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CAR LINES

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EUROPE

1. Norway Nears 10% Global Milestone for Electric Cars on Road

One in 10 passenger cars on Norway's roads will soon be powered solely by electricity, a figure that an electric-vehicle group says is higher than that of any other country. Citing figures from the Norwegian Electric Vehicle Association, the Climate and Environment Ministry said that the proportion of wholly electric cars on the nation's roads has grown tenfold in less than a decade, fueled by a combination of tax breaks and vehicle subsidies.

The one-in-10 milestone will be reached in the next months, the ministry said.

Sweeteners from the Norwegian government include exemption from duties such as import taxes, value-added tax, and the annual road tax, while local authorities have offered free parking and toll exemptions and allowed electric cars to use collective transport lanes. The nation has also invested heavily in charging infrastructure.

In 2019, the market share for fully electric vehicles among new cars was 42%, compared to 16% for gasoline cars, 16% for diesel cars, and 26% for hybrids.

"The growth in electric cars has been faster than we expected," Climate and Environment Minister Ola Elvestuen said in a statement.

Sales of electric vehicles are set to increase further, the ministry said, given a government goal that all new passenger cars sold by 2025 must be zero-emission vehicles, meaning powered by electricity or hydrogen.

Across Europe, sales of pure electric and plug-in hybrid passenger cars are expected to grow 35% in the first nine months of 2020, a rate far higher than China and North America, according to BloombergNEF. Battery-only vehicles have long outpaced plug-in hybrids in the three regions.

2. Greece To Offer Incentives To Boost Electric Car Use

The Greek government plans to provide incentives to promote the use of electric cars as part of wider efforts to reduce greenhouse gas emissions and meet goals against climate change, Environment and Energy Minister Kostis Hatzidakis told a forum on Eco mobility held in Athens.

A new National Plan for Energy and Climate included a goal that one in three new vehicles in Greece will be electric by 2030, he noted, acknowledging that this goal may sound ambitious today, Greek national news agency AMNA reported.

The ministry is currently examining plans to offer incentives for the purchase and use of electric cars, such as tax cuts, lower duties and free parking, Hatzidakis and other ministry officials said.

In 2019, electric cars accounted for less than one percent of total car sales in Greece, and according to EU data, Athens, along with Milan, has the highest emissions rate from transport and vehicles (75 percent) and this was related to the fact that Greece has one of the more aged car fleets in the EU, Alexandra Sdoukou, secretary-general of Energy and Raw Materials, told the forum.

"We want to recover the lost ground in ecological transport quickly... We are adopting the best European practices; we are creating the legislative framework; we place emphasis on attracting investments and making ecological transport more economical for the average Greek," Hatzidakis said.

Nine in ten vehicles on Greek streets today are running on gasoline, according to official data and a small percentage is on diesel or hybrids.

The ministry officials as well as experts among the speakers stressed that in addition to the higher cost of purchasing an electric vehicle compared to one running on gasoline, there are still only a few charging points nationwide and no incentives to persuade citizens to invest in a new green car.

In addition to the electric cars, the Greek government also intends to support the use of natural gas in transport and the use of biofuels, Hatzidakis told the forum.

3. Premature Deaths Attributable To Air Pollution Is Nearly 5,000 A Year In Bosnia

Air pollution is directly responsible for up to one in five premature deaths in 19 Western Balkan cities, suggest preliminary results from a report led by UN Environment. Preliminary findings from the 'Air Pollution and Human Health: The Case of the Western Balkans' report shows that the sum total number of premature deaths directly attributable to air pollution in the cities is nearly 5,000 a year. In seven of the cities studied, air pollution is responsible for at least 15% of premature mortality, and 19% in Tetovo, in North Macedonia.

On average, people living in the Western Balkans lose up to 1.3 years of life to air pollution. Levels of particulate matter – which comes from dust, soot and smoke and is strongly linked to cardiovascular diseases – can be over five times higher in the region than World Health Organization (WHO) guidelines, the study reveals.

Average concentrations of PM2.5 particulate matter in all but one of the 19 cities studied exceeded the World Health Organization guideline level of 10 µg/m³. A daily PM10 limit of 40µg/m³ set out under national legislation was found to be exceeded between 120 and 180 days a year – especially during winter. In comparison, European Union member states are not permitted to breach this level for more than 35 days a year.

"We need to pay attention to the different types of air pollution and their health consequences," said pulmonologist and allergologist Zehra Dizdarević, who treats patients for lower and upper respiratory diseases such as bronchitis and pneumonia.

The main sources of particulate matter emissions are thermal power plants that use low quality lignite coal and household heating. More than 60 per cent of people living in the Western Balkans use solid fuels such as coal and firewood to heat their homes, with only 12 per cent of buildings connected to district heating systems.

Solutions for reducing air pollution must, therefore, include alleviating energy poverty by making modern clean energy more accessible, the report underlines. Average household expenditure on electricity in Serbia, Montenegro, Kosovo, North Macedonia and Albania meets or exceeds the energy poverty line. Measures to ban old polluting vehicles and introduce clean transport alternatives are needed. The report also calls for more stringent regulations on industrial emitters

and restrictions on coal thermal power stations. There are currently 15 active coal-fired power stations in the Western Balkans.

“We are supporting businesses that use renewable energy,” said Bosnia and Herzegovina’s Federal Environment and Tourism Minister, Edita Đapo. The country also wants to help people living in the hills in the city outskirts to access cleaner and affordable energy, she explained.

Bosnia and Herzegovina have considerably improved its air quality monitoring capacity. “Six or seven years ago, we could only monitor two types of data per day. Today, on an hourly basis, we have 60 different results”, said Enis Omerčić, air quality specialist at the Federal Hydro-Meteorological Institute, in Sarajevo. UN Environment has helped by procuring and maintaining monitoring stations and has contributed to the creation of a national air quality index.

Data from Korca, Banja Luka, Brod, Prijedor, Sarajevo, Tuzla, Zenica, Bar, Niksic, Pljevlja, Podgorica, Tivat, Bitola, Skopje, Tetovo, Beograd, Pancevo Uzice and Valjevo was analyzed for the report. The effect of air pollution on human health was calculated using AirQ+ software developed by the World Health Organization. It is estimated that the number of deaths would be much greater if all relevant data were available for analysis.

4. Mitsubishi Under Investigation For Suspected Illegal Defeat Devices

Mitsubishi is being probed by German prosecutors for suspected use of illegal defeat devices installed in diesel engines. The authorities are looking at Mitsubishi’s 1.6-liter and 2.2-liter 4-cylinder Euro 5 and Euro 6 diesel engines and are asking drivers who acquired cars with the engines since 2014 to contact police.

Police and prosecutors recently raided 10 sites across Germany. Premises have been searched in Frankfurt, Hanover and Regensburg in Germany as part of the probe, the Frankfurt prosecutor’s office said. Three of the sites raided belong to Continental. The supplier said it is a cooperating witness in the probe.

A Mitsubishi spokesman in Germany confirmed that it was under investigation but gave no further details. As an importer Mitsubishi Europe was not involved in the development or production of the company’s cars, the spokesman told Automobilwoche, a sister publication of Automotive News Europe.

Officials are investigating a member of staff at an international carmaker for fraud, as well as a unit of an international car dealership company, and two auto suppliers as part of the probe, the Frankfurt prosecutor’s office said.

The auto industry has been rattled by allegations that software is being used in diesel engines to cheat on emissions tests. The scandal started almost five years ago when U.S. regulators disclosed, they were probing Volkswagen over the issue. Since then, investigations have mushroomed across the globe.

5. Suzuki, Jeep And Volvo May Have Cheated EU Emissions Tests

The Dutch road authority has decided that the Jeep Grand Cherokee and Suzuki’s Vitara diesel models from Fiat Chrysler have violated the emission regulations and if these are not remedied, these car manufacturers may not sell vehicles in Europe.

Jeep has a solution and the RDW authority says that the model must be called up throughout Europe to roll out the solution. Suzuki has no solution yet. “Suzuki must come up with adequate improvement measures, otherwise the RDW will start revoking its European type approval,” the RDW said in a statement. It has already begun the withdrawal of approval for the Jeep Grand Cherokee.

Volvo has also been accused of cheating emission tests. Volvo SUVs emit no less than 12 times more nitrogen oxides during normal driving than stated in emissions tests, according to a German environmental organization, Deutsche Umwelthilfe (DUH), which has conducted its own tests. Volvo states that: “We do not know the conditions that applied during the current test and therefore cannot comment on the result. However, test results always differ for dependent factors such as speed, load and weather conditions. All our concerns, however, have been tested, certified and approved according to current regulations and “The technology used for exhaust gas purification is standard in the industry and known to the authorities. Volvo Cars has never used any form of test manipulation.”

6. Climate And Energy Immediate Challenges For Spain’s New Coalition Government

After nine months of off-and-on negotiations and two general elections, the Spanish parliament has approved socialist party leader Pedro Sánchez’s bid to head a left-wing coalition government committed to an ambitious environmental agenda.

The socialist party Podemos coalition program includes commitments to achieving 85-95% renewable electricity generation by 2040, to approving a climate change law and national energy and climate plan (NECP), and to reforming the electricity market to facilitate the transition to a decarbonized economy.

These reforms aim to reflect the progressively lower costs of renewable energy in electricity bills, give renewables producers a reasonable return and stop older technologies, typically nuclear and hydroelectric, from benefiting from windfall profits.

Other headline commitments include a sustainable housing plan, a just transition plan to help areas affected by the closure of coal and nuclear plants, a plastics law to achieve zero waste by 2050 and a fund to extend operator insurance against environmental damage to 30 years.

There will also be an expansion of incentives for self-generation and for electric vehicles, central government financial support to improve public transport, particularly in metropolitan areas, and measures to regulate water use and to comply with EU water quality requirements.

Deputy-prime minister for the ecological transition Teresa Ribera said that within 100 days she would submit a climate change law to parliament, present a climate change adaptation plan and a 2050 decarbonization strategy and create a citizens’ assembly to debate climate policy.

Ribera, whose elevation to deputy-prime ministership this month was presented by Spanish PM Pedro Sánchez as symbolizing the government’s environmental commitment, said “climate change and the just transition would be the transversal axis of all government policies”.

The climate change law is not a new proposal but long-promised legislation repeatedly delayed by Spain’s recent political paralysis.

New measures, other than the citizens' assembly, include obligatory low-emissions zones for all municipalities with more than 50,000 inhabitants, a national action plan for sustainable finance, a program for issuing green bonds and a sustainable tourism strategy up to 2030.

Green group Ecologistas en Acción welcomed the move as “an important step towards increased awareness and responsibility”, but said it was “occasionally at odds with the lack of national measures” to achieve emissions reductions.

It referred to the fact that “municipalities like Madrid are going in the opposite direction”, with the city moving to scrap its low emissions zone, and to “the ongoing uncontrolled expansion of tourism leading to unsustainable growth with grave consequences”.

7. Call For Action On Cruise Ship Pollution

Environmentalists have called on the Spanish government to take drastic action to halt the growth of cruise ship tourism which they say is responsible for high levels of air pollution and other environmental damage.

Spain, Italy and Greece topped the list of EU countries most contaminated by harmful sulfur oxides (SOx) from cruise ships, with Barcelona and Palma de Mallorca among the worst affected cities, in a study by Brussels-based NGO Transport & Environment last year.

The latest call from Ecologistas en Acción comes as the global travel industry gathers in Madrid for the FITUR trade fair. The cruise sector is growing faster than much of the rest of the global tourism industry, with the largest concentration on the Mediterranean coast and the Canary Islands. Spain was visited by more than 10 million cruise passengers in 2018, according to official figures, supporting the employment of 31,233 people.

Ecologistas en Acción said the industry's boasts of record visitors hide its damaging environmental and social impacts from air pollution, overcrowded cities and damage to marine ecosystems. The group blamed the government port authority's policy of cruise terminal expansion, which, they said, liberalization has put in the hands of international capital. Meanwhile, relatively poor regulation of maritime transport allows the use of high sulfur fuel which emits pollutants dangerous for human health.

Cruise tourism is also responsible for higher greenhouse gas emissions per kilometer than any other form of tourism, according to the environmental group.

Ecologistas en Acción spokesperson María García said: “As a first unavoidable step, a plan to drastically reduce the activity is necessary depending on the levels of protection from air pollution. Also, as part of the fulfillment of the 7.6% reduction in annual GHG emissions claimed by the scientific community in the latest UN report. In addition, it is essential that false green washing solutions are not considered as is the case with natural gas.”

In its recent annual report, the Washington-based industry group Cruise Lines International Association (CLIA) pointed to global investments of more than \$22bn in “new, energy-efficient ships and technologies”, including the use of natural gas as a primary fuel and shore-side power to curb fuel use when docked, as measures to help the industry reduce its rate of CO2 emissions by 40% by 2030, based on a 2008 benchmark.

8. Barcelona Bans Older, Most Polluting Cars

Barcelona imposed a ban recently on older, more polluting vehicles during most of the day in a bid to reduce air pollution in Spain's second largest city. Gasoline-powered cars registered in Spain before 2000, and diesel-powered cars registered before 2006 are now banned from most city streets on weekdays between 7:00 am and 8:00 pm and face a fine of at least 100 euros (\$112) if they violate the rule.

All banned vehicles will be allowed to enter the city 10 times a year.

Owners of vehicles registered outside of Spain can request permission from city hall to drive in the Mediterranean coastal city which is home to 1.6 million people.

Beginning in 2021 older, more polluting vans, trucks and buses will also be banned.

The new rules are expected to affect around 50,000 vehicles a day and lead to a 15-percent cut in nitrogen dioxide emissions, a poisonous gas in car exhaust.

Since last year, Madrid has restricted driving in the old city center to people who live there. Residents from outside the area can only drive there if they use an electric or other low-emissions vehicle.

While that rule is more restrictive than the policy put in place in Barcelona, the area of Madrid that is affected is much smaller.

Barcelona's far-left mayor Ada Colau has raised the possibility of introducing a congestion charge like those in place in other European cities such as London, Stockholm and Milan.

Barcelona has since 2002 exceeded the level of airborne pollution set by the European Union, according to a 2017 report by the city public health department. The city's poor air quality caused a yearly average of 424 premature deaths between 2010 and 2017, the report said.

Last year Brussels asked the European Union's Court of Justice to act against Spain for its "systemic violations" of rules limiting nitrogen dioxide emissions.

9. Smog In Southern Europe Sparks Car Bans And Street Protests

Cities across southern Europe have been experiencing dangerously high levels of smog caused by a prolonged period of dry sunny weather and light winds.

Temporary bans on diesel vehicles have been ordered in major Italian cities, including the capital, Rome, in an effort to reduce the pollution. In Bosnia-Herzegovina, protesters have taken to the streets in gas masks demanding action from the government.

Environmentalists have described the situation as a smog emergency.

In Rome, diesel cars, vans and motorbikes have been banned during peak times, while other polluting vehicles have been banned altogether. The restrictions, which are set to remain in place for several days, are expected to affect about one million vehicles.

At least nine of the 13 areas in Rome that monitor particulate matter (PM10) have recorded levels in excess of the legal limit, Italy's *Il Messaggero* reported.

Further north, where air pollution is typically worse, Milan, Turin and Bologna are among other cities to take similar action after recording a sharp rise in particulate matter.

Italy's permitted limit for PM10 particles is 50 micrograms per cubic meter, but in recent days that limit has been exceeded - especially in the north, where monitoring stations near Bologna show levels as high as 125 micrograms per cubic meter.

Officials in the northeastern city of Turin, home to Italian automaker Fiat, banned cars built before 2013 from taking to the roads, as did at least 11 other municipalities in the surrounding Piedmont region.

Cities and towns in the neighboring region of Lombardy, including Milan, had also announced similar curbs, but subsequently temporarily lifted the order because a public transport strike risked leaving locals stranded.

Further south, the Tuscan city of Florence and seven nearby towns banned highly polluting vehicles from their streets for five days.

But Andrea Minutolo, scientific coordinator for national environmental group Legambiente, said such measures are ineffective. According to Minutolo, temporary traffic bans, adopted every year, are decided when the situation is already critical but do not solve the problem. "In major northern Italian cities polluting cars should be banned permanently. Only this will lead to a change of mindset and lifestyle," he said, noting that Italy has one of the highest rates of car use in Europe.

Surrounded by the Alps, which block winds, Turin and Milan regularly feature as the worst cities in western Europe for air pollution. Last year the European Environment Agency put Italy at the top of an EU-wide list for deaths from nitrogen dioxide.

Minutolo said that while Milan introduced a low emission zone and plans a diesel ban from 2025, air pollution problems are also caused by heating, biomass use in the surrounding area and intensive agriculture throughout the Po Valley, where the government has "zero" measures to curb pollution.

A high concentration of PM10 and PM2.5 particles can pose significant health risks because they are small enough to penetrate deep into the lungs. The most common source is vehicle engine emissions.

Meanwhile, protests have been taking place in cities and towns across Bosnia-Herzegovina.

Recently, hundreds of people wearing respirators and face-masks gathered in the northern city of Tuzla to demand urgent action to improve air quality.

In the capital, Sarajevo, government officials have been holding emergency meetings to discuss measures to curb the pollution. An "episode of alarm" was declared at the weekend and a ban was put in place to reduce the number of vehicles on the roads.

Authorities in the Bosnian capital Sarajevo are discussing urgent measures to curb the pollution

Local residents have also been advised to head for the mountains, where the air is cleaner, with cheap tickets made available for cable cars.

Sarajevo is among the cities to record some of the worst levels of air pollution in recent days, along with the capital cities of neighboring Serbia, Kosovo and Macedonia.

In Serbia, where the government held an emergency meeting recently, residents were warned to remain indoors and avoid physical activity - especially those with health conditions such as asthma.

Serbia's Prime Minister Ana Brnabic blamed household heating and older diesel cars for the high pollution levels.

Ms. Brnabic said measures to tackle the issue would include more and stricter checks on vehicle emissions, improving and replacing filters on power stations and in the longer term, a program of tree-planting.

10. Dublin Proposes Rapid Phase-Out Of Fossil Fuel Driven Cars

The sale of petrol and diesel cars could be banned in Ireland from 2030 under draft proposals for a new climate law designed to “radically reduce our emissions in every sector”. The legislation is intended to realize the country's emissions reduction strategy, published in August, which stresses Ireland's support for an EU goal of achieving net-zero greenhouse gas emissions by 2050 and sets concrete national targets for 2030 in line with this ambition.

“Governance and accountability are at the heart of the climate action plan. We are putting in place the legislative underpinning to ensure the radical step up required is delivered,” said environment minister Richard Bruton.

In addition to banning sales of cars running on fossil fuels in 2030, the law would force the current petrol and diesel fleet off the road by 2045.

“Transport emissions account for around a fifth of all emissions in Ireland in 2018 and it is vital that we overhaul how we get from A to B if we are to achieve net zero emissions by 2050,” governing Fine Gael party member Noel Rock said late last year as the plans were being finalized.

The proposal would also mandate Irish governments to produce detailed five-year carbon budgets from 2021. The conservative-liberal Varadkar government is also reviewing responses to a recent public consultation on its climate strategy to 2050, which will feed into the final draft of the law and the country's national target for mid-century emissions cuts.

France and the UK have both announced bans on the sale of petrol and diesel cars from 2040, although the latter was subsequently criticized when it emerged the measure would not apply to hybrid models. Car makers are clearly concerned over the trend and described similar Spanish proposals for a 2040 ban as “excessive” and a threat to the “fabric of the automotive industry”.

Impatient with moves to reduce the use of petrol and in particular more heavily polluting diesel vehicles, many cities and municipalities around Europe have pressed ahead with their own congestion charging schemes and setting up low-emissions zones (LEZ). This month saw Barcelona activate its 95-square kilometer LEZ covering most of the city.

The EU executive is currently evaluating final drafts of governments' national climate and energy plans setting out how they intend to meet the EU's 2030 targets in areas such as renewable energy deployment and efficiency gains, which were due for submission by the end of 2019.

Asked whether all plans had been submitted, a European Commission official told reporters that "a good number" had come in but refused to specify which countries had missed the legal deadline.

11. Conventional Car Ban Would Be 'Counterproductive', Warns Industry

Car makers have warned that blocking the sale of new petrol and diesel models could increase emissions of CO₂ and other pollutants, after Ireland presented draft legislation that would introduce a ban from 2030. "Simply banning the sale of new vehicles with internal combustion engines that are cleaner than older vehicles still in circulation would be a counter-productive policy," a spokesperson for the European Automobile Manufacturers' Association (ACEA) told the press.

The Irish proposal sees the country join Denmark, Sweden and the Netherlands in targeting a 2030 deadline. France, the UK and Spain have announced similar plans with a 2040 date, while Norway plans to ban sales of petrol and diesel cars from 2025.

However, former EU transport commissioner Elzbieta Bienkowska warned in December 2018 that "a complete ban of the marketing, import or registration of new petrol and diesel cars in a member state is not compatible with EU law".

The automotive industry - whose environmental credentials took a battering during the 'dieselgate' scandal over cheating EU emissions tests - is keen to stress the advantages of new, cleaner cars, and the potential for liquid fuels with lower associated emissions. "The introduction of the latest generation of both conventional and alternatively-powered vehicles, supported for example by fleet renewal plans and the introduction of new low carbon fuels, will play a strong role in helping reduce emissions from new vehicles," ACEA said.

However, there are signs that momentum is building in Brussels for changes to EU rules that would allow governments to fix deadlines to take internal combustion engines off their roads entirely in the absence of an EU-wide target date.

Denmark put the issue on the agenda of the EU Environment Council in October last year, reportedly garnering the support of some ten member states for changes to EU law that would allow governments to set unilateral deadlines in the absence of an EU wide target date.

Bienkowska said a week later that the Commission would "welcome a policy debate on this topic in the relevant Council formations".

Julia Poliscanova, a clean vehicles specialist at the campaign group Transport & Environment (T&E), said the planned Irish law was "ambitious and welcome" but stressed the importance of getting the detail right.

"Only zero emission models such as battery electric cars should be allowed, as fleets of hybrids or cars run on natural gas still emit considerable amounts of CO₂ and other pollutants," Poliscanova told the press.

T&E sees the new Commission's environmental agenda as an opportunity to push for action at the European level. "The Irish proposal is significantly more ambitious than the current EU standards, which only require around 35% EV sales in 2030, with the remainder of the fleet sales run on fossil fuels," Poliscanova said.

"The new European Green Deal strategy announced in December 2019 promises to review these standards by June next year and aims to set a pathway to zero emission mobility from 2025 onwards," she said. "This is an opportunity the EU can't miss as road transport emissions continue to soar - a EU-wide end date to all fossil cars should be set so that the last combustion engine should be sold by 2035 at the very latest."

Automakers warned the European Commission that it must discourage member states from imposing bans on petrol and diesel vehicles as forecasts predict the sector is facing the first downturn in EU car sales for seven years. European vehicle manufacturers said they expect EU passenger car sales to fall 2% this year following six consecutive years of growth. The forecast came as the industry trade body ACEA launched a set of recommendations which it says will help tackle the challenges its members face as the EU aims for carbon neutrality by 2050. The group, which represents 16 major manufacturers, called for a "holistic" approach to decarbonization.

"Firstly, we believe in choice for all," said ACEA president and CEO of Fiat Chrysler Michael Manley. "Policy makers should help drive the best possible results by remaining technology neutral – in other words, without imposing specific technologies or banning vehicles that can still deliver CO2 reductions."

The automakers' lobby has led calls in recent weeks for the EU executive, in its upcoming revision of the 2014 Alternative Fuels Infrastructure Directive (AFID), to resist demands from environmental groups to focus support for infrastructure on zero-emissions technology. NGO Transport & Environment has said the directive, which mandates the roll-out of recharging and refueling points by member states, is "no longer fit for purpose" given its support for fossil gas.

The group has also suggested post-2030 vehicle CO2 emissions to be calculated on a "well-to-wheel [basis] with split responsibilities", to ensure both vehicles and energy carriers' performance is accounted for. It also called for changes to fuel tax to support GHG intensity reduction and policies to stimulate higher renewable content in fuel.

Poliscanova said much of the ACEA plan "reads as if the car industry has missed the climate emergency and the urgency with which all sectors in Europe need to act".

"We simply can't waste time or resources on supporting fossil technologies," she said. "We need to put focus on zero emission technologies ... and phase out internal combustion engines."

12. EU 'Examining' Tests Showing Diesel Car Emissions Spikes

The European Commission has said it is studying results of tests which showed emissions of harmful particles from new diesel cars peaking at up to 1,000 times normal levels.

A leading MEP echoed calls by environmental campaigners for more stringent EU emissions standards after independent testing showed spikes in emissions of dangerous particles as a result of cars automatically cleaning their diesel particle filters (DPF).

The European Commission said it was “carefully examining the results” of the study by environmental consultancy Ricardo, which found two popular models 32% and 115% over the legal limit for particles during the filter cleaning.

