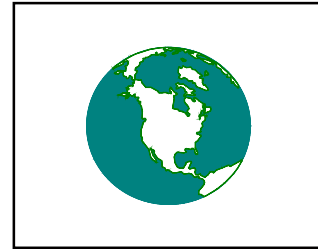


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CAR LINES

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SEASONS GREETINGS TO ALL FOR A SAFE, HEALTHY AND MUCH CLEANER 2020

EUROPE	4
1. Dutch Court Issues Landmark Ruling Forcing Climate Change Action	4
2. City Of London To Ban Petrol And Diesel Cars In Barbican Tunnel.....	4
3. Experts Raise New Fears About Air Pollution In UK	5
4. Europe Gains Ground In Global Race To Sell Electric Cars	6
Germany	7
France	7
United Kingdom.....	8
Nordic Countries.....	8
Italy	8
5. EEA Notes: Electric Vehicles Remain a Small Slice Of The Total Fleet.....	9
6. Volkswagen Predicts It Will Hit 1m Electric Cars Milestone Two Years Early	10
7. Former VW Manager Jailed Over Diesel Cheating Scam Gets Early Release	10
8. France To Impose \$22,240 Pollution Tax On SUVs And Trucks.....	11
9. Belgium Has The Most New Asthma Patients Due To Air Pollution In Europe	11
10. Suppliers Look To European Commission For Certainty On CO2 Targets.....	12
11. Measuring Real-Driving Car Emissions: Council Agrees On Its Position.....	13
NORTH AMERICA.....	14
12. 95 Environmental Rules Being Rolled Back Under Trump.....	14
13. California Considers Requiring New Truck Sales To Be Zero-Emission Vehicles	16
14. California, Northeast States Craft Action Plan To Spur ZEV Truck Deployment	18
15. UCS: Heavy-Duty Truck Electrification Critical And Viable US Climate Solution	19
16. House Panel Weighs Competing Plans To Boost Low-Emitting Truck Sales	20
17. Northeast States' Emissions Plan Announced, Attacked	21
18. CARB Adjusts Vehicle Emissions Model To Assess EPA's Waiver Revocation.....	24
19. DOJ Seeks Quick Ruling Finding California-Quebec GHG Link Unlawful	26
20. Environmentalists Defend California-Quebec Climate Pact in Court.....	28
21. Trump Says U.S. Will Finalize New Fuel Efficiency Rules Next Year.....	28
22. Seeking Speedy Ruling, DOJ Asks Court To Fast-Track Auto Waiver Suit.....	29

23.	D.C. Circuit Restarts Trailer GHG Case, Rejects Bid For Quick Argument	30
24.	LA County Boycotts Automakers That Sided With Trump in Emissions Fight	32
25.	Canada Charges Volkswagen With Contravening Environmental Law	32
26.	Volkswagen Loses Bid to Keep Health Evidence From Diesel Trial.....	33
27.	Divided CASAC Endorses Retaining 2015 Ozone and PM2.5 Limits.....	34
28.	MIT Experts Say CAFE, Low-Carbon Grid Key To Reduce Vehicle GHGs.....	38
29.	Rivian Gets \$1.3B Funding Boost, For Electric Truck Deliveries By Late 2020.....	39
30.	During a Time of Cutbacks at EPA, 30 States Also Slashed Environmental Funding	39
31.	\$18 Million Tugboat Project Will Move To Hybrids At Ports Of Long Beach, LA.....	40
32.	First Commercial Electric Plane Takes Flight In Canada	41
33.	Paris Disagreement: States Split On Climate, So U.S. To Miss Emissions Target.....	42
34.	EPA Reportedly Spurns ECOS After State Group’s Cooperative Federalism Rebuke	43
35.	CARB Approves Air Quality Plan For South Coast Air Basin Ahead Of 2023 Deadline...	44
36.	Vermont Launches \$1.1 Million Electric Vehicle Incentive	45
37.	EPA Releases Its Final 2020 Renewable Fuel Quotas	46
38.	U.S. Companies Pursue ‘Science-Based’ GHG Cuts To Meet Paris Goal	47
39.	House Democrats Weigh Federalism Framework For Broad GHG Cuts.....	48
40.	Mexico Postpones Clean Diesel Rule For Pemex For Five Years.....	50
41.	EPA Loosens Fuel Restrictions In US Ahead Of IMO 2020	51
42.	EV Tax Credit Extension Likely Dead, Because Of Trump Opposition.....	52
43.	EPA Declares Colorado A “Serious” Violator Of Federal Air Quality Standards	52
	ASIA-PACIFIC	53
44.	Optimism About China's Green Future	53
45.	China Vehicle Output Begins To Recover, But Pressure Remains For Carmakers.....	54
46.	China Light-Vehicle Demand Forecast To Fall For Third Year In 2020	55
47.	Tesla Model 3's Built in China Will Be Eligible for New Energy Vehicle Subsidies	56
48.	Beijing Air Quality Improves In First 11 Months	57
49.	Chinese Car Giants Rev Up For India As Rivals Hit The Brakes	58
50.	Tata Motors Unveils India’s Own Electric SUV, The Nexon EV	59
51.	EV Policy Adopted To Check Vehicular Pollution in Delhi.....	60
52.	India’s Car Dealers Again Face Risks Transitioning To Tighter Emission Norms.....	61
53.	Tackling Air Pollution: Researchers Present Emissions Inventory For Nepal.....	62
54.	Thousands Rally in Sydney Against Inaction Amid Bushfire And Air Quality Crisis.....	63
55.	Volkswagen Is Fined A Record \$125million In Australia Over Diesel Scandal	64
56.	Very Unhealthy Hanoi Air Quality Evokes Calls For Emergency Measures	64
57.	Environmental Groups To March Against Air Pollution In Taiwan	66
	MIDDLE EAST	66
58.	Air Pollution Choking Iranian Cities, Some 14,000 Hospitalized	66
	CLIMATE CHANGE	68
59.	Greenland’s Ice Losses Are Now In Line With Its Highest Sea-Level Scenario.....	68
60.	A Melting Arctic Is Driving Up CO2 Emissions, New US Government Report Says	70
61.	Carbon Markets Fail to Win Backing at Disappointing UN Climate Talks	71
62.	Transportation Sector Falls Far Short Of Meeting Paris Climate Goals.....	74
63.	Brookings Says Global Climate Diplomacy Insufficient For Paris Goals.....	75
64.	Going 100% Green Will Pay For Itself in Seven Years, Study Finds.....	76
65.	Shipowners Propose \$5bn Fund To Cut CO2 Emissions.....	76
	GENERAL.....	77
66.	Reducing Air Pollution Comes With Instant Health Benefits.....	77
67.	Renewable Hydrogen Solution To Decarbonize The Mining Industry	78

68. On Electric Vehicles, China And California Aim For More Stick, Less Carrot.....79
69. IMO 2020-a Major Shake-Up for Oil and Shipping.....80

EUROPE

1. Dutch Court Issues Landmark Ruling Forcing Climate Change Action

The highest court in the Netherlands ordered the government to cut greenhouse gas emissions next year by at least 25% from benchmark 1990 levels, a landmark ruling that gives legal backing to the idea that climate change is a risk to human health. The ruling noted that global warming “could jeopardize food supply and cause the rise in sea level, among other things” and required immediate action.

The case was brought by a Dutch environmental group Urgenda, which argued that the government needed to cut greenhouse gas emissions by a quarter of the 1990 levels to protect the Netherlands from the effects of climate change. Two lower courts agreed, siding with Urgenda, setting up the showdown before the Supreme Court.

While Prime Minister Mark Rutte had fought the case, arguing the issue was for politicians, not courts, he told reporters in the Hague that “our goal is to achieve” the reductions by the deadline. His government will continue to work on additional measures, he said, while declining to name specific plans.

“The Supreme Court based its judgment on the UN Climate Convention and on the Dutch State’s legal duties to protect the life and well-being of citizens in the Netherlands,” the court said in a statement after the ruling. The courts were right to order the government to make the cuts “on account of the risk of dangerous climate change that could also have a serious impact on the rights to life and well-being of residents of the Netherlands.”

It isn’t clear what could happen should the government fail to meet the new target and the Dutch Environmental Assessment Agency (PBL) concluded in January that the government risked missing the court-ordered target for 2020.

The Netherlands has also committed to a 49% reduction of emissions by 2030 compared to 1990 levels.

2. City Of London To Ban Petrol And Diesel Cars In Barbican Tunnel

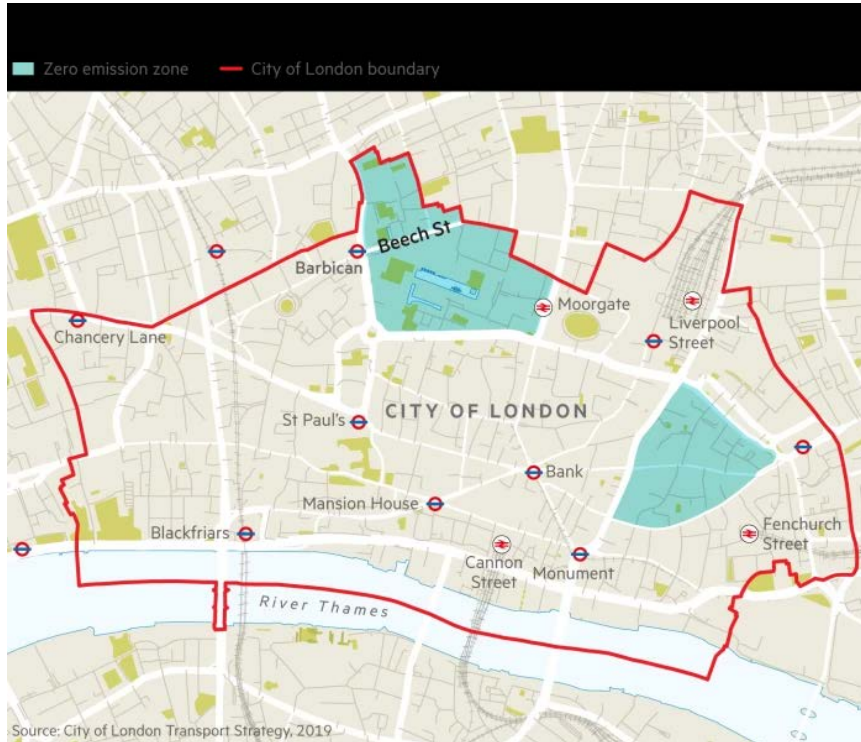
The City of London will bring in the UK’s first full-time ban on all petrol and diesel cars from early 2020, as part of an ambitious plan to eliminate toxic air pollution in the financial center by 2030. The restriction will initially only apply to Beech Street, which runs through a tunnel under the Barbican Estate, and would impose a £130 fine on all cars with combustion engines, with the exception of some hybrid vehicles which have the capability to drive for at least 20 miles in zero-emission mode., each time they entered the area.

Exceptions will apply for emergency, waste collection and delivery vehicles with the ban expected to come into force by the end of March 2020, pending final approval from Transport for London.

The 24/7 ban is part of a plan to clean up the air in the City and bring illegally high levels of nitrogen dioxide, which is emitted from diesel vehicles, within World Health Organization guidelines.

The petrol and diesel vehicle ban will be first rolled out as an 18-month trial during which air quality and traffic will be monitored. If successful, the ban may be made permanent.

The “groundbreaking” ban would bring “substantial health benefits to those who live and work in the Barbican area, and will also help reduce noise pollution”, said Oliver Sells, the City of London Corporation’s streets and walkways subcommittee chairman.



But the City of London admits that, although air quality in the immediate area of Beech Street is expected to improve, it will shift traffic and pollution to roads nearby.

The trial will run for up to 18 months after which the City of London Corporation will decide whether to make the change permanent or introduce additional measures. It hopes to introduce two smaller zero emission zones, in Barbican and around Leadenhall Street, near the Bank of

England, by 2022.

As part of its campaign to reduce air pollution, the City of London Corporation, which governs the area around the capital’s financial hub, plans to cut the speed limit to 15mph and make the Square Mile a “zero emissions zone” by 2030, with the aim of cutting motor traffic in half by 2044.

The importance of improving air quality has risen up the political agenda in recent years, as evidence of the dire impacts pollution can have on health have mounted. This year, Bristol became the first UK city to ban diesel cars in an effort to clean up its air, which remains above the legal limit for nitrogen dioxide set by the EU.

Other cities including Manchester and Birmingham are drawing up similar plans and introducing “clean air zones” to combat dangerously high levels of pollution.

3. Experts Raise New Fears About Air Pollution In UK

The UK’s failure to meet World Health Organization standards limiting the amount of ultra-fine particles in the air represents a major danger to health that is only now being recognized, experts claim. Studies published this year link the particles to cancers, lung and heart disease, adverse effects on fetal development, and poor lung and brain development in children. They are considered a key threat to health because they go deep into the lungs and then reach other organs, including the brain. But European standards allow the levels of particles in the air to be 2.5 times higher than those stipulated by the WHO.

Professor Annette Peters, director of the Institute of Epidemiology at the Helmholtz Zentrum, Munich, said Europe – and the UK – urgently needs to introduce tougher air quality standards. She said: “Particles are a major and invisible danger to our health, especially in London and our big cities.”

The US has a standard of 12 micrograms of ultra-fine particles per cubic meter, while the WHO standard is 10 micrograms.

“We [the UK and EU’s limits] are currently at 25 micrograms per cubic meter – double the US standards,” said Peters, who warned that scientific evidence confirming the threat they pose to human health “has really strengthened this year”.

“We initially had evidence of the effect on the lungs and heart, but now we also have evidence that it alters the metabolism as well as impacting the brain.”

Vehicle emissions are predominantly to blame, but domestic heating systems and industrial pollutants are also factors. “Recent studies from London and our work in a medium-sized community in southern Germany show there really is evidence that the ultra-fine particles go beyond the lungs,” Peters said.

“Colleagues of mine have been able to show that ultra-fine particles are able to reactivate the herpes virus which lies dormant among carriers.” She said urgent studies were needed to look at the impact of fine particles on cognitive development, especially in children. Studies have documented that adverse health effects are observed even at concentrations well below the recommended WHO levels. According to a paper, written by Peters and published in the Lancet, ambient air pollution now ranks among the top 10 major risk factors for attributable death worldwide and leads to an average loss of life expectancy of approximately one year in Europe.

Peters said ultra-fine particles could carry several thousand kilometers. “In most times you don’t see or smell it, the pollution, so it’s clear, if you look to India or the far east, the pollution is very visible. Here, we have blue skies but that doesn’t mean we have truly clean air.”

Studies in London confirm wide geographical variations in the amount of fine particles in the air. While Oxford Street suffers major concentrations, nearby Hyde Park is considered far cleaner.

Professor Jon Bennett, consultant respiratory physician and chair of the British Thoracic Society’s Board, described the particles as “a real and present health danger to society”.

“It is really concerning that babies and children are particularly susceptible as air pollution can impair immune-system development in the womb and adversely affect children’s cognitive development,” he said.

“Everyone should have the right to breathe clean air,” Bennett said. “We must have a harder-hitting and better-funded national strategy that really tackles this issue across the board – including fast-tracking the delivery of more clean air zones in our most polluted cities and areas.”

4. Europe Gains Ground In Global Race To Sell Electric Cars

Europe is poised to lead global growth in electric-car sales next year as governments across the region offer consumers ever-sweeter incentives toward the purchase of new vehicles. Momentum

is building in a market that is already the world's second-biggest -- well behind China but significantly ahead of North America -- as the European Union recently set in motion an unprecedented plan to become net neutral on carbon emissions by mid-century.

With automakers already facing the stark choice of either offloading emissions-free vehicles or paying stiff EU penalties on polluting models, 2020 is shaping up as do or die for the industry. "It's better to subsidize electric cars than to pay high fines for selling combustion engines," said NordLB analyst Frank Schwöpe. "We should see steady gains in the numbers next year."

In Europe, sales of full-electric and plug-in hybrid cars are expected to grow 35 percent in the first nine months of 2020, a rate far higher than China and North America, according to BloombergNEF. Full-electric vehicles have long outpaced plug-in hybrids in the three regions.

The forecast is for 32 percent growth in Europe this year (2019), compared with a cooling of the market in China as the government pulls back on subsidies and in North America as Tesla sends more Model 3s abroad.

The push to sell is taking on greater urgency as companies like the Volkswagen Group spend record amounts to roll out new models.

"Pricing and the development of charging infrastructure will be the cornerstone of EV growth," said Fitch ratings analyst Emmanuel Bulle, noting some consumers are reluctant to pay more for full-electric cars because of range anxiety. In response, European governments are also pushing for the expansion of charging networks. In the UK and Germany, companies like Char.gy and Ubitricity are integrating chargers into streetlamp posts as a way to broaden infrastructure more quickly.

Here's how key European markets are looking at the start of 2020:

Germany

Chancellor Angela Merkel unveiled a landmark climate package in September with subsidies aimed at boosting EV sales. The policy seems to be working, with Germany set to overtake much-smaller Norway as the leader in EV sales in the region. Car buyers paying less than 40,000 euros (\$44,000) are eligible for state and company handouts of as much as 6,000 euros. This could cost as much as 2.6 billion euros by 2025, BloombergNEF estimates.

The mechanism will likely influence the way German automakers market their next round of full-electric vehicles, according to Matthias Schmidt, a Berlin-based automotive analyst. "The 40,000-euro list price is going to be a very important level for BEVs in the next one to two years," he said. VW will sell ID3 cars for under 30,000 euros, while BMW's electric Mini has an entry-level price of 32,500 euros. Both will offer consumers a domestic alternative to Tesla's Model 3.

Overall, German automakers plan to triple their electric-car offerings to 150 models by 2023 and invest 50 billion euros by 2024, according to Bernhard Mattes, head of the VDA automakers' lobby.

The government also wants 1 million charging points by 2025.

France

France is backing policies to promote electric cars and charging stations as a way to lower carbon emissions and support the domestic industry. In the emerging market, Renault's compact Zoe model has emerged as France's best-selling full-electric vehicle so far this year with a 43 percent market share

The state gives as much as 6,000 euros plus a conversion bonus to buyers scrapping an old clunker for an electric car. In the greater Paris region, the local government has further sweetened the offer, with subsidies reaching as much as 14,500 euros when central and regional government contributions are combined and the buyer has a low income.

United Kingdom

The region's second-biggest car market is battered by Brexit uncertainty, so growth in electric vehicle sales has given some relief to the broader slump. Sales of full-electric cars more than doubled through November to 32,911 units, according to the Society of Motor Manufacturers and Traders. Yet they captured just 1.5 percent of the overall market.

The UK offers grants and rebates on pure electric vehicles of as much as 3,500 pounds after phasing out subsidies for hybrids last year. To be eligible, cars should be capable of traveling 70 miles without any emissions.

The SMMT auto industry lobby is also seeking government help for battery manufacturing investments, as well as incentives and infrastructure spending to help prop up demand.

Netherlands

Nordic Countries

While Norway is set to lose its crown to Germany this year as Europe's largest market for battery-electric cars, countries in the region have blazed a trail as early adopters because they were among the first to offer purchase incentives. Norwegian government sweeteners include exemption from duties such as import taxes, value-added taxes and the annual road tax, while local authorities have also offered free parking, toll exemptions and allowed electric cars to use collective transport lanes.

In Sweden, electric car buyers get a bonus of as much as 60,000 kronor (\$6,300) at purchase. The two countries' different approaches on incentives have had unintended consequences, with some Swedes cashing in on the bonus and then exporting their electric car to Norway, where usage is more generously subsidized.

In Denmark, the Social Democrat government decided to cancel planned tax increases on electric cars and has increased tax deductions for driving an electric car to work.

Italy

Italy lags far behind the other big European markets, with less than 8,000 battery-electric vehicles sold in the first nine months of the year, according to the European Automobile Manufacturers Association. "The government hasn't so far provided a competitive system of public incentives for electric cars compared with other European countries," said Stefano Aversa, chairman for EMEA of consultancy Alix Partners.

A minimum of about 30,000 euros on the price of an electric car compares with best-selling compacts priced at between 10,000 euros and 15,000 euros in Italy, he said.

Although the government in March unveiled incentives that work out to as much as 6,000 euro per vehicle, they are languishing because they're not enough to bridge the price and cultural gap, according to Roberto Vavassori, head of the European parts supplier association Clepa.

Sales could pick up next year when Fiat Chrysler Automobiles NV launches the first fully-electric version of its Fiat 500 city car and hybrid plug-in versions of the Jeep Renegade and Compass.

5. EEA Notes: Electric Vehicles Remain a Small Slice Of The Total Fleet

In 2018, sales of plug-in hybrid electric vehicles (PHEV) and battery-electric vehicles (BEV) continued to increase. However, the combined share of PHEVs and BEVs in all car sales remained low reaching 2 % in 2018 compared with 1.5 % in 2017.

With around 150 000 registrations, sales of BEVs increased by 50 % compared with 2017. Around 145 000 PHEVs were registered in 2018, a 15 % increase compared with 2017.

The combined shares of PHEV and BEV sales were highest in Iceland (15 %), Sweden (8.4 %) and the Netherlands (6.8 %).

Electric cars are slowly penetrating the EU market. Despite their small numbers (about 300 000) and their small market share (about 2.0 % of new registered passenger vehicles), the number of new electric car registrations in the EU has been increasing steadily over the last few years.

PHEVs comprised 1 % of total new passenger car registrations in the EU-28 in 2017. The United Kingdom tops the rankings with 44 334 PHEVs sold in 2018, followed by Germany with 26 600 and Sweden with 21 750.

Outside the EU, Norway appears as a frontrunner for the deployment of electric vehicles: almost half of all new cars sold in Norway during 2018 were electric (including PHEVs and BEVs). This makes Norway a leading market for electric vehicles in terms of market share. Most countries in Europe offer financial incentives such as tax reductions and exemptions for electrically charging vehicles. Such incentives can include, for example, exemptions from one-off purchase tax (making the cost comparable with conventional vehicles), VAT exemption, use of bus lanes etc.

There are now an increasing number of electric and plug-in hybrid van models available on the EU market. Registrations of such vehicles represents 0.8 % of total EU van sales.

Increasingly stringent regulations have resulted in the gradual introduction and promotion of more fuel-efficient, less polluting vehicles. New registrations of alternative-fuel vehicles are an indirect indication of the level of improvement in road-transport fuel efficiency and pollutant emissions.

A number of policies have been adopted that contribute to meeting targets set at EU level. This includes the 20-20-20 policy package, which came into force in 2009. This package sets two targets: an overarching 20 % cut in greenhouse gas emissions in Europe below 1990 levels by 2020; and a 60 % reduction in greenhouse gas emissions from transport below 1990 levels by 2050, as set out in the 2011 Transport White Paper.

The CO2 emission targets for new cars and vans contribute to meeting these two targets. Regulation No 443/2009 sets a CO2 'specific emission' target of 130 grams per kilometer (g/km) by 2015 for new passenger cars sold in the EU. A target of 95 g/km has been set for 2020. Specific targets for vans have also been introduced in Regulation No 510/2011. The first target level (175 g/km) has been phased in since 2014 and will be reached in 2017, and a second target level (147 g/km) should be reached in 2020.

6. Volkswagen Predicts It Will Hit 1m Electric Cars Milestone Two Years Early

Volkswagen has accelerated its push into electric cars, as company forecasts suggest the world's largest carmaker will produce its millionth battery electric vehicle two years earlier than previously planned. The core Volkswagen brand will have turned out 1m battery-only cars by the end of 2023 and will reach 1.5m by the end of 2025, the Wolfsburg-based manufacturer said recently.

This year it produced more than 70,000 electric cars, and last year 50,000. Volkswagen, which produced 10.8m cars in 2018, said it had produced 250,000 electrified vehicles (including fossil fuel-driven hybrids) since 2013.

Volkswagen and other carmakers are scrambling to increase the number of electric cars they make and sell in the EU. Limits coming into force from 1 January will heavily penalize carmakers with fines for excessive greenhouse gas output. The regulations aim to reduce average carbon dioxide tailpipe emissions from new cars sold in the EU to below 95g per km.

The fallout from the Dieselgate scandal, in which VW engineers cheated emissions tests, has prompted the company to increase its focus on electric cars.

The Volkswagen group will release eight electric or hybrid models in the next year across its brands, which include Audi, Seat and Skoda. It is pinning its hopes of mass-market sales on the Volkswagen ID.3, with its plant in Zwickau, east Germany, aiming to produce 330,000 vehicles a year by 2021.

The ID.3 base model will cost less than €30,000 (£26,000) and be capable of travelling for between 205 and 340 miles on a single charge, depending on the model.

Thomas Ulbrich, the Volkswagen brand board member responsible for electric cars, said: "2020 will be a key year for the transformation of Volkswagen. With the market launch of the ID.3 and other attractive models in the ID family, our electric offensive will also become visible on the roads."

While Volkswagen's main market is the EU, it is also expected to face growing pressure in other markets as emissions standards gradually catch up.

7. Former VW Manager Jailed Over Diesel Cheating Scam Gets Early Release

A German lawyer representing a former Volkswagen manager jailed over the company's diesel emissions fraud says his client has been released from prison. Frankfurt-based lawyer Gero von Pelchrzim confirmed a report by German weekly Der Spiegel that James Liang was granted early release after serving two thirds of his sentence, with the remainder suspended.

Liang, a German citizen, was sentenced to 40 months imprisonment and a fine by a U.S. court in August 2017. The former senior VW engineer was transferred to a German prison last month.

Von Pelchrzim said his client was grateful to the German government for helping to bring him back home.

8. France To Impose \$22,240 Pollution Tax On SUVs And Trucks

France is taking aim at SUVs by raising a tax on heavier and more polluting vehicles, a measure that comes on top of tough new European rules being phased in next year to lower car emissions. Under a law recently adopted by parliament, cars emitting carbon dioxide above a certain threshold will be subject to a 20,000 euros (US\$22,240) penalty in 2020, higher than the existing 12,500 euros. At the same time, the government is considering reducing cash incentives for the purchase of electric cars.

The measures show policy makers are still finding their way on how best to back a shift to cleaner cars. Sport utility vehicles are among the most polluting because they are heavier and less fuel efficient. Yet they made up 30% of sales in France in the first 11 months of 2019. While electric-car sales are growing quickly, they still make up a tiny proportion of the overall market.

France's SUV levy comes as the European car industry prepares for the phasing in next year of emissions rules that will see carmakers fined if their total annual vehicle sales exceed an average carbon limit.

The French finance ministry has estimated its SUV penalty could yield 50 million euros a year in revenue for the government, which will be used to help carmakers shift to cleaner cars. Finance Minister Bruno Le Maire has also criticized SUV advertisements, saying they should warn consumers of the detrimental effects of the cars on the environment.

At the same time, France is also seeking to reduce subsidies for electric and hydrogen cars in the years to come on the assumption that prices will drop. In 2020, the central government will give as much as 6,000 euros toward the purchase of an electric car costing less than 45,000 euros. The handout is set to drop in 2021 and 2022, the environment ministry has said.

The SUV and electric-car measures have come under fire from the French industry.

Subsidies to consumers toward buying electric vehicles can be costly. France's bonuses reached 550 million euros last year, according to the French auditor. Germany has also put in place similar incentives, which BloombergNEF estimates could cost as much as 2.6 billion euros by 2025.

9. Belgium Has The Most New Asthma Patients Due To Air Pollution In Europe

One in three new cases of people who develop asthma under the age of 18 is due to the bad air quality in Belgium, according to new figures from the Independent Health Insurance Funds (the Onafhankelijk ziekenfonds and Partena) which surveyed 441,696 of their members between the ages of 2 and 18, and found that the percentage of people taking asthma medication, meaning they are presumably suffering from asthma, is 12.9%. For comparison, the Belgian average, which also includes adults, is at 8%.

"This is very valuable information," said Guy Brusselle, a lung specialist at the UZ Gent hospital, who collected the data. However, not every child up to 6 years old taking medication necessarily has asthma. "During this period of the year, many children have RSV (the virus at the origin of a

very common respiratory infection in infants), for which they will also receive asthma medication,” he added.

“Only after the age of 6, children can cooperate with a lung function test enough to be diagnosed with certainty. However, a large number of young people in our country indeed have asthma, as we see in practice,” Brusselle added.

The figures also show that one in three teenagers who took medication against asthma in 2018 did not use it in the previous five years, meaning they are new patients.

The American George Washington University published a study based on measurements taken in 2015, which links the concentrations of nitrogen dioxide in the air to the number of new asthma patients under the age of 18, in 194 countries. According to the study, Belgium and the Netherlands are ‘champions’ in having new asthma patients due to nitrogen dioxide exposure.

“20 to 30% of new asthma patients can be attributed to nitrogen dioxide,” said Brusselle. “This confirms what we already knew: in addition to passive smoking, air pollution is the major risk factor for the development of asthma in children,” he added.

Nitrogen oxides are mainly released when fossil fuels are burned, in agriculture and industry but also in traffic. Flanders and the Netherlands are both densely populated and have a high volume of traffic, explaining the high numbers, according to Brusselle. “From a historical point of view, diesel cars have been favored fiscally, for a long time. On the other hand, there are also our motorways, along which many people live,” he said, adding that anyone living 50 to 100 meters from a busy road is at an increased risk of respiratory diseases.

“Strong reduction of nitrogen oxides and fine dust could prevent new cases,” said Wies Kestens of the Independent Health Insurance Funds. 4,000 fewer children a year would be affected if Belgium keeps its nitrogen emissions to a minimum, according to a calculation by the Barcelona Institute for Global Health.

10. Suppliers Look To European Commission For Certainty On CO2 Targets

After lobbying for less-stringent emissions targets failed to sway EU legislators, European auto suppliers hope that the new European Commission will be more receptive to their message. Earlier this year, the EU approved CO2 emissions targets for 2030 that will be 37.5 percent lower than the 2020-21 fleet limit of 95 grams per km. Suppliers and automakers say that the 2030 figure -- equivalent to around 60 g/km -- will mean a costly and disruptive switch to mass electrification.

The vehicle industry had hoped for a reduction of around 20 percent, arguing that they needed more time to prepare and to avoid potential job losses.

Suppliers say they can live with that figure, so long as they have some certainty. “We need a reliable framework,” said Wolf-Henning Scheider, the CEO of ZF Friedrichshafen, at a recent event for the supplier’s group CLEPA. “The EU decided last year on the toughest emissions regulations worldwide. We’re against discussions to restart new regulations because it creates uncertainty.”

Roberto Vavassori, the president of CLEPA, said suppliers would make sure their voice was heard when the next round of emissions targets is considered. “Beyond 2030 we want to work well in

advance to suggest new regulations, "said Vavassori, who is a board member at brake manufacturer Brembo. Any new rules, he said, should consider life cycle assessment, meaning a vehicle's entire carbon footprint, rather than tailpipe emissions.

The new Commission, under President Ursula von der Leyen, took office December 1 and will serve for five years. The Commission has the final vote on EU legislation and rules changes.

Von der Leyen signaled that the Commission will take a hard line on greenhouse gas emissions, declaring a climate "emergency" ahead of the recent COP 25 climate summit in Madrid and seeking to reduce 2030 carbon emissions to at least 50 percent, up from an earlier target of 40 percent.

Looking further ahead, the Commission's "green new deal" is targeting net zero carbon emissions by 2050, a goal that Von der Leyen seeks to enshrine into law.

Vlad-Marius Botos, a newly elected member of the European Parliament from Romania, said EU legislators were committed to going carbon-neutral by 2050, but added, "We will do our best to ensure the internal market will not suffer: to meet targets." Botos, who worked as a manager for an automotive company, called for a better relationship between the automotive sector and legislators. "I know we can do better if we work together rather than fight and point fingers," he said. "This time you are called to do more. You know as well as we do that this is the time to act on the environment."

11. Measuring Real-Driving Car Emissions: Council Agrees On Its Position

Member states' ambassadors meeting in the Council's permanent representatives committee have agreed on a negotiating mandate concerning the proposal to amend regulation (EC) N° 715/2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information.

The proposed regulation is intended to provide a sound legal basis for applying pollutant-specific conformity factors when assessing the conformity of light passenger and commercial vehicles with EU tailpipe emission limits.

The agreed text:

- sets the conformity factors to be used when measuring the real-driving emissions (RDE) of light passenger and commercial vehicles at the same levels as in the Commission proposal;
- requests the Commission to review technical developments relating to the accuracy of portable emission measurement systems (PEMS) every two years and, if appropriate, table a new legislative proposal with a view to revising downwards the conformity factors.

Following the agreement and once the European Parliament has also agreed on its position, the two co-legislators will begin negotiations with a view to the swift adoption of the proposed regulation at first reading.

Pollutant-specific tailpipe emission limits are part of the EU vehicle type-approval legal framework. Over time, they have led to significant drops in emissions of exhaust particles both in terms of mass and number, as well as to a decrease of polluting elements, such as hydrocarbons and

carbon monoxide. However, nitrogen oxide (NOx) emissions from diesel engines, in particular those installed in light passenger and commercial vehicles, have not been reduced as much as expected with the introduction of European emission standards. One of the reasons behind this insufficient decline of emissions is the fact that emissions in real-world driving conditions tend to be significantly higher than those measured during the previous type-approval tests. Given this discrepancy between emissions measured in laboratories and those measured in real-driving conditions, the Commission introduced in 2016 a new measurement methodology - the real-driving emissions (RDE) test procedure. In order to take into account statistical and technical uncertainties of measurements carried out by means of portable emission measurement systems (PEMS), the Commission introduced the so-called "conformity factors". On 13 December 2018, the General Court of the EU annulled partially the relevant Commission regulation, considering that conformity factors could legally be established only by the European Parliament and the Council as co-legislators. The General Court ordered however that the effects of the annulled parts of the Commission regulation be maintained until the adoption of new legislation replacing them by the two co-legislators. The General Court's ruling has been appealed against by the Commission, Germany and Hungary. If these appeals are dismissed, the two co-legislators will have to enact the proposed regulation within 12 months from the date of that dismissal.

NORTH AMERICA

12. 95 Environmental Rules Being Rolled Back Under Trump

President Trump has made eliminating federal regulations a priority. His administration, with help from Republicans in Congress, has often targeted environmental rules it sees as burdensome to the fossil fuel industry and other big businesses. A New York Times analysis, based on research from Harvard Law School, Columbia Law School and other sources¹, counts more than 90 environmental rules and regulations rolled back under Mr. Trump. The list represents two types of policy changes: rules that were officially reversed and rollbacks still in progress.

But the process has not always been smooth. In some cases, the administration has failed to provide a strong legal argument in favor of proposed changes and agencies have skipped key steps in the rulemaking process, like notifying the public and asking for comment. In several cases, courts have ordered agencies to enforce their own rules.

Several environmental rules were rolled back and then later reinstated, often following legal challenges. Other regulations remain mired in court.

All told, the Trump administration's environmental rollbacks could significantly increase greenhouse gas emissions and lead to thousands of extra deaths from poor air quality every year, according to a report prepared by New York University Law School's State Energy and Environmental Impact Center.

Here is a summary of the rollbacks focused on **air pollution and emissions**:

COMPLETED

¹ Sources: Harvard Law School's Environmental Regulation Rollback Tracker; Columbia Law School's Climate Deregulation Tracker; Brookings Institution; Federal Register; Environmental Protection Agency; Interior Department; U.S. Chamber of Commerce; White House.

1. Canceled a requirement for oil and gas companies to report methane emissions., Environmental Protection Agency
2. Revised and partially repealed an Obama-era rule limiting methane emissions on public lands, including intentional venting and flaring from drilling operations., Interior Department
3. Replaced the Obama-era Clean Power Plan, which would have set strict limits on carbon emissions from coal- and gas-fired power plants, with a new version that would let states set their own rules. Executive Order; E.P.A.
4. Revoked California's power to set its own more stringent emissions standards for cars and light trucks, E.P.A.
5. Repealed a requirement that state and regional authorities track tailpipe emissions from vehicles traveling on federal highways, Transportation Department
6. Loosened a Clinton-era rule designed to limit toxic emissions from major industrial polluters, E.P.A.
7. Revised a permitting program designed to safeguard communities from increases in pollution from new power plants to make it easier for facilities to avoid emissions regulations., E.P.A.
8. Amended rules that govern how refineries monitor pollution in surrounding communities, E.P.A.
9. Stopped enforcing a 2015 rule that prohibited the use of hydrofluorocarbons, powerful greenhouse gases, in air-conditioners and refrigerators. E.P.A.
10. Weakened an Obama-era rule meant to reduce air pollution in national parks and wilderness areas, E.P.A.
11. Weakened oversight of some state plans for reducing air pollution in national parks, E.P.A.
12. Directed agencies to stop using an Obama-era calculation of the "social cost of carbon" that rule makers used to estimate the long-term economic benefits of reducing carbon dioxide emissions. Executive Order
13. Withdrew guidance that federal agencies include greenhouse gas emissions in environmental reviews. But several district courts have ruled that emissions must be included in such reviews. Executive Order; Council on Environmental Quality
14. Lifted a summertime ban on the use of E15, a gasoline blend made of 15 percent ethanol. (Burning gasoline with a higher concentration of ethanol in hot conditions increases smog.), E.P.A.
15. Changed rules to allow states and the E.P.A. to take longer to develop and approve plans aimed at cutting methane emissions from existing landfills. E.P.A.
16. Revoked an Obama executive order that set a goal of cutting the federal government's greenhouse gas emissions by 40 percent over 10 years. Executive Order

IN PROCESS

17. Proposed relaxing Obama-era requirements that companies monitor and repair methane leaks at oil and gas facilities. E.P.A.
18. Proposed weakening Obama-era fuel-economy standards for cars and light trucks. E.P.A. and Transportation Department
19. Submitted notice of intent to withdraw the United States from the Paris climate agreement. The process of withdrawing cannot be completed until November 2020. Executive Order
20. Proposed eliminating Obama-era restrictions that in effect required newly built coal power plants to capture carbon dioxide emissions. E.P.A.
21. Proposed a legal justification for weakening an Obama-era rule that limited mercury emissions from coal power plants. E.P.A.
22. Proposed revisions to standards for carbon dioxide emissions from new, modified and reconstructed power plants. Executive Order; E.P.A.

23. Began a review of emissions rules for power plant start-ups, shutdowns and malfunctions. In April, the E.P.A. proposed reversing a requirement that Texas follow the emissions rule, with implications for 35 other states. E.P.A.

24. Proposed the repeal of rules meant to reduce leaking and venting of hydrofluorocarbons from large refrigeration and air conditioning systems. E.P.A.

25. Opened for comment a proposal limiting the ability of individuals and communities to challenge E.P.A.-issued pollution permits before a panel of agency judges. E.P.A.

REINSTATED

1. Reversed course on repealing emissions standards for “glider” trucks — vehicles retrofitted with older, often dirtier engines — after Andrew Wheeler took over as head of the E.P.A., E.P.A.

2. Delayed a compliance deadline for new national ozone pollution standards by one year, but later reversed course. E.P.A.

3. Re-posted a proposed rule limiting greenhouse gas emissions from aircraft, after initially changing its status to “inactive” on the E.P.A. website. In May 2019, the agency confirmed it would issue the rule. E.P.A.

13. California Considers Requiring New Truck Sales To Be Zero-Emission Vehicles

The country’s most populous state could become the first to require a portion of new truck sales be electric or “zero emission” vehicles as California grapples with how to clean up its worst-in-the nation air quality.

Home to the two largest ports in the country in Los Angeles and Long Beach, California has roughly 1.5 million medium and heavy duty trucks on the road that spew harmful pollutants as they haul freight. The state’s transportation sector accounts for 41% of all greenhouse gas emissions and is a major source of ozone and particulate matter pollution that can cause respiratory and other health problems.

Regulators estimate the new rules would result in roughly 74,000 zero emission trucks on the road in California by 2030, or about 4% of all trucks. California already has a rule requiring car makers to offer for sale specific numbers of clean cars. But Mary Nichols, chairwoman of the California Air Resources Board, said the truck rule would be the first of its kind in the world.

The board considered the new rule in a public hearing that drew more than 100 public comments. The board won’t vote on the proposal until next year but the hearing was the last chance for advocates and opponents to weigh-in.

“I think I can say on behalf of everybody . . . that this entire board is excited, proud to be involved in something of this magnitude, and we understand that we are the first and that we want to do it right,” said California Air Resources Board (CARB) Chairwoman Mary Nichols during a December 12 board meeting.

“I cannot imagine that there’s anybody who would disagree with me when I say that our goal here is to transform the transportation system,” she said. “The vision of this is that it’s part of a set of actions -- including the fleet rule that is being worked on right now -- that are designed to get us to 100 percent of everything being zero [emissions] as quickly as possible, but no later than 2045.”

“So, having said that, we all want this rule to be stronger,” Nichols added.

“Trucks are increasingly a major contributor to air pollution nationwide, but especially in our cities where they are among the largest sources of toxic emissions in vulnerable neighborhoods,” Nichols said.

If adopted, at least 15% of sales of heavy duty pickup trucks like the Ford F-250 and full size vans like the Chevrolet Express must be zero emission vehicles by 2030. That standard also applies to the heaviest trucks, including tractor trailers.

The standard is tougher for box trucks and delivery trucks, mandating at least half of all new sales be zero-emission vehicles by 2030.

The rules are part of the state’s plan to have 100% zero emission truck sales by 2040. By then, state regulators say the phased-in limits could prevent more than 600 premature deaths annually due to poor air quality in California.

Sales requirements for the heaviest trucks would begin in 2024 and gradually increase until 2030. Sales requirements for pickup trucks would not begin until 2027.

The proposed rules continue California’s aggressive push on environmental regulations, which already include tougher emission standards on cars and trucks than the federal government imposes and a first-in-the-nation cap-and-trade system that requires big polluters to purchase credits to let them pollute.

Most environmental groups support the rule, but they say it is not strong enough. Trucks last longer than passenger vehicles, which is why companies are slower to replace their fleets. While the rules would impact up to 50% of some new truck sales by 2030, it would only result in about 4% of trucks on the road being zero emission vehicles.

Andrea Vidaurre, policy analyst for the Center for Community Action and Environmental Justice, said these types of trucks historically are clustered in poorer communities. That includes communities in the Inland Empire, an area next to Los Angeles where warehouses store freight from ports. The group says low-income communities can be most impacted by environmental health hazards.

Jed Mandel, president of the Truck and Engine Manufacturers Association, said he supports efforts to get more zero-emission trucks on the road. But he said making rules “on a naked sales mandate is fundamentally flawed.” “Trucks are not cars. Our customers invest capital to purchase vehicles that must return a profit,” Mandel said. “We all know today that (zero emission vehicles) are more expensive than traditionally fueled vehicles.” Mandel said California regulators should narrow the rule to apply to trucking segments that are “more readily suited to that technology,” including school buses and municipal fleet step vans.

CARB is currently scheduled to finalize the sales and reporting regulation early next year. Based on board direction provided at the December 12 meeting, CARB staff in the coming months will release a revised proposal for a 15-day comment period before the board holds a meeting to vote on the plan.

Nichols said near the end of the meeting that while “I suppose we should pass” a resolution to move the issues forward, “frankly, really if it’s not necessary, I don’t know that we have to do it, because we will end up wordsmithing it, and it’s not a good time for doing that right now. . . . We can table the resolution for the time being.”

However, she summarized the board direction to staff as including the “restructuring of the regulation, particularly to take advantage of the offer we heard to focus on getting 100 percent [ZEVs] faster in certain segments”; focusing on communities “where we see the most need in terms of quick reductions in emissions and turnover of fleets,” including at ports with drayage trucks, school buses, trash trucks and “delivery centers”; making clear that the ZEV sales mandate “works with the other mandate for fleets to buy these vehicles”; and “building our incentive programs” to spur such sales.

14. California, Northeast States Craft Action Plan To Spur ZEV Truck Deployment

California and seven other states are committing to develop an action plan to put “hundreds of thousands more zero-emission trucks and buses” on the road to help slash conventional pollutants and greenhouse gases, an effort that will in part prioritize subsidies for technology and infrastructure development.

A “formal agreement” on developing the action plan is forthcoming, according to a December 12 California Air Resources Board (CARB) press release. “The partnering states agree that accelerating the transition to zero-emission medium and heavy-duty vehicles is a critical part of reducing climate-altering carbon pollution and harmful smog-forming pollutants and particulate matter that disproportionately impacts urban communities and people living near major truck routes and distribution hubs,” the release states.

The “Statement of Intent” between California and the other states came as CARB held its first meeting to consider a proposed Advanced Clean Trucks regulation that would require medium- and heavy-duty truck manufacturers to sell a certain percentage of zero-emission vehicles (ZEVs) beginning in 2024. The board is expected to consider the regulation for adoption next year. (See story above.)

The multi-state action plan to advance ZEV trucks is being pursued “in collaboration” with CARB’s regulation, but there is nothing in the statement of intent that says the seven other states will adopt CARB’s regulation.

States joining with California on the effort are Connecticut, Maine, Massachusetts, New Jersey, Oregon, Rhode Island and Vermont. The District of Columbia is also part of the group.

“Trucks are increasingly a major contributor to air pollution nationwide, but especially in our cities where they are among the largest sources of toxic emissions in vulnerable neighborhoods,” said CARB Chairwoman Mary Nichols. “We need to design a regulatory program that gets to the heart of this problem. We will move farther faster in partnership with other states who share the same commitment to cleaning up trucks and protecting public health.”

The state collaboration will also be implemented through the ZEV Task Force and facilitated by the Northeast States for Coordinated Air Use Management (NESCAUM). The effort builds on an existing memorandum of understanding signed by California and nine other states with ZEV regulations to accelerate consumer adoption of light-duty ZEVs, according to a NESCAUM press release.

Under the plan, the states hope to craft a draft memo of understanding by summer 2020 for consideration by the respective governors and the D.C. mayor.

All but Maine and D.C. also signed the 2013 Governors' Zero Emission Vehicle Memorandum of Understanding. The MOU created a zero-emissions vehicles task force. According to its website, the task force will help implement a commitment by participating states "to having at least 3.3 million ZEVs operating on their roadways by 2025." Zero-emissions vehicles include pure battery-electric vehicles, plug-in hybrid electric vehicles and hydrogen fuel cell electric vehicles.

The 2013 MOU deals primarily with passenger vehicles. The latest statement of intent targets medium- and heavy-duty vehicles exclusively and will use the same zero-emissions vehicles task force. The Northeast States for Coordinated Air Use Management organization will facilitate the effort.

How, exactly, participating states plan to reach the zero-emissions goal is yet to be determined. State agencies will need to devise a plan. Even then, any plans will need to go through legislative hurdles and signed off by each governor.

States involved with the 2013 MOU already have zero-emissions vehicle incentives in place for light-duty vehicles. For example, Vermont had a pilot program that gave \$500 incentives for consumers at point-of-sale and \$250 incentives for dealers. Meanwhile, Rhode Island has established state fleet purchase requirements. An executive order requires at least 75% of state motor vehicle acquisitions use alternative fuels, and the remaining 25% must be hybrid-electric.

Signatories will present a proposed MOU to their respective governors and the mayor of the District of Columbia for consideration in the summer of 2020.

15. UCS: Heavy-Duty Truck Electrification Critical And Viable US Climate Solution

Electric trucks charged on any power grid in the United States are better for the climate than any diesel truck, according to an analysis by the Union of Concerned Scientists (UCS). The study quantified the global warming emissions generated by driving electric trucks charged on all power grids in the country, from the cleanest grids that use large amounts of solar and wind power to the dirtiest grids that still rely on coal. The analysis found electric trucks emit 44 to 79 percent less life cycle global warming emissions than similar diesel trucks, depending on the type of vehicle.

Trucks and buses combined make up 10 percent of all vehicles on the road and 28 percent of all carbon emissions from the transportation sector. There are about 28 million trucks and buses in the United States today.

"Electrifying trucks will require commitment and planning, but it needs to be done because they contribute a large portion of the carbon emissions causing climate change and the diesel pollution that affects people's health," said Jimmy O'Dea, senior vehicles analyst at UCS and report author.

The analysis found there are many trucks whose operating characteristics are well-suited for electrification, including those that operate in defined areas and park at central depots where they can be recharged. Two-thirds of U.S. trucks travel 20,000 miles or less each year – an average of 80 miles per day if driven 5 days per week and 50 weeks per year – well within the operating range of battery electric trucks operating on a single charge.

Earlier this year, Amazon announced plans to add 100,000 electric trucks to its fleet of delivery vehicles starting in 2021. This came after FedEx and UPS announced they each planned to order 1,000 electric delivery trucks.

“Large truck orders indicate fleet owners are crunching the numbers and seeing the significant cost savings offered by electric trucks,” said O’Dea. There are 27 manufacturers offering 70 different models of electric trucks and buses in the United States.

The study found that electrifying all U.S. trucks would increase national electricity consumption by 13 percent, yet it would reduce the total demand for energy by 71 percent because electric vehicles are significantly more efficient than diesel and gasoline vehicles.

Additionally, the health benefits of truck electrification would be most felt by people adversely affected by air pollution from heavy duty vehicles, according to the report. Heavy-duty vehicles emit 45 percent of the U.S. transportation sector’s nitrogen oxide (NOx) pollution and 57 percent of its fine particulate matter (PM2.5) pollution, which disproportionately affects communities of color and low-income communities due to proximity to roads and heavy vehicular traffic. Electric trucks do not emit any NOx or PM2.5 pollution during vehicle operation.

The UCS analysis recommends that federal and state leaders provide financial incentives for the purchase of electric trucks and establish clean fