177 -- would also freeze federal standards at model year 2020 levels through MY26.

The timeline for the final rule has slipped until late September or maybe later, potentially compromising the Trump administration's ability to defend the rule in court during President Donald Trump's current four-year term. That could be a major risk for the agencies' rule if Trump is denied re-election in 2020, as a Democratic successor could reverse course on the regulation relatively quickly.

17. SAFE Rule Delay May Boost Profile Of Suit Over EPA Auto GHG 'Finding'

The Trump administration's timetable for completing its rollback of vehicle greenhouse gas and fuel economy standards has slipped such that a final rule is not expected before an appellate court holds oral argument in litigation over EPA's decision to reopen the Obama-era standards.

The timing developments raise the question of whether the pending litigation -- over EPA's April 2018 determination that its prior vehicle GHG rules were not "appropriate" and must be scaled back -- could ultimately have a greater effect on the administration's rollback than some had expected.

The ultimate link between the ongoing legal case and the broader rulemaking, however, remains unclear in part because neither backers or opponents of EPA's 2018 determination to reopen the standards are relying on the issuance of the final regulation -- or the lack thereof -- to make their case.

Oral argument in that case is slated for Sept. 6, and multiple observers say they don't expect EPA and the Transportation Department's joint final rollback regulation to arrive until the end of September or potentially October. This tracks with EPA Administrator Andrew Wheeler's July 17 remarks that the final rule "will be out later this summer or maybe early fall." Fall officially begins Sept. 23.

It is far from clear whether the latest delay -- with Trump officials earlier hoping to complete the rule in June, and then August -- signals a fundamental rethink of the plan or merely a need for more time to shore up the justification for a freeze, or something close to it.

But the delay means the rule will almost certainly still be unfinished until after oral argument in the U.S. Court of Appeals for the District of Columbia Circuit in *State of California v. EPA*, where states are challenging the Trump EPA's determination to scale back its GHG standards. That determination reversed a January 2017 finding, made in the closing weeks of the Obama administration, that the current program should be kept as is through MY25.

The Trump administration argues that the determination is not a final agency action ripe for review, while states and their allies argue the opposite and say that the determination ignored key procedural and substantive requirements.

Nevertheless, the new scheduling details differ from a scenario many observers had expected in which the final rollback would be out before oral argument in the determination litigation -- a prior scenario that might have aided arguments by some that the case is moot or should be combined with forthcoming suits over the rollback itself.

Instead, judges at Sept. 6 arguments could offer public signals about their thinking regarding the Trump administration's approach to the vehicle standards, even though it is far from clear how the court will resolve the case after arguments are held.

Administration officials will have to closely watch that proceeding for any effect it might have as they put the SAFE rule through the final stages of inter-agency review.

One source tracking the issue says the timing now makes it "somewhat less likely" that the legal dispute on the determination is consolidated with the expected legal battle over the SAFE rule, though the source says this remains uncertain and it is not clear there are major legal implications.

18. Slippage in GHG Rollback May Jeopardize Final Action During Trumps Term

The window seems to be quickly closing for the Trump administration shepherding the final GHG rollback rule through appellate litigation and to the Supreme Court before the 2020 election.

For a large, complex rulemaking, the U.S. Court of Appeals for the District of Columbia Circuit typically takes a year to issue a merits opinion, though several variables can affect this timeline. The Trump administration had earlier hoped to complete the rule in June, which would have raised the chances of a pre-election D.C. Circuit ruling and the high court beginning review of the case.

However, then-air chief Bill Wehrum told reporters following June 20 Hill testimony that it would be “weeks” before a draft final rule is sent to the White House for inter-agency review, prompting observers to suggest that the final rule might not be issued until August or September.

Now, reports suggest the case likely won’t be out of the D.C. Circuit until after the 2020 presidential election, “in which a Democrat could reverse Trump. A new Democratic president would likely restore the Obama-era clean car standards or at a minimum align with the recent California industry compromise, rendering the litigation moot.”

One key factor will be whether the D.C. Circuit agrees with likely requests to stay the rule, a move that could further imperil the rollback and make it easier for a future administration to undo the regulation.

Critics say the proposed rollback -- which would freeze GHG and fuel economy standards at model year 2020 levels through MY26 -- would be a good candidate for a stay, given EPA and the Transportation Department’s mandates to make progress on GHG cuts and fuel economy improvements.

19. EPA Report Shows Success Of Diesel Engine Retrofit, Replacement Act

Since its implementation more than a decade ago, the EPA reports more than 67,000 diesel-powered engines have been upgraded or replaced thanks to funding provided by the Diesel Emissions Reduction Act (DERA). This acceptance of new engine technology has led to a reduction of 472,700 tons of nitrogen oxides (NOx), 15,490 tons of particulate matter (PM), and 5.1 million tons of carbon dioxide (CO₂) into the air. Additionally, the EPA reports more than 454 million gallons of fuel were saved between 2008 and 2016. These reductions resulted in \$19 billion in public environmental benefits for only \$629 million invested by Congress.

The EPA reports DERA projects have been funded in each of the 50 states. More than 60 percent of these projects have been targeted to areas with identified air quality challenges, with the most funding going to support school bus and long-haul truck replacements. Construction and agricultural equipment, refuse haulers, delivery trucks and transit buses were also represented in the projects that received funding, EPA reports.

The need for DERA’s incentive funding still exists. Funding requests for DERA exceed funding availability by as much as 38:1 for the National Clean Diesel Rebate Program and 7:1 for the national grant competition, the EPA states. On top of this, the agency estimates that nearly 10 million older diesel engines remain in use today; approximately one million of these will still be in use in the year 2030.

The DERA program, authorized in 2005 and reauthorized with unanimous bipartisan support in 2010, is the only Federal government program addressing legacy engines ¹ as its sole mission.

¹ “Legacy engines” are defined by the DERA program as the operating nonroad diesel and medium to heavy-duty highway diesel engines with engine model years 2006 and earlier. Most newer engines are required to meet stricter emission standards.

Cost-effective, targeted to disproportionately affected communities, and supported by American industry, the DERA program continues to evolve with market and stakeholder demands.

EPA's National Clean Diesel Campaign (NCDC) within the Office of Transportation and Air Quality administers the DERA grant and rebate programs. EPA awarded the first DERA grants in 2008, the American Recovery and Reinvestment Act (Recovery Act) grants in 2009, and grants from funds appropriated in Fiscal Years (FY) 2009 through 2018. This Fourth Report to Congress summarizes final results from FY 2008-2013 and details a combination of final and estimated results from FY 2014-2016.

Many DERA projects have made health and environmental impacts in socially and economically vulnerable areas. Goods movement projects are especially beneficial because they tend to take place in communities that are disproportionately impacted by higher levels of diesel exhaust, such as those near ports, rail yards, and distribution centers. Clean diesel projects reduce exposure for people living in these communities, and the improved air quality provides immediate health benefits. Since the first DERA grants in 2008, EPA has focused attention on PM and ozone nonattainment areas and areas with elevated air toxic exposure, to achieve maximum benefits for every dollar spent. For projects awarded in FY 2008 to FY 2016, 64% were in areas with these air quality challenges.

Particles emitted by legacy mobile diesel engines are about 75% black carbon (BC), so reductions in these BC-rich sources are also providing significant climate benefits. DERA projects provide immediate BC reductions by reducing PM emissions from the legacy fleet of diesel engines and have reduced a total of 15,490 tons of PM over the lifetime of the projects covered in this report.

Moving goods through the supply chain requires many trucks, trains, ships, cargo handling equipment, barges, and workboats. Addressing the harmful emissions from these operations is an ongoing and increasing priority for local, state, national and international policy policymakers. To help address these issues, DERA funding is often targeted at intermodal hubs, such as ports and delivery centers, and across the nation's transportation infrastructure. In doing so, we are modernizing the diesel-powered equipment that moves our economy by transporting goods throughout the nation. EPA anticipates that DERA will continue to prioritize diesel emission reductions at ports and other freight distribution centers to complement the work being done by the port industry, communities, and all levels of government to improve environmental performance and increase economic prosperity.

Clean diesel projects are cost-effective according to EPA's calculations of health benefits. Each federal dollar invested in clean diesel projects has leveraged as much as \$3 from other government agencies, private organizations, industries, and nonprofit organizations, generating between \$11 and \$30 in public health benefits. Each federal dollar invested in DERA also results in over \$2 in fuel savings. DERA funding has accelerated upgrades and replacements for old diesel vehicles and equipment, improving the public and private diesel fleets that are critical to the economy.

In the early years of DERA, many applicants requested funding for retrofits of on-highway vehicles, especially long-haul trucks and school buses. As the DERA program progressed and EPA's on-highway 2007 standards were implemented, applicants sought to replace larger vehicles, vessels and equipment in ports and rail yards.

20. CARB, EPA Cooperating On Low-NOx Truck Plan; Industry Considering Weak Option

The California Air Resources Board (CARB) and EPA appear to be on a similar schedule for proposing new rules governing low-nitrogen oxide (NOx) limits for heavy-duty trucks though the two agencies may have difficulty aligning the timing and stringency of the new rules.

A CARB spokeswoman says the final regulatory proposal is scheduled to be released on Feb. 7, 2020, for a 45-day comment period, which closes on March 23. The board will then consider the regulation for approval at its March 26-27 meeting. However, the finalization of the rulemaking likely would not occur until several months after that, due to expected post-meeting "15-day" changes.

CARB's planned release of its final regulatory proposal in February mirrors plans from EPA, which intends to release its proposed rule in February 2020, according to the Unified Agenda of pending federal regulations.

Earlier this year, CARB outlined a three-step approach for implementing tougher NOx limits for truck engines, including stricter numerical standards starting in model year (MY) 2024 and regulatory timelines that are synchronized with greenhouse gas controls. While CARB's white paper suggested a NOx standard of 0.05 to 0.08 grams per brake horsepower-hour (g/bhp-hr.) is feasible for MY24-26, it hedged on long-term NOx targets.

CARB staff held technical workgroup meetings with stakeholders on May 7 and June 26.

At the May 7 workgroup meeting, officials discussed elements of the white paper and staff's concepts on revising the "Useful Life and Warranty" period requirements.

During the June 26 meeting, test results on low-load cycle, proposed concepts on "Heavy-Duty Otto Cycle" engine standards and "Powertrain Hybrid test procedures" were discussed.

Truck manufacturers have numerous questions and concerns about these issues, which they aired during the meetings, according to sources.

But CARB's plan, which the state could impose more quickly than expected EPA standards slated to take effect in MY27, drew significant concern from engine manufacturers and prompted renewed industry interest in interim, voluntary national standards that are less stringent than what CARB envisions but would take effect before MY27 in exchange for the state creating a more flexible set of limits.

However, the industry plan has won little agreement from state officials, who had previously expressed concerns about a prior voluntary plan floated by the Truck & Engine Manufacturers Association (EMA).

CARB mobile source staffer Bill Robertson earlier took the position that a sufficient program must be "real, verifiable, auditable, durable. It's got to be enforceable." He also questioned the top-line proposed NOx limits in the draft EMA proposal that call for a roughly 25 percent cut in NOx emissions relative to the current standard -- last updated over a decade ago -- noting that it is far less ambitious than what some trucks are already achieving.

Even so, industry representatives are working on a revised voluntary “bridge” proposal to establish “nationwide” low-NOx standards starting in MY24, says an industry source. “We are talking with both EPA and CARB, and they are talking to each other.”

Now, CARB staff plans to hold another workshop during the week of Aug. 26 to discuss “proposed regulatory language.” In addition, workgroup meetings are also planned for the week of Sept. 23 to discuss “emission standards and inventory benefits” and the week of Oct. 28 to discuss “all elements of the proposal.”

The low-NOx truck plan responds to pressure for further air pollution cuts from the sector in order to meet EPA’s ozone and particulate matter standards, given continuing challenges in the state that include ozone levels in California’s South Coast air district that are the highest in the country.

While some industry sources have argued the April white paper floated standards that are far too stringent, environmentalists are urging CARB to make the MY24 standards tougher than what the white paper envisioned. “We think the white paper is on the weak side, and we’re concerned that it is influencing the ports of Los Angeles and Long Beach to plan for many more years of diesel trucks instead of cleaner alternatives,” says one source.

While CARB is pushing ahead with state NOx rules, some sources are questioning whether EPA can complete federal standards before the end of President Donald Trump’s current term.

21. Senate Probe Links Wehrum, Law Firm in Air Rules Revamp

Once again scandal has reached the high level of Trump’s EPA. The EPA’s former top air official and his counsel may have violated federal ethics rules by meeting with former industry clients to discuss changes to Clean Air Act rules, a Senate Democratic report said July 22. The Senate Democrats found that Bill Wehrum, who served as the EPA assistant administrator for air and radiation until June 30, and David Harlow, who is the Environmental Protection Agency’s air office senior counsel, failed to get a waiver to the Trump administration’s Ethics Pledge.

The pledge otherwise would have barred them from meeting with their former law firm clients for a period of two years following their appointments.

“As of July 2, 2019, neither Wehrum nor Harlow had received a waiver from the Trump Ethics Pledge,” they said in the report, “Redefining Air: Industry’s Pipeline to Power at EPA’s Office of Air and Radiation.” The waiver would have allowed the two EPA officials to meet with their former clients on matters of “general applicability” or at gatherings open to all interested parties.

Sens. Tom Carper (D-Del.), the top Democrat on the Senate Environment and Public Works Committee, and Sheldon Whitehouse (D-R.I.), the ranking member on the Senate Clean Air and Nuclear Safety Subcommittee, spearheaded the probe. It was prompted by concerns that many of the regulatory changes made at the EPA under Wehrum were sought by the industry groups created by their former law firm, Hunton & Williams LLP, now Hunton Andrews Kurth LLP.

The report raised ethics questions about the relationship between Wehrum, Harlow, and member companies of various Hunton-backed industry groups, notably the Utility Air Regulatory Group, which the report called “secretive utility industry coalition.” The group, which disbanded once the congressional probes began, included trade associations and coal-fired power plant operators Dominion Energy Inc., Duke Energy Corp., and DTE Energy.

In the report, the senators asked, “whether Wehrum and Harlow have been forthright about their past legal work on behalf of these entities, and whether they have adhered to the ethical requirements of public service.”

“This is yet another example where the Trump administration has done just the opposite of ‘draining the swamp,’ by empowering polluting industries and installing those industries’ lobbyists and lawyers at the highest levels of our federal government,” said Sen. Thomas R. Carper (Del.), the top Democrat on the Senate Environment and Public Works Committee.

During Wehrum’ s tenure at the EPA, the Utility Air Regulatory Group sought 17 regulatory rollbacks, and the Trump EPA air office acted on the eight most significant ones, including revoking the legal basis for the 2012 mercury standards, rolling back greenhouse gas limits for existing power plants, freezing greenhouse gas limits for automobiles, and pushing forward changes to the permitting programs.

Shortly after joining the agency, Wehrum and Harlow were involved in writing a December 2017 memo that gave the EPA the legal basis to withdraw from an enforcement action against DTE Energy, according to the report. While at Hunton, Wehrum represented DTE Energy on behalf of the Utility Air Regulatory Group and Harlow represented the power company as a Hunton attorney.

DTE Energy has been under EPA enforcement action for New Source Review permit violations under the Clean Air Act at its Monroe coal-fired power plant in Michigan since President Obama’s first term in office. New source permits are required when companies make changes to their operations that result in an increase in emissions that trigger the need to install pollution controls.

The EPA in its 2017 memo gave the utility an out from enforcement and litigation by backing away from its policy of prejudging how much pollution a new or modified power plant will emit.

An aide to the House Energy and Commerce Committee said the panel has obtained documents indicating that each of the more than 30 members of the Utility Air Regulatory Group were also individually clients of Hunton. If so, Wehrum and Harlow would have had to recuse themselves from additional interactions with several companies that have backed EPA’s recent moves to ease federal limits on air, water and coal ash pollution from power plants.

Wehrum has rejected the idea that he represented the individual members of UARG, in addition to the overall group. “That’s not my understanding,” he told Energy and Commerce Committee Chairman Frank Pallone Jr. (D-N.J.) during a hearing last month.

Senate investigators, meanwhile, have determined that Wehrum failed to disclose three court clients that should have been listed on his ethics recusal statement, including the Alliance of Automobile Manufacturers. Wehrum had at least six meetings with the automakers’ group, a key player in one of the Trump administration’s most significant climate rollbacks: the freezing of gas mileage standards for cars and light trucks.

In the report, Carper and Whitehouse noted that meetings with the Alliance appear “to violate Ethics in Government Act regulation and the Trump ethics pledge” because the six sessions, which include a speech to the group’s board, were not open to all interested parties.

Joseph Goffman, the EPA's former associate assistant administrator for climate during the Obama administration, said he thought the lawmakers did an important service by underscoring the rules and social norms that have historically safeguarded agencies from outside influence.

"The system depends on the desire of the public official to bring a sort of sense of shame to the role, and to be very sensitive to the appearance of a conflict of interest," said Goffman, who now runs the Environmental and Energy Law Program at Harvard University. That culture appears to have changed under the Trump administration, he said.

"There is, right now in this administration, a thoroughgoing indifference to what would have been a shameful appearance to the public," Goffman said.

Carper and Whitehouse have asked the EPA's Office of Inspector General to investigate as well. This request was also made by House Energy and Commerce Committee Chairman Frank Pallone (D-N.J.), Environment and Climate Change Subcommittee Chairman Paul Tonko (D-N.Y.), and Oversight and Investigations Subcommittee Chair Diana DeGette (D-Colo.).

22. EPA's Watchdog Is Already Scrutinizing Ethics Practices Of Wehrum

A key architect of the Trump administration's efforts to weaken federal climate rules is under scrutiny by a federal watchdog for his dealings with industry players who lobbied the government to ease carbon pollution limits. It is the third inquiry into whether Bill Wehrum, who headed the Environmental Protection Agency's air policy division from November 2017 until last month, violated federal ethics rules.

The EPA's inspector general is looking at Wehrum's interactions with his former law firm as well as several of its clients, who rank among the nation's major emitters of greenhouse gases linked to climate change, according to two individuals who spoke to the press on the condition of anonymity due to the sensitivity of the matter.

In February, The Washington Post reported on two instances in which Wehrum appeared to violate President Trump's ethics pledge, which limits political appointees from interacting with their former employers and clients for two years after taking office.

The multiple probes highlight the extent to which some Trump appointees' past work in the private sector has intersected with their roles in the federal government. Before joining the administration Wehrum worked for a decade at Hunton, focused on air policy, the office he then headed at the EPA for a year and a half. David Harlow, senior counsel to Wehrum, worked as a Hunton attorney before joining the agency in October 2017.

In their letter to acting EPA inspector general Charles J. Sheehan, Carper and Whitehouse urged "in the strongest possible terms not to abandon or decline to pursue work on this matter in the wake of Mr. Wehrum's departure from the agency."

In an interview in February, in which he appeared to skirt the line on what is permissible under federal ethics rules, Wehrum said he had determined he complied. "I have, from day one, tried to be absolutely strict and assiduous as to what I do about complying with my ethical obligations, because it doesn't do me any good, and it doesn't do the agency any good, to be doing things that people see as unethical," he said.

Under the ethics pledge, political appointees may meet with former employers or clients only when the meetings are open to all interested parties — interpreted to mean four other participants who were not clients.

Evidence discovered in recent months by congressional investigators in both chambers raises the question of whether Wehrum's ties to other companies and trade groups posed other potential conflicts of interest.

According to the Senate report, four different industry groups represented by Hunton — the Utility Air Regulatory Group, Air Permitting Forum, NAAQS Implementation Coalition and CCS Alliance — all have advocated regulatory rollbacks that EPA advanced during Wehrum's tenure. In one instance, the agency included language in a policy memo that was copied verbatim from a document Hunton submitted to EPA on behalf of the Air Permitting Forum.

23. Top Democrats Moderate Stance On Vehicle GHGs, Long-Term Carbon Goals

Top Democrats on Capitol Hill and in California are moderating their position on vehicle greenhouse gas standards and long-term carbon reduction targets, with the goal of attracting industry and Republican support for policies to address climate change.

It remains unlikely that the Trump White House will embrace either shift, given its sundry attacks on Obama-era climate policies and its aversion to most efforts to reduce carbon emissions.

Even so, Democrats appear to have struck a deal with Republicans in the Senate on highway funding legislation, with the Environment & Public Works (EPW) Committee slated to introduce a bill soon that includes significant funding for discretionary projects that reduce emissions, in exchange for additional permit streamlining provisions.

In the House, top Democrats on the Energy & Commerce Committee are embracing a goal to achieve “net zero” GHG emissions across the economy by 2050, which is less aggressive than what some backers of the Green New Deal (GND) want:

The 2050 target is in line with a global goal floated by the Intergovernmental Panel on Climate Change. However, some progressive groups that back the GND have pushed for a 2030 net-zero target, arguing the United States must act more aggressively because it is a developed country and is responsible for significant historic emissions.

Energy & Commerce Democrats respond that a 2050 net-zero target is still ambitious, requiring sweeping steps across the economy. They add that it is much more politically realistic.

“This is an attempt by moderate Democrats to reclaim the climate issue, pushing back against Trump's climate rollbacks but also against more radical Green New Deal proposals they worry could become a political liability for Democrats in 2020,” said Paul Bledsoe, a former Clinton administration climate adviser, according to the Washington Post.

During an Energy & Commerce hearing on “deep decarbonization” a day after outlining the long-term target, Democrats also threw cold water on left-leaning groups that favor a renewables-only strategy, making it clear they would find room for technologies such as carbon capture and storage (CCS) and nuclear power:

During one exchange, for example, Rep. Diana DeGette (D-CO) asked witnesses to opine on the cost and feasibility of a 2030 net-zero target. “It would be very costly, and I think there would be pushback,” testified Karl Hausker of the World Resources Institute. Armond Cohen of Clean Air Task Force similarly called such a goal “technically possible” but very expensive and challenging.

Even so, Democrats also pushed back against Republicans’ emerging climate stance, which relies heavily on low-carbon “innovation” because current technology is allegedly inadequate. “The problem is not technology. It is political will,” testified Rachel Cleetus of the Union of Concerned Scientists, in response to a line of questioning from subcommittee Chairman Paul Tonko (D-NY) about short- and long-term approaches for meeting a 2050 net-zero target.

Hausker similarly touted the ability to begin deploying wind and solar power “like crazy” -- as part of a strategy that decarbonizes the power sector as a route to broader GHG cuts. He added that it will be possible to scale up use of CCS in the 2020s.

24. Senate Highway Bill To Include Funds For GHG Cuts, Permit Streamlining

A bipartisan highway funding bill to be introduced in the Senate Environment & Public Works (EPW) Committee on July 29 will include new funding for discretionary projects that reduce highway greenhouse gas emissions, one of several measures in the bill to lower emissions in the transport sector, which is now the country’s largest share of GHGs.

Among the climate-related provisions in the bill, according to sources tracking its development, are funds for local governments that reduce highway-related emissions, as well as optional projects to boost resilience to climate risk and install electric vehicle charging equipment.

Environmentalists are tentatively embracing the approach as a good step forward, though one source says it remains to be seen how “toxic” the bill’s permit streamlining provisions are for such groups.

25. EPA Makes No Call On Restoring PM Standards Panel, Jeopardizing Review

EPA Administrator Andrew Wheeler has not yet decided how to respond to agency science advisers’ call to reconstitute an expert panel to assist with oversight of EPA’s review of federal particulate matter (PM) standards, throwing into doubt both the speed and quality of the agency’s review, House Democrats say.

At a combined hearing of two House science subcommittees July 16, Democrats said that EPA still has not decided how to respond to the request by the Clean Air Scientific Advisory Committee (CASAC) for EPA to reconstitute an expert panel on PM that agency earlier abolished.

The delay calls into question the timing of EPA’s review of national ambient air quality standards (NAAQS) for PM, which the agency hopes to complete in a rule either maintaining the standards or altering them by December 2020. Alternatively, if EPA proceeds with the review on the basis of CASAC’s limited input, it risks issuing a rule that has received inadequate scientific oversight, by CASAC’s own admission, likely increasing its legal vulnerability.

The seven-member CASAC -- now consisting entirely of Trump administration appointees -- wrote to Wheeler April 11 warning that it cannot properly discharge its duty to oversee EPA’s science underpinning the NAAQS review. The panel has issued its advice on the first draft of EPA’s integrated science assessment (ISA) for PM, harshly criticizing the draft document for its failure

to sufficiently characterize uncertainty in assessing PM's health risks, but also calling for a second draft ISA that should be considered by an expert PM panel.

At the July 16 hearing, Rep. Mikie Sherrill (D-NJ), chair of the Subcommittee on Investigations and Oversight, said that EPA July 15 "informed Committee staff that there still is not a plan in place to respond to CASAC's letter, let alone to reestablish the expert panel. It is concerning that EPA intends to develop health standards based on the advice of a committee that admits it is unqualified to review the relevant science."

Rep. Paul Tonko (D-NY), who serves on the science committee and also chairs the Energy and Commerce Committee panel that oversees EPA air programs, explored the implications of this when questioning Jonathan Samet, dean of the Colorado School of Public Health and a former chairman of CASAC.

Asked by Tonko whether such a letter from CASAC to EPA is unprecedented, Samet replied that such a letter would never have been previously required because CASAC has always been able to call on the expertise of specialized panels.

"CASAC will be unable to do its job," particularly with respect to epidemiology, Samet said. Tonko asked whether a NAAQS review overseen only by the seven-member chartered CASAC would be "actionable." Samet said that once recommendations by the existing CASAC are included in EPA's ISA or other documents being prepared to support the NAAQS review, such changes would require consideration by a broader group with wider expertise.

Samet at the hearing repeated his opinion that EPA's dismissal of the previous PM review panel has "crippled" CASAC's work.

Recently-departed EPA air chief Bill Wehrum dropped the specialized panel, and declined to recruit one for ozone, in order to streamline the reviews of NAAQS for PM and ozone. EPA is still on a schedule that requires issuance of a final NAAQS review rule for ozone by October 1, 2020, but that review appears even further behind schedule than the PM review. Under the Clean Air Act, EPA must constitute the seven-member CASAC, but has no obligation to hire additional subpanels, although this has been agency practice for decades.

Democrats and environmentalists charge that in addition to dispensing with essential expert panels, EPA has dismissed many skilled scientists from both CASAC and the broader Science Advisory Board (SAB) and replaced them largely with industry figures or state officials from conservative states.

Republicans at the House science hearing defended this practice as a rebalancing of "stakeholder" interests on the science committees and questioned why they had previously been made up of up to 80 percent academics.

But Democrats pushed back, noting that EPA's current policy bars academics drawing grant funding from the agency from sitting on advisory boards, yet allows industry representatives with greater potential for conflicts of interest to serve as advisors.

Democrats called the hearing largely to discuss the findings of a Government Accountability Office (GAO) report that faulted EPA's recruitment of members to sit on committees governed by the federal advisory committee act (FACA).

In the report, requested by Senate environment committee Democrats, GAO found that for two of its 22 FACA committees -- CASAC and SAB -- the agency had not provided staff's written rationale for why it recommended certain new members agency leaders, in violation of its written rules for making such appointments.

The GAO report also found that for 17 committee members, financial disclosure forms had gone unsigned. GAO official Alfredo Gomez testified at the hearing that EPA blamed this on its ethics office being short-staffed.

Thomas Burke, a Johns Hopkins University medical researcher and former EPA adviser, said that "EPA science is in trouble," and that the Trump administration's focus on deregulation threatens the "quality, capacity and balance" of scientific advice the agency receives.

26. EPA Adamant That Air Standards Reviews Get Done by December 2020

EPA Administrator Andrew Wheeler won't budge from his insistence that the agency's science advisers complete reviews of federal air quality standards for ozone and particulate matter by December 2020, despite their pleas for more time. Wheeler directed the seven advisers in a July 25 letter to complete the review of national ambient air quality standards for fine airborne particle pollution by December 2020 and to continue progress on the standards for ozone, due at the same time.

The seven advisers that make up the Clean Air Scientific Advisory Committee had urged Wheeler to give them more time to review the multiple documents that would inform the agency's decision on whether to maintain or tighten the standards for both pollutants.

"The difficulty of this task is not lost on me" Wheeler said in the letter, but said he'd urged his staff to maintain its focus on meeting the statutory deadlines.

Wheeler wants the advisory committee to complete its review of the policy assessment on whether to tighten or maintain air quality standards for fine particulate matter by the fall. This would include a look at risk and exposure for fine particulate matter and would build on the initial draft assessment that the EPA science advisers are still working through.

The advisers had asked the EPA staff to submit a second draft of the scientific assessment, a request that Wheeler turned down in his letter.

The Clean Air Act requires the EPA to review national air quality standards every five years, but the agency has rarely met those deadlines. Former Administrator Scott Pruitt in May 2018 set an aggressive goal to streamline the review process for both pollutants to two years, down from the usual four-to-eight-year time frame. Wheeler has said he will follow this deadline.

This means agency staff will be on an accelerated schedule to complete proposals of its reviews by March, which many former EPA employees and science advisers have criticized as too ambitious.

House Energy and Commerce Committee Chairman Frank Pallone (D-N.J.) was disappointed with Wheeler's response, saying the Trump EPA's latest attack on science threatens the integrity of the EPA's air program and demonstrates EPA is failing to ensure clean air for all Americans.

“EPA’s latest decision to skip a key step in assessing the dangers of particulate pollution is dangerously irresponsible and rejects the recommendations of the Agency’s own advisors,” Pallone said in a statement in response to Wheeler’s letter.

27. EPA Advisory Board Dispute Ready for Court, Scientist Group Says

The Union of Concerned Scientists wants the First Circuit to overturn a lower court’s decision to dismiss its lawsuit challenging the EPA’s decision to purge its advisory boards of scientists in receipt of agency grants.

The trial court dismissed the group’s suit in March on the grounds that the Federal Advisory Committee Act (FACA) doesn’t define what it means for an agency to have a “fairly balanced” board of advisers. Without a way to parse that phrase, there’s nothing for a court to do, the trial judge said.

But FACA defines “fairly” as done “without bias or distortion” in another part of the statute, the Union said July 18 in its opening brief to the U.S. Court of Appeals for the First Circuit. “When an agency policy has the intended, predictable, and actual effect of distorting scientific committees away from the best available scientists, a lawsuit challenging that policy is justiciable,” it said.

The EPA has defended its policy of declining to have grant recipients on its advisory boards as a way to ensure the individuals on the boards don’t have a conflict of interest when they render their official opinions.

The Union takes issue with that justification, saying the agency’s choice to replace the scientists with officials from the industries it regulates is a FACA violation as well.

The new rule that blocks individuals from serving on scientific advisory boards if they hold research grants means the agency isn’t making its policy decisions on the best available science, a group of former officials told First Circuit July 25.

EPA’s statutory authority requires it to rely on science-based decision-making as it crafts policy and regulatory priorities, the former officials said in their friend of the court brief. EPA grants are “especially competitive,” so the recipients are often at the forefront of research in their field, they say. To then block their access to a spot on an advisory committee based on their receipt of agency dollars will have the paradoxical effect of keeping the agency from fulfilling its statutory mandates, they said.

The agency already has ways to address potential conflicts of interest, the former officials said. All board members are subject to the rules developed by the Office of Government Ethics and to the Federal Advisory Committee Act, they said. EPA advisory board members are additionally required by agency rules to disclose any grants received in the past two years and to recuse themselves from consideration of research produced by those grants, they said.

The officials urged the U.S. Court of Appeals for the First Circuit to revive the claims brought against the EPA by the Union of Concerned Scientists.

The scientists attached to the filing include Bob Perciasepe, former deputy administrator and former acting administrator of the EPA; Lynn R. Goldman, former director of the Office of Chemical Safety and Pollution Prevention; and Bernard Goldstein, former chairperson of the EPA Clean Air Scientific Advisory Committee.

The Emmett Environmental Law & Policy Clinic at Harvard Law School filed the brief for the officials.

28. EPA Clashes With House Panel Over Science Integrity Testimony

The EPA has denied allegations from the Democratic chair of a House committee that it blocked its science watchdog from appearing before the panel in a July 17 hearing. Democrats had initially invited Francesca Grifo, scientific integrity official at the Environmental Protection Agency, to testify before a House Science, Space, and Technology subcommittee hearing on scientific integrity in federal agencies. But Grifo did not appear.

During the hearing, Rep. Eddie Bernice Johnson (D-Texas), chair of the full committee, said the EPA “refused” to make Grifo available, but that the agency didn’t explain why. That response “was not adequate,” Johnson said.

But an EPA spokesman told the press that the agency “immediately offered the agency’s top career science official within the Office of Research and Development—the office in which the agency’s Scientific Integrity Office is located,” to testify. The spokesman confirmed he was referring to Jennifer Orme-Zavaleta, principal deputy assistant administrator for science in the Office of Research and Development. Orme-Zavaleta joined the EPA during the Reagan administration.

“It was disappointing that the Democrats on the committee refused to accept the agency’s willingness to participate in the hearing and provide a qualified and knowledgeable witness, and most senior career official overseeing the EPA’s scientific integrity policy,” the EPA spokesman said.

The committee also “insisted on dictating to the agency who they believed was qualified to speak on the issue, rather than agreeing to work with the agency to ensure testimony on the EPA’s successful policy would be heard,” said the spokesman.

In a July 11 letter from the EPA to Rep. Haley Stevens (D-Mich.), chair of the panel’s Research and Technology Subcommittee, the agency said that because the format of the hearing had “significantly deviated from the original description,” and because the panel had shown no interest in taking testimony from Orme-Zavaleta, the EPA would not be able to participate.

A House Democratic aide said in an interview that “it is our understanding that EPA would not allow” Grifo to testify. The committee has no reason to believe she personally refused, the aide said.

“While we appreciate [Orme-Zavaleta’s] credentials and experience, she has never served as a scientific integrity official for a federal agency,” Johnson said. “She did not help draft the EPA Science Integrity Policy, and she has never personally adjudicated a formal complaint from a federal scientist. We wanted to hear from Dr. Grifo because she hears directly from EPA employees who have concerns, questions and disputes.”

Witness Michael Halpern, deputy director of the Union of Concerned Scientists’ Center for Science and Democracy, said in an interview that Grifo—a former UCS staffer herself—is “the most qualified person to talk about these issues at EPA, perhaps even within the entire federal

government. She's the person who implements the policy. She's the one in charge of training all of the agency staff on how the policy works."

Halpern also said he found it ironic that, in a hearing that focused on access to federal government experts, "the committee was refused access to the top expert at the agency who oversees a policy that is supposed to give the public more access to agency scientific experts."

29. VW, Ford Extend Collaboration to Electric, Self-Driving Cars

Volkswagen AG and Ford Motor Co. will cooperate on electric and self-driving car technology, sharing costs on a global scale to take a major step forward in the industry's transformation.

VW will invest \$2.6 billion in Ford's autonomous-car partner Argo AI in a deal that values the operation at more than \$7 billion, the two manufacturers said July 12 in a joint statement in New York, confirming a figure first reported by Bloomberg. This includes \$1 billion in funding and VW contributing its Audi \$1.6 billion Autonomous Intelligent Driving unit.

"While Ford and Volkswagen remain independent and fiercely competitive in the marketplace, teaming up and working with Argo AI on this important technology allows us to deliver unmatched capability, scale and geographic reach," Ford Chief Executive Officer Jim Hackett said.

Unprecedented shifts facing the auto industry are forcing players to consider new partnerships and potential consolidation. VW, the world's top automaker, offers the industry's most ambitious roll-out of electric models, while Ford, also in the top 10, is developing advanced self-driving technology with Argo.

For VW, the Argo investment offers an opportunity to potentially catch up with Alphabet Inc.'s Waymo, and General Motors Co.'s Cruise unit. Road tests and accumulating huge amounts of data are critical for the further development of self-driving cars, and few apart from Waymo are equipped to do it alone.

"It took a while to get this deal done, but it's because we actually sorted out a lot of the hard problems," Bryan Salesky, Argo AI's co-founder and CEO, said in an interview. "We have a clear line of sight to production, vehicle supply and we have clear line of sight to where we want to go to market and how."

Besides sharing costs for the development of self-driving cars, Ford will use VW's electric-car underpinnings that form the backbone of the most aggressive rollout of electric cars in the industry with Volkswagen spending some 30 billion euros (\$34 billion). Adding more vehicles to production lines would help gain scale and save costs and offer Ford a platform to better comply with tougher rules on carbon-dioxide emissions in Europe.

Ford will build at least one mass-market battery car in Europe starting in 2023 and deliver more than 600,000 European vehicles based on VW's platform, dubbed MEB, over six years. A second electric model for Europe is under discussion.

Teaming up with its U.S. peer is one of the key initiatives of VW Chief Executive Officer Herbert Diess to overhaul the German industrial giant. Both sides reiterated on July 12 that the tie-up does not include entering equity ties between Ford and VW.

For Ford, a deal with VW fits with CEO Jim Hackett's \$11 billion overhaul of the company, which includes exiting the slow-selling sedan market in the U.S., shifting to focus on commercial vehicles in Europe and investing in electric-truck startup Rivian Automotive Inc. Geographically, the companies complement each other, with Ford strong in the U.S. and VW a leader in Europe and China.

"Our global alliance is beginning to demonstrate even greater promise, and we are continuing to look at other areas on which we might collaborate," VW CEO Diess said.

30. Air Trends Offer New Fodder For Fight Over Trump Environment Record

The latest EPA air quality trends report is providing a vehicle for the Trump administration to cite decades of air quality improvements predating its tenure as a political antidote to criticism of its deregulatory agenda, even as observers are citing a number of details in the report itself that point to some more troubling recent pollution trends.

The release of the report, focused on non-greenhouse gas pollutants, also comes with the administration continuing to face scrutiny for its efforts to scale back greenhouse gas controls, amid growing concern that climate change is creating damaging feedback loops that boost local air pollutants over time.

"The U.S. is a proud world leader in terms of Clean Air and air quality progress, and we are happy to believe and acknowledge this progress," acting EPA air chief Anne Ildal said on a July 17 press call in reference to the newly released data. She also touted reductions of criteria air pollutant emissions of 74 percent since 1970 despite the fact the economy grew by 275 percent.

While release of the report itself is routine, Trump officials are also touting it as part of a larger effort by the administration to reframe its environmental record in the lead up to the 2020 elections, including a recent joint appearance of EPA Administrator Andrew Wheeler and other officials with President Trump.

Wheeler in line with that appearance indicated on a press call that the air trends report shows criteria air pollution dropping 74 percent since 1970, in comparison to 73 percent shown by prior air trends data.

The new trends report in this vein notes that "combined emissions" of six criteria pollutants have dropped by 74 percent since 1970, and also notes that concentrations of such air pollutant have also dropped significantly since 1990, including a 26 percent decline in coarse particulate matter, an 89 percent decline in sulfur dioxide emissions and a 21 percent decline in ozone levels.

But a focus on broad, national long-term trends on emissions, as well as ambient air concentrations, can also obscure data pointing to recent increases in air pollution concentrations in some localities or regions amid concerns that air quality gains have stalled out.

EPA officials acknowledged during the July 17 call that air pollution concentrations vary according to factors including annual weather fluctuations, location, and even the proximity of air quality monitors to recent wildfires that have resulted in high measurements of air pollution in some locations.

Environmental and health groups are starting to seize on the fine print in the report, with American Lung Association's Paul Billings tweeting out a map from the report of combined ozone and

particulate levels in 2018. The map cites decreases, but also many increases -- in unhealthy ozone days in several specific cities compared to 2017 over the previous year, which he says builds on trends his group has been seeing recently.

More such fine print includes another chart in the report that flags 671 unhealthy ozone days in 35 cities in 2018 compared to 591 such days in 2017.

And another chart discussing fine particulate matter describes 2018 as the continuation of a downward trend for pollution concentration in cities such as Pittsburgh, PA, but flags increases in cities including San Francisco and Sacramento.

Billings acknowledged that looking at air quality trends from 1970 to now -- or even from 2010 to the present -- typically yields "good news" in the form of a downward trend in pollution. "But we have seen this marked uptick in many cities in the last couple of years," Billings added, both in the EPA report and his group's periodic "State of the Air" reports.

Billings also alleged "inconsistency" between Trump EPA officials touting steep cuts in air pollution despite economic growth and claiming during "other days of the year that regulations are something harming economic activity."

Meanwhile, the trends report has historically focused on so called conventional pollutant levels rather than greenhouse gas emissions -- even as concerns are growing that global warming will progressively contribute to higher seasonal concentrations of pollutants. Such climate concerns stem from factors including higher temperatures that boost ozone formation, increased wildfires that cause spikes in particulates, or even damage from extreme weather events that can result in sudden releases of pollutants into the environment from industrial operations or buildings.

The climate change issue came up briefly on the call when a reporter queried Idsal on the air office's position on climate change. EPA officials, however, confined questions they were willing to answer during the call to the trends report itself and asked the reporter to follow up later.

ASIA-PACIFIC

31. Reducing China's CO2 Emissions Would Curb Deadly Air Pollution in the U.S.

China's pledge to cut its carbon dioxide emissions beginning in 2030 includes a generous gift for its downwind neighbors: less deadly air pollution. By 2030, there will be nearly 2,000 fewer premature deaths in the United States from inhaling pollutants emitted in China, according to a study by the Massachusetts Institute of Technology². South Korea and Japan are also expected to benefit.

"It reminds us that air pollution doesn't stop at national boundaries," said Valerie Karplus, a co-leader of the study and an assistant professor of global economics and management at MIT.

The study, which was published in the journal *Environmental Research Letters*, used computer models that track pollutants and data from global health statistics.

² Co-benefits of China's climate policy for air quality and human health in China and transboundary regions in 2030, Li, M., D. Zhang, C.-T. Li, N.E. Selin, V.J. Karplus (2019). *Environmental Research Letters*, 14(8) (doi: 10.1088/1748-9326/ab26ca)

Needless to say, China will be the main beneficiary if it is able to curb its emissions, primarily by departing from its heavy reliance on coal and other fossil fuels. According to Chinese studies cited by the new research, carbon-cutting policy solutions could cut between 55,000 and 94,000 premature deaths by 2030.

Nearly 60% of these deaths would have come from inhaling PM2.5. The remaining 40% would have been caused by inhaling ozone, a toxic gas that forms when pollutants are heated in the lower atmosphere by sunlight.

The study, which partly focused on pollutants from China that drift over the Pacific and then over the United States, showed that fine particles — which would cause most of the premature deaths in South Korea and Japan — tend to become diluted before they arrive here in the United States. Ozone, on the other hand, remains more potent and would have caused most of the avoided 1,900 premature U.S. deaths.

Karplus said the study fills a gap by showing the health benefits to China's neighbors from its policies to reduce carbon dioxide emissions. It demonstrates that China, the world's largest emitter of CO₂, will create benefits for its neighbors as well as for itself by curbing the greenhouse gas.

Karplus said the findings could trigger more interest in other countries to help China find more innovative ways to curb its CO₂ emissions. "This is definitely a way to push for greater ambition," she said.

The study shows how the chemical ingredients of pollution — including sulfur dioxide, nitrogen oxides, black carbon, carbon monoxide and volatile organic compounds — react with each other and sunlight to create the deadly drift of PM2.5 and ozone.

It uses records from the mortality database of the World Health Organization to predict the rise and fall of resulting diseases. For example, inhaling PM2.5 can cause heart disease, cerebrovascular disease and lung cancer.

Globally, according to a 2010 estimate, exposure to outdoor air pollution including PM2.5 and ozone caused 3.3 million premature deaths.

The MIT study noted that the percentage of health benefits enjoyed by the United States and China's other downwind neighbors will continue to grow as China keeps putting in place its pledged emission cuts between 2030 and 2050. The study discusses three policy scenarios that could lower CO₂-related pollutants and their costs as a fraction of China's gross national product.

A second MIT study³ released recently shows how India — another nation emitting large amounts of CO₂ from fossil fuels — could combine an economywide price on carbon emissions with a renewable portfolio standard to meet its pledge to reduce emissions and increase its carbon-free power by about 40% of installed capacity in 2030.

The study, which appears in the journal *Climate Change Economics*, estimates that "declining wind and solar costs could enable India to set more ambitious climate policies in future years without significantly impeding economic growth."

³ Evaluating India's climate targets: the implications of economy-wide and sector specific policies, Singh, A., N. Winchester and V.J. Karplus (2019). *Climate Change Economics*, 10(3) (DOI: 10.1142/S201000781950009X) [PDF]

It notes that India's economy is "booming" and that its electricity production, which increased by five times in the past three decades, would triple in the next 20 years as India struggles to meet its climate pledge. The nation has promised to reduce its carbon dioxide emissions by 33% to 35% by 2030 compared with 2005 levels.

Karplus, who also co-authored this study, noted that globally it has been "politically impossible" to get carbon prices high enough to meet the Paris Agreement's CO2 goals. Coupling cheaper renewable energy sources with an increased carbon tax "may be important in India, as they have elsewhere, for the politics to work," she said.

32. Industry Group Expects China New-Vehicle Sales To Drop 4.7% In 2019

China Association of Automobile Manufacturers has lowered its forecast for China's 2019 new-vehicle sales to 26.68 million, a 4.7 percent decline from 2018's total, according to the trade group's monthly Auto Review publication.

The association early this year had predicted new-vehicle sales would remain at the 2018 level of 28 million.

The association expects new light-vehicle sales in China to decline 5.4 percent to 22.44 million and new commercial-vehicle deliveries to dip 3 percent to 4.24 million.

It also expects sales of electrified vehicles, which include full-electric vehicles, plug-in hybrids and fuel cell vehicles, to jump 19 percent to around 1.5 million.

The association lowered its forecast after the domestic new-vehicle market posted worse-than-expected sales for the first six months of the year, according to Auto Review. In the first half, new-vehicle sales in China fell 12 percent year on year to 12.3 million.

In the period, new light-vehicle sales slumped 14 percent to 10.1 million while new commercial-vehicle deliveries dipped 4.1 percent to 2.2 million. Electrified vehicle sales surged 57 percent to roughly 617,000.

33. India Aims Sweeping Tax Perks at Growing Electric Vehicle Market

India Prime Minister Narendra Modi's government is ramping up tax incentives to boost electric vehicle demand and production, in a bid to turn the country into a global manufacturing destination. The Finance Bill 2019-20, released on July 5th, includes a variety of tax perks for the industry, including elimination of import duties on some electric vehicle parts and tax deductions for consumers taking out loans to finance electric vehicle purchases.

The tax incentives could bring down the costs of electric vehicles produced by companies including Tata Motors Ltd., Mahindra & Mahindra, BMW India Pvt. Ltd., Maruti Suzuki, and Toyota Kirloskar Motor—an important step in driving demand among price-sensitive consumers in India.

"Considering our large consumer base, we aim to leapfrog and envision India as a global hub of manufacturing of electric vehicles," Nirmala Sitharaman, India's finance minister, said in a speech announcing the bill to parliament on July 5.

The incentives proposed in the finance bill must be approved by India's lower and upper houses of parliament before they are effective.

Consumers taking loans to purchase electric vehicles would be eligible for a new deduction under the bill. Section 80EEB in the Income Tax Act would provide a deduction of up to 150,000 rupees (\$2,185) on the interest paid on loans, resulting in a benefit of 250,000 rupees over the total loan period, according to the finance minister's announcement.

The Finance Bill 2019-20 proposed cutting the Goods and Services Tax rate on electric vehicles from 12% to 5%, which practitioners said would drastically reduce the cost for consumers, according to a government memo on the budget bill.

The bill also nixed import duties on key parts for the manufacturing of electric vehicles, which is in line with Modi's "Make in India" campaign.

Sitharaman said the government will launch a program to draw global companies that manufacture advanced technology products like lithium storage batteries and solar electric charging infrastructure with a tax perk under Section 35 AD of India's tax code. The rule grants an income tax exemption to these companies at the onset of setting up a business.

"The budget's incentives add to the 100-billion-rupee package approved earlier this year in a bid to boost both manufacturing and sales of electric vehicles in India. The incentives, referred to as FAME II (Faster Adoption and Manufacturing of [Hybrid and] Electric Vehicles in India) attempt to capture a large customer base, from cars and buses to two and three-wheeled vehicles, provided that at least 40% of their components are manufactured in India.

The government is also planning to enforce the switch to electric vehicles among two and three-wheelers in particular, which are responsible for 80% of the emissions from the transportation sector. After March 2023, no internal combustion engine versions of three wheelers would be allowed on the market, while scooters and other two-wheelers below 150 cubic centimeters would be battery-powered by the end of March 2025, according to a May 16 memorandum from NITI Aayog, a government policy think tank in India.

34. Australia, Japan Join Forces for Coal-to-Hydrogen Pilot Project

Work has started on a A\$500 million (\$354 million) project in Australia's southeast to explore the potential of turning brown coal into hydrogen, which would then be liquefied and exported to Japan.

The Australian government has committed A\$50 million to the project and Victoria state a further A\$50 million, with backing also coming from the Japanese government.

A consortium including Kawasaki Heavy Industries Ltd., Marubeni Corp., and AGL Energy Ltd. are developing the pilot, which is expected to run to 2021 before a decision is made on whether to proceed to commercial operations.

The project is a first of its kind in Australia and has the potential to create A\$2 billion in exports, the Australian government said in a statement, adding that it also could help Japan meet its strategic energy targets for 2030 and beyond.

The project offers a value-added way to use the abundant brown coal reserves in Victoria's Latrobe Valley, according to Energy Minister Angus Taylor. Any carbon dioxide emissions would be fully offset, "with commercial scale operations required to use carbon capture and storage," he said.

Construction has commenced on the liquefaction facilities linked to the Hydrogen Energy Supply Chain project, located at Port Hastings in Victoria, the Australian government said July 19.

35. "Mind The Gap!" - Real-World Emissions In New Zealand

Studies around the world have found that vehicles consume more fuel and produce higher emissions when driven on road under real-world conditions than their official test figures and the gap is growing. Emission Impossible Ltd and Mote Ltd undertook real-world testing on a selection of typical vehicles in use in New Zealand to better understand what the gap might be for the New Zealand vehicle fleet.

New Zealand vehicles are imported, either new or second-hand, from a range of countries. Exhaust emission standards are regulated at the border, but the country does not currently regulate fuel economy. In addition, the range of countries that they import vehicles from means that many diverse standards apply.

The NZ Transport Agency's Vehicle Emission Prediction Model (**VEPM**) is the key tool used to predict emissions and fuel consumption for New Zealand vehicles. However, the diversity of standards in use and the impact of real-world performance can introduce uncertainty into the predictions.

A key outcome of this research project was to provide data to enable VEPM's emissions factors to be revised, if required, to better reflect actual fuel consumption and emissions in New Zealand.

Methodology



The research developed a purpose-built portable emissions monitoring system (**PEMS**) in order to measure the real-world emissions of a representative cross-section of the New Zealand fleet. The system (see Figure 1) measured key pollutants, including carbon dioxide (CO_2), oxides of nitrogen (NO_x), nitrogen dioxide (NO_2) and fine particulate matter ($\text{PM}_{2.5}$), together with speed, acceleration, gradient and other vehicle operating conditions.

Figure 1. The PEMS equipment installed on one of the test vehicles.

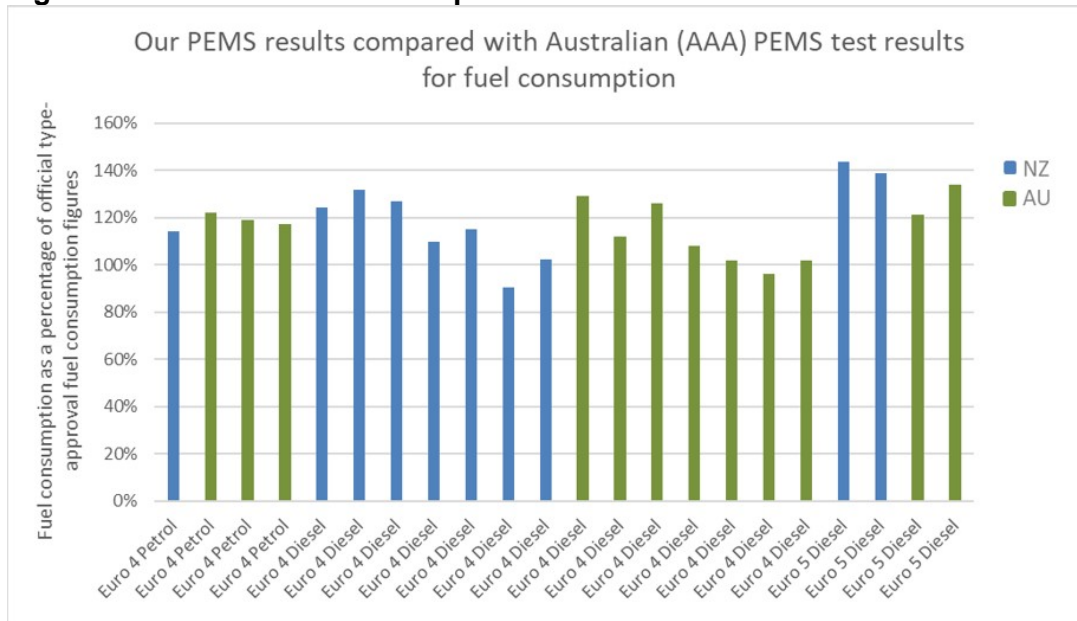
The test vehicles were selected to represent the most common and influential sectors of the fleet, and included petrol and diesel, light and heavy-duty, new and second-hand imports, manufactured between 1996 and 2014. These were driven over a real-world route in Auckland, comprising a mix of city, open road and motorway driving with a reasonable range of average vehicle speeds and gradients.

Results: Real-world versus official standards

As expected, the PEMS testing found that real-world emissions of most pollutants were higher than those allowed by the regulated standards. In particular:

- real-world NO_x emissions were generally higher than regulated emission standards, with results approximately 4.6 times higher on average (ranging from two to nearly eight times the limit)
- real-world PM_{2.5} emissions for light-duty vehicles were similar to the regulated emissions standards
- real-world CO₂ emissions were on average 17% higher than type-approved fuel consumption figures
- real-world NO_x emissions for the tested vehicles were comparable to those for vehicles tested in Europe and Australia (see Figure 2).

Figure 2. Our PEMS results compared with Australian (AAA) PEMS test results for fuel consumption.



There was little evidence that improving or tightening emissions standards over time had had any impact on actual gaseous emission levels. However, PM_{2.5} emissions had reduced dramatically in later model diesel vehicles, probably due to the increasing effectiveness of the particulate filters used.

There was also little evidence that fuel consumption had improved over time – CO₂ levels typically remained in the 200 g/km to 300 g/km range, irrespective of the type of vehicle or fuel used.

Real-world versus VEPM factors

Differences (sometimes significant) were found between VEPM emission factors and those derived from the PEMS testing. This held true for all vehicles tested and all speeds analyzed. These differences were not unexpected, as they reflect the difference between real-world emissions and an emissions model; the latter is designed to represent average emissions from an average vehicle at a specified speed.

Recommendations

The full research report contains several recommendations for improving the real-world performance of VEPM utilizing the results of this study and other international and New Zealand evidence.

Other recommendations include additional testing for heavy-duty diesel vehicles to better predict emissions and fuel consumption from this class of vehicles.

However, overall, the good agreement between these PEMS results and those from overseas supports the use of international emission factors (in the absence of New Zealand specific factors) to keep VEPM “real” in its predictions in future.

Testing New Zealand vehicles to measure real world fuel use and exhaust emissions, NZ Transport Agency research report 658 is available online at www.nzta.govt.nz/resources/research/reports/658

36. Bhutan's Vehicular GHG Emission Could Triple By 2030

Bhutan may be known as the only carbon-neutral country in the world today, but greenhouse gas (GHG) emission from the transport sector could triple by 2030, if actions are not taken, an Asian Development Bank’s policy brief warns.

The country’s second national communication to the United Nations Framework Convention on Climate Change (UNFCCC) in 2011 reported that GHG emissions from the transport sector accounted for about 20 percent of the country’s total emissions in 2000. By the end of 2012, this increased to about 30 percent.

Given the average vehicle ownership growth rate of 15 percent a year, the report stated that GHG emissions from the transport sector are expected to grow further.

In growing urban areas, particulate matter (PM) and nitrogen dioxide (NO₂) pose a major public health concern. In Thimphu, for example, the annual average level of PM with a diameter of 10 micrometers or less, has been increasing. Since 2009, the ADB stated that PM levels have consistently been higher than the standards set by the World Health Organization.

Major sources of air pollutants are passenger cars and heavy-duty vehicles, including diesel-powered large and medium-sized trucks and buses. They account for 73 percent of total vehicles in the country and were responsible for 70 to 90 percent of local pollutant and nearly 60 percent of GHG emission.

Based on current trends of vehicle acquisition and fuel import standards, and without any policy interventions, the vehicle inventory in Bhutan is projected to increase to 180,000 by 2030. With this, emissions from the domestic transport sector may reach 660,000 tons carbon dioxide equivalent in 2030.

It was also identified that sulfur in motor fuel is a major pollutant. Its presence in fuels prevents the adoption of major pollution control technologies such as diesel particle filters, gasoline particulate filters, and nitrogen oxide (NOx) absorbers. “Reducing the sulfur content of fuels is necessary in reducing vehicle emissions in Bhutan,” the report stated.

However, Bhutan doesn’t have fuel refineries and imports all its fuels from India. This means that Bhutan will have to adhere to the fuel standards in India, who is also working on lowering the sulfur content of its fuels to as little as 50 parts per million (ppm) by 2018 and 10 ppm by 2021.

Consequently, sulfur dioxide emission in Bhutan could go down by as much as 80 percent by 2018 and 95 percent by 2021.

While there is no direct cost for Bhutan, it is estimated that the price of fuel will increase by Nu1–Nu2⁴ per liter.

ADB recommends Bhutan to upgrade its fuel quality testing procedures. It was also recommended that the country should upgrade its vehicle emission standards and revise its standard along with India, who is a major source of vehicles in Bhutan. India is already in the process of moving from Euro 4 and Euro 6 by 2021. Bhutan’s standard is Euro 2.

The economic benefits of reduced health and pollution costs are greater than the anticipated higher cost of vehicles that will use the new technology to comply with the stricter emission standards. The cumulative net economic benefit of this policy is calculated at US\$12M or about Nu 800M by 2030.

“It would also be necessary for Bhutan to improve its regulations, strengthen enforcement, and enhance the testing procedures and execution to minimize errors and prevent high-emitting vehicles from passing the vehicle emission inspection test,” the report stated.

The policy brief also suggests restricting diesel cars and light-duty vehicles. Even with the best available diesel technologies, the real-world performance of diesel engines results in high PM and nitrogen dioxide emissions. In Bhutan, diesel vehicles comprise only 40 percent of the total number of vehicles in use, yet they are the largest polluters, contributing 98 percent of PM, 95 percent of nitrogen dioxide, and 87 percent of sulfur dioxide emissions in the country.

There is no age limit for vehicles in Bhutan.

Another suggestion is to promote low-carbon vehicles like Hybrid, plug-in hybrid, and electric cars. The government’s plans to tap international climate finance could go well with low-carbon commercial vehicle strategy, favoring electric mobility and focusing on taxis, buses, and urban freight vehicles.

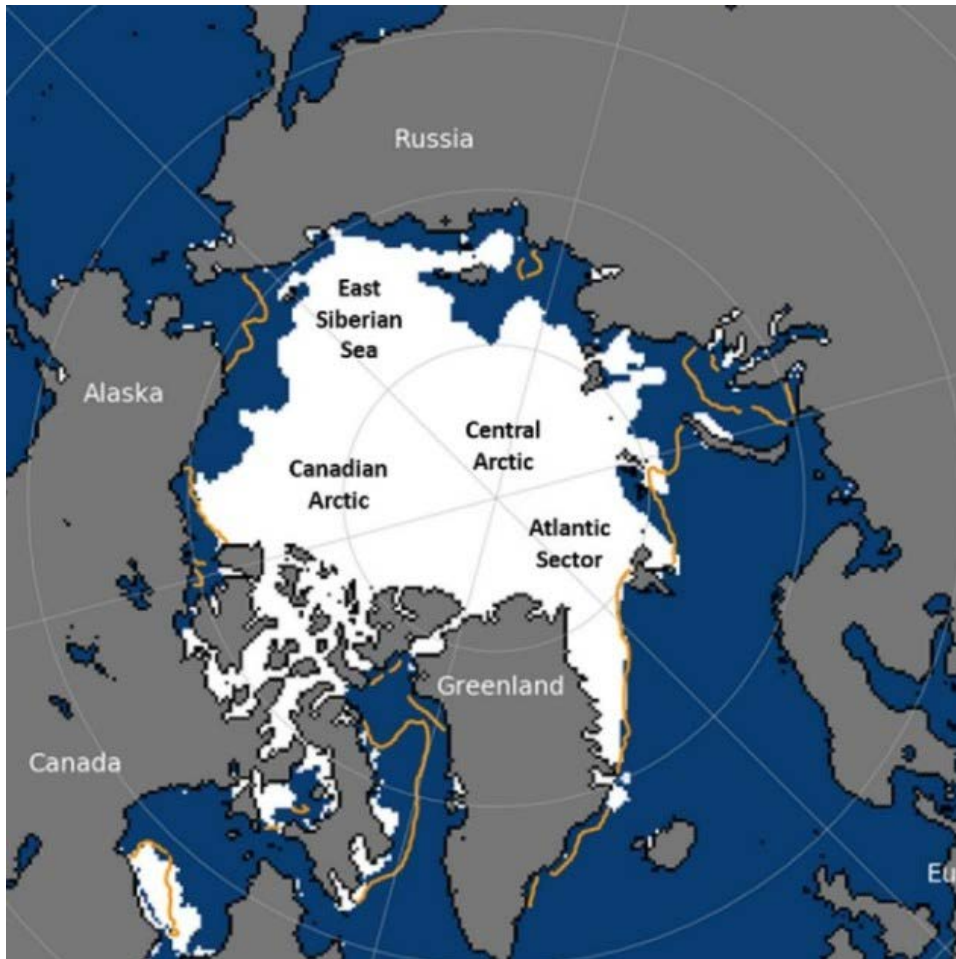
⁴ 1 Nu = \$0.0145

“Overall, Bhutan is poised for reduced vehicle emissions and a low- carbon vehicle strategy. It is one of a few countries in the world with a zero-emission grid based on renewables,” the report stated.

GENERAL

37. Arctic Summer Melt Shows Ice Is Disappearing Faster Than Normal

Ice covering the Arctic Ocean reached the second-lowest level ever recorded for this time of year after July temperatures spiked in areas around the North Pole. The rate of ice loss in the region is a crucial indicator for the world’s climate and a closely-watched metric by bordering nations jostling for resources and trade routes. This month’s melt is tracking close to the record set in July



2012, the Colorado-based National Snow & Ice Data Center said in a statement.

This year’s heatwave in the Arctic Circle has led to record temperatures in areas of Alaska, Canada and Greenland, extending long-term trends of more ice disappearing. Ice flows are melting faster than average rates observed over the last three decades, losing an additional 20,000 square kilometers (12,427 miles) of cover per day -- an area about the size of Wales.

Arctic sea ice extent on July 15, 2019; 1981-2010 average extent indicated in orange
Source: NSIDC

Ice begins melting in the Arctic as spring approaches in the northern hemisphere, and then it usually starts building again toward the end of September as the days grow shorter and cooler. The U.K.’s Met Office said that the chance of a record low by September “is higher than it has been in the previous few years. “

This summer, several dramatic images showing the pace and extent of Arctic ice melt have been seen around the world underlining the harsh reality of global warming and the struggle

governments face in trying to slow it down. Globally, June was the hottest year on record, according to the European Union's Copernicus Climate Change Service.

The satellite service said that an “unprecedented” number of wildfires are currently raging in the Arctic Circle with over 100 burning in the last few weeks in the Sakha Republic of Siberia and Alaska.

38. Assessing The Vulnerability Of Critical Raw Materials In The Automotive Industry

In the automobile industry, the development and manufacture of increasingly complex technological components — catalytic converters, LEDs, electric motors, batteries — requires increasingly complex and diverse raw materials with specific qualities. The technological and economic importance of these materials, combined with their vulnerability to supply shortages and likelihood of supply interruptions, indicates their ‘criticality’. This study⁵ uses a new methodology to explore the criticality of 27 key metals used in the automotive industry and other sectors, and highlights six that are especially vulnerable: rhodium, dysprosium, neodymium, terbium, europium and praseodymium. The researchers found there was limited recycling and substitution of these metals and a high possibility of restrictions to their supply⁶.

Identifying a material's criticality can, crucially, reveal potential supply shortages, which then enable actions to mitigate the impact of these shortages — such as research on substitution, recycling, and material efficiency, or on how to extend a product's lifespan.

The European Commission maintains a regularly updated list of critical raw materials (CRMs) for the EU: those of high importance to the EU economy that also have high levels of risk associated with their supply. Previous studies have used parameters based on risk to determine criticality — however, this study instead uses a new methodology based on the concept of vulnerability and applies this to the automotive industry. This industry is economically important in many countries and, to date, the criticality of metals used in car production has not been specifically assessed.

Vulnerability was defined using three sub dimensions: sensitivity, exposure and adaptive capacity:

- **Sensitivity** relates to the resource in question — its supply/demand structure, and how the system can influence this itself (influencing the amount of raw materials needed, for example, by changing the number of cars produced);
- **Exposure** indicates the potential degree and likelihood of supply changes that affect how a system fulfils its service, including research into possible future replacements. Together, sensitivity and exposure can potentially bring about damages that interfere with a system's ability to deliver its service without an appropriate adaption;
- **Adaptive capacity**⁷ comprises the system's ability to react to changing supply conditions — via substitution or recycling/reuse, for instance. When determining the potential substitution of the metals, the researchers used four indicators: the substitute

⁵ Source: Knobloch, V., Zimmermann, T. and Gößling-Reisemann, S. (2018). From criticality to vulnerability of resource supply: The case of the automobile industry. *Resources, Conservation and Recycling*, 138, pp.272-282.

⁶ This finding is based on the data available and used at the time the study was prepared.

⁷ Adaptive capacity, or ‘resilience’, or other key elements, such as fast-growing demand, cannot be considered when drawing the CRM list for the EU.

performance; the substitute availability; the environmental impact ratio; and the commodity price.

These three dimensions were applied to 27 base, special, precious and rare earth metals used in car production. A score ranging from 0 to 1 was calculated for each metal for each dimension. For sensitivity, the annual registrations of passenger cars worldwide were ranked and examined alongside metal production and demand data; with both car bodies and other metal components considered. Exposure ranking included the present and future scarcity of raw materials, considering the production and extraction locations of companies and the situation in those locations. Adaptive capacity included aspects of substitution availability, cost and end-of-life recycling rate.

Of the 27 metals, dysprosium, neodymium, terbium and europium (used in electric motors and automotive electronics) were some of the most vulnerable: they cannot be substituted or recycled and are solely provided by China. The largest demand-to-production ratios were for rhodium, palladium, platinum and vanadium (used in catalytic converters and vehicle bodies). When the three sub-dimensions were amalgamated into a single vulnerability score, rhodium, dysprosium, neodymium, terbium, europium and praseodymium⁸ (used in auto catalysts, electric motors and LED lighting) were the six most vulnerable metals in automotive production. Recycling and substitution were limited, and these metals saw high exposure to potential restrictions on supply.

These findings highlight six metal CRMs — rhodium, dysprosium, neodymium, terbium, europium and praseodymium — that are represented within material groups (heavy rare earths, light rare earths and platinum group metals) in the EU's 2017 list of 27 CRMs. However, the criteria used in this methodology differ from those used by the EU, and consider a global, rather than a solely European, perspective⁹. The researchers assert that applying this methodology could provide insight into the need for alternative material development and new assembly technologies within the automotive industry as well as other sectors that utilize CRMs.

39. Air Quality Co-Benefits Outweigh Costs Of Meeting Paris Agreement Pledges

Ahead of the 2016 Paris Agreement on climate change, various climate and energy policy actions were proposed to target pledged 'nationally determined contributions' (NDCs). Now, researchers have quantified the global impact of implementing these actions on air quality and determined that they have the potential to substantially reduce air pollution worldwide, with significant co-benefits for human health and agriculture — including the prevention of up to 99 000 premature deaths annually by 2030. These co-benefits could offset the global costs of climate policy; this study¹⁰ thus calls for an integrated policy perspective that aims to maximize the benefits of NDCs for climate and health.

A range of global climate and energy policy proposals were put forward in the run-up to the 2016 Paris Agreement. These policies were designed to meet 'nationally determined contributions' (NDCs) — the climate actions pledged by each country to contribute to the Agreement's goal of limiting global warming and the adverse impacts of climate change.

⁸ In the EU's 2017 list of 27 CRMS, these six do not appear as individual metals but as part of material groups — heavy rare earths, light rare earths and platinum group metals.

⁹ More research is needed on the materials' issues for next-generation cars, such as electric vehicles, in particular vis-à-vis the manufacture of batteries.

¹⁰ Source: Vandyck, T. et al. (2018). Air quality co-benefits for human health and agriculture counterbalance costs to meet Paris Agreement pledges. *Nature Communications*. 9: 4939. DOI: 10.1038/s41467-018-06885-9.

While such policies primarily aim to limit global warming, they also produce other benefits, including a substantial reduction in air pollution across the globe. Air pollution is associated with asthma, lung cancer, and cardiovascular and respiratory diseases. In 2016, it was responsible for between 5.6 and 6.6 million premature deaths¹¹. Air pollution also has a negative impact on agriculture, with ground-level ozone adversely affecting plant growth and agricultural productivity.

This study quantified the impact of meeting the NDCs in terms of improved air quality and its co-benefits for human health and agriculture. The researchers combined extensive data sets and models on emissions, climate, the energy system, the dispersion and impacts of ambient air pollutants, and the economy. Greenhouse gas emissions, energy projections and air pollutant emissions were obtained using the POLES-JRC model, an EC-funded global energy model. Temperature changes were derived from the probabilistic version of the MAGICC6 climate carbon cycle model. Air pollution concentrations and mixing ratios were compiled using TM5-FASST, an EC-funded model for rapid impact analysis of emission changes on air quality and short-lived climate pollutants. In this way, the researchers were able to assess the global and regional mortality, morbidity, and agricultural air quality co-benefits of meeting the climate and energy policy elements of the pledged NDCs.

Overall, the findings suggest that the NDCs could produce significant co-benefits for all three aforementioned categories (mortality, morbidity, and agriculture), and that these could offset the costs of climate policy. Jointly, the current pledges imply a likely increase in global average temperature of 2.5–3.2 °C. If these pledges are met, they could prevent between 71 000 and 99 000 premature deaths annually in 2030, depending on the stringency of direct air pollution controls.

If a more ambitious pathway is implemented that aims to prevent global warming from rising above 2 °C (in line with the long-term goal of the Paris Agreement), the number of estimated avoided annual premature deaths rises to 178 000–346 000 in 2030 and 0.7–1.5 million in 2050.

These results provide support for ambitious climate action by demonstrating that air quality co-benefits alone would counterbalance the costs of meeting Paris Agreement pledges. It should be noted that the study may underestimate air quality co-benefits, as it does not account for reduced healthcare expenditures and impacts from indoor air quality.

To maximize these co-benefits, the researchers state that an integrated policy perspective is needed, in which policy is designed explicitly to balance trade-offs and benefits from the outset. Such a synergistic approach could also enable progress on multiple United Nations' Sustainable Development Goals (SDGs), including good health (SDG3), clean energy (SDG7), and climate action (SDG13).

¹¹ Gakidou, E. et al. (2017). Global, regional, and national comparative risk assessment of 84 behavioral, environmental and occupational, and metabolic risks or clusters of risks, 1990 2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 390: 1345 1422.