Campaign group Transport and Environment (T&E), which commissioned the tests, estimates that more than 45 million cars carry the technology in Europe, producing spikes on average once a fortnight. Emissions made during the DPF cleaning process, known as regeneration, are not measured in current EU emissions tests.

“These tests show that new diesels are still not clean,” said T&E emissions engineer Anna Krajinska. “In fact, they are spewing out highly-dangerous levels of particles in our towns and highways every day.”

Carmakers’ lobby group ACEA said the results of the tests on two vehicles were “open to interpretation”. Emissions levels above the limit during regeneration are accounted for in the legislation, according to a spokesperson. The industry group said filter regeneration ensures emissions stay below the limits “for the rest of the time”, so looking at such an episode in isolation is “meaningless”. Averaged out, the spokesperson said, the test results showed emissions below the limits.

MEP Pascal Canfin, chair of the European Parliament’s environment committee, told the press the new analyses “show that we are right to want to tighten standards again to better protect the health of Europeans”. Responding, chair of the parliament’s transport committee, Karima Delli (Greens/EFA) said: “Can we stop with the joke of “clean” diesel?”.

The commission included measures to regulate regenerations where they happen more than once in testing in recent real driving emissions (RDE) regulations. “The commission has made great efforts to tackle the issue of particles filters and continues its actions both at international and European level,” a spokesperson told the press.

The new tests also revealed emissions increased up to 184% when the smallest, most dangerous, ultrafine particles, which are currently unregulated, were measured. The commission is understood to be working on new protocols to regulate smaller particles in the new Euro 7 standard.

13. Diesel Sales Leveling Off But Long-Term Outlook Remains Bleak

Growing sales of diesel SUVs are helping to prevent the European market share of the powertrain from sliding more than it already has. The continuing increase in popularity of compact SUVs from volume automakers such as the Volkswagen Tiguan and the Peugeot 3008 means that segment is now the largest for diesel sales.

Between 2015 and 2018 diesel sales in the segment increased 19 percent, while in other segments customers were abandoning the powertrain. The damage done by the VW Group emissions-cheating scandal, the threat of higher taxes and the growing number of bans in urban areas has caused a dramatic decline in diesel demand in the last four years.

Analyst firm LMC Automotive predicts the overall European diesel share will slip to 32 percent this year, down from a high of 56 percent in 2011. The downturn for diesels was at its most dramatic in 2018, when demand fell by more than a million units.

The biggest drop for diesels in terms of numbers came in the compact segment, Europe's second largest vehicle class overall, where sales of the powertrain declined by 45 percent between 2015 and 2018, according JATO figures.

The switch to gasoline wiped almost 600,000 diesel sales from the compact segment in 2018 compared with 2015 as the change in diesel share broadly mirrored the overall average, which slipped to 33 percent in 2018 from 53 percent in 2015.

Diesel's steep decline is largely because European buyers prefer smaller cars. The rise in fuel consumption switching out of a more frugal diesel into a gasoline is just not big enough to give buyers of small cars much pause.

This has prompted some experts to predict an early demise for the powertrain. "I think it's dead," David Bailey, professor of business economics at the UK's Birmingham Business School, said. He believes diesels are likely to only remain relevant in segments such as large SUVs. "Governments have turned against it," Bailey said, "and the industry has failed to get across a clear message about its cleanliness."

However, the figures show that for the last six months diesel sales have actually leveled off. They will continue to stay flat in 2020, LMC predicts.

Diesels still account for more than half of total sales in segments from midsize and above, apart from the ultraluxury sector. In the first 10 months of 2019, the premium SUV segment that includes the BMW X3, Audi Q5 and Mercedes GLC had more diesel sales than any other premium segment at 274,454.

Automakers arguably need diesels to help them comply with tougher CO2 targets that arrive this year and, they argue, customers still want them. Far from ditching them, some premium brands are expanding their diesel lineups. Audi, for example, has switched to diesels over gasoline engines in larger high-performance S-badged cars such as the SQ5 premium midsize SUV to help lower CO2.

"SUVs are still strongly diesel partly because of the lack of electrified variants. As more electric and hybrid versions arrive, the shift away from diesel should be rapid," JATO global analyst Felipe Munoz said. The shift to electrification in bigger cars is well under way. Toyota doesn't offer diesels in its new RAV4 compact SUV, a move that Honda followed with the CR-V in the same segment. Both brands focus on offering those SUVs as gasoline-electric hybrids instead.

Nissan will also drop diesels from its next Qashqai, which will instead offer the automaker's fuel-saving e-Power hybrid powertrain when it arrives this autumn. "What is most relevant to me is not the question, 'What about the future of diesel?' but 'What about the future of conventional engines?' What we underestimate today is the weight of the [CO2] regulation," Nissan Europe Chairman Gianluca de Ficchy told reporters.

Both premium and volume brands are also rolling out more plug-in hybrid and full-electric models. These include the plug-in hybrid version of the Ford Kuga compact SUV and a full-electric crossover from Nissan, which will be based on the Ariya concept and is due sometime next winter.

Electrification would be less of a pressing concern if diesel remained popular, but automakers are cautious about relying too much on the recent leveling off of diesel sales.

"Diesel has been stable over the last six months at about 30 percent. Is that going to move down 10 percentage points by the end of next year? No one knows," Citroen CEO Linda Jackson said. LMC predicts that after a flat year in 2020, the diesel share will fall below 30 percent in 2021, dropping to 23 percent in 2025 and falling to 9 percent by 2030.

Ironically, given its role in the diesel downturn, the VW Group remained the largest seller of diesels through the first 10 months of 2019. Like many others, VW has cut diesels from its range -- most notably the 1.6-liter TDI.

BMW also plans to stop making its three-cylinder 1.5-liter engine. But there is still plenty of life in its core diesel range, BMW development boss Klaus Froelich said: "Our four- and six-cylinder diesels will remain for at least another 20 years."

14. 2020 European Sales Outlook Uncertain

"Uncertainty" was the watchword for European sales going into 2019, and that will again be the case in 2020, executives and analysts say. Last year, caution centered on Brexit, tariffs and the lingering effects of the Worldwide harmonized Light vehicle Testing Procedure (WLTP). None of those factors have completely disappeared, but the big unknown is how buyers will react to a wave of electrified vehicles needed to meet new EU emissions rules.

"I think that 2020 will be a very interesting year, because we will see if the consumers are ready to buy [electric vehicles], if the infrastructure that's needed is in place, if the different use cases are working," Faurecia CEO Patrick Koller said. "We will see."

Peugeot CEO Jean-Philippe Imparato warned of turbulence at the end of 2019 and the beginning of 2020, as automakers go from average fleet CO2 emissions of about 120 gram per kilometer at the start of 2019 to 95g/km, the new EU standard, on January 1. Overall sales will be "stable" in 2020, Imparato told the press, but he expects there to be a "seasonal effect" on first-quarter demand because of the tougher emissions regulations.

A four-year post-recession run of sales growth slowed to a halt in 2018, with the European market slipping into negative territory, down by 0.04 percent, and the Western European market down by 0.7 percent. Final figures for 2019 are not yet available, but the overall market is expected to be flat.

For next year, analysts are predicting that European sales will fall somewhat. For example, LMC Automotive is forecasting a decline of 1 percent in Western Europe in 2020.

Moody's is more bearish, predicting that Western European sales will drop by 3 percent in 2020, revising downward an earlier forecast. Factors in the slowdown include uncertainty around Brexit, and a weakening macroeconomic environment, especially in Italy and Spain. However, Moody's noted that the European market has been at a high level of sales for several years, and that a slowdown in 2020 would return the market to 2017 volumes.

Separately, IHS Markit is forecasting a 2 percent decline in EU plus EFTA sales (Iceland, Norway and Switzerland). "We are seeing a slight decline," said IHS Markit analyst Martin Benecke, noting that formerly strong growth markets in Central and Eastern Europe are now more closely tracking Western European countries.

"On the economic side, the ongoing Brexit uncertainty is holding back investment, not only in the UK but in other nations," he said. On trade issues involving China and the U.S, "It's not clear what's going to happen," he added.

But emissions compliance remains the main question around sales this year, Benecke said, for a number of reasons. Model portfolios will change as higher-polluting cars with older technology are pulled in favor of full-electric cars, plug-in and regular hybrids, and mild hybrids. This in turn will increase prices overall, possibly affecting demand, he said.

Automakers could also push diesel sales, even though the future of the powertrain has been in doubt because of fallout from the Volkswagen Group cheating scandal. After several years of sharp declines, tied to a loss of consumer confidence, increasing cost of emissions compliance and the effects of current and future diesel bans, sales have stabilized somewhat.

Benecke said IHS forecasts that the diesel market share in 2020 will be 31 percent, just one percentage point below 2019's figure. Nevertheless, the powerplant's long-term future is in doubt, he said, because it is increasingly difficult to find further gains in CO2 emissions.

Another unknown is how automakers will ensure that enough low-emissions vehicles are sold to meet fleet emissions targets. Benecke noted that manufacturers have many levers to pull because relatively few cars are sold to private buyers. Those tools include self-registrations, favorable lease terms for employees, and sales to short-term (car-sharing) and traditional rental fleets. Said Benecke: "They have a lot of power to bring these vehicles to market."

15. Volvo Counting on Hybrid Cars to Avoid Paying Hefty CO2 Fines

Volvo Car AB is counting on tripling sales of plug-in hybrid models this year as a way to avoid paying what could amount to hundreds of millions of euros in European penalties for the sale of its more polluting yet popular combustion-engine SUVs.

A fifth of all new Volvos sold in 2020 should be plug-ins or all-electric, compared with just 6.5% of the total last year, according to Chief Executive Officer Hakan Samuelsson. That would see hybrid sales rising to more than 150,000 based on the pace of growth in 2019. The company is only planning to start shipping its first fully-electric model -- the XC40 Recharge -- later this year.

The stakes are high for Volvo's electric strategy because conventional SUVs made up more than half of sales last year and are largely behind the carmaker's success since the takeover by China's Zhejiang Geely Holding Group Co. a decade ago. As Europe's tough emissions rules kick in, the company could pay dearly. PA Consulting Group puts Volvo's potential fines for this year at a quarter of annual operating profit.

"Paying fines is something that just shouldn't be in the equation," Samuelsson said in an interview at the company's headquarters in Gothenburg, Sweden. "That's not part of our plans. We want to invest in product development, not in fines to Brussels."

The CEO pointed to Volvo's goal for half of all cars sold in 2025 to be all-electric and the rest plug-in hybrids. It will relaunch its battery-powered range under the "Recharge" moniker, and while the volume of the electric XC40 will be modest this year, Volvo has the capacity to produce "tens of thousands" next year, he said.

The question for Volvo and other conventional manufacturers selling cars in the EU is whether consumers will buy into the plans. Rival automakers including Daimler AG's Mercedes-Benz, BMW AG and Volkswagen AG's Audi are also rolling out battery-powered models. The threat of penalties for the companies, dubbed "the 2020 CO2 cliff" by Evercore IS auto analyst Arndt Ellinghorst, comes at a tricky time, when the region's market is expected to shrink.

PA Consulting Group earlier this month warned that the EU could inflict 14.5 billion euros (\$16.1 billion) in fines on the region's 13 largest carmakers for surpassing carbon-dioxide targets. The penalties will be calculated on the basis of the average emissions of new car registrations. For Volvo, they could reach 382 million euros by 2021, based on the assumption that only 14% of its sales will be all electric or plug-in hybrids, the consultancy said.

Volvo's bet on plug-ins comes despite criticism of the technology for being a half-measure that doesn't go far enough in reducing emissions, especially as some users run them on fossil fuels without charging the battery. European sales dropped in the first nine months of last year, but according to a report by BloombergNEF are expected to rise quickly this year due to new models on the market and the emissions crackdown.

16. Average CO2 Emissions Of Cars Sold In UK Up For Third Year In Row

The average carbon dioxide emissions of cars sold in the UK rose for the third year in a row during 2019 as falling diesel sales and the rising popularity of SUVs dealt a blow to Britain's hopes of reaching climate targets.

Average CO2 emissions rose 2.7% year on year to 127.9g of CO2 per kilometer, according to data from the car industry body. This is far above the newly introduced EU target of 95g per kilometer carmakers need to achieve over this year and next for all new cars. Cars account for just over 18% of UK emissions, according to government figures. Transport emissions as a whole account for a third of the UK total, with the sector viewed as vital contributor if the country is to achieve goals of cutting emissions to 51% of 1990 levels by 2025 and to reach net zero by 2050.

All manufacturers selling in the EU are rushing to meet emissions regulations that came into force on 1 January. The regulations were introduced in response to the climate crisis, with road transport a major contributor to global CO2 emissions.

Overall UK car sales fell by 2.4% year on year to about 2.3m, according to the Society of Motor Manufacturers and Traders (SMMT), with the industry body blaming Brexit uncertainty and the slump in diesel sales as the main factors.

This indicates the worst year for the UK market since 2013, when sales were 2.26m. They reached a peak of 2.7m in 2016 but have declined steadily since.

A quarter of the CO2 increase was caused by the 21.8% drop in diesel sales over the year. Newer diesels on average have lower CO2 emissions than petrol cars, despite a backlash prompted by air quality concerns. Another quarter was caused by increased sales of SUVs, which are often heavier and have much worse aerodynamic profiles than smaller cars. Increased fuel use by SUVs was the second largest contributor to the increase in global CO2 emissions from 2010 to 2018, according to the International Energy Agency.

The other half of the headline CO2 increase was caused by a change to testing standards.

Mike Hawes, the SMMT chief executive, acknowledged the CO2 figures showed the challenge facing the industry. He said: “The step change that is required is significant.”

Under the EU regulations, carmakers face fines potentially running into billions of euros across the UK and the rest of Europe if they surpass individual limits designed to ensure that average fleet emissions hit the 95g target.

One bright spot in an otherwise declining market was the rapid increase in sales of battery electric vehicles, which have zero CO2 tailpipe emissions, and hybrid vehicles, which combine an internal combustion engine with a battery-powered motor. Annual sales of alternatively fueled vehicles rose by 20.6% to a record market share of 7.4%. That was driven by the surge in battery electric sales, which were up by 144%.

However, sales of battery electric vehicles would need to rise from the 1.6% market share for 2019 to 27% to hit the 95g target alone, according to the SMMT’s calculations.

While the SMMT has welcomed the increase in BEV sales they say the market share is still ‘tiny’ and called on the government to do more to encourage growth in the burgeoning market.

Hawes repeated his industry’s plea for a post-Brexit trade deal that preserves frictionless trade between the EU and the UK, and that prevents the imposition of tariffs. He added that Brexit uncertainty remained his number one fear for the industry. The SMMT noted that they are yet to meet Andrea Leadsom, the Secretary of State for Business, Energy and Industrial Strategy, since she was appointed in July last year.

Carmakers have also blamed ‘confusing messages’ on Clean Air Zones (CAZs) for a decline in the UK new car market. The zones, also known as low-emissions zones, are being considered in UK cities such as Birmingham, London, and Leicester. From 2021, Bristol is set to become the UK’s first city to ban diesel cars from entering parts of its city center.

Hawes said that differing proposals from cities across the UK could result in a “patchwork of different standards” — something that had prompted people to hold onto their older cars for longer.

17. Electrification Of Waste Collection Vehicles Could Improve Localized Air Pollution

The electrification of waste collection vehicles could bring significant benefits to the environment and air pollution, according to a new report¹¹. Almost every waste collection system in the UK relies on refuse collection vehicles (RCVs) that are mostly powered by diesel-fueled combustion engines. In the new report, the environmental consultancy group Eunomia highlight the benefits of switching to electric-powered refuse collection vehicles.

According to the report, the fact that more than 200 UK local authorities have declared a climate emergency, and with changes already being made to the existing waste strategies, now is the perfect time for authorities to consider a switch to eRCV’s.

¹¹ “Ditching Diesel – A Cost-Benefit Analysis of Electric Refuse Collection Vehicles”, 27th January 2020, by Tanguy Tomes, Laura Williams

The stop-start nature of collection rounds means that the vehicles produce significant air pollution when the vehicles are idling, therefore switching to eRVS's will eliminate the biggest source of localized air pollution.

The switch would also have climate benefits as diesel RCVs in the UK produce approximately 330 kilotons of CO2 each year.

According to the authors, switching to electric trucks could reduce these emissions by 290 kilotons of CO2 each year.

The researcher's highlight that waste collection has several structural features making it suitable for electrification, with the stop-start nature already putting a strain on the engines and wasting a lot of diesel fuel.

The cost-benefit analysis of the report highlights that although capital costs associated with switching to eRCVs is greater than acquiring new diesel vehicles, savings will be made over time.

Tanguy Tomes, author of the report said: 'With RCVs visiting almost every street in Britain on a weekly basis, they are a significant part of our current carbon-intense society.'

'Local authorities are looking for ways that they can reduce their contribution to the climate crisis and eliminating the huge amount of carbon released on a daily basis by diesel RCVs is a local, and now financially viable step.'

'We hope that our research will help local authorities to build a solid business case for the urgent change that is required: with a reduction in greenhouse gases, harmful air emissions and noise, and with financial savings becoming more likely, the case for eRCVs is becoming compelling.'

18. MEPs Join Call For Radical Green New Deal

MEPs have joined a coalition of thinktanks, environmental groups, economists and climate scientists backing a 'Green New Deal for Europe' (GNDE) that goes much further than the European Commission's package, more details of which are expected soon. Launched in Brussels recently by MEPs Alexandra Phillips (Greens/EFA), Aurore Lalucq (S&D), and Manon Aubry (GUE/NGL), the GNDE sets out a "pragmatic pathway" to net-zero emissions by 2030.

In an open letter published alongside the report, supporters including environmentalist Bill McKibben, economist Ann Pettifor, and former Greek finance minister Yanis Varoufakis, told Commission president-elect Ursula von der Leyen her 'European Green Deal' proposal "fails completely" to live up to her promise of an ambitious transition. Leaked details of von der Leyen's Green Deal drew concerns over the lack of ambition.

GNDE supporters said the Commission's ambition to decarbonize by 2050 was too slow, spelling a "death sentence for millions". Von der Leyen's promise of a ten-year €1.1trn Sustainable Europe Investment Plan, they added, was "only a fraction of the resources necessary", while the plan remained tied to a model of economic growth over citizens' security. "The plan you have presented is not a 'Green New Deal' — but a raw deal for Europe's citizens," they said.

Following Green New Deal campaigns in the US and UK, the GNDE blueprint, backed by groups including the Institute for Public Policy Research, and the New Economics Foundation,

recommends a public works program to invest in a green transition and for the EU to replace public-private funding with direct public investment.

Recommendations for emergency legislation include continuous updating of climate targets to align with scientific consensus, and requirements that EU economies operate within planetary boundaries.

French center-left S&D group MEP Aurore Lalucq said a Green New Deal would not only “respond to rising inequalities, climate irreversibility and loss of biodiversity, but it will open up to an era of social prosperity.”

Campaign coordinator Pawel Wargan said decarbonization is “not a matter of tweaks and technical fixes”. “It must transform Europe’s economy, and empower all of its residents in the process.”

19. Von Der Leyen Seeks Common Cause With UK On Climate Change

The EU is prepared to forge an “unprecedented new partnership” with the UK after Brexit that would encompass climate action, European Commission president Ursula von der Leyen has pledged. Speaking at the London School of Economics, von der Leyen said the UK could sign up to “partnership that goes well beyond trade and is unprecedented in scope”, including “everything from climate action to data protection, fisheries to energy, transport to space”.

Von der Leyen, who had travelled to London to meet British prime minister Boris Johnson, argued that a Europe-wide approach to addressing climate change would still be necessary even after the UK leaves the EU.

“Great Britain is as dedicated as the EU when it comes to addressing climate change and taking global leadership,” she said.

“A whole continent has to mobilize and the whole world needs to be part of this transformation. The European Green Deal won’t happen overnight and it will be demanding, and no country can hope to handle climate change alone. But if this is the right thing to do and if we do it together, we can lead the change.”

But she warned that the partnership would become more distant the more the UK chose to diverge from EU standards. “Without an extension of the transition period beyond 2020, you cannot expect to agree on every single aspect of our new partnership,” she added.

The Commission will stick to its red lines in the trade negotiations, with “no compromise” on the integrity of the EU internal market or customs union, she said.

Von der Leyen has consistently said the post-Brexit settlement should be “as close as possible”, while Michel Barnier, the Commission’s chief negotiator, has said Brussels is “ready to discuss zero tariffs, zero quotas, zero dumping”.

It remains to be seen whether the UK government will agree to close alignment with the EU after the transition period, although legal experts are concerned that the Withdrawal Agreement Bill could allow ministers to tear up the EU case law that informs how transposed green rules are interpreted.

20. Afghanistan: Air Pollution More Dangerous Than Civil War

Increased air pollution in Afghanistan in recent years reportedly killed more people than the current civil war in the country, according to officials. In 2017, about 26,000 people lost their lives due to air pollution related diseases nationwide, while 3,483 people lost their lives due to conflict and violence, according to a report published in October by the Afghanistan Research Center in Kabul.

Kabul ranks among one of the most polluted capital cities in the world, the report said.

About 3,000 people die every year in the capital due to air pollution-related diseases, according to the report.

Illegal housing in Kabul, where approximately 6 million people live, is regarded as one of the reasons for rising air pollution levels.

"A total of 17 people died in capital Kabul over the past week due to air pollution," Deputy Minister of Public Health Fida Mohammad Paikan told Anadolu Agency. He added that 8,813 people visited hospitals in Kabul during that same period due to respiratory diseases caused by air pollution.

Underlining that this number may increase further, Paikan warned Afghan people to be careful and to wear masks to protect against air pollution.

Ezatullah Siddiqi, deputy head of the National Environmental Protection Agency (NEPA), also stressed that air pollution in the country has reached a dangerous level.

Siddiqi said sub-standard fuel is used in the country and there is not enough forestland. "Air pollution has further increased as thousands of families in Kabul started to use plastic, car tires and raw coal in their stoves as the temperature drops," Siddiqi said.

Marwa Amini, deputy spokeswoman for the Afghan Interior Ministry, said that the ministry is carrying out efforts to reduce air pollution, especially in Kabul. "We have warned businesses, baths, restaurants and brick factories not to use poor quality fuel and raw coal. We will impose heavy penalties on those who do not follow these warnings," Amini said.

NORTH AMERICA

21. Candidate Bloomberg Aims To End Sale Of Gas-Fueled Vehicles By 2035

Democratic presidential candidate Michael Bloomberg called for a requirement that all new vehicles sold in America be carbon-free by 2035. Bloomberg's proposal targets the transportation sector, the largest source of U.S. greenhouse gas emissions, as part of his overall goal of cutting emissions economy-wide 50% by 2030 in order to fully decarbonize before midcentury.

Bloomberg, the billionaire former mayor of New York City, is trying to distinguish himself in the Democratic field by promoting his philanthropic success working with environmental groups to shut down more than half the nation's coal plants.

"Mike is unique in his track record committing to this issue," a senior adviser to the Bloomberg campaign told reporters on a press call.

As a candidate for president, Bloomberg, who previously favored natural gas as a “bridge fuel” to renewable energy, has sought to expand his work against coal to target all fossil fuels. He’s pledged to stop the construction of new natural gas plants to achieve 80% clean electricity by 2028.

Earlier, he released a plan to make all new buildings zero-carbon by 2025 and retrofit old ones by phasing out natural gas appliances, through federal incentives and standards.

Electric vehicles are declining in price because of cheaper batteries but represent only about 2% of sales in the US.

The Bloomberg adviser said a president could “go far” using executive authority to mandate that new vehicles be emissions-free. His plan would also force 15% of new trucks and buses to be emissions-free by 2030.

Bloomberg would strengthen vehicle fuel economy standards that President Trump has sought to weaken and reaffirm the right of states to set tougher rules — an authority Trump has moved to revoke.

To lower the cost of EVs, he would expand tax credits for buyers and allow low- and moderate-income people to trade in their gas-based vehicles for electric ones, or instead receive vouchers they can use on transit.

He’d also expand federal grants for school districts and transit agencies to buy zero-emissions buses, collaborate with ride-share and taxi companies to convert their fleets to EVs, and build a network of charging stations along highways using tax credits and “low-cost financing,” aiming to place a station every 50 miles.

Bloomberg called to jump-start the dormant U.S. high-speed rail system by working with states to build at least one new high-speed rail corridor, or network, by 2025.

The United States has only 54 miles of high-speed rail, compared with countries, such as Spain, Japan, and Germany, that have more than 3,000 miles each.

22. 9th Circuit ‘Reluctantly’ Scraps Youth Case Seeking Federal Climate Plan

A divided appellate court panel is “reluctantly” dismissing youth plaintiffs’ litigation seeking to force the federal government to develop a plan significantly limiting carbon emissions that cause climate change, finding that the plaintiffs’ “impressive case for redress must be presented to the political branches of government.” It is beyond the power of courts to “order, design, supervise, or implement the plaintiffs’ requested remedial plan,” the panel majority said in its January 17 ruling. “As the opinions of their experts make plain, any effective plan would necessarily require a host of complex policy decisions entrusted, for better or worse, to the wisdom and discretion of the executive and legislative branches.”

The 2-1 ruling by a panel of the U.S. Court of Appeals for the 9th Circuit deals a blow to the 21 youth plaintiffs in *Juliana v. United States* who had been seeking to force a trial over the federal government’s role in causing climate change by promoting fossil fuels and taking little action to limit greenhouse gas emissions.

While a federal district court judge in Oregon had ruled that such a trial could proceed, the Trump administration -- following in the footsteps of the Obama administration -- successfully routed the case to the 9th Circuit, which is now ordering the lower court to dismiss the case because the plaintiffs lack standing to sue.

The opinion was authored by Judge Andrew Hurwitz, who was joined by Judge Mary Murguia. Judge Josephine Stanton of the U.S. District Court for the Central District of California -- who was sitting by designation -- authored a dissent, arguing that the federal government claims it has "the absolute and unreviewable power to destroy the Nation."

The ruling was foreshadowed during the June oral argument, in which Hurwitz in particular appeared skeptical that the case could proceed. The government's conduct "may even rise to the level of criminal neglect. The question for me is, do we get to act because of that?" he said.

In its ruling, the panel majority notes that the "crux of plaintiffs' requested remedy is an injunction requiring the government not only to cease permitting, authorizing, and subsidizing fossil fuel use, but also to prepare a plan subject to judicial approval to draw down harmful emissions."

While plaintiffs successfully claim climate-related injuries and argue the government is responsible for such injuries, the ruling says they fail to show how courts can "redress" their claims. Specifically, the ruling notes that even a complete injunction of federal efforts to promote fossil fuels "will not, according to their own experts' opinions, suffice to stop catastrophic climate change or even ameliorate their injuries."

Even though the youth plaintiffs argued they merely sought a court order for the government to craft a climate mitigation plan, the ruling notes such a ruling would "subsequently require the judiciary to pass judgment on the sufficiency of the government's response to the order, which necessarily would entail a broad range of policymaking."

But Stanton's dissent argues that her fellow panel members "throw up their hands," even though courts "need not manage all of the delicate foreign relations and regulatory minutiae implicated by climate change to offer real relief, and the mere fact that this suit cannot alone halt climate change does not mean that it presents no claim suitable for judicial resolution."

Given that the youths "seek no less than to forestall the Nation's demise, even a partial and temporary reprieve would constitute meaningful redress. Such relief, much like the desegregation orders and statewide prison injunctions the Supreme Court has sanctioned, would vindicate plaintiffs' constitutional rights without exceeding the Judiciary's province."

Even though the case is poised to be dismissed, the panel majority's endorsement of the plaintiffs' broad claims -- that climate change risks are becoming increasingly severe and that the federal government largely has not acted to stem such threats -- could still offer plaintiffs a silver lining in the form of an official condemnation of the government's actions and inactions so far. "A substantial evidentiary record documents that the federal government has long promoted fossil fuel use despite knowing that it can cause catastrophic climate change, and that failure to change existing policy may hasten an environmental apocalypse," the majority's ruling notes.

It adds that plaintiffs' extensive record "leaves little basis for denying that climate change is occurring at an increasingly rapid pace," and that the record "conclusively establishes that the federal government has long understood the risks of fossil fuel use and increasing carbon dioxide emissions."

Further, the record shows “that the government’s contribution to climate change is not simply a result of inaction. The government affirmatively promotes fossil fuel use in a host of ways, including beneficial tax provisions, permits for imports and exports, subsidies for domestic and overseas projects, and leases for fuel extraction on federal land.”

The majority adds that, given such findings, it will be “increasingly difficult” for the “political branches to deny that climate change is occurring, that the government has had a role in causing it, and that our elected officials have a moral responsibility to seek solutions.”

"Seeking to quash this suit, the government bluntly insists that it has the absolute and unreviewable power to destroy the Nation," wrote Judge Josephine Staton in a scathing dissent opinion. "My colleagues throw up their hands, concluding that this case presents nothing fit for the Judiciary."

Andrea Rodgers, a senior attorney at Our Children's Trust, the nonprofit backing the youth who filed the lawsuit, described the decision as "unprecedented and contrary to American principles of justice."

Kelsey Juliana, the 23-year-old named as lead plaintiff in the case, said: "This isn't over. Prepare for a petition for review en banc to the 9th Circuit as we refuse to do anything but move forward and ultimately win. Courts do have an obligation to address issues of constitutional, existential crisis, like climate change." Juliana asked supporters and allies, to "stay hopeful, stay with us, stay tuned," and "stay in power."

While Our Children's Trust vowed to appeal, members of the broader climate justice movement decried the ruling as a grave injustice.

"What is remarkable about this decision, and what will land it in legal textbooks for decades to come, is that the 9th Circuit recognizes the grave realities of the climate crisis and the government's role in causing climate harms, but immediately abdicates the court's own responsibility to address and remedy those harms," said Carroll Muffett, president of the Center for International Environmental Law (CIEL), in response.

Muffet said the panel's conclusion that the courts have no role to play in addressing the legitimate grievance of the plaintiff's flies in the face of the entire purpose of judicial review.

"For centuries, and emphatically," Muffett said, "that has been the definition of the role of courts: when plaintiffs are suffering harms to fundamental rights at the hands of other branches of government, addressing those wrongs and protecting plaintiffs' rights is the essential and inescapable domain of the federal courts."

"Whether on issues of equality between genders or equality between races," she added, "courts have a long history of doing precisely what the panel says they cannot do here."

Ken Kimmell, president of the Union of Concerned Scientists, said the decision only "underscores the climate policy paralysis" that exists in the nation's governing bodies—from the courts to the White House to Congress and back again.

"In a functional democracy, communities facing catastrophic flooding, heat waves and other climate impacts would be able to press elected officials to comprehensively and effectively cut

the emissions of heat-trapping gases and reduce the massive harm that we are experiencing now and will experience in the future," Kimmell said.

Citing the "blistering" dissenting opinion of District Court Judge Josephine Staton, Kimmell warned that "we live in a time where the government has failed to act—in large part due to fossil fuel industry's outsized influence—despite overwhelming scientific evidence that delaying action will only lock in more severe climate impacts."

In her dissent, Staton disagreed strongly with the conclusion of her panel colleagues. "It is as if an asteroid were barreling toward Earth and the government decided to shut down our only defenses. Seeking to quash this suit, the government bluntly insists that it has the absolute and unreviewable power to destroy the Nation," Staton wrote. "My colleagues throw up their hands, concluding that this case presents nothing fit for the Judiciary."

23. 'Negative' Federal Policies Spur Pessimism On Electric Vehicle Growth

The federal government's "negative" policies on electric vehicles (EVs) and fuel efficiency are spurring a pessimistic outlook on potential growth for EVs and costs for further deployment remain high, according to a study by Columbia University's Center for Global Energy Policy.

The study, "Electric Vehicle Penetration and Its Impact On Global Oil Demand: A Survey of 2019 Forecast Trends", is part of a multi-year research effort by the non-partisan center on the prospects for and timing of peak oil demand, including the impact of EVs, which the new study says is an "essential piece of the puzzle is understanding what happens to global oil demand in the passenger vehicle sector."

The new analysis compares the results of a 2018 study that also examined all available global electric passenger vehicle penetration forecasts to relate the different underlying assumptions and the resulting conclusions about the impact of EVs on oil demand. The 2019 analysis notes that this year's forecasts "were less optimistic about the pace of electrification than the 2018 survey, due in part to weaker economic projections resulting in fewer new vehicles sold, weaker U.S. policy drivers, and less optimistic views about when battery costs will fall to a level that competes without subsidy to the internal combustion engine" (ICE).

In addition to lower car sales and federal policy "becoming more negative toward EVs and automotive fuel efficiency improvements," a third reason for projected slower EV penetration is that 2019 forecasts show a later date for battery costs becoming competitive with the ICE. "While battery pack costs have declined considerably, they are still significantly above the \$100/kWh level required to be competitive with cars powered by an internal combustion engine," the analysis finds. In addition, "Rising costs of critical battery metals (e.g., cobalt, nickel) as EVs penetrate will make it more difficult for battery costs to fall to a competitive level." The cost issue makes EV growth in the passenger vehicle sector "highly uncertain."

Taking the median of the report's various forecasts gives 2025 as the date when EV battery packs will become competitive without government subsidies. That finding comports with the view of the Electric Auto Association, a non-profit educational organization that promotes the widespread adoption of battery EVs, which says that declining battery costs will give EVs cost parity with ICE cars by 2023-25.

Even with battery cost parity, "EV share of the global passenger vehicle fleet is not projected to be substantial before 2030 given the long lead time in turning over the global automobile fleet,"

the Columbia study says. The 2019 forecasts show a greater divergence of views than in 2018 on EVs' market share of the global auto fleet. In 2019, surveys project the range of EVs in the 2040 fleet will be 10% to 70%, while in 2018 the range was from 15% to 60%.

The forecasts will likely disappoint EV advocates, such as Earth Day founder Denis Hayes who believes electrifying "everything" is essential to reduce greenhouse gases, combat climate change, and achieve sustainable economic growth.

Regarding peak oil, the center's study says, "Even if passenger vehicle oil demand were to decline by 2040, it doesn't necessarily mean that total oil demand will decline because of the growth expected in sectors that are more challenging to electrify or find substitutes (e.g., truck, air, marine, petrochemicals)." Forecasts show flat or rising total oil demand through 2025, with the average of all the forecasts indicating that total oil demand could grow slightly through 2030-35 and decline modestly thereafter.

But it adds, "there is more downside than upside risk to oil demand throughout the projection period due to the possibility of a policy-driven transition to a lower carbon world."

24. DOJ, Critics File Dueling Arguments On Speed Of Auto GHG Waiver Suit

The Department of Justice (DOJ) is opposing a request by states and environmentalists that a federal appeals court pause a dispute over EPA's preemption of California vehicle greenhouse gas rules pending resolution of a related dispute in district court over the Department of Transportation's (DOT) portion of the rulemaking.

Meanwhile, the state and environmentalist opponents of the preemption rule are separately opposing DOJ's dueling motion to expedite the case.

DOJ outlines its stance in one of numerous January 10 filings on the desired pace of the litigation in *Union of Concerned Scientists, et al, v. National Highway Traffic Safety Administration (NHTSA), et al.*, pending in the U.S. Court of Appeals for the District of Columbia Circuit. The case includes a challenge to EPA's withdrawal of a Clean Air Act preemption waiver for California, as well as "protective" challenges to the NHTSA preemption rule, and issue that is the focus of the district court case.

The federal government is responding to December 26 motions by states and environmentalists urging the D.C. Circuit to wait for resolution of the district court case, with the California-led state coalition also urging abeyance pending resolution of petitions for reconsideration before EPA.

The Trump administration argues that the D.C. Circuit has exclusive jurisdiction to review both the EPA and NHTSA portions of its final September 2019 rule blocking California's auto GHG and zero-emission vehicle programs.

And it has been trying to speed litigation over the vehicle fight -- given the possibility that a change in administrations in 2021 could lead to a relatively quick reversal of the policy -- even as states and environmental groups have been pursuing strategies to slow resolution of the dispute.

A slow resolution is consistent with California's overall strategy to defend its program.

California sued the Trump administration last year after it moved to revoke the state's waiver, one of dozens the federal government has granted over the last 50 years giving the state the authority to adopt its own pollution standards.

And while state officials say they are confident in their legal arguments, they are openly determined to prevent the dispute from reaching the Supreme Court, fearing a conservative majority could strike down the linchpin of their air pollution and climate change policies.

As a result, ARB Chair Mary Nichols, likely in her last year at the helm, and California Atty. Gen. Xavier Becerra have settled on a strategy of trying to outlast Trump, in the hope that he will lose reelection and that the next president will drop the case.

"Our strategy is to win, but to win in a way that does not precipitate a Supreme Court taking of this case until Mr. Trump is out of office," Nichols said in an interview in December near her Los Angeles home. "There's nothing secret about that. We think that a new administration is likely to change position."

California's go-slow approach contrasts with its aggressive resistance to Trump's efforts to weaken clean air, water and climate change regulations. The state has filed dozens of environmental lawsuits challenging the administration's rollbacks. The Air Resources Board alone is involved in more than 20 ongoing cases against the administration.

Legal experts said the state's reluctance to put the case before the Supreme Court is logical. "The current Supreme Court, especially after the confirmation of Justice [Brett] Kavanaugh, is not considered a friendly venue for proponents of environmental regulation, so they try to stay away," said Michael Gerrard, director of the Sabin Center for Climate Change Law at Columbia University.

Defeat could undo some of the legacy of Nichols, who has spent decades working to clean California's air, in state and federal government and as an environmental lawyer at the Natural Resources Defense Council. Her legal expertise, political savvy and skill at implementing tough regulations is widely credited with making the state an international leader in fighting climate change. Appointed by Gov. Arnold Schwarzenegger in 2007, Nichols has overseen the powerful Air Resources Board's evolution from a smog-fighting agency to one charged with limiting carbon emissions from one of the world's largest economies.

"She is the smartest and most effective regulator of auto pollution anywhere in the country and possibly in the world. She's been dealt a difficult hand by Trump," said Dan Becker, director of the Safe Climate Campaign, which advocates for tough action against global warming. "Probably the most important part of her legacy is: Will California continue to be the nation's, and often the world's, leader in fighting auto pollution?"

If the Trump administration triumphs in court, California would lose a powerful tool that it has relied on for decades to clean the nation's worst smog and reduce people's exposure to health-damaging emissions. Without it, regulators warn that millions of Californians could be forced to continue breathing unhealthy air. Alternately, California might have to compensate by imposing more onerous measures, such as banning gas-powered vehicles.

Gina McCarthy, a former EPA administrator under President Obama who took over on January 1 as head of the Natural Resources Defense Council, one of the groups challenging Trump's

revocation of California's waiver, said "if this administration thinks they can win by intimidating, out-thinking or out-litigating Mary Nichols and her staff, they will be sorely disappointed."

25. NEPA Fight Starts On Trump's Plan To Curb 'Effects' Agencies Must Review

The fight over the Trump administration's plan to scale back implementing rules for the National Environmental Policy Act (NEPA) is kicking into gear, with the proposal's narrower definition of the "effects" agencies must consider in environmental reviews of major projects emerging as a significant early battleground.

At issue is the Council on Environmental Quality's (CEQ) January 9 proposal that includes measures that would drop current requirements for "cumulative" impact reviews, expand the types of projects that would be subject to less-rigorous analysis, and widen the number of projects that would not receive any review at all.

Many critics see the provisions addressing environmental "effects" as seeking to sharply restrict climate change-related analysis, particularly in the plan's call to explicitly drop a decades-old requirement to study "cumulative" effects and its suggestion that effects are no longer significant if they are "remote" in time or geography.

"It's not hard to see what's going on here. Nothing less than an effort to isolate project reviews from the broader context in which they sit," argues David Hayes, a former Obama Interior Department official who now directs the State Energy & Environmental Impact Center at New York University, in a January 9 column. He adds that review of cumulative and connected effects is "particularly critical when considering climate-related and other air pollution impacts," but that such analysis "would go out the window."

CEQ acknowledges that dropping a requirement to study cumulative effects would be a change in position, given that such analysis has been required since NEPA's first implementing regulations were issued in 1978. But the White House argues that there is no specific statutory requirement to assess cumulative effects.

Trump officials have also sent mixed messages about how their plan would affect consideration of climate change in NEPA reviews of federal projects. For example, CEQ Chairwoman Mary Neumayr told reporters when unveiling the proposal that it "would not exclude consideration of greenhouse gases." She added that the plan solicits input on whether to codify aspects of CEQ's June 2019 draft guidance that called for relatively limited climate reviews under NEPA.

Yet, one Trump administration official told reporters ahead of the plan's release that "climate change is no longer a top priority for these reviews."

Some in Congress are training their fire on this part of the proposal. For example, a January 9 letter expressing "strong opposition" to the plan from Reps. Diana DeGette (D-CO) and Francis Rooney (R-FL) cites CEQ's statement that "effects should not be considered significant if they are remote in time, geographically remote, or the product of a lengthy causal chain."

The lawmakers argue: "The very nature of the climate crisis, of course, is that climate change impacts -- such as sea level rise -- can be quite remote in time and geography from the human causes of climate change [such as burning fossil fuels or clear-cutting forests]. Climate change, as complex as it is, is exactly the kind of environmental problem NEPA was designed to address."

Regarding cumulative effects, CEQ “proposes a change in position to state that analysis of cumulative effects, as defined in CEQ’s current regulations, is not required under NEPA.”

While the relatively brief statute does not specifically mention cumulative effects, the concept has its roots in early NEPA caselaw, specifically the 1976 Supreme Court ruling in *Kleppe v. Sierra Club*. There, the high court limited NEPA reviews only to proposed actions but added that agencies must consider the overall effect of proposals “that will have cumulative or synergistic environmental impact upon a region” if those proposals are pending concurrently before an agency.

CEQ’s proposal does not mention the high court’s holding on cumulative effects, but rather argues that despite issuing detailed guidance on the topic, “categorizing and determining the geographic and temporal scope of such effects has been difficult and can divert agencies from focusing their time and resources on the most significant effects.”

Timothy Male, a former CEQ official who now directs the Environmental Policy Innovation Center (EPIC), compares the dynamic with smoking, given the uncertainty about exactly how much cancer risk comes from an individual cigarette or pack. Dropping cumulative effects analysis essentially says, “This package may not cause you to have cancer, therefore we’re not going to tell you about the risk.”

Male adds that such a step is moving in the opposite direction of environmental impact analysis around the world, citing efforts in Canada, Europe and the World Bank to lean in on cumulative effects.

Omitting the requirement could face hurdles in court, given that it has now been part of NEPA practice for over 40 years and has been upheld in various court decisions.

While many aspects of the plan are positive, Jason Grumet of the Bipartisan Policy Center argues in a January 9 statement that the proposal “also contains some overreaches that are unnecessary and will extend the very litigation the rule is designed to diminish. Unfortunately, the administration’s constructive proposals are being colored by its irresponsible position on climate change.”

26. U.S. GHG Emissions Dip, Trump Policies Put Future Cuts In Doubt: Study

U.S. emissions linked to climate change fell last year on a record drop in coal-fired power generation, but further declines are unlikely without rapid policy changes, according to a recently released estimate. Emissions fell 2.1% in 2019 as coal-fired electricity output dropped 18% to the lowest level since 1975, according to the estimate by independent researcher Rhodium Group, which analyzed preliminary U.S. energy and economic data.

It was a change of direction from 2018, when emissions rose between 1.5% and 2.5% due to increased heating demand and a growing economy that pushed planes and trucks to guzzle fuel, according to the group’s estimate.

Official U.S. data on 2018 and 2019 emissions have yet to be released.

“The good news is we’re making really impressive progress in reducing emissions from electricity,” Trevor Houser, the head of energy and climate at Rhodium said. “The bad news is

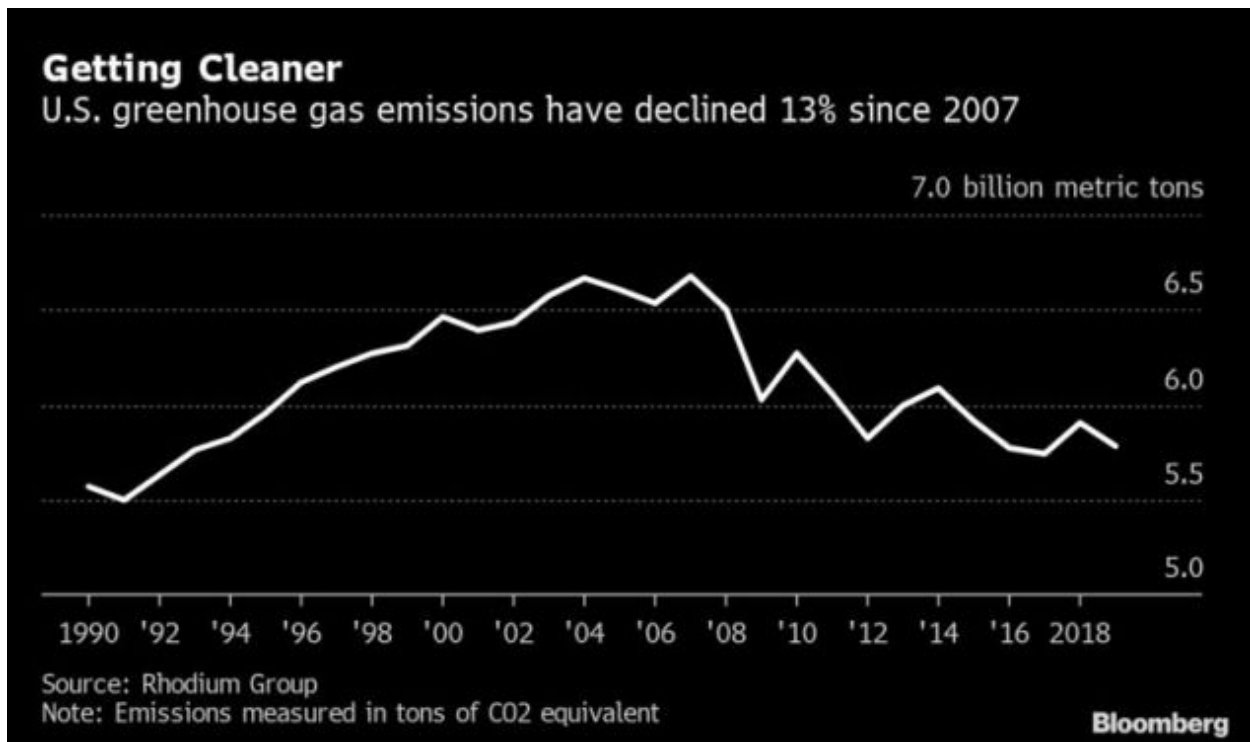
that electricity is only 25% of total U.S. emissions, and we're making almost no progress anywhere else in the economy."

U.S. utilities have been shuttering scores of old and inefficient coal-fired power plants in recent years due to competition from lower-cost natural gas, incentives for solar and wind power, and concerns about climate change.

But emissions from transportation, which makes up nearly 30% of total U.S. greenhouse gas emissions, have been harder to cut. They fell only 0.3% in 2019, Rhodium said, while direct emissions from buildings rose 2.2%, and emissions in agriculture, land use, and methane leaks from oil and gas operations rose by 4.4%.

U.S. vehicle emissions were basically flat in 2019 as an increase in miles traveled was offset by efficiency standards put in place during the Obama administration, Houser said.

President Donald Trump's administration froze the Obama-era standards on vehicle efficiency - part of a broad campaign to slash regulations and boost output of oil and natural gas. Houser said Trump's vehicle efficiency policy "raises doubts about our ability to ... turn what is now flat transportation emissions into declining transportation emissions."



The Trump administration has also started the process of removing the United States from the 2015 Paris Agreement on climate, in which Washington agreed to cut U.S. emissions by 26% by 2025. Hitting that target will be "extremely challenging", Rhodium Group said, because it would require cuts significantly faster than the 0.9% annual average since 2005.

Rhodium added that further big emissions reductions from coal plant retirements will be harder to achieve in the future because many of the remaining facilities are competitive.

Annual emissions have fluctuated in recent years, including a sharp uptick in 2018. But the general trend has been down, Houser said. U.S. emissions have declined about 13% since 2007.

27. Utah Doctors' Group Suit Over Defeat Devices Moving Forward

The Utah Physicians for a Healthy Environment group is pursuing a second Clean Air Act citizens enforcement action, this time against corporate entities that operate 4 Wheel Parts Performance Centers, a nationwide seller of vehicle exhaust systems and other modifications.

The doctors' group is also in the middle of a case it filed in 2017 against the Woods Cross-based Diesel Brothers, stars of a Discovery channel reality show, for disabling emission controls on at least 20 pickup trucks and selling "defeat devices" to consumers.

TAP Worldwide, the principal named defendant, operates 4 Wheel Parts. TAP Worldwide in turn is owned by Polaris Industries Inc., which has at least 30 brands, including off-road vehicles, snowmobiles and boats.

In a U.S. District Court suit filed in September 2019, the doctors' group is seeking monetary penalties, remedial action and a permanent injunction due to 4 Wheel Parts' selling of motor vehicle components "that have the principal effect of defeating, bypassing or rendering inoperative emission control devices."

Three device lines were highlighted in the suit:

- Exhaust system kits, which bypass catalytic converters on diesel and gas-powered cars and trucks, but mostly Ford, Chevrolet, GMC and Ram pickup trucks
- "Race performance" catalytic converter replacements for cars
- Electronic reprogrammers, which allow vehicles to defeat emission controls

The doctors' group is asking the court to order 4 Wheel Parts to pay monetary penalties "to provide a financial incentive of sufficient size to all Utah consumers of its aftermarket defeat parts to effect the retrieval of at least 90 percent of such parts sold over the last five years, and pay for the full restoration of each vehicle's emission control devices to their original condition."

The defendants' actions, the doctors group contends, "have caused gas and diesel motor vehicles operating in Utah to exceed their federal emission standards, increasing the discharge of harmful pollutants in a region already plagued by unhealthy air."

In court documents filed January 7, TAP Worldwide urged Judge Jill Parrish to dismiss the suit, contending the Clean Air Act was not intended by Congress to penalize parts sellers without evidence of direct causation.

The company argued the doctors' group "can trace no injury whatsoever to any specific act of TAP Worldwide. The fact that the complaint does not, and cannot, allege that TAP Worldwide discharged a single pollutant alone demonstrates this."

The doctors' complaint, TAP Worldwide, argued, "fails to connect TAP Worldwide' s actions to any air pollution within the State of Utah or elsewhere." The company pointed out that it does not manufacture the defeat devices, but only sells products made by others.

“There is no allegation that TAP Worldwide discharged any pollutant. Rather, each allegation is premised on TAP Worldwide providing something to a third party and that third party discharging a pollutant,” the company added.

In its complaint, the doctors’ group asserted, however, that the defeat components sold by 4 Wheel Parts drastically increase harmful emissions that cause a host of afflictions in the Utah population. The pollutants trigger diseases that range from short-term increased rates of heart attacks, strokes and death, to long-term neurodegenerative diseases such as Alzheimer’s, the doctors’ group said.

“Original, fully-functioning catalytic converters in motor vehicles are able to reduce the emission of nitrogen oxides, hydrocarbons and carbon monoxide by 80–95 percent,” the group said. “Removing an original, fully-functioning catalytic converter in a motor vehicle, and replacing it with a hollow tube, can cause a five- to twenty-fold increase in the vehicle’s emissions.”

28. New Study Examines Mortality Costs Of Air Pollution In US

A team of University of Illinois researchers estimated the mortality costs associated with air pollution in the U.S. by developing and applying a novel machine learning-based method to estimate the life-years lost and cost associated with air pollution exposure. Scholars from the Gies College of Business at Illinois studied the causal effects of acute fine particulate matter exposure on mortality, health care use and medical costs among older Americans through Medicare data and a unique way of measuring air pollution via changes in local wind direction.

The researchers—Tatyana Deryugina, Nolan Miller, David Molitor and Julian Reif—calculated that the reduction in particulate matter experienced between 1999-2013 resulted in elderly mortality reductions worth \$24 billion annually by the end of that period. Garth Heutel of Georgia State University and the National Bureau of Economic Research was a co-author of the paper.

"Our goal with this paper was to quantify the costs of air pollution on mortality in a particularly vulnerable population: the elderly," said Deryugina, a professor of finance who studies the health effects and distributional impact of air pollution. "Understanding how air pollution affects mortality, health care use and medical costs is essential for crafting efficient environment policies because outside factors such as a person's preexisting health conditions can make it challenging to accurately estimate the causal effects of pollution on health."

About 25% of the elderly Medicare population was vulnerable to acute pollution shocks, according to the researchers.

"Our analysis shows that the most vulnerable Medicare beneficiaries are those who suffer from chronic conditions and have high health care spending," said Reif, a professor of finance and a faculty member of the Institute of Government and Public Affairs. "We estimate that members of the most vulnerable group—those with a life expectancy of less than one year—are over 30 times more likely to die from pollution than the typical Medicare beneficiary."

"Because we take a big data approach, we're able to see how air pollution affects the entire elderly population of the U.S. over those 14 years," said Miller, the Daniel and Cynthia Mah Helle Professor of Finance. "Medicare data is great because it has every interaction with the health care system in our sample for virtually every elderly person."

The typical air pollution research is more of a case study, Miller said.

"There's a pollution event in a certain city, and there's a mortality count around this event, but it's hard to get an accurate general estimate of the overall impact," he said. "Pollution is produced as a package: You burn stuff and it produces particulate matter, but it also produces other pollutants. Our methodology is able to take a lot of data, people and pollution events into account. And that allows us to more accurately identify the overall impact of pollution, because wind patterns affect these different pollutants in different ways. So, we can tease apart which of these pollutants we think is most important and driving these mortality effects."

By exploiting the daily variation in acute fine particulate pollution exposure driven by changes in wind direction, the researchers found significant effects of exposure on mortality, hospitalizations and medical spending.

"A key part of the study was harnessing 40 billion observations with machine learning techniques," said Molitor, a professor of finance. "We used machine learning to predict how long people would have lived in the absence of the pollution event and to illuminate who is most vulnerable to pollution. One takeaway is that an individual's life expectancy—how much longer they can expect to live—is a much better measure of vulnerability to pollution than their age."

The scholars also found that increases in particulate matter lead to more emergency room visits, hospitalizations and higher patient spending.

"Mortality is only one of many potential costs of air pollution," Molitor said. "The elderly who aren't dying may engage in other costly activities such as going to the hospital for preventive or emergency care. Those steps may help them avoid death, but it doesn't mean that pollution has no cost to their health or finances."

Notably, the researchers also found that the failure to adjust for the preexisting health of those who die from an acute pollution event tends to overstate the mortality-reduction benefits of decreasing air pollution.

"An issue that arises when estimating mortality effects is whether those who die from pollution exposure would have passed away soon anyway without that external pollution shock," Molitor said. "If deaths caused by pollution occur disproportionately among the least healthy, then ignoring this factor could lead to an overstatement of the life years lost due to pollution."

"But we found that the typical person who dies as a result of pollution exposure isn't someone you would expect to die in a week or a month," Miller said. "It's people who have 3.6 years on average to live, compared with about 11 years for the typical elderly Medicare enrollee. So, although they are less healthy than the average Medicare recipient, these are people who we expect to have three and a half reasonably healthy years of life, and this should definitely not be ignored."

"Another way of thinking about our characterization of who dies from pollution is as an index of vulnerability," Molitor said. "We want to protect people from pollution, and we could do that by reducing pollution levels. But that can be costly and difficult for local governments to implement, especially if pollution is caused by something far away. By understanding who is most vulnerable to pollution, local policies and actions can be designed to better protect lives and to improve population resilience to pollution events."

The paper was published in the American Economic Review.

29. SAB Poised To Issue Final Critique Of EPA's Auto GHG Rule Rollback

EPA's Science Advisory Board (SAB) is poised to finalize, with some modifications, its sharp critique of numerous modeling assumptions the agency made in crafting its rollback of Obama-era vehicle greenhouse gas and fuel economy regulations.

SAB members during a January 22 conference call signaled they would issue their analysis of the auto rule to EPA -- albeit with the possibility of dissents on at least some issues -- whether or not the rule is complete by the time board members finish drafting a final SAB report.

"Whether or not they issue the rule before this comes out does not seem to be a critical factor" in SAB's decision, said Syracuse University's Peter Wilcoxon, chairman of the SAB workgroup that developed draft recommendations. "I think it is more important for us as a board to say, in some sense bear witness to, the fact that the agency's proposed rule was very poorly done in some respects," he added -- even if the agency has since revised its analysis. "I think we should still go ahead with it."

SAB Chairman Michael Honeycutt similarly said, "I am thinking along the same lines as Pete here," citing the value of SAB's analysis for "future rulemakings" and the fact that it satisfies the board's statutory requirements to "take a look at a major rule like this."

SAB's critique is advancing despite prior statements by EPA chief Andrew Wheeler that the board's advice would have little effect on the final rule that EPA is working to issue jointly with the Department of Transportation (DOT) over the next month or so, with Wheeler playing up differences between the proposed rule and final version.

Much of SAB's analysis largely reiterated prior attacks on the proposed rule, though with additional gravitas given that the board represents the agency's official scientific advisers. As such, SAB's report could be important in near-certain litigation over the rollback to the extent that the final rule does not fix the alleged flaws, critics of the Trump administration say.

Additionally, the board's criticism comes amid newly released details from the draft final rule, which Sen. Tom Carper (D-DE) outlined in a January 22 letter to White House officials. (See story below.) Describing a draft of the rule he obtained, Carper said the standards would raise net costs for drivers due to higher gasoline costs outweighing any reduced upfront price cuts in vehicles resulting from weaker standards.

The senator's letter also confirmed several key aspects of the rule including its top-line stringency of a 1.5 percent annual improvement in GHGs and fuel economy, as well as Trump officials' decision to slash their asserted safety benefits in the rule by more than a factor of 10.

SAB originally criticized the Trump administration for seemingly misinterpreting the "scrapage model"—a projection of when consumers will "scrap" an older vehicle in favor of a newer model.

The administration argued that weakening the Obama-era fuel economy standards would lower the price of a new car, because it would encourage people to buy more new cars and scrap some of their older vehicles. Furthermore, the administration predicted an unusually large amount of scrapage—enough that there would be fewer cars on the nation's roads overall.

But in public comments, critics said that result was flawed. They said research shows that lowering the price of cars would likely result in more cars on the nation's roads overall.

The SAB firmly sided with these critics.

"Two of the new modules recently added to the [corporate average fuel economy] model, the sales and scrappage equations, have weaknesses in their theoretical underpinnings, their econometric implementation and, in one case, possibly in the interpretation of their coefficients," the board wrote. "Together the weaknesses lead to implausible results regarding the overall size of the vehicle fleet."

The SAB stressed that when these flaws are corrected, the benefits of the Obama-era fuel economy standards outweigh the costs, and thus the Obama-era standards "might provide a better outcome for society than the proposed revision."

The final version of SAB's report will include modifications, at least some of which may soften the bite -- if not necessarily the implications -- of the advisers' critiques.

The draft SAB analysis, for instance, said the flaws in EPA's proposal were of sufficient magnitude that the plan's estimated net benefits "might be substantially overstated," and in fact were "sufficiently important that they could reverse the sign of the result, indicating that the [Obama-era] standards provide a better outcome than the proposed revision."

But SAB members noted on the call that the draft's specific discussion of the Obama-era standards potentially exceeding the benefits of the proposed rollback relied on a widely published critique in the journal *Science* by University of Southern California's Antonio Bento and other researchers.

Reluctant to rely on that study alone to justify such a claim, SAB members embraced softening the language to indicate that while flaws in the analysis lead to significant impacts, SAB is not deeming the *Science* analysis its own conclusion.

The draft SAB report also suggested that a voluntary GHG deal California reached with four automakers might be an acceptable compromise between the proposed standards freeze and the Obama rule, but it appeared on the call that SAB decided to soften or remove this language.

One of the more contentious issues during the meeting was the environmental and cost effects of electric vehicles (EV). More specifically, SAB members debated whether to add language asserting no GHG benefits of EVs or to call for an updated analysis of the lifecycle and cost implications of compliance incentives for such vehicles.

It appeared by the end of the meeting that members agreed to strengthen calls for EPA to do cost-benefit analysis of EV incentives but not to conclusively dismiss benefits of them.

"There is no scientific basis for the incentives," argued Donald van der Vaart, a former North Carolina environment regulator now with the conservative think tank John Locke Foundation. Wilcoxon countered that SAB "shouldn't actually go so far as to say we know in advance."

SAB members after a long discussion also appeared poised to add a footnote along the lines of a suggestion from panel member John Christy -- a University of Alabama-Huntsville professor

who has long been skeptical of anthropogenic climate change -- to emphasize that the vehicle GHG rollback would have little impact on global temperatures.

Trump officials have already asserted as much in their proposed rule, though SAB declined to elevate the point higher up in the report's summary or in the accompanying letter to Wheeler due to a lack of consensus on the issue.

The precise timeline for SAB finalizing its report remains unclear, though members discussed submitting suggested edits reflecting the discussions to Wilcoxon within the next week so that they could be reflected in the final draft sent to SAB members for concurrence as soon as possible next month.

Discussion during the call highlighted how members could still file dissenting views on the report if they chose after seeing the final text.

Meanwhile, Indiana University's John Graham -- a former George W. Bush administration official who helped develop the draft report -- said near the end of the call that he would "love to see" the report go out but he also expressed doubt that its release would be constructive just days before -- or days after -- the release of EPA's final vehicle rule.

He softened his concern after SAB members flagged the report's relevance for future rules, and SAB appeared to settle on a plan for adding language elaborating on its rationale for releasing the report, in the event the rule comes out before SAB has completed the document.

30. Agencies Slash Benefits In Vehicle GHG Draft, Reviving Calls For New Plan

Leaked details from the Trump administration's draft final vehicle greenhouse gas rule rollback show the plan's estimated net benefits have been slashed by roughly \$200 billion, likely highlighting the effects of changing controversial assumptions in the proposed rule including how much vehicles are driven and replaced under the policy.

The significant decrease in claimed benefits -- from the estimated \$162 billion the proposed rule would have provided -- is providing fresh fodder for critics to urge Trump officials to rethink the policy, though there is little sign that EPA and the Transportation Department (DOT) will do so.

"That is a \$200 billion change in the analysis. A fundamental change. How can you not call for a re-proposal to allow the public to review these changes to see if they are legitimate?" argues former EPA transportation official Jeff Alston, who has been a vocal critic of the Trump administration's rollback plans. "These are massive changes."

Alston is also a member of the Environmental Protection Network, a group of former agency officials. In January 17 testimony on the group's behalf, Alston call for the administration to issue a new proposal.

Yet, the agencies are pressing ahead with Office of Management & Budget (OMB) review of the draft final plan and have scheduled about a dozen meetings to give outside groups one final opportunity to influence the measure. Administration officials have promised to unveil the completed rule within roughly the next month.

The draft final rule officially remains under wraps during OMB's review, making it difficult to draw final conclusions on the estimated effects of the final rule. But Sen. Tom Carper (D-DE), the

ranking member of the Senate environment committee, provided new details of the pending final rule in a January 22 letter to the White House.

The letter cites Trump administration estimates showing an overall net cost for the rule of between \$34.4 billion and \$41.3 billion -- likely highlighting how efforts to at least partially fix alleged flaws in the August 2018 proposed rule's modeling accentuate negative effects of the rollback.

Those apparent modeling fixes not only result in drastically lower net benefit tallies, but also appear to suggest worsened outcomes in the upcoming final rule for a range of metrics, including higher carbon dioxide emissions, increased consumer costs and massively scaled back safety-related benefits.

Further, the lower benefits come even as the administration is backing off its proposal to freeze GHG and fuel economy requirements at model year 2020 levels, and instead will reportedly require a modest 1.5 percent annual improvement in emissions and fuel efficiency.

While the changes in assumptions regarding driving behavior and vehicle fleet size likely play a significant role, other factors might also affect the estimates, including possible changes between the proposal and final rule related to issues including what types of technologies earn credits under the standards, and differences between the EPA's GHG rules and DOT requirements.

Comparing Carper's summary of the rule's net overall costs to the original proposal also highlights the scale of the gap between the administration's prior benefit projections -- including regarding alternative policy options assuming some improvement in vehicle efficiency -- and the preliminary estimates of the final plan.

The senator's citation of \$41.3 billion in net costs to society -- based on EPA's GHG rules under a 3 percent discount rate -- compares to \$162 billion in claimed net benefits in the proposal rule for an alternative policy scenario in which the agencies require 1 percent annual GHG improvement in cars and 2 percent improvement in light trucks, instead of the proposed freeze.

Alson says that scenario -- referred to as "alternative 4" in the proposed rule -- is probably the closest analog to the 1.5 percent annual improvement that is now the apparent focus of draft final rule, though he cautions he has not seen the draft Carper cites.

He adds that such a yawning gap in the top-line conclusions of the two analyses should prompt the administration to reconsider its plans, and prod a fresh look at the issue by EPA's Science Advisory Board (SAB), which is already poised to finalize a critique of the 2018 proposal.

"The SAB should call on the agencies to respond so that the public, for scientific and technical transparency, and review and comment on these major changes in the analysis," he said.

Such a prospect appears unlikely at present, with EPA chief Andrew Wheeler already suggesting the agency will proceed without waiting for SAB's analysis.

But additional comparison of Carper's summary with the proposed rule text nevertheless appears to provide the clearest indication to date of how technical criticism of the proposal is forcing the agencies to trim their benefits estimates in the unreleased final plan.

A central critique of the proposal is that it relied on faulty modeling of new vehicle sales, vehicle scrappage and consumer driving behavior to assume fewer vehicle miles traveled (VMT) under the proposed rollback compared to the Obama-era vehicle standards that are being rolled back.

By exaggerating the size of the vehicle fleet under the current rules -- relative to the rollback -- and also overstating VMT under the current rules, the proposal thus estimated massive safety-related benefits while also blunting the assumed negative effects of the rollback on factors such as CO2 emissions and consumer fuel costs.

Regarding CO2 emissions, Carper's letter cites the draft final plan as boosting emissions by 867 million metric tons (MMT) with respect to the EPA's GHG rules and 923 MMT under DOT's fuel economy standards.

According to the proposed rule's analysis, "alternative 4" would have resulted in a much smaller increase -- 649 MMT under EPA's rules and 634 MMT under DOT's rules.

A similar trend appears to be in play with oil consumption. Carper's letter notes that consumers would pay \$1,423 more in fuel costs under the final rollback of the DOT standards than under the current program, and \$1,461 more under the modeling of the GHG standard.

The estimates are markedly higher than the \$1,090 in estimated added cost that proposed rule assumed for the modest improvement in fuel economy under the DOT's "alternative 4" standard. The equivalent number for EPA's rule is \$1,260 in added fuel costs.

Carper's letter also references draft final estimates for consumers reduced upfront costs for a new car under the rollback -- specifically \$1,083 under the modeled draft final DOT standard and \$977 under EPA's rules.

Those projected cuts to sticker prices are far lower than the proposed rule's estimates for "alternative 4." Specifically, the proposal found the DOT rollback would cut upfront costs by \$1,450, compared to a \$1,770 reduction under EPA's program.

The proposal to freeze standards resulted in even rosier benefits, including for example a \$2,260 sticker price reduction under the GHG program.

This change could be the result of multiple factors, including the shift from the proposed freeze to a modest increase in the required standard, but also less pessimistic assumptions on the cost of vehicle technologies for meeting the standards after a barrage of criticism of prior assumptions from numerous quarters, including EPA staff critiques included in the rulemaking docket.

Carper's letter also underscores the steep drop in claimed safety benefits from the standards rollback, referencing 471 total lives saved under the draft final GHG standard through 2029, and 474 under the DOT standard.

Specifically, the original proposal assumed a reduction of 15,680 fatalities from the proposed freeze of EPA's GHG program, and 12,680 reduced fatalities under the proposed fuel economy standards freeze.

Finally, Carper's letter argues that even the alleged reduction of roughly 470 fatalities from the draft final rules ought to be viewed with skepticism, because it does not include increased fatalities from air pollution emitted from less-efficient vehicles. Defenders of the rollback have argued such

air pollution concerns are overblown given that new vehicles remain subject to separate criteria pollutant standards.

But critics have argued that another consequence of fixing the VMT assumptions is likely to be higher estimates of air pollution relative to the current, Obama-era standards.

31. Divided CASAC Backs Ozone Standard But Urges NAAQS Process Changes

A majority of EPA's divided Clean Air Scientific Advisory Committee (CASAC) is backing agency staff's finding that the existing ozone national ambient air quality standards (NAAQS) are adequate to protect public health, but CASAC is calling for a change to the NAAQS review process to reinstate special advisory panels for the assessments.

The seven-member CASAC outlined its positions on the review of the 2015 ozone standards in two draft letters to EPA released January 21 ahead of teleconferences slated for February 11 and 12 to discuss and finalize both letters.

EPA staff in its October 31 draft policy assessment (PA) document suggested that Administrator Andrew Wheeler leave in place the primary, or health-based, annual NAAQS and secondary annual standard designed to protect the environment, both set in 2015 at 70 parts per billion (ppb). Staff said that the 70 ppb standard meets a Clean Air Act standard that NAAQS protect public health with an adequate margin of safety.

In his draft letter to Wheeler on the PA, CASAC Chairman Tony Cox, an industry consultant, says some panel members "conclude that the Draft Ozone PA does not establish that new scientific evidence and data reasonably call into question the public health protection afforded by the current ozone annual standard."

But addressing the members' divisions he adds, "Other members of CASAC question the previous Administrator's judgment that the current annual Ozone [NAAQS] protect public health with an adequate margin of safety, while agreeing that the underlying scientific evidence and data have not greatly changed since the previous review."

The letter reflects division on the committee between six members led by Cox who favor leaving both the ozone standards unchanged, and Mark Frampton, the panel's sole research scientist, who has argued that the 70 ppb primary limit is not tough enough to meet the air law's requirements to protect public health.

In the second draft letter, Cox -- without any apparent dissent from panel members -- extensively faults the draft integrated science assessment (ISA) prepared by EPA staff to support the PA. The ISA summarizes the latest scientific data on the health and environmental impacts of NAAQS pollutants like ozone.

Although staff concluded that no tightening of the NAAQS is necessary, Cox nonetheless says the agency's process to assess the latest "policy-relevant" science is deeply flawed and recommends sweeping changes that would render EPA NAAQS reviews less likely to conclude that tougher standards are required.

The inadequate ISA undermines EPA's work in the PA, Cox writes. "Overall, the CASAC finds that the Draft Ozone ISA, while providing useful reviews of many aspects of ozone exposures and human health effects in selected studies, does not provide a comprehensive, systematic

assessment of the available science relevant to understanding the public health impacts of changes in ambient concentrations of ozone,” he says.

The letter faults EPA’s handling of epidemiological evidence in particular, saying, “CASAC recommends that the final ISA should more fully and explicitly address chance, bias, and confounding in its analyses of epidemiology study quality; [and] provide a more balanced and accurate summary of study results for each health endpoint.”

A well-known skeptic of EPA staff’s approach to assessing health risks of air pollutants, Cox during deliberations on the ozone review faulted agency methods on how to define “causation” of health effects by ozone exposure, how to select scientific studies and verify their accuracy, and how to estimate the health risks of ozone.

But in the draft PA letter, CASAC urges a return to past practice, where the committee could call on specialized subpanels of external experts to assist with NAAQS reviews. The Trump EPA abolished such a panel for the ongoing review of particulate matter (PM) standards and declined to recruit a planned panel for the ozone review.

But when the current CASAC -- consisting entirely of Trump-era appointees -- asked for help from external advisers for both reviews, EPA constituted a “pool” of consultants to assist. Consultation of the experts has been through written questions only, with no face-to-face contact. Critics outside of the CASAC fault this approach as insufficient, and also point to the limited size of the consultant pool, which is much smaller than the 20-member panels previously seen in reviews for individual pollutants.

“CASAC strongly recommends that the EPA consider restoring a traditional interactive discussion process in which the CASAC can interact directly with external expert panels, while also keeping the option of obtaining written responses from external experts to specific questions,” Cox writes.

Chris Frey, an environmental engineering professor at North Carolina State University and former CASAC chair, says the statement “is an implicit acknowledgment that CASAC lacks the expertise necessary for this review.” Frey says, “By refusing to form a qualified Ozone Review Panel, and by placing the review with a cherry-picked handful of members chosen based on their predetermined views, the Administrator has effectively rigged CASAC to get the answers he wants. This is not an objective process.”

CASAC’s draft PA letter also “strongly recommends that the EPA work with experts in causal analysis and analytics methodology from outside the NAAQS community (e.g., using the National Academies Board on Mathematical Sciences and Analytics) to improve the soundness and clarity of causal conclusions throughout the ISA and PA.”

The panel further “recommends that it be given an opportunity to review” a second draft of the ozone PA, including an updated risk and exposure assessment (REA), “after the final ISA for ozone is released.”

ISAs are typically the first substantive step in the NAAQS review process, followed by REAs and finally PAs. But EPA appears unlikely to grant CASAC’s request, given that is striving to issue a proposed rule on the ozone NAAQS this year, to be finalized late this year or in early 2021, roughly in tandem with a rule on PM standards. The agency has followed a “streamlined” review process in order to achieve this, by issuing fewer separate documents, avoiding multiple drafts of

documents and limiting CASAC input. Pursuing a new REA would likely be a time-consuming effort.

The draft letter on the PA says, "CASAC recommends that the EPA consider adding a discussion of the exceptional nature of the current CASAC and NAAQS review process."

CASAC also urges that EPA evaluate ozone impacts on climate change, in a recommendation that raises tension with the Trump administration's low priority afforded to climate-related policies. "The CASAC commends the EPA for the thorough discussion and rationale for the secondary standard," and "agrees with the EPA that the current secondary standard for ozone should be retained." However, "CASAC recommends that the Draft Ozone PA should more thoroughly address effects of ozone on climate change by providing quantitative estimates and uncertainty bands for effects of ozone on global warming and the consequence for economic and welfare effects on the United States."

32. Electric Vehicle Sales In California On The Rise

While overall sales for new cars in California dipped in the third quarter, the combined market share for electric vehicles and plug-in hybrids in the state continued to grow. Overall registrations for light duty vehicles (cars, pickup trucks and SUVs) dropped 5.1 percent in California through the first nine months of the year compared to the first three quarters of 2018. But electric vehicles and plug-in hybrid sales increased to 7.9 percent in combined market share during that time frame.

Hybrids without a plug-in are not considered zero-emission vehicles, or ZEVs, and do not count toward the state's target of 5 million but if their 5.5 percent of market share is added, the combined percentage of electric vehicles and all hybrids comes to 13.4 percent for the third quarter, an all-time high.

"These numbers pretty much track with what we've been seeing, and are a continuing sign that there's a healthy ZEV market developing in California and that the state's ZEV goals are achievable," said Dave Clegern, public information officer for the California Air Resources Board, the state agency in charge of improving air quality.

As of October 7, there were 655,088 ZEVs in the state. To reach the 5 million mark, that figure would have to increase almost eightfold in less than 11 years.

On the other hand, the number of ZEVs in California rose 30 percent between October 2017 and October 2018 (377,480 to 491,000) and increased 33.4 percent between October 2018 and October 2019 (491,000 to 655,088).

"I think the jury is still out" on whether the target can be reached, said Brian Maas, president of the California New Car Dealers Association, the group that released the quarterly numbers.

"You've got a lot of models now that have 200-mile range (between charges) and some are even higher than that, so that's certainly an option for consumers," Maas said. "I think for most consumers to make a ZEV their primary car, they have to feel confident they can get it charged wherever they need to."

There are about 21,000 charging stations statewide and the Air Resources Board has budgeted \$1.087 billion in electric vehicle initiatives, with a large share going to building charging stations.

The California Public Utilities Commission has set aside almost as much — \$1.048 billion, according to a review conducted earlier this year by the Union-Tribune.

The Air Resources Board says the transportation sector accounts for the largest single source of greenhouse gas emissions in California at 41 percent. The figure is even higher in the city of San Diego — 55 percent.

In addition to improved range, another potential reason for the uptick in ZEV sales may be due to higher gasoline prices in California that cracked the \$4 per gallon mark at the end of the third quarter.

The Tesla Model 3 has set the pace for ZEV sales. Elon Musk's more affordable offering has accounted for nearly 50,000 registrations so far this year, making it the third-hottest selling vehicle in California. Only the Honda Civic and the Toyota Camry sold more units through September.

Overall vehicle sales are on a pace to finish the year at 1.91 million registrations, which will break a four-year streak in which sales in California topped the 2 million mark.

"I think a part of it is a lot of people who had pent-up demand during the Great Recession went out and bought cars," Maas said, but now demand has petered out. "Sales are still solid but I think the market has clearly plateaued."

In addition, the average price for a new car has reached \$37,000. That's roughly a 10 percent increase in the past three years, which may account for used car sales going up. Light trucks drove the increase in sales of used vehicles, 3.8 percent higher through September than at this time last year.

For years, car sales outpaced pickup trucks and SUVs, especially in California. But consumer preferences for roomy vehicles that offer better fuel efficiency than in years past has led to a role reversal. The decline in sales of new light truck through September was negligible — off by 0.3 percent. But new car registrations in California were down 10.8 percent.

Nationally, car sales were down 9.8 percent through September but light truck sales were up 3.5 percent.

Top-selling models in California
Through September 2019

Honda Civic 58,967
Toyota Camry 48,760
Tesla Model 3 48,483
Honda Accord 43,709
Toyota Corolla 40,928
Toyota RAV4 40,029
Ford F Series 37,872
Toyota Tacoma 33,930
Chevy Silverado 28,028
Ram Pickup 25,756

Source: California New Car Dealers Association/IHS

33. US Updates IMO 2020 Enforcement Policy

The United States is sharpening its focus on enforcement of the IMO 2020 fuel sulfur emissions cap, which could result in harsh penalties for vessel operators caught attempting to sidestep the regulation. In new guidance issued by the U.S. Coast Guard (USCG), vessels calling on U.S. ports will be expected to carry documents showing they are burning fuel with a sulfur content of no more than 0.5% while in international waters, a regulation that went into force on January 1. In addition to burning lower-sulfur fuel, ships can comply by filtering emissions using a “scrubber” in the ship’s smokestack or by using an alternative fuel such as liquefied natural gas.

Regulations tighten further on March 1, when a high-sulfur fuel carriage ban goes into effect and ships will no longer be able to carry noncompliant fuel in their bunker tanks.

Vessel industry representatives have been skeptical about the ability of regulators in the U.S. and around the world to keep unscrupulous shipowners from cheating by burning cheaper, noncompliant fuel — thereby gaining a significant cost advantage over those that comply.

The USCG emphasized in its updated guidance, however, that since the U.S. is bound to enforce the regulation, it “will review BDNs [bunker delivery notes] and check logs to determine whether the vessel is complying with the applicable fuel sulfur limit when operating beyond U.S. waters.”

The agency also warned of potential shortages of heavy fuel oil with a maximum sulfur content of 0.50%. “As such, the 2020 sulfur caps may result in an unfamiliar grade of fuel that may consist of a mixture of heavy fuel oil and distillate fuel oil,” it stated in the guidance. “Further, there is currently no accepted technical specification for such a fuel oil. This has raised concerns in the shipping industry that fuel quality and availability will vary considerably and, as a result, ships may have problems obtaining and/or burning certain fuel oil.”

Those that choose to cheat — at least if caught in the U.S. — will be subject to “serious consequences,” according to George Chalos, an attorney who specializes in maritime environmental compliance. In a recent editorial in *The Arrest News*, a maritime enforcement publication, Chalos noted that approximately 80 deficiencies and “over a dozen” enforcement actions have taken place in the U.S. for violations of international air pollution regulations, known as MARPOL Annex VI, by vessel owners.

Last year marked the first criminal prosecution of a MARPOL Annex VI violation pursued by the USCG and the U.S. Department of Justice (DOJ) in which two Greek vessel operators were each fined \$1.5 million, and senior crew members were sentenced to three years’ probation, during which they were not allowed to return to the United States on a ship.

“The failure to have compliant fuel on board of a vessel will be viewed as a failure of preparedness, not a failure of accessibility of resources,” Chalos cautioned. “In addition, the DOJ perceives that there are vessels breaking the rules each day and strongly believes in its mission to seek out noncompliance and prosecute alleged criminal activity accordingly.”

To show inspectors that they are complying with IMO 2020, Chalos advised that shipowners and operators keep critical documentation on their vessels, including:

- Bunker delivery notes, to be retained onboard for a minimum of three years
- Bunker transfer procedures, as well as preloading plan and declaration of inspection retained for at least thirty days

- Declaration that fuel conforms to MARPOL Annex VI and does not exceed maximum sulfur content
- Fuel changeover plan Oil Record Books (with accurate and timely information properly recorded)
- Fuel oil non-availability reports (FONAR).

34. Governor's Remarks May Signal Erosion of Regional Climate Change Coalition

In a protest-interrupted State of the State address, Vermont Gov. Phil Scott cast a shadow on the prospects of him signing his state up for a multi-state compact to reduce vehicle emissions.

Scott, who along with Gov. Charlie Baker is one of two Republican governors in New England, did not address the Transportation Climate Initiative by name, but discussed at length ways Vermont has been working to incentivize the purchase of electric vehicles.

"It's incentives, not penalties, which will help us transition more quickly," Scott said in his speech.

Vermont was one of the 12 original states to begin negotiations on a regional cap-and-trade program that would seek to reduce carbon pollution from cars and trucks and use revenue from the sale of carbon allowances to fuel suppliers to invest in clean transportation options.

New Hampshire has since withdrawn from those talks after the coalitions estimated that the proposals under consideration could add between 5 cents and 17 cents to the price of a gallon of gas.

Scott said many Vermonters have to travel long distances to get to work out of necessity, not choice. "I simply cannot support proposals that will make things more expensive for them," the governor said.

Massachusetts Energy Secretary Kathleen Theoharides said after New Hampshire Gov. Chris Sununu pulled out that TCI will require a "critical mass" of states to remain in the deal to be successful but has not said how many states the coalition thinks it can lose before the initiative falls apart.

Connecticut Gov. Ned Lamont, a Democrat, also said this week that he has concerns with TCI. "Raising the gas tax, which frankly is what many Republican states have done to pay for transportation, is 100 percent paid for by Connecticut residents and probably not the way to go," Lamont said in a radio interview when asked about the initiative.

Lamont's predecessor Dannel Malloy, another Democrat, initially signed up Connecticut to participate in TCI talks with other states. Lamont is currently engaged in a political struggle to push through a plan to raise tolls on trucks to generate new revenue to fund his transportation agenda, and said he was "solely focused" on that effort at the moment.

"One step at a time," Lamont said.

Baker opposes raising the state gas tax but says a regional approach is the best way for states to reduce carbon emissions from the transportation sector.

35. Advisers Call Proposed EPA Secret Science Rule 'License to Politicize'

The EPA's science advisers say the agency's proposal to change the way science feeds into rulemaking could politicize the rulemaking process and wasn't fully thought through, according to a draft report published December 31.

The Environmental Protection Agency's April 2018 Strengthening Transparency in Regulatory Science (RIN:2080-AA14) proposal, also known as the "secret science" rule, would bar the agency from using scientific research that isn't or can't be made public.

Blocking the use of that type of research would represent a sharp break from the EPA's decades-old approach. Critics have said the proposal is a bid to sideline the science that the EPA uses in regulations because the agency wouldn't be able to rely on epidemiological studies, which often draw on private medical information.

"Given the lack of clarity, the proposed rule could be viewed as a license to politicize the scientific evaluation required under the statute," wrote the Science Advisory Board, a group of outside experts who review the quality of the science the EPA uses in regulations.

Moreover, the proposal's mandate for the EPA to identify and make available all the studies it used "could be cumbersome and impractical," thereby hobbling the rulemaking process, the Science Advisory Board said. The EPA hasn't clearly laid out criteria that would satisfy the data disclosure requirements, according to the report.

The critiques are consistent with ones the science board has voiced for months. The board also has expressed frustration for allegedly being shut out of commenting fully on the proposal.

Several SAB members, including chairman Michael Honeycutt, were appointed by President Donald Trump. Honeycutt signed a letter outlining concerns that was sent to the EPA with the report.

The EPA has justified the rule by saying it is simply an effort to make its science more transparent and reproducible by others.

The proposed rule is also consistent with Executive Order 13777, which calls for reducing regulatory requirements, and Executive Order 13783, which targets regulations that hamper economic growth, job creation, and energy production, according to the EPA.

An EPA spokesperson said the agency "always appreciates and respects the work and advice of the SAB."

While the proposed rule does carve out possible exceptions to the data disclosure requirement, developing those criteria "will be difficult," the advisory board said. Case-by-case exceptions might worsen concerns about inappropriate exclusions, the board said.

The EPA should also consider gathering input from library science, data curation management, and data retention experts to get a firmer handle on the costs of measuring and distributing scientific data, the board said.

Another part of the report noted that historical data may have been discarded, and that the EPA could skirt that problem by not applying the proposed rule to regulations already in existence.

The proposal is now being reviewed by the White House Office of Information and Regulatory Affairs.

The EPA will issue a supplemental proposal on its rulemaking early in 2020 before it issues a final rule, EPA Administrator Andrew Wheeler told reporters Sept. 19.

That change is happening because the rule was deemed significant enough to warrant additional public comment, Wheeler said during testimony before the House Science, Space, and Technology Committee.

36. House Democrats Unveil Plan for 100% Clean Energy by 2050

House Democrats on January 8 released ideas for future legislation aimed at getting the U.S. to 100% clean energy by 2050 and said they'd work to build support for it in the months ahead. House Energy and Commerce Committee Chairman Frank Pallone (D-N.J.) called the ideas a framework for a bill that will be called the Climate Leadership and Environmental Action for Our Nation's Future, or CLEAN Act. The bill hasn't been introduced, and Pallone said draft text of the legislation would be released around the end of January.

It's unclear whether such far-reaching climate legislation can pass the House, where the Democrats are in control, but it would be dead on arrival in the Republican-controlled Senate. Pallone and other backers said they would be open to changes in the bill to try to get broader support.

The framework includes a federal clean energy standard that would mandate utilities across the U.S. obtain 100% of their power from clean energy sources by 2050. But clean energy under their plan would include natural gas and coal if they met certain emissions standards.

The Energy and Commerce's clean energy standard would require that utilities meet an annual carbon intensity measure that is below 0.82 metric tons of carbon dioxide equivalent per megawatt hour. In practice, that would mean solar and wind energy would receive full credit toward the clean energy standard, and coal and natural gas power could be eligible for a partial credit if they meet the 0.82 metric ton limit through efficiency, carbon capture and storage, and other methods to reduce greenhouse gas emissions.

The framework cites recommendations by the United Nations Intergovernmental Panel on Climate Change that the world cut greenhouse gas emissions to net-zero by mid-century as part of efforts to avoid the worst impacts of climate change in the decades ahead.

The House Democrats' plan also calls for the Environmental Protection Agency to get additional authority, including the responsibility to review other federal agencies and departments to make sure that they are on track to get net emissions to zero by 2050.

Pallone was joined at the announcement by Reps. Paul Tonko (D-N.Y.), chairman of the Environment and Climate Change Subcommittee; Bobby Rush (D-Ill.), chairman of the Energy Subcommittee; and a half-dozen other Democrats.

37. Fuel Efficient Tech May Threaten Climate, Public Health

New automotive technology that promises enhanced fuel efficiency may have a serious downside, including significant climate and public health impacts, according to research from the University of Georgia College of Engineering.

The gasoline direct injection (GDI) engine is one of the most prominent technologies car manufacturers adopted to achieve the fuel economy and carbon dioxide emission goals established in 2012 by the U.S. Environmental Protection Agency. The market share of GDI-equipped vehicles increased from 2.3% in model year 2008 to 51% in model year 2018. The EPA projects 93% of vehicles in the U.S. will be equipped with GDI engines by 2025.

While this technology is credited with boosting fuel efficiency and reducing CO₂ emissions, GDI engines produce more black carbon aerosols than traditional port fuel injection engines. A strong absorber of solar radiation, black carbon exhibits significant climate warming properties.

In a study published this month in the journal *Environmental Science and Technology*, a team of researchers at UGA predicts the increase in black carbon emissions from GDI-powered vehicles will fuel climate warming in urban areas of the U.S. that significantly exceeds the cooling associated with a reduction in CO₂. In addition, they believe the shift will nearly double the premature mortality rate associated with vehicle emissions, from 855 deaths annually to 1,599. The researchers estimate the annual social cost of these premature deaths at \$5.95 billion.

"Even though emissions from gasoline vehicles constitute a small fraction of the black carbon in the atmosphere, the vehicle emissions are concentrated in regions with high population densities, which magnifies their effect," said Rawad Saleh, an assistant professor in UGA's School of Environmental, Civil, Agricultural and Mechanical Engineering and the study's principal investigator.

The increase of black carbon is an unintended consequence of the shift to GDI-equipped vehicles that some scientists suspected was based on experimental data, according to Saleh. He says the UGA study is the first to place these experimental findings in a complex modeling framework to investigate the trade-off between CO₂ reduction and an increase in black carbon.

While previous research has reported the shift to GDI engines will result in net benefits for the global climate, the UGA researchers say these benefits are rather small and can only be realized on timescales of decades. Meanwhile, the negative impact of black carbon can be felt instantaneously.

"Our research shows the climate trade-off is much different on the regional scale, especially in areas with high vehicle densities. In these regions, the climate burden induced by the increase in black carbon dominates over the climate benefits of the reduction in CO₂," said Saleh. "The study concludes the social cost associated with the acute localized climate burden and public health impacts induced by GDI vehicles largely outweigh their marginal global climate benefits."

The interdisciplinary study was a collaboration between the UGA College of Engineering, the department of geography in UGA's Franklin College of Arts and Sciences, and the National Center for Atmospheric Research. The research was funded by the National Science Foundation, the U.S. Department of Energy and the UGA President's Interdisciplinary Seed Grant Program.

Regulators in Europe and China, for example have adopted tailpipe standards that require gasoline particle filters to go on new cars to reduce the black carbon emissions but such regulations have not been adopted yet in the US.

38. Volkswagen Pleads Guilty In Emissions Cheating Scandal; Fined C\$196.5 Million

Volkswagen has pleaded guilty to 60 counts of breaching the Canadian Environmental Protection Act and providing misleading information. The German automaker and the Crown submitted an agreed statement of facts in a Toronto court. The judge then approved a C\$196.5 million (\$149.7 million) fine against the company.

Volkswagen was charged in December with importing nearly 128,000 vehicles into Canada violating emissions standards.

“This resolution serves the public interest. It reflects the gravity of the conduct, and is consistent with Canadian sentencing principles,” said prosecutor Tom Lemon in a statement. “This is an unprecedented fine in Canada. It is 26 times greater than the highest federal environmental fine ever imposed.”

Prosecutors had proposed the fine to resolve the issue earlier in the day.

“The resolution acknowledges the extensive measures by Volkswagen to make things right in Canada and strengthen its global compliance policies. The payment from the company will be used to support environmental projects nationally and in the provinces across the country,” Volkswagen said in a statement.

Volkswagen admitted to using illegal software to cheat U.S. pollution tests in 2015, triggering a global backlash against diesel vehicles that has so far cost it \$33.3 billion in fines, penalties and buyback costs. In May 2019, it set aside an additional 5.5 billion euros in contingent liabilities as it continued to face penalties and lawsuits around the world.

Most recently, Poland’s consumer watchdog, UOKiK, said it was fining Volkswagen more than 120 million zlotys (\$31.4 million) for misleading customers about the emissions of its vehicles.

Volkswagen previously agreed to spend up to C\$2.4 billion (\$1.8 billion) to buy back or fix 125,000 polluting diesels and compensate owners in Canada. Volkswagen previously paid C\$17.5 million (\$13.3 million) in penalties in Canada to resolve a Competition Bureau investigation.

39. EIP Warns Of Massive GHG, Pollution Increases From Oil & Gas Boom

One day after the oil industry sought to tout the greenhouse gas and other benefits of oil and gas drilling, environmentalists are warning that planned expansions throughout the industry could bring a 30 percent increase in GHGs over the next five years, along with corresponding increases in conventional air pollutants that harm public health.

Environmental Integrity Project (EIP) in a January 8 report examined permit applications and final permits from companies that extract or refine oil and gas including liquified natural gas (LNG) exports, along with those that manufacture petrochemicals, plastics and fertilizers, as well as government projections of future oil and gas extraction.

Overall, the group finds that the facilities could add 227 million tons per year (tpy) of additional domestic GHGs by the end of 2025, with 36 million tpy from expanded drilling alone. This potential increase would represent a 30 percent rise over the 764 million tons emitted by the industry in 2018, the most recent data available.

EIP says the increased oil and gas activity across sectors is being fueled by the hydraulic fracturing boom, with plans to build 157 new or expanded plants along with corresponding increased drilling. The collective additional activity could release as much GHGs as 50 new coal-fired power plants.

EIP's findings stand in contrast to claims from the American Petroleum Institute, which in a January 7 report touted the economic benefits of energy development -- including reduced GHG emissions -- in an effort to resist Democrats' election-year push for new limits on fossil fuel production and sweeping climate change policies.

The projections are based on data reported to EPA from existing facilities, the Department of Energy's estimate of future oil and gas production and from permits for proposed oil, gas and chemical projects.

EIP adds that the report does not assess emissions from product use, including vehicle emissions or from power plants that use natural gas or oil as a fuel.

"This tremendous growth in oil and gas production comes with consequences in the form of both greenhouse gases and pollutants known to harm human health," EIP research director Courtney Bernhardt added in the statement. "Federal and state authorities need to step up oversight and enforcement to bring emissions down."

Regarding conventional pollutants, the 157 oil and gas-related projects in the planning stages would likely increase emissions that immediately harm public health. These facilities could emit up to 119,000 tpy of volatile organic compounds (VOCs), 11,100 tpy of fine particulate matter (PM2.5), 8,800 tpy of sulfur dioxide (SO₂) and 47,200 tpy of nitrogen oxides (NO_x).

EIP includes several recommendations to curb the projected emissions growth, including that states and EPA should issue stronger air pollution permits including tighter GHG limits; that Congress and states should fund EPA and state agencies sufficiently so they can provide appropriate monitoring and enforcement, which it says is often lacking today; that EPA should require more accurate methods to monitor GHGs and other pollution from leaking tanks, oil and gas processing equipment, and flares; and that permits should require fence-line monitoring.

"The industries responsible for driving fossil fuel extraction and production need to be held more fully accountable for their actions and the consequences of those actions," EIP says.

40. Wheeler Touts Truck NO_x Plan To Highlight Business, Environment Benefits

EPA is touting its just-released advance notice of proposed rulemaking (ANPR) to update air emission standards for heavy-duty trucks, acknowledging the agency will not finalize new standards until 2021 while still trumpeting progress toward a rare affirmative environmental initiative as business friendly in an election year.

The planned rule would include more stringent standards for nitrogen oxides (NO_x) and other pollutants that will be "more protective of the environment while at the same time simplifying certification and compliance requirements for heavy-duty vehicles," EPA Administrator Andrew Wheeler said during a January 6 event where he signed the ANPR.

Wheeler was joined by several industry officials, promising that the new rules would not jeopardize the trucking sector. “Trucking is the backbone of our economy,” he said, flanked by two large semis at the Fauquier Livestock Exchange. “President Trump recognizes this and is committed to supporting America’s trucking industry.”

Wheeler called the ANPR the “first step” toward realizing the goals of the Cleaner Trucks Initiative (CTI), which EPA launched in November 2018.

The ANPR, as expected, does not float any specific new NOx standards but instead asks for comment on more general topics such as strengthening and improving in-use testing programs; a possible new “low-load” cycle to ensure vehicles operate cleanly at multiple speeds; and ways to ease the current burden of annual certification of engine families in cases where there have not been major technology changes.

“We intend the CTI to be a holistic rethinking of emission standards and compliance,” the document states. It adds that EPA’s goal should be to “reduce in-use emissions under a broad range of operating conditions”; enable technological solutions while considering costs; use “fair and effective” compliance provisions; encourage early compliance and innovation; ensure there is a “coordinated 50-state program”; and “actively engage” with interested parties.

The document will be subject to comment for 30 days starting from when it appears in the Federal Register -- allowing industry, California and other states, and environmental groups to weigh in with data and other information to inform a proposed rule.

“We hope to have the proposal later this spring [or] early summer, and then to go final early in 2021,” Wheeler told reporters in subsequent remarks.

He also played up the possibility of cooperation with California, which has been working on its own “omnibus” regulations to update truck NOx standards and other issues. “We are trying to work with California on this. We are certainly working with them on a technical level. . . . This is something we can certainly work together very closely on,” Wheeler said.

Along these lines, a fact sheet for the ANPR notes that it solicits comment “on the extent to which EPA should adopt provisions similar to those expected in the [California] omnibus proposal.”

EPA’s rulemaking would be the first comprehensive update to federal heavy-duty truck NOx rules in two decades. But it comes amid mixed feelings within the industry on the wisdom of doing an ANPR, with one source saying the approach causes concern among some manufacturers that the pre-rule measure could open the door for stringent suggestions from California and environmentalists.

For technology suppliers, however, the ANPR may have the upside of teeing up discussion of emerging technologies that could significantly cut emissions, the source indicates.

An industry source, meanwhile, attributes the ANPR rollout to election year optics. “I have never seen a press event for an ANPR.”

Wheeler at the event characterized the ANPR as a logical next step on a significant rulemaking that has proven more complicated than the agency first assumed. “We are talking about a complete change in how we regulate heavy-duty trucks,” he said, noting that the agency is

confronting how to ensure that the rule will be effective for the entire lifespan of a truck -- not just the first 100,000 miles -- and that it accounts for the multiple speeds at which trucks operate.

Wheeler also framed the initiative as a chance to simplify the “overly complex and costly” compliance details of current regulations built up over time that “do little to actually protect the environment.” As such, the event provided a venue for the Trump administration to showcase both a message of environmental protection and deregulation, at a time when it is being hammered by Democratic-led states and environmental groups for rolling back a host of environmental policies.

As one example of the two-pronged message, an agency press official at the event emphasized to a local reporter that the truck NOx rule is likely to include deregulatory aspects despite a push for greater emissions cuts.

It is difficult to entirely separate the truck initiative from the high-profile legal battle between EPA and parties including California on light-duty vehicle greenhouse gas rules -- and questions about whether the agency and California can avoid replicating their contentious clashes as they draft heavy-duty truck regulations.

But Wheeler during his remarks to reporters offered one justification for proceeding somewhat cautiously at the federal level, claiming greater difficulty of easing federal rules, compared to California standards, should compliance prove more onerous than expected.

“It is a lot easier to change a regulation in California than it is at the federal level. We might be spending a little bit more time trying to get it right because once we set the regulations it is going to be putting in place what truck manufacturers, engine manufacturers, have to do across the entire country.”

Environmental groups are already pressing EPA to develop a tough rule. The Environmental Defense Fund in a January 6 statement said it would “engage” in the rule in an effort to ensure the agency achieves “meaningful reductions in smog and climate pollution,” addresses pollution “hot spots” near major roads and does not “interfere” with states that are advancing tougher truck standards. The group also touted zero-emission technologies that should be encouraged by the forthcoming rule.

Industry officials at the event offered general support for the CTI, coupled with calls to ensure one national program for more tougher emissions limits and reasonable regulations -- an implicit push for the agency to act as a counterweight to stringent California standards. “We have an opportunity to build upon and repeat our past success,” the Truck and Engine Manufacturers Association’s (EMA) Jed Mandel said. “But to do so, we need the agency to lead a collaborative, data-driven process to determine both the feasibility and cost effectiveness of any future regulation.”

Environmental and health groups expressed concern the EPA regulations may not be as stringent as they could or should be, while stymying efforts in California to set ambitious nitrogen oxide standards of their own.

“There’s a fear that there’s an attempt by the truck engine manufacturers to undermine or weaken what California is pursuing by going through EPA,” said Paul Billings, senior vice president for advocacy at the American Lung Association.

California and the EPA have been in a long battle over another set of regulations dealing with emissions from cars. The state and agency are locked in a legal battle after the EPA revokes its waiver for setting tougher tailpipe emission standards that are in turn adopted by many other states over the federal ones.

Billings said when it comes to trucking regulations, groups don't fear the same rollback the EPA has proposed for cars. "What's different here is that the EPA is not just trying to blow up and destroy effective regulations. This is an attempt by EPA to actually improve on the status quo. The question is will they improve it in ways that are meaningful and significantly reduce pollution and protect public health or will they take modest, limited steps?" he asked.

"The current standards do not adequately capture real-world performance, and as a result, the nearly 20-year-old rules are not yielding the local reductions needed," Dave Cooke, a senior vehicles analyst with the Union of Concerned Scientists wrote.

"Given the slow turnover in the truck fleet, the lengthy EPA rule-making process, lead-time restrictions preventing federal implementation until 2026 at the earliest, and a movement already underway towards zero-emission freight, it is possible that the actions undertaken by this administration could be the last set of national pollution standards ever set for diesel-powered trucks."

The E.P.A.'s current rule on nitrogen dioxide pollution from heavy-duty highway trucks, put in place in 2001, required trucks to cut emissions of nitrogen dioxide by 95 percent over 10 years. The rule contributed to a 40-percent drop in national nitrogen dioxide emissions.

Although the law does not require the agency to update the rule, the Obama administration's E.P.A. began examining a tighter standard after multiple states and public health organizations like the American Lung Association petitioned to cut emissions an additional 90 percent by about 2025.

41. Harvard University T.H. Chan School of Public Health Increasing Climate Focus

Throughout EPA's history Harvard University's T.H. Chan School of Public Health has supported the agency's work with research into the public health impacts from many environmental factors, but as climate change becomes an overriding concern the school is ramping up its focus on that issue to inform greenhouse gas policy options.

"Our mission is to put science into action -- to leverage the astounding expertise in public health research at the school and at this university, and put it in the hands of people who need it," says Ari Bernstein, currently the co-chair of the school's Center for Climate, Health, and the Global Environment (C-CHANGE) and becoming its solo head after co-chair Gina McCarthy departed to lead the Natural Resources Defense Council in 2020.

The climate center is just one of seven major environmental research centers established within the school of public health since its 1963 founding. Douglas Dockery, a former chair of the center for environmental health sciences operated in partnership with the National Institute of Environmental Health Sciences (NIEHS), in a press interview, describes climate work as "a tiny, tiny piece of what is going on at the department."

But C-CHANGE has become a prominent part of the school's public face, as it delves into both regulatory matters like the most effective ways to deploy renewable energy, and public facing ones meant to raise the profile of climate change risks and harms among the general public.

While the Trump administration is either loosening or rescinding most federal climate rules, new research is still aiding state and local efforts to either enact or preserve climate policies at those levels, Bernstein said. For instance, the center's research on renewable deployment "was a major part of the conversation about whether states like Ohio should do renewable energy, and that can be very important since there's constant pressure in Ohio to repeal the state's renewable portfolio standard," he said.

Meanwhile, the center's leadership hopes its public work will help show the broader public-health benefits of cutting greenhouse gases, and in the process build support for those measures.

To achieve that goal, the center has broadened its focus beyond the already vast range of direct physical impacts from climate change, like sea level rise and extreme weather, to down-the-line effects such as mental health harms to people who suffer through those disasters.

"There's pretty much no issue it doesn't touch upon," he says. "People who live through natural disasters have higher rates of mental health disorders. And as far as that's concerned, there's never been quite the same challenge to mental health as with climate change. Maybe the closest is nuclear war, when children were told to run under their desks . . . but at least that had some concreteness to it."

By contrast, he says, the nebulous nature of climate change risk makes for a more open-ended threat that is difficult for the human mind to deal with because it is not tied to a particular event that can either happen and ultimately pass or be averted entirely.

While Harvard's climate-focused work is relatively recent, the public health school has been researching environmental issues since before EPA's 1970 founding. For instance, the NEIHS center dates to 1963, "and we've been looking at air pollution over that whole time," Dockery says.

He continues that the sheer breadth of the public health school, with over 500 faculty, graduate students and staff, allows them to bring a wide range of disciplines to bear on even a specialized problem. For instance, Dockery says, an examination of air pollutants can include their molecular genetic effects of air pollution, population exposure studies, policy evaluations and an overall risk assessment, among other approaches.

"That's what's fairly unique about our department -- we bring all the disciplines to bear on environmental health problems. . . . A major focus of the center is on reaching out and bringing in other departments, with expertise in social research, for instance."

Other active centers within the T.H. Chan School include the Education and Research Center for Occupational Safety and Health, which Dockery says works closely with the environmental centers on workplace-exposure issues; the Center for Risk Analysis; the John B. Little Center for Radiation Sciences; and the Center for Health Communication. A new center that will operate in partnership with EPA's Superfund office is also preparing to start operations.

Beyond its own research, Bernstein says the instructors are focusing on producing graduates who can apply public-health and sustainability principles in a wide range of disciplines.

42. Paris Agreement Advocates Highlight Support From Majority Of U.S. Population

An organization representing states, cities, businesses and others supporting the Paris climate agreement is touting a new report that finds more than half the U.S. population representing almost three quarters of gross domestic product (GDP) back the pact, even as the Trump administration works to implement the president's withdrawal from it.

The new report by the America's Pledge initiative "is the most comprehensive assessment to date of how these real economy leaders are driving the U.S. toward a low-carbon future," according to a statement from the group. "This report illuminates a pathway to a comprehensive and ambitious American climate strategy for 2030, using expanded bottom-up leadership as the foundation of a comprehensive 'All-In' climate strategy" as nations around the world consider "how to strengthen their climate targets and raise global ambition," the statement adds.

Founded by former California Gov. Jerry Brown (D) and former New York City Mayor and current Democratic presidential candidate Michael Bloomberg, America's Pledge aims to "aggregate, analyze, and showcase climate leadership by America's states, cities and businesses" through efforts to reduce greenhouse gas emissions.

According to a fact sheet on the report, which is called "Accelerating America's Pledge," coalitions of American states, cities, businesses, and others committed to climate action in support of the Paris Agreement now represent 68% of U.S. GDP, 65% of U.S. population, and 51% of U.S. emissions.

The report also says states, cities, and major economic sectors are taking actions that would cut domestic GHGs 19% below 2005 levels by 2025 and 25% below 2005 levels by 2030.

Following President Trump's announcement that he is initiating U.S. withdrawal from the Paris agreement, Bloomberg sent a letter from the America's Pledge Initiative to UN Secretary-general António Guterres and Executive Secretary of the UN Framework Convention on Climate Change Patricia Espinosa. Bloomberg's letter included a statement from 3,841 leaders of "We Are Still In," the diverse coalition of Paris agreement supporters, declaring: "We, the undersigned mayors, county executives, governors, tribal leaders, college and university leaders, businesses, faith groups, and investors are joining forces for the first time to declare that we will continue to support climate action to meet the Paris Agreement."

ASIA PACIFIC

43. Tesla Delivers Its First Chinese-Made Model 3s

As promised, the very first Tesla Model 3s built at the company's Shanghai factory were delivered on December 30. The New York Times reports that each of the 15 Model 3s delivered went to Tesla employees at the site. Remarkably, one of these employees took the opportunity to propose to his girlfriend during the delivery ceremony.

By delivering the first cars on December 30, Tesla managed to go from breaking ground at the site to starting production in just 357 days.

The Model 3s built at the Shanghai site start at 355,800 yuan (\$50,924), significantly less than the 439,000 yuan (\$62,832) for longer-range models that are imported from the U.S.

Production at the site will ramp up in January with an immediate target of hitting 250,000 vehicles annually. The facility is the first wholly foreign-owned car factory in China and has received a lot of support from the Chinese government.

Senior executives from Tesla recently confirmed the company is building service centers and charging stations across the nation to support the introduction of more vehicles. In 2020, the number of service centers and fast-charging stations will more than double and its after-sales workforce will jump from the current 600 to roughly 1,500.

44. Tesla Faces Challenges In U.S. And China After 2019 Ends With Record Sales

A record fourth quarter helped Tesla Inc.'s deliveries rise 50 percent in 2019, surpassing Porsche in global volume and adding to the electric-vehicle maker's momentum as it focuses on expanding in the U.S. and China this year.

Tesla said it delivered about 112,000 vehicles in the final three months of 2019, including nearly 93,000 Model 3 sedans, which the automaker began selling internationally at the start of the year. For the full year, it delivered 367,500 vehicles, up from 245,240 in 2018. That's on the low end of its original prediction that sales would be between 360,000 to 400,000 last year.

The strong numbers, especially for the Model 3, came despite the gradual elimination of U.S. federal tax credits on Teslas — buyers can no longer get a credit as of January 1 — and showed that the automaker has put the "production hell" issues that plagued the Model 3 launch in its rearview mirror. Tesla's shares have surged from less than \$200 in early June to a record of more than \$450 at year's end.

Tesla predicts Model 3s will sell big in China and aims to make 3,000 a week at its Gigafactory there.

The automaker enters 2020 with a new set of challenges, including getting a bigger foothold in China with the help of its newly opened Shanghai plant, battling increased EV competition in the U.S., launching its Model Y crossover and breaking ground on a plant in Germany. It still has yet to generate a full-year profit.

But the company continues to leapfrog long-established automakers such as Porsche, which hasn't reported year-end global results but trailed Tesla by about 53,000 at the end of the third quarter.

Tesla's fourth-quarter delivery figures include 19,450 Model S sedans and Model X crossovers. While deliveries of the Model 3 have steadily risen, S and X deliveries have fallen year-over-year, prompting questions about demand in certain markets. That likely will be further tested in the U.S. this year, especially with the loss of federal tax credits for would-be buyers.

Q4 deliveries	Change from Q4 2018	
Model S and X	19,450	-23%
Model 3	92,550	51%
Total	112,000	29%

Source: Tesla

The surge in deliveries at the end of 2019 could be due partially to customers rushing to be eligible for the \$1,875 credit available on vehicles delivered by December 31. Despite lobbying from Tesla and other automakers for an expansion of the tax credit, Congress last month failed to do so.

Tesla also faces heightened competition from legacy automakers that are adding EVs. Ford Motor Co., for example, plans to launch its Mustang Mach-E electric crossover this year. Ford unveiled the vehicle in November right next to Tesla's Hawthorne, Calif., design center, making clear its desire to directly challenge the reigning EV leader.

Tesla expects sales will rise in China, where last month it began initial deliveries to employees from its Gigafactory in Shanghai (See story above.), which broke ground a year ago. Tesla has said China could become the biggest market for the Model 3 and plans to begin public deliveries there this month.

CEO Elon Musk has said weekly production of 3,000 cars in Shanghai is a target at some point.

"While initial deliveries may be lower-margin, we think deliveries should be margin accretive over the long run, given lower manufacturing costs in the region," Ben Kallo, a senior research analyst with Baird Equity Research, said in a recent note. China, he wrote, "should be a key driver of volume growth in 2020."

Recently, the automaker lowered Model 3 prices in China by 9 percent in an effort to boost demand and come more in line with affordable EVs offered in the world's largest vehicle market. It also lowered the cost of some options, from body color to high-performance wheels, according to a statement.

45. Beijing's Air Quality Shows 'War On Pollution' Succeeding

Beijing's air quality has improved significantly since the start of the "war on pollution" seven years ago, according to official figures. In 2019, the capital's average concentration of PM2.5 – the most harmful small particles and a key indicator of air pollution – fell to their lowest levels since its integrated air quality monitoring network started operating in 2013. The 2019 average concentration of 42 micrograms per cubic meter was 53 per cent lower than the 2013 figure of 89.5, according to the municipal ecology and environment bureau.

The average concentration of PM10 particles and nitrogen dioxide were 68 and 37 micrograms per cubic meter, both in line with national targets.

Although some pollution levels still far exceed international recommendations, the Chinese capital's rapid progress has been hailed by the United Nations as an example of how quickly things can be turned around.

Joyce Msuya, the deputy executive director of the UN's environment program, wrote in a report in March last year that "no other city or region on the planet has achieved such a feat", which she said was the result of "an enormous investment of time, resources and political will".

The UN report, based on pollution data from 1998 to 2017, concluded that the controls on coal-fired boilers, the use of cleaner fuels in residential sectors and better controls on industry were the three most important measures.

Ma Jun, director of the Beijing-based non-governmental organization, the Institute of Public and Environmental Affairs, said the improvement was the result of policies such as controls on coal combustion, vehicle emission controls, coordination with surrounding areas and better data transparency.

China started its “war on pollution” in 2013, with President Xi Jinping identifying it as one of the country’s three biggest challenges in 2017.

Since the start of the anti-pollution campaign, the Beijing municipal authorities have closed all coal-fired plants and encouraged residents to stop using coal-fired boilers in favor of natural gas and electricity in winter.

Although that policy faced a challenge in the winter of 2017-18 when gas shortages left residents across many cities in northern China without heating, the amount of coal burned in the capital itself has declined significantly from a peak of about 30 million tons in 2005 to 4 million in 2018, according to the environment bureau in Beijing.

This has also resulted in the concentration of sulfur dioxide in the atmosphere dropping by 85 per cent from 28 micrograms per cubic meter in 2013 to 4 in 2019.

The campaign has also seen pollution levels falling across the country.

According to central government figures, in 2018, the national average concentration of PM2.5 was 39 micrograms per cubic meter, 9.3 per cent lower than the previous year.

Across 338 major cities, the air quality was classified as “good” for 79.3 per cent of the time, just short of the 2020 target of 80 per cent good air quality days.

But despite these successes, there is still a long way to go in tackling the problem.

Last year the concentration of PM2.5 in Beijing – 42 micrograms per cubic meter – was still above the national air quality standard of 35, and far exceeded the World Health Organization’s recommended figure of 10.

The Bureau of Ecology and Environment’s release failed to mention ozone pollution, which has been steadily rising across the country, including in the capital. Ozone is a leading cause of asthma and other respiratory illnesses. Tsinghua University’s Professor He Kebin told Caixin that coordinating measures aimed at reducing PM2.5 and ozone is key to Beijing’s current air quality policies.

2020 is the final leg of a three-year plan to tackle Xi’s three biggest challenges, and Ma said the next step should be to aim to meet national air quality standards and improve the way industry operates. “There’s been a rebound of emissions from energy-intensive companies after last autumn,” he said, adding that the trade war and slowing economy had seen officials loosening controls.

“So, China needs to optimize its energy structure and industry structure to really achieve the green transformation,” he said.

There are also concerns that the air quality wins have come at the expense of other regions. Much heavy industry has moved to other provinces with weaker air quality and factory emissions

regulations, especially during winter months when the Beijing region implements its strict winter air pollution action plan.

46. China Market Declines For Second Straight Year; EV Demand Dips For First Time

China's new-vehicle market, a reliable source of growth and profits for automakers worldwide, contracted for the second consecutive year as a weakening economy and a prolonged trade war with the United States continued to sap demand. New-vehicle deliveries slipped 8.2 percent to just below 25.8 million, the China Association of Automobile Manufacturers said.

The protracted downturn largely reflected weaker demand for new cars and light trucks, which fell 9.6 percent to below 21.5 million, the group said. Sales of commercial vehicles such as buses and trucks dipped 1.1 percent to roughly 4.3 million for the year.

"We have moved away from the high-speed development stage. We have to accept the reality of low-speed development," Shi Jianhua, a senior official at CAAM, said at a news briefing. "We had high-speed growth for a consecutive 28 years, which was really not bad, so I hope everyone can calmly look at the market."

Because of a steep cut in subsidies in late June, demand for electrified vehicles slumped the remainder of the year. As a result, the electrified-vehicle market in China contracted for the first time in 2019, with aggregate sales of battery-electric vehicles and plug-in hybrids dropping 4 percent to roughly 1.2 million.

New EV deliveries slid 1.2 percent to around 972,000 in 2019 while new plug-in hybrid sales slipped 15 percent to some 232,000.

With economic growth widely expected to remain subdued, CAAM predicted that demand for new vehicles likely will dip another 2 percent in 2020.

It will probably take two years for new-vehicle sales in China to resume growth with the economy still facing downward pressures, Miao Wei, Minister of Industry and Information Technology, predicts. Based on talks the ministry had recently with some major companies in the industry, "our assessment is that the market still needs a critical period this year and next year to bottom out," he said at a press conference in Beijing.

China's new car and light-truck sales and output in 2020 will hover around the level of 25 million, ending up with "either zero growth or slightly negative growth", he predicted.

Automakers are cautious with their predictions after cutting production, shutting factories and firing staff last year.

Executives at automakers such as Geely and Ford Motor Co. partner Chongqing Changan Automobile Co. expect fiercer competition to weed out weaker players.

Volkswagen Group, whose crossovers and SUVs helped it report a smaller 1.1 percent sales decline in the first 11 months of 2019, has said it expects China's market to grow at a relatively slow pace for the next five years.

47. As EV Sales Tumble, Beijing Mulls Extending Subsidies

China's ministry of finance in September reaffirmed the agency's schedule to phase out subsidies for electrified vehicles at the end of 2020. But remarks by a top official at the nation's leading auto regulator this month imply the government now is bowing to industry pressure and market realities and leaning toward pushing the deadline back.

The reality is that without government subsidies, demand for electrified vehicles cannot be sustained.

Triggered by a cut in government incentives in June, demand for electric vehicles and plug-in hybrids has steadily dropped. EV subsidies were scaled back more than 60 percent, and incentives for plug-in hybrids were cut in half. As a result, annual sales of new electrified vehicles in China shrank for the first time in 2019, with total volume dropping 4 percent to around 1.2 million. (See story above.)

Today, full-electric light vehicles qualify for subsidies of up to 25,000 yuan (\$3,608) while plug-in hybrid cars and light trucks are eligible for a flat subsidy of 10,000 yuan.

Addressing fears of more subsidy cuts for electrified vehicles, Miao Wei, minister of Industry and Information Technology, pledged on January 11 that there would be "no further winding down" in the incentive program this year when speaking at an industry forum in Beijing.

When it comes to subsidies for electrified vehicles, Miao and the ministry of industry must also consider the ministry of finance's priorities and modified a pledge at a press conference last week in Beijing. Miao, when asked whether subsidies will be slashed again in June and terminated at year end, said the issue "is still under discussion" but added reductions going forward "will probably be more gradual" than the original plan.

The minister is suggesting the government likely will readjust the time frame for phasing out subsidies for electrified vehicles, with much of the current incentives to be kept this year and the rest extended beyond the end of the year.

If enacted, the move will bring some comfort to major Chinese EV makers such as BYD Co. and BAIC Motor Co. and global players such as Volkswagen Group that have invested heavily to build EV products locally.

48. China Improves Curb on Ozone-Damaging Gas, Though Gaps Remain

The Chinese government presented its response to major releases of trichlorofluoromethane, or CFC-11, from within its borders at a meeting of a small group of countries in Montreal last month. CFC-11 is one of the ozone-depleting substances banned by the Montreal Protocol.

Some of the countries at the meeting, known as the executive committee of the Multilateral Fund for the Implementation of the Montreal Protocol, said they appreciated China's actions, but also said the unexpected emissions of CFC-11 were a serious problem, a meeting summary said.

China came under pressure to explain its actions at the last two meetings and will have to submit a final report on its response to the leaks in December 2020, the summary said.

A US official said the U.S. is very concerned about the unexpected uptick in CFC-11 emissions. "The United States supports strong action by the Montreal Protocol parties and its institutions to

address the unexpected emissions of CFC-11,” the official, who commented on background, said in an email to the press.

Experts estimate 40,000 to 70,000 metric tons of CFC-11 per year are released from China, Avipsa Mahapatra, climate campaign lead for the Environmental Investigation Agency, who attended the meeting as an observer, said in an interview. The Washington-based Environmental Investigation Agency was one of the first independent groups to pinpoint releases of CFC-11 from China in 2018.

CFC-11 was used as a blowing agent during the production of polyurethane foam insulation. Alternatives that are safe for the ozone layer can replace it. China shut down three polyurethane foam factories in response to the leaks, but those three can't account for the amount experts say is coming out of China, Mahapatra said.

The most recent meeting saw a consensus emerge that China was taking appropriate action on CFC-11, but pressure on China should remain in place as long as the missing CFC-11 isn't accounted for, the official said.

The Chinese government recently launched a bidding process for a third party to do a review of the underlying regulatory, policy, enforcement, and market forces that lead to illegal CFC-11 production, the meeting summary said. That report is critical because it will help regulators understand why a substance banned in China since 2010 flew under the radar, and could help prevent illegal foam production globally, Mahapatra said.

If countries act swiftly, a delay in the closing of the ozone hole over Antarctica due to the unexpected recent spike in CFC-11 emissions will last only a few years, but inaction could stretch the delay to well over a decade, a University of Leeds study published in Nature Communications on December 19 found.

The U.S. has been leading pressure on China to stop the CFC-11 releases because it is the leading donor into the Montreal Protocol's multilateral fund, which helps developing countries, including China, manage the terms of the protocol, according to Mahapatra.

China's Ministry of Ecology and Environment took over a dozen enforcement and monitoring steps to improve adherence to the protocol, including the creation of eight new laboratories to test chemicals, the meeting summary said.

Domestic atmospheric monitoring of ozone-harming substances will be in place by 2022, and the results will be shared internationally.

Studies to find out the size of the polyurethane foam sector haven't started because talks with industry are still taking place, China told the meeting.

49. New Study Shows Dominance Of Local Air Pollution Sources In Delhi

The University of Surrey has revealed results from a new, comprehensive study that suggests that activities such as construction and vehicle traffic contribute significantly to the Delhi National Capital Region's high concentrations of harmful air pollutants and gases.

According to the World Health Organization, air pollution was estimated to cause nearly 4.2 million premature deaths worldwide in 2016. In India, around 600,000 deaths annually are attributed to air pollution, and some of the world's highest levels can be found in Delhi city.

In a study published in *Sustainable Cities and Society*, a team led by Surrey's Global Centre for Clean Air Research (GCARE) gathered and analyzed four years of pollution data from 12 sites across Delhi, Haryana and Uttar Pradesh, with the aim of understanding how particulate matter (PM2.5 and PM10) and gases (oxides of nitrogen, sulfur dioxide, carbon monoxide and ozone) impact this area of India.

Despite the long-term nature of the study, the GCARE results show a clear trend with significantly higher levels of air pollutants in winter months than in summer or monsoon periods, with the exception of ozone levels. The high levels of fine and coarse particulate matter (PM2.5 and PM2.5-10) in winter months were attributed to fumes from crop burning upwind of Delhi and a likely increase in biomass burning for residential heating because most parts of the region do not have central heating systems.

The weather during winter months—particularly reduced precipitation and low wind speeds—is also thought to play a significant role in raising pollutant levels.

Crucially, the GCARE team also obtained meteorological data from each station for the duration of the study, allowing the examination of wind speeds and the direction of particulate matter. The results of the team's analysis suggest that local sources of pollution, such as traffic, construction and domestic heating, influenced pollutant levels more than regional sources (air pollution from long-range traffic).

Professor Prashant Kumar, Founding Director of GCARE at the University of Surrey, said: "It is heartening to see the world come to terms with the fact that the climate change emergency should be at the top of every nation's agenda—not least India. Our analysis of Delhi's air pollution data over a significant period of time confirms that local sources of pollution—such as traffic and the heating of homes—are having a tremendous impact on air quality in the Delhi region. Moreover, the surrounding regions of Delhi are suffering substantial impacts during winter periods."

"The currently configured network of air pollution monitors does not permit the evaluation of long-range transport between Delhi and the NCR (and vice versa), highlighting a need for well-thought-out planning to expand the current network in the future. It is fair to hypothesize that on the one hand, solutions on a local level can go a long way towards improving air quality in one of the most heavily populated areas of India; on the other hand, there is a need for coordination with surrounding regions for effective control of air pollution sources. Moreover, given the dominance of local sources, efforts to control pollution are needed across the whole year, not just during winters, when the problem reaches its peak."

50. Delhi's Smog Tower: First 'Giant Air Purifier' Inaugurated

Delhi's first smog tower recently started functioning. The tower was inaugurated by cricketer turned BJP MP Gautam Gambhir. The tower is fitted at the Central Market in Lajpat Nagar. The giant air purifier has been installed to combat air pollution in the city.

According to media reports, the smog tower has been fitted with exhaust fans that will help in sucking polluted air and remove up to 80 per cent of particulate matter (PM 2.5 and PM10 pollutants).

The pilot project has been undertaken by the IIT Bombay in collaboration with IIT Delhi and the University of Minnesota.

The office of East Delhi MP said that the smog tower was a prototype and more such equipment would be installed, if the initiative achieves success. The smog tower was procured by Gautam Gambhir Foundation and installed with the help of Lajpat Nagar Traders Association.

The smog tower is expected to treat 250,000 to 600,00 cubic meters of air per day. The air purifier will run on electricity.

The smog tower is 20-feet-tall and has been erected on a 4 foot high platform on a covered drain near Veer Savarkar Marg in Lajpat Nagar. It is a cylindrical structure with a big inlet and four outlet units. The tower is painted in four colors--orange on the top, white in the middle, blue at the bottom and green just above the bottom. The estimated cost of the tower is Rs 7 lakh². The running cost of the device will be around Rs 30,000.

In February 2018, the Delhi Government had installed an anti-pollution tower at ITO. However, the pilot project failed to yield good results. Hence, experts have questioned the feasibility of smog towers. According to experts, smog towers were not suitable for Delhi's meteorological condition. There is not enough evidence to prove that the anti-pollutant tower can significantly improve air quality, they claim.

The initiative was taken after the Supreme Court, in November 2019, asked the Centre and the Delhi government to come up with a road map on installing smog towers in the national capital region (NCR) to combat air pollution.

51. BS-VI Norms On Real Driving Emissions Will Bring India Up-To-Par Globally

The Bharat Stage VI (BS-VI) roll-out in April will not just result in cleaner air but also enable carmakers to record real driving emissions (RDE), thus allowing for more stringent violation norms which will bring India at par with the developed markets.

Car manufacturers will be made to randomly pick three customer vehicles every year and test them for emissions. The exercise will be conducted in cooperation with government-backed vehicle test agencies that also issue certification for a vehicle's street-worthiness.

India's top car producer Maruti Suzuki, which is busy making the transition from BS-IV to BS-VI, has sold more than 300,000 BS-VI compliant vehicles so far and is already preparing for the upcoming changes.

A top Maruti Suzuki executive said, "BS-VI is not just about emission it is also about in-service conformity. This is a new norm for BS-VI where vehicles which are run for more than six months or 15,000 km or maximum 100,000 km for five years, the testing agency will ask the original equipment manufacturers (OEMs) to pick out three such customer vehicles every year and test it again on the chassis and prove that the emissions are not violating the norms."

² One lakh is 100,000

While the government is believed to have contemplated enforcing the RDE norms much before April 1, the auto industry requested the Ministry of Road Transport and Highways to implement the norms only after BS-VI fuel is available throughout India.

"This is very much part of the BS-VI notification. Everybody thinks that BS-VI is about tailpipe emission but it is also about RDE to capture data. The test agency record RDE which is called as the data acquisition phase. Once that happens after one year, they will come out with a conformity factor and the RDE regulation will come into 2023," the Maruti Suzuki executive added.

RDE is the most preferred emission regulation method since it is aimed at reducing the gap between type-approval emission that occur during the certification (homologation) testing phase and those in the real world.

Vehicular emission methods took a big goodwill knock when German auto giant Volkswagen was accused of fudging data for years in the US. Since then several countries have put stricter norms to check on any intentional and unintentional violations.

A top executive from Hyundai India said, "This is the next generation regulations which will truly bring India to the global level as far vehicle emissions are concerned."

"Presently once a vehicle is sold there is no data regarding its emissions during its entire lifecycle. The upcoming real-world testing will significantly change the way vehicle emissions are looked at. There is a caveat though that the vehicles should be serviced regularly and properly," the executive added.

52. Mahindra Electric To Play Key Role In SsangYong's EV Drive

Mahindra & Mahindra, a leading player in electric vehicles in the country, has now set eyes on electrification of some of the models of its South Korean arm SsangYong Motor, a top company official said. The company, which already sells electric vehicles like e-Verito and e2o, is also working to develop electric three-wheelers using a lithium-ion battery.

"Mahindra Electric is working with SsangYong to electrify some of their products," the company's CEO Mahesh Babu told PTI.

Mahindra Electric, the manufacturer of electric vehicles of the diversified USD 17.8 billion Mahindra Group, will play a key role in the electrification of existing products such as e-Verito and e-Supro for Mahindra's auto division.

"We will play a similar role for SsangYong," Babu said.

Elaborating on the SsangYong project, he said Mahindra Electric will sell some of the powertrains and electric parts to the South Korean auto firm. "We will supply some electric parts to them and also to Mahindra and they will sell the cars," Babu said.

Mahindra & Mahindra (M&M) had inked a pact in 2010 to acquire majority stake in SsangYong.

When asked about the company's strategy regarding electric vehicles in the domestic market, Babu said: "We have now products in the mass market segment...as part of our strategy going ahead, we will get into new technologies with higher power voltage powertrains and higher range products".

With few electric products already in its portfolio, the company will now focus at expanding its base on the back of new products with higher range and performance, he added.

"We are now working to develop three wheelers based on lithium-ion batteries," Babu said.

In September, the company had introduced e-rickshaw -- e-Alpha Mini - to cater to last mile connectivity.

M&M has earmarked an investment of Rs 600 crore³ over the next two-three years to expand its electric vehicle production capacity from 500 to 5,000 units a month.

The capital will also be utilized to develop new technologies and come up with the infrastructure to produce battery components.

The company is also looking to ink joint ventures in the field of power electronics and motors. When asked about the proposed joint ventures, Babu said: "The process is going on. It hasn't yet concluded."

53. Honda And Isuzu To Test Fuel Cell-Powered Heavy-Duty Trucks

Honda and Isuzu have collaborated to conduct a joint research project where they will use hydrogen fuel cells to power heavy-duty trucks. The Japanese automotive manufacturers, which are aiming to expand the use of fuel cells to apply zero-emission technology to larger vehicles, will be sharing their technological expertise under a two-year official contract.

Under the agreement, Honda's expertise in developing fuel cell systems will be combined with Isuzu's specialty in building heavy-duty trucks. The latter's intention to test Honda's fuel cell drive train in its commercial vehicles would expand the scope for the entire automotive industry, as the technology could be used in a wide range of vehicles in the future.

This is the first time that Honda has given an 'outsider' access to its fuel cell technology.

Speaking with reporters, a Honda spokesperson said: "Although we have done extensive R&D into passenger FCVs (fuel cell vehicles), we have not been able to study how best to apply the technology to commercial vehicles. This partnership will allow us to do that."

Isuzu has been endorsing the use of low-carbon and sustainable energy for quite some time. To achieve that goal, the company has been researching and developing different powertrains, such as clean diesel engines, engines for natural gas vehicles (NGVs) and electric vehicles (EV) powertrains. Similarly, Honda has been putting efforts to promote carbon-free society and thus has been involved in researching and developing FCVs for over three decades.

Vehicles running on hydrogen fuel cells have been lauded as an ultimate eco-friendly transport option owing to their absolute zero greenhouse emissions and typically providing greater mileage range and faster refueling than battery EVs. However, the lack of proper refueling infrastructure has greatly restrained the adoption of these vehicles.

³ 10 million

As global emissions regulations have continued to tighten every year, automobile companies are developing a greater number of EVs. Most industry experts perceive EVs as the answer for passenger cars in city areas, but hydrogen fuel cells are often touted as an efficient solution for longer journeys and to power large vehicles like buses and trucks.

The global market for hydrogen autos totaled only about 4,000 vehicles in 2018, compared with 1.4 million battery EVs sold in the same year.

54. Thai Protesters Demand Action as Air Pollution In Bangkok Worsens

Dozens of activists held a rare protest over air pollution in Bangkok, a day after Thai officials closed schools due to concern over the impact. Levels of air pollution in the capital, the world's most visited city, have hovered at unhealthy levels over the past month - over 100 on the air quality index.

The index breached the 151 threshold seen as dangerously unhealthy for the general public late last week, and continued to climb until it hit 163, according to monitor AirVisual. Schools were closed for that day, and by the following day the index dropped back to 121.

The activists, wearing pollution masks, said they were marching to the Government House because of authorities' inaction. "Air pollution affects everyone ... it is life and death for all of us," said Tara Buakamsri, Thailand director for environmental group Greenpeace, as cars and motorcycles sped by emitting smoke.

Particles found in dust, soot and smoke and small enough to lodge deep in the lungs and enter the bloodstream, known as PM 2.5, were measured at unhealthy levels for 23 of the past 30 days in Bangkok, data from AirVisual showed.

Earlier this week, Prime Minister Prayuth Chan-ocha said healthy people such as himself could manage and those in risky groups should be aware of their tolerance levels and wear masks.

His comment angered some of the activists. "Pushing the burden on the people like this is not something an efficient government would do," said Chonlatorn Wongrussamee, one of the protesters.

Tara said protecting the environment and health did not damage economic development but went hand in hand with it at the demonstration, which the activists said was the first such protest in two years.

When they reached the government headquarters, a senior official in the Natural Resources and Environment Ministry, Nopadol Phonsen, came out to speak to them, telling them officials were meeting to discuss measures to tackle the issue.

"We're all under the same sky. We want the air we breathe to be clean and healthy," he said.

The city's last moderate air quality day, when the index was between 51 and 100, was Jan 4., and there has been no "good" air reading in the past 30 days, according to AirVisual data.

The government has assured the public that it is capable of solving the air pollution crisis which may require drastic measures. The PM is asking all to comply with the law, while the government looks into the feasibility of installing large-scale air purifiers in the capital.

The Prime Minister Gen Prayut Chan-o-cha has presented to members of the media the government's papers outlining the protocols addressing the air pollution crisis, stressing that the government has prioritized the mitigation of air pollution in the 2019-2024 national agenda.

He said the government gives number one priority to the general public's health and asked all sectors to comply with the law and measures introduced, which may include drastic initiatives that could affect certain sectors.

On proposals to install large-scale air purifiers in Bangkok, the Prime Minister said he has ordered related agencies to conduct feasibility studies, as conditions in Bangkok may differ from other cities that already operate such devices.

To promote public understanding of air pollution hazards and PM 2.5 particulate matter, the Ministry of Public Health (MOPH) has launched the Mobile Pollution Clinic at Victory Monument, to inform the general public on how to protect themselves from these dangerous fine particles. More pollution clinics will be opened in affected provinces such as SamutSakhon, SamutPrakan, PathumThani, and at 68 public health service centers.

In addition, the MOPH has opened an online pollution clinic at www.pollutionclinic.com, where the general public can access information and contact medical professionals more conveniently.

Construction activities are known to be significant sources of particle emissions. During the construction of the Public Relations Department's government broadcasting and information service operation center at the National Broadcasting Services of Thailand's headquarters in Bangkok, contractors have regularly washed down the wheels of trucks and the construction site itself with water, in order to minimize the emission of particles from the construction activity, and as a specific commitment to helping limit the air pollution crisis.

More than 8,000 vehicles have been pulled over this month for belching black exhaust fumes in Bangkok, according to Metropolitan Police Bureau deputy commissioner Chirasan Kaewsangake.

Pol Maj Gen Chirasan told a press briefing that 8,284 vehicles were stopped for emitting choking black fumes at 33 checkpoints around the city in January. The government blames much of the air pollution affecting Bangkok and the provinces on vehicle emissions.

The number of vehicles stopped was a significant rise on the 7,000 vehicles stopped and banned in December, the deputy commissioner said.

Of this month's number, 60% were large vehicles such as buses and trucks.

He said the 33 checkpoints are each manned by 7-10 police and Department of Land Transport officials with special equipment to measure pollutants being emitted by passing vehicles. "Offending vehicles are logged and marked with stickers, while the owners are given a month to fix the problem," he said.

"Officials will follow each case up using contact information and license plate numbers and if owners fail to heed the warning their cars will be impounded," Pol Maj Gen Chirasan added.

Silapasuai Rawisaengsun, the permanent city clerk, said yesterday that the Bangkok Metropolitan Administration (BMA) has obtained four mobile air purifiers from the Rajaprajanugroh foundation under royal patronage and located them in the Phaya Thai and Rajavithi areas.

She said the purifiers can filter 2.2 cubic meters of air a second and release air of 85-90% purity.

Deputy Minister of Public Health, Satit Pitutecha, tried to allay pollution fears, saying the dust does not cause much damage to health and has affected very few people. Nonetheless, he said the ministry is offering advice on how to deal with health risks.

55. Annual Vehicle Registrations in New Zealand Drop For First Time Since 2009

New Zealand vehicle registrations were down 4.3% (7007 units) year-on-year in 2019 – the first annual drop in 10 years. A total of 154,763 vehicles hit the roads in 2019 compared to 161,770 in 2018. December 2019 registrations came in at 0.1% over December 2018 with 11,160 vehicles registered, up just 10 units year-on-year.

Motor Industry Association chief executive David Crawford says the result was “as expected”.

“It is the first time since 2009, the height of the global financial crisis, that we have seen a year-on-year drop in new vehicle registrations and comes after five consecutive record years (2014 to 2018).”

Pure electric vehicles continued a modest rate of monthly registrations at 175 units for December, with 35 PHEV’s and 692 hybrid vehicles sold for the month.

Registrations of 8159 passenger and SUVs for December 2019 were up 6.2% (479 units) on 2018 volumes.

Commercial vehicle registrations were down for a third consecutive month with a total of 3001 for December, down 13.5% (469 units) compared to December 2018.

The top two models for the month of December were once again the Toyota Corolla (907 units), followed by the Toyota RAV4 (747 units) with the Ford Ranger back to third place (473 units).

The market leaders for 2019 were Toyota with 20% share, followed by Ford with 10% share and Mitsubishi in third with 8% share, just ahead of Holden also with 8% share for the year.

For the year, the top passenger and SUV models were the Toyota Corolla (6804 units) followed by the Toyota RAV4 (5611 units) and the Mazda CX-5 (3312 units).

In commercial vehicle sales, the Ford Ranger was out in front for the year with 19% market share (9485 units) followed by the Toyota Hilux with 14% share (7126 units) and the Mitsubishi Triton in third with 11% share (5319 units).

The top three segments for the month of December were once again SUV medium vehicles with 19% share followed by SUV compact with 18% market share and the pick-up/chassis 4x4 segment with 12%.

For the year The SUV medium segment held onto the top spot (19% share) followed by the pickup/chassis cab 4x4 segment on 15% with the SUV compact segment quickly gaining ground also in 15% share.

The last quarter of 2019 showed sales of utility vehicles declining compared to the start of the year and for 2018. The 2019 results also saw pure electric vehicles rise to the top three in sales with the entry of the Tesla model 3 to the market.

The Toyota RAV4 hybrid, introduced into the market in March, quickly became New Zealand's most popular hybrid vehicle.

56. Big Drop In Kiwi Vehicle Emissions

Average emissions from new vehicles sold last year have dropped much faster than in the previous five years, according to the Motor Industry Association. Figures show the average CO2 emission fell from 179.1g/km in 2018 to 174.4g/km in 2019. MIA chief, David Crawford, says mean emissions have dropped from 220.7g/km of CO2 in 2006, a fall of 21 per cent.

The rate of reduction has been flat since 2014 but 2018 saw an acceleration in overall CO2 reductions, leading to 2019 showing the largest one-year reduction (2.6 per cent) since 2013. This, the MIA says, is likely due to a growing range of electrified models coming into the new vehicle market as well as increasingly efficient internal combustion engines.

“There has been a significant increase in sales of vehicles with some form of electrification, which include hybrid, plug-in electric hybrid and pure battery-electric vehicles and this is starting to have a positive impact on our emissions.

“Nearly 9000 new vehicles powered by some form of electrification sold in New Zealand last year. That's a major jump from the previous year when there were fewer than 4000 sold.”

“As the range of brands and models of electric vehicles grows, they're also becoming more affordable, and more New Zealanders are seeing them as being a viable purchase.”

Crawford added the drop in emissions is also helped by the big volume of small efficient petrol vehicles on the market and increased efficiency across a range of models.

“New Zealand is a fast technology adopter and the popularity of electrified vehicles reflects that. “We are a tiny market on the global stage and have minimal ability to directly influence manufacturers, but these figures show that we are able to closely follow progressive regions, such as Europe, in reducing emissions from our light vehicle fleet.”

Should the Government move to introduce its proposed clean vehicle policies, which include providing rebates to purchasers of fuel-efficient vehicles while penalizing ‘gas guzzlers’, Crawford said these will help reinforce the drop in new vehicle emissions. However, he did say the currently accelerating reduction in greenhouse gas emissions calls into question whether we need those policies at all.

But with over 37,000 large, diesel-powered Utes sold last year, which aren't great for the overall CO2 numbers, such policies might indeed be helpful.

MIDDLE EAST

57. City Of Jerusalem And Environment Ministry Launch Low Emissions Zone

The Environmental Protection Ministry and Jerusalem Municipality have launched a plan to reduce vehicle emissions in the capital, following the success of a similar project in the northern port city of Haifa which saw a 20 percent reduction in soot in the downtown area by the end of its first year.

The first stage in Jerusalem will see a ban on entrance to the city center by diesel vehicles, weighing over 3.5 tons and manufactured before 2006, unless they are equipped with special filters.

During the second stage, expected to kick off in July, the new rules will be extended throughout the municipal area of Jerusalem.

The project forms part of a wider ministry plan to clean up city air by introducing electric buses and having filters installed on all public transport vehicles defined as polluting.

In Jerusalem, the ministry is spending NIS 24 million (\$7 million) — NIS 10 million (\$2.9 million) each to help the municipality operate the scheme and to subsidize the cost of filters, and a further NIS 4 million (\$1.2 million) to help the Egged bus company acquire 10 electric buses, which have already been operating for several months.

The program will be extended to lighter-polluting vehicles run on diesel, although not to diesel-powered private cars.

Ze'ev Elkin, who is minister for both environmental protection and Jerusalem affairs, said, "Defining a clean air zone has proven itself in the major cities of the Western world and it is time for the residents of Jerusalem and its visitors to breathe cleaner air."

GENERAL

58. 2019 Capped World's Hottest Decade In Recorded History

The past decade was the hottest ever recorded on the planet, driven by an acceleration of temperature increases in the past five years, according to new data released recently. The findings, released jointly by NASA and the National Oceanic and Atmospheric Administration, detail a troubling trajectory: 2019 was the second-hottest year on record, trailing only 2016. The past five years each rank among the five hottest since record-keeping began. And 19 of the hottest 20 years have occurred during the past two decades.

The warming trend also bears the unmistakable sign of human activity, which emits tens of billions of tons of carbon dioxide into the atmosphere each year, scientists say.

"No individual hot year — or hot day or hot season, for that matter — is by itself evidence for climate change. But this hot year is just one of many hot years in this decade," said Kate Marvel, a research scientist at NASA and Columbia University. "The planet is statistically, detectably warmer than before the Industrial Revolution. We know why. We know what it means. And we can do something about it."

According to NOAA, global warming has sped up over the past 40 years compared to earlier in the 20th century. The annual global average surface temperature is now increasing at an average rate of about 0.18 degrees Celsius (0.32 Fahrenheit) per decade.

That trend has shown few signs of changing. “Every decade since the 1960s has been warmer than the decade previously — and not by a small amount,” Gavin Schmidt, director of NASA’s Goddard Institute for Space Studies, which keeps the temperature data, told reporters.

Leaders from nations around the world have vowed to try to limit the Earth’s warming to no more than 1.5 degrees Celsius (2.7 degrees Fahrenheit) above preindustrial levels, in an effort to head off catastrophic sea level rise, ever-deadlier extreme weather events and other climate-related disasters. But hitting that ambitious target would require a rapid, transformational shift away from fossil fuels that has yet to materialize.

Instead, global greenhouse gas emissions hit a record high in 2019, even as they fell slightly in the United States, and **the amount of carbon dioxide in the atmosphere now sits at the highest level in human history — a level probably not seen on the planet for 3 million years.**

The 2019 figures from NASA and NOAA match similar data released by Berkeley Earth, an independent group that analyzes temperature data. The U.K. Met Office also rated 2019 among the top three warmest years. The findings also are in line with data released by the Copernicus Climate Change Service, a science initiative of the European Union. (See story below.) The World Meteorological Organization confirmed the analyses.

Berkeley Earth researchers said no place on Earth experienced a record cold annual average during 2019. But 36 countries — from Belize to Botswana, from Slovakia to South Africa — experienced their hottest year since instrumental records began. Those same researchers estimated that more warming lies ahead, with a 95 percent chance that 2020 will become one of the five hottest years.

A recent Washington Post analysis found numerous locations around the globe that already have warmed by at least 2 degrees Celsius over the past century. That’s a number that scientists and policymakers have identified as a red line if the planet is to avoid catastrophic and irreversible consequences.

Entire countries, including Switzerland and Kazakhstan, have already warmed by 2 degrees Celsius, and other hot spots exist around the world, particularly in the fast-warming Arctic. Scientists say extreme warming is helping to fuel wildfires from Australia to California, melt permafrost from Alaska to Siberia and fuel more intense storms and floods. It is also altering marine ecosystems from Canada to South America to the African coast, threatening wildlife and the livelihoods of those who depend on the sea.

“The evidence isn’t just in surface temperature,” Benjamin Santer, a researcher at Lawrence Livermore National Laboratory, said of the human-fueled warming trend. “It’s Arctic sea ice. It’s atmospheric water vapor increases. It’s changes in glaciers in Alaska. It’s changes in the Greenland Ice Sheet. It’s all of the above.”

The past year alone featured a litany of disasters that scientists say were worsened by climate change — disasters they argue are only more likely in the future unless global emissions begin to fall sharply.

During a tragic and terrifying December in Australia, with bush fires proliferating amid heat and drought, the country shattered its record for the hottest-ever day. On December 18, the national average high temperature was a blistering 107.4 degrees (41.9 Celsius). Europe recorded its hottest year ever, and a sizzling heat wave in July broke temperature records. Paris, for example, registered a sweltering 108.7 degrees on July 25, shattering a record set in 1947.

Alaska also had its hottest year on record in 2019. It included an alarming lack of ice cover during the winter in the Bering and Chukchi seas, and in the summer the temperature at Ted Stevens Anchorage International Airport hit 90 degrees for the first time.

Hurricanes such as Dorian devastated the Bahamas and other areas after rapidly intensifying, which some studies show is linked to warming seas and air temperatures. A pair of powerful cyclones hit Mozambique in rapid succession, killing hundreds of people, destroying homes and causing devastating floods.

The year also brought signs that the natural systems that serve to store huge quantities of carbon dioxide and methane, another powerful greenhouse gas, may be faltering as temperatures increase.

In December, a federal report indicated that melting permafrost throughout the Arctic may already be a net source of atmospheric carbon, a shift that could accelerate global warming. Raging fires in the Amazon threaten to turn the world's most productive rainforest into a drier, less carbon-rich savanna.

NASA and NOAA do independent analyses but use most of the same temperature data, which is gathered at sea from ships and buoys, and on land from tens of thousands of observation stations coordinated by government meteorological agencies. This exhaustive data set is then combed for errors and less obvious factors, like the moving of a weather station from one year to the next, that might bias the analysis.

The studies take into account the contribution of natural influences, or forcings, on climate, like volcanic eruptions that can temporarily cool the atmosphere or regular changes in Earth's orbital cycle. "We end up with a massive discrepancy," Dr. Schmidt said. "That tells us the natural forcings are not capable of explaining the trends we've seen since the 19th century."

The two studies differ only slightly; their overall findings are the same. And their results closely match those from analyses by agencies overseas and private groups, including one recently released by a European climate agency that was based more on computer modeling than on observational data from 2019.

Only a few parts of the world, most notably central Canada and the Northern Plains in the United States, had cooler-than-average conditions. Some regions showed extreme warming, with devastating impacts in some cases. Here's a look at a few:

Australia

Australia is known for its summer heat, but 2019 was exceptionally warm, with temperatures 1.5 degrees Celsius (2.7 Fahrenheit) higher than the mid-20th century average, according to the Australian government's Bureau of Meteorology. Combined with low rainfall totals — in December the country had the least rainfall on record — the heat has contributed to a severe drought that has gripped most of the country since 2017.

The heat has also helped fuel wildfires that began in September and have continued burning across much of Eastern Australia. Prolonged heat sucks more moisture from vegetation, making it more susceptible to burning. “A warmer atmosphere is a thirstier atmosphere,” Mr. Arndt said.

Alaska

Last year was Alaska’s warmest on record, NOAA reported in a recent analysis. All-time temperature records were set across the state, including in Anchorage, the largest city. On a weekend in early July, there were back-to-back days of record-high average temperatures statewide.

But 2019 only continued a long-term warming trend, one that has led to increased melting of the state’s thousands of glaciers, thawing of permanently frozen ground, or permafrost, and a lack of sea-ice coverage in some of the Arctic waters surrounding the state.

The Bering Sea, off Alaska’s northwest coast, was ice-free for much of last year. Satellite images taken in late March showed largely open water at a time when the sea is normally completely covered in ice. The lack of ice is thought to have contributed to the increased warming across the state — a climate feedback loop in which warming creates conditions that lead to more warming.

Southern Africa

As in Australia, extreme heat in southern Africa has contributed to the region’s worst drought in decades. Zambia and Zimbabwe are most affected, with millions of people suffering food shortages as production of maize and other grains declines by 30 percent or more.

The countries’ electricity supply is also at risk, as water levels along the Zambezi, one of Africa’s major rivers, are exceptionally low. Under normal conditions Zambia and Zimbabwe get about half of their electricity from a dam on the Zambezi; the reservoir behind the dam is currently at less than 20 percent of capacity.

Reports from the U.N. Intergovernmental Panel on Climate Change last year detailed how climate change is already threatening food and water supplies, increasing the threat of droughts and floods, killing coral reefs, supercharging monster storms, fueling deadly marine heat waves and contributing to record losses of sea ice.

Under normal conditions, without warming, scientists would expect that 2.5% of the Earth would experience “very high” temperatures in a given year. In 2019, 52% of the Earth did. Almost 10% of the planet set local heat records for average annual temperature; no place broke a cold record, according to Berkeley Earth.

The findings come from five of the top organizations with climate science programs around the globe - the U.S. space agency NASA and the U.S. National Oceanic and Atmospheric Administration, the World Meteorological Organization and Berkeley Earth, a non-profit scientific research group, and the U.K. Met Office.

The data will feed the debate about how the world should respond to a shift in the climate. The \$7 trillion investment house BlackRock Inc. this week vowed to sell its coal holdings.

It's becoming clear that there may be "this movement of global capital to actually do something on climate," said Peter de Menocal, director of the Center for Climate and Life at Columbia University. "We may be turning that corner, and that is the real lever of change."

A recent study also found that **2019 was the warmest on record for the world's oceans**, with all of the top five hottest years coming since 2015. The oceans have long absorbed the vast majority — about 93 percent — of the extra heat humans are adding to the climate through greenhouse gas emissions.

Still, even as millions of protesters have taken to the streets to demand action, world leaders have so far shown little ability to move as fast as scientists say is necessary to cut greenhouse gas emissions. In a bleak report last fall, the United Nations warned that the world had wasted so much time mustering the willpower to combat climate change that drastic, unprecedented cuts in emissions are now the only way to avoid an ever-intensifying cascade of consequences. The U.N. report said global temperatures are on pace to rise as much as 3.2 degrees Celsius (5.8 degrees Fahrenheit) by the end of the century, and that emissions must begin falling by 7.6 percent each year starting this year to meet the most ambitious goals of the Paris climate accord.

So far, many countries have failed to live up to the promises they made as part of the 2015 global agreement, including some of the world's largest emitters. More than 100 countries have vowed to submit more ambitious plans to fight climate change by the end of this year, but they collectively represent only about 15 percent of global emissions. The Trump administration plans to exit the international accord later this year.

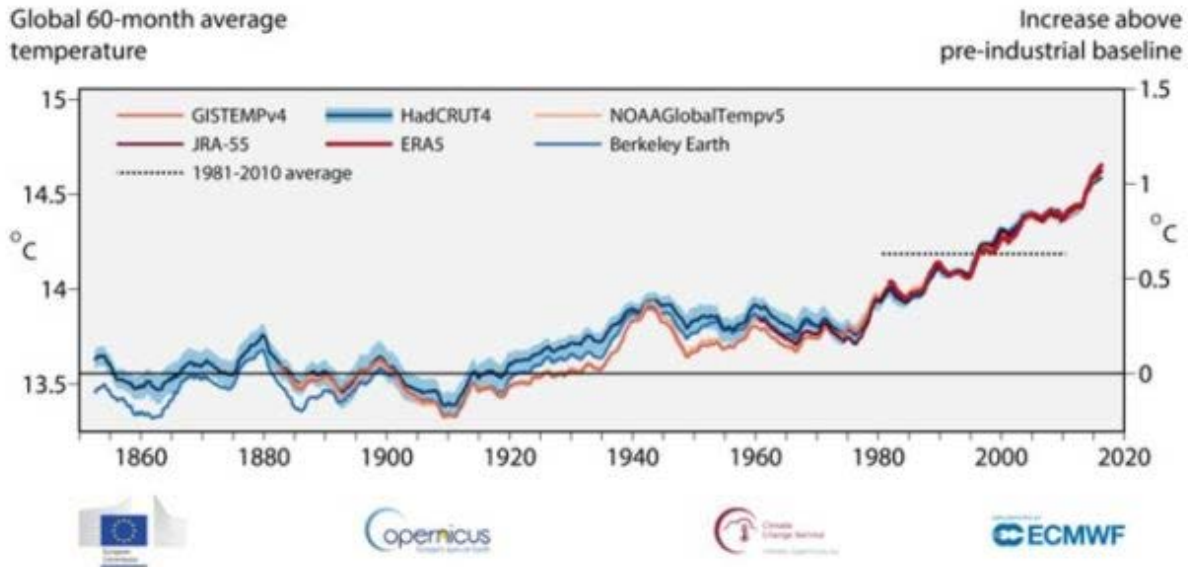
Zeke Hausfather, a climate researcher for Berkeley Earth, said that despite the clear warming trend, humans still have an opportunity to shape what lies ahead. "We don't have any sign yet of global warming slowing down, but we also don't have any sign of global emissions slowing down," he said. "What happens in the future depends a lot on our emissions of greenhouse gases as a society. If we continue emitting at current levels, we will continue warming at about the same rate.

"What happens in the future is really up to us."

59. Earth Is Hotter Than at Any Time Since Steam Engine Was Invented

The last five years on Earth have been hotter than at any time since the industrial revolution started almost two centuries ago. That's the conclusion of Europe's Copernicus Climate Change Service, which recently published data showing that global average temperatures since 2015 were some 1.2 degrees Celsius (2.2 degrees Fahrenheit) higher than when steam engines began powering industry. Last year was the second warmest on record after 2016.

"These are unquestionably alarming signs," Jean-Noel Thepaut, the head of climate change monitoring at the European Centre for Medium-Range Weather Forecasts, said. As wildfires continue to ravage Australia and pollution increasingly chokes millions living in cities, the new data highlights the rapid changes that the Earth's ecosystem is undergoing as a result of man-made carbon emissions.



Running 60-month averages of global air temperature at a height of two meters (left-hand axis) and estimated change since the pre-industrial period (right-hand axis) according to different datasets

After its invention in the 17th century, the steam engine was developed to power the locomotives and factories that proliferated during the industrial revolution.

The Copernicus Climate Change Service operates a network of satellites for the European Union that collects weather, soil, air and water data.

Other report highlights include:

- 2019 was Europe's warmest year, marginally higher than temperatures in 2014, 2015 and 2018
- Global average temperatures in 2019 were 0.6 degrees Celsius warmer than the 1981 to 2010 average
- Atmospheric carbon dioxide concentration increased by about 2.3 parts per million in 2019, to the second-highest level on record

60. Report: Brake Dust Pollution 'As Harmful To Health As Diesel'

New research finds brake dust has a “worrying” effect on health, with potentially “important policy implications” given it makes up a larger proportion of traffic pollution than exhaust fumes. When cars brake, they release metallic dust into the air. According to scientists behind the study, these particles stop vital immune cells from doing their job of protecting our lungs and lead to a greater risk of bacterial infections such as coughs, colds, pneumonia and bronchitis.

The UK-based research group was surprised to find that the brake dust had similar effects as diesel fumes, which typically receive more attention.

The study points out that exhaust pollution only makes up 7% of small particulate matter pollution (PM2.5). The rest comes from non-exhaust sources – namely from tires, clutches and brake pads. The latter is responsible for 20% of particulates.

Ian Mudway, who led the research at the MRC Centre for Environment and Health at King's College, London, said that while it is "completely justified" that all eyes are on exhaust emissions, "we should not forget the importance of other components".

A European transition to electric cars, which have less need to brake, "could be a slight benefit", said Florent Grelier, an engineer at Brussels-based green group Transport & Environment. "Though of course, any car with a brake is going to be contributing."

Mudway agreed, saying: "There is no such thing as a zero-emission vehicle, and as regulations to reduce exhaust emissions kick in, the contribution from these sources are likely to become more significant."

According to Grelier, it is possible non-exhaust pollutants will be included in the post Euro-6 car emissions regulation, due in mid-2020. "That being said, the negotiations are still in very early stages," he added.

He forecast that continued pressure from the EU's Joint Research Centre and mounting scientific scrutiny will extend the conversation from exhausts to non-exhaust sources of air pollution.

Frans Timmermans, European Commission executive vice-president in charge of the European Green Deal, has said new measures are required to address tire pollution.

61. Global Motor Manufacturing Slump To Reduce Fossil Fuel Consumption

Global vehicle production is falling at the fastest rate since the financial crisis - depressing manufacturing output, freight and the consumption of oil and other commodities. Global motor vehicle output declined last year by 1%, the first annual decrease since 2009 and only the third fall in 20 years, according to data from the International Organization of Motor Vehicle Manufacturers (OICA). But output is on course to drop much faster in 2019, with production up so far in Japan, but down slightly in the United States and plunging in other major auto manufacturing centers, including China, India and Germany.

Motor manufacturing is one largest and most networked of all global value chains, making it central to the global economy. Motor manufacturers are among the world's largest consumers of energy and raw materials, intermediate products such as plastic, steel and aluminum, and services such as marketing and advertising. The industry is a crucial source of demand for durable capital goods, a generator of high-value exports, and a provider of high-wage middle-class employment in most countries. Its dispersed supply and marketing chains are a major driver of domestic and international freight demand, and by extension transportation fuels, especially diesel. Growth in the worldwide vehicle fleet is the most important driver of consumption of refined fuels, and consequently crude oil. A Decline in vehicle production can therefore help reduce fossil fuel consumption.

Motor manufacturing lies at the heart of the global energy system. Right now, the industry's problems, with output falling for two years in a row, help explain the severe slowdown in oil consumption growth since the middle of 2018.

Japan's vehicle production was up by 3% in the first five months of the year compared with the same period a year earlier. But U.S. vehicle output was down by almost 2% in the first six months, according to data from the U.S. Federal Reserve. China's output fell 13% in the first six months and Germany's was down 12%, in both cases the worst performance since 2009. India's

production was shrinking at a year-on-year rate of 11% in the three months from April to July, according to figures published by the International Organization of Motor Vehicle Manufacturers. Plunging vehicle production has been a major contributor to the weakness in global manufacturing and freight reported since the middle of 2018. It explains the slowdown in oil consumption growth in 2018, which increased in the first half of 2019, as the auto industry moved fewer parts around and put fewer vehicles on the road. Oil consumption growth is unlikely to accelerate again until motor manufacturing production itself starts to improve.

62. IMO Calls Transition To 2020 Sulfur Cap “Relatively Smooth”

The International Maritime Organization says that information from various sources has indicated there has been a relatively smooth transition to the 0.50% global limit on sulfur in marine fuels that came effective January 1.

Prices for compliant fuels — very-low sulfur fuel oil (VLSFO) and marine gas oil (MGO) rose quickly initially, says IMO, but now appear to be stabilizing.

As of January 20, only 10 cases of compliant fuel being unavailable had been reported in IMO’s Global Integrated Shipping Information System (GISIS); and a dedicated email address established by the IMO Secretariat has not received any specific correspondence reporting issues with implementation.

IMO Secretary-General Kitack Lim said, “I believe it is testimony to the diligence and dedication of IMO, its member states, the shipping industry, the fuel supply industry and other relevant industries that such a major rule change is being implemented successfully without significant disruption to maritime transport and those that depend on it.”

He added, “The next important target is fast approaching, when carrying non-compliant fuel oil on board ships becomes prohibited on March 1, 2020. I urge all shipowners, operators and masters to comply with the carriage ban, where applicable, when it comes into effect. IMO will remain vigilant and ready to respond and provide any support.”

63. EV Sales Growing Faster Than Expected

Sales of electrified vehicles — particularly plug-in hybrids and full battery electrics — are growing faster than expected, according to a new study from Boston Consulting Group. Electrified vehicles — which stand at about 8 percent of global sales — will account for a third of sales by 2025, according to their report released this month, up from the company's previously forecast one-fourth of sales.

Aside from plug-ins and full electric vehicles, the company's definition of electrified includes conventional and mild hybrids.

EV sales are expected to surpass internal-combustion-engine vehicle sales by 2030, taking 51 percent of the market.

This uptick in sales comes as traditional and new automakers have more than 100 electric vehicle models in the pipeline over the next three years. Automakers have committed \$300 billion to EV development and continue to invest in vehicle charging infrastructure.

Boston Consulting says the uptick also places more pressure on automakers, suppliers and government leaders to support electric vehicles.

The boost in EV sales largely is the result of a drop in the total cost of EV ownership and the fact that EVs present the lowest-cost solution to meet industry regulatory standards, the company says.

Government incentives, tighter regulations of tailpipe emissions in several markets, growth of the charging infrastructure and falling EV battery prices also are significant factors in the increase, Xavier Mosquet, managing director and senior partner at the consulting company, told Automotive News.

"We're now using our most aggressive assumptions in terms of battery price decline, which means that somewhere between 2022 and 2023, there will be a time where for most consumers, it would be a reasonable choice to buy an EV because it will be cheaper overall," said Mosquet.

The sales mix of electrified vehicles — mild hybrid, full hybrid, plug-in hybrid and full battery-electric vehicles — will vary by market, depending on fuel prices, electricity and charging prices and driving-distance averages, the company says.

Financial and nonfinancial incentives in China have made it the leading EV market. In the U.S., electric vehicle tax breaks are starting to wind down for some automakers.

The U.S. will be the slowest major market to electrify, Boston Consulting says, largely because of low gasoline prices and brisk demand for SUVs. Still, the U.S. won't be far behind Europe, Mosquet said, and holds an advantage in terms of charging infrastructure.

Mosquet said Toyota's and General Motors' backing of the Trump administration's efforts to rescind tougher fuel-efficiency standards — and any reductions in U.S. incentives — will minimally impact sales.

"If for any reason the federal government decided to stop the incentives, we'd be stuck in the middle because, between now and 2022, it will be hard to make a market.

"And so, the car manufacturer would, in a way, be left on their own to sort of increase the price of gasoline cars and decrease the price of battery-electric vehicles." Mosquet said.

"By 2022, 2023, remember, it will be consumer-driven, so we won't need the incentives anymore."

Despite the optimistic forecast, he said, "The next three years are going to be challenging, and so if you're a car manufacturer or automotive supplier and you've invested in EV technology, you need to have a market and the consumer needs some support for the next three years."

64. WEF For First Time Finds All Major Global Risks Are Environmental

For the first time, the World Economic Forum's (WEF) annual outlook says the top long-term global risks are all environmental, with financial and other challenges for the United States and other countries due to climate change, extreme weather, and other climate-related threats.

WEF released its "Global Risks Report 2020" on January 15 ahead of the group's January 21-24 annual meeting of business and policy leaders, government officials, and others in Davos,

Switzerland. The report is based on a survey of more than 750 global experts and others who were asked to rank their biggest concerns in terms of likelihood and impact.

WEF's outlook identifies the top likeliest global risks as:

- (1) Extreme weather events with major damage to property, infrastructure and loss of human life;
- (2) Failure of climate-change mitigation and adaptation by governments and businesses;
- (3) Human-made environmental damage and disasters, including environmental crime, such as oil spills and radioactive contamination;
- (4) Major biodiversity loss and ecosystem collapse (terrestrial or marine) with irreversible consequences for the environment, resulting in severely depleted resources for humankind as well as industries; and
- (5) Major natural disasters such as earthquakes, tsunamis, volcanic eruptions, and geomagnetic storms.

In the survey, 78 percent said that "economic confrontations" and "domestic political polarization" will increase in 2020, with "catastrophic" implications "for addressing urgent challenges like the climate crisis, biodiversity loss and record species decline," according to a WEF press release about the report.

The report calls for policymakers to match their economic development targets with goals for protecting the planet and "for companies to avoid the risks of potentially disastrous future losses by adjusting to science-based targets," as some companies are doing.

At the start of the Davos meeting, President Donald Trump gave a speech criticizing climate change "prophets of doom" but said the United States would join a "1 Trillion Trees Initiative" aimed at planting trees to offset carbon emissions, according to U.S. News and World Report.

In response to Trump's speech, The Guardian newspaper reported, Jennifer Morgan, Greenpeace's executive director, said "Trump still doesn't appear to understand the crisis" and his joining the tree-planting initiative "doesn't make up for the lack of a wider attack on the climate emergency." Morgan added that Trump's position "just demonstrates the level of denial, and the capture of this government by the coal, oil and gas industries."

65. Recent Colossal Rise In Human Pressure On Ocean Quantified

Human pressure on the world's oceans accelerated sharply at the start of the 21st century and shows no sign of slowing, according to a comprehensive new analysis on the state of the oceans.

Scientists have dubbed the dramatic rise the "Blue Acceleration." The researchers from the Stockholm Resilience Centre, Stockholm University, synthesized 50-years of data from shipping, drilling, deep-sea mining, aquaculture, bioprospecting and much more. The results are published in the journal *One Earth*, on 24 January.

The scientists say the largest ocean industry is the oil and gas sector, responsible for about one third of the value of the ocean economy. Sand and gravel are the ocean's most mined minerals to meet demand from the construction industry. As freshwater become an increasingly scarce commodity, around 16,000 desalination plants have sprung up around the world in the last 50 years with a steep rise since 2000, according to the analysis.

Lead author Jean-Baptiste Jouffray from the Stockholm Resilience Centre said, "Claiming ocean resources and space is not new to humanity, but the extent, intensity, and diversity of today's aspirations are unprecedented."

The industrialization of the ocean took off at the end of the last century, driven by a combination of technological progress and declining land-based resources.

"This Blue Acceleration is really a race for ocean resources and space, posing risks and opportunities for global sustainability."

The study highlights some positive human impacts. For example, the area protected from some exploitation has increased exponentially with a surge since 2000 that shows no signs of slowing. And offshore wind farm technology has reached commercial viability in this period allowing the world to reduce reliance on fossil fuels.

The authors conclude by calling for increased attention to who is driving the Blue Acceleration, what is financing it and who is benefiting from it? The United Nations is embarking on a "decade of the ocean" in 2021. The scientists say this is an opportunity to assess the social-ecological impacts and manage ocean resources for long-term sustainability.

They highlight there is a high degree of consolidation relating to the seafood industry, oil and gas exploitation and bioprospecting with just a small handful of multinational companies dominating each sector. The team suggests that banks and other investors could adopt more stringent sustainability criteria for ocean investments.

66. New ICCT Report Argues LNG As A Fuel Could Worsen Shipping's Climate Impact

A report published this week from the International Council on Clean Transportation (ICCT) argues that ships fueled by liquefied natural gas (LNG) do not deliver the emissions reductions required by the International Maritime Organization's initial greenhouse gas (GHG) strategy, and that using LNG could actually worsen shipping's climate impacts.

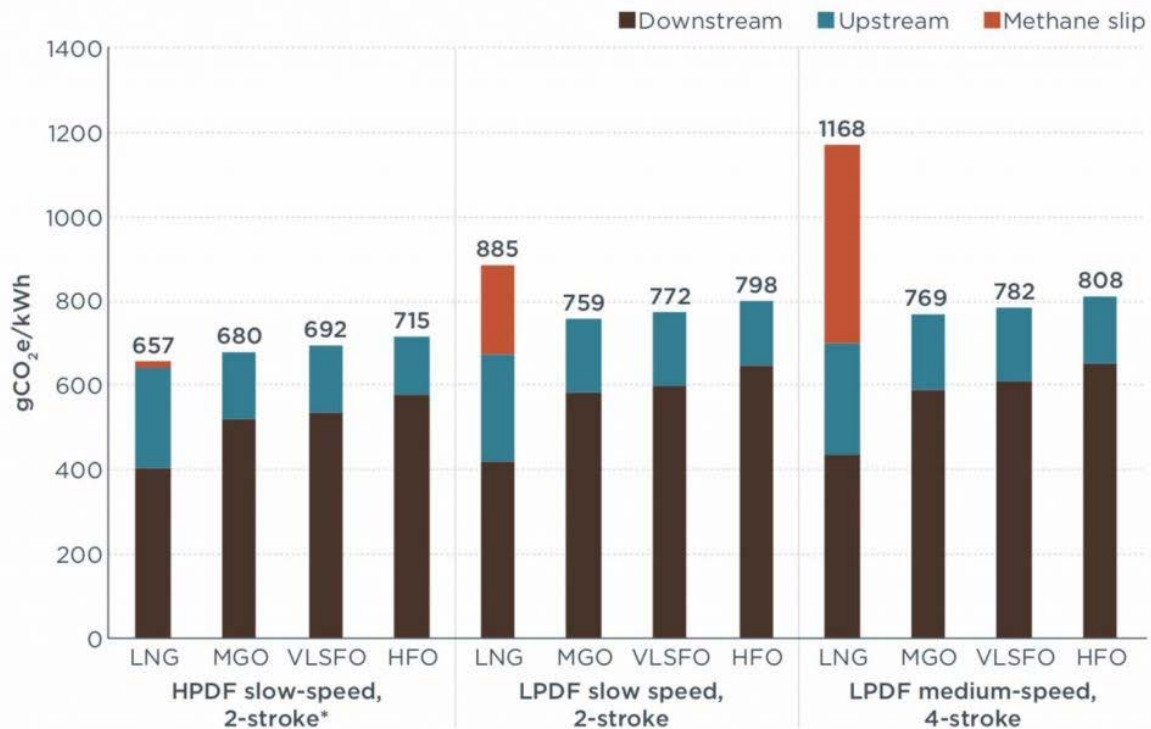
The 40-page report, commissioned by international environmental organization Stand.earth, states that high-pressure injection dual fuel (HPDF) engines using LNG emit 4% more lifecycle GHG emissions than if they used marine gas oil (MGO). The most popular LNG engine technology is low-pressure dual fuel, four-stroke, medium-speed, which is used on at least 300 ships. Results from the new study show this technology emitted 70% more lifecycle GHGs when it used LNG instead of MGO and 82% more than using MGO in a comparable medium-speed diesel engine.

"Continuing to invest in LNG infrastructure on ships and on shore might make it harder to transition to low-carbon and zero-carbon fuels in the future," the report stated.

The ICCT report highlights the unintentional releases of methane from ship engines, known as methane slip. The authors found that using LNG could actually worsen the shipping industry's climate impacts compared to MGO when considering the amount of heat these emissions will trap over a 20-year period.

Methane emissions are particularly problematic because methane traps 86 times more heat than the same amount of carbon over a 20-year period.

Of the hundreds of LNG-fueled ships in operation or on order, the most popular engine type, by far, is also the worst offender with the highest rate of methane slip, according to data from the ICCT (see chart below).



*SSD has similar life-cycle emissions as HPDF for conventional fuels.

Figure 4. Life-cycle GHG emissions by engine and fuel type, 20-year GWP

“This groundbreaking new analysis is a damning climate indictment of LNG as marine fuel. For a sector that is already one of the largest contributors of global greenhouse gas emissions, this report reveals that switching ships to LNG is worse than doing nothing. This should serve as an alarming wake-up call for the International Maritime Organization, which must act now to ensure it includes all greenhouse gas emissions in its emissions reduction strategy,” said Kendra Ulrich, senior shipping campaigner at Stand.earth.

Dr Elizabeth Lindstad, chief scientist at SINTEF Ocean, argued it was vital regulators start to acknowledge the whole well-to-tank emissions of ship fuels.

“If we fail to include all GHGs and focus only on CO₂, we might end up with a large number of ships fulfilling all efficiency requirements, but where the GHG savings are on paper only,” she said.

Lobby group SEA\LNG remains convinced that the chilled gas has a strong future as a “pathway” to get shipping towards zero-emissions. Peter Keller, chairman of SEA\LNG, commented last month: “As convincing, qualified evidence supporting the environmental, operational and commercial benefits of LNG continues to emerge, acceptance of its credibility is becoming increasingly widespread and concrete. LNG is the only safe, mature, commercially viable marine

fuel that offers superior local emissions performance, significant greenhouse gas reduction benefits today, and a pragmatic pathway to a zero-emissions shipping industry.”

The debate about LNG’s actual overall environmental footprint has been raging for a number of years.

In 2018, Dr Tristan Smith from UCL Energy Institute wrote that methane is a potent greenhouse gas, and only a very small amount needs to escape to cancel out the combustion CO₂ benefits from LNG as a ship fuel. “LNG’s flaws are more fundamental – it is a fossil fuel that just like oil produces about three tons of CO₂ for every ton of fuel consumed. This makes it an ‘impasse’ in a world committed to decarbonize,” Smith argued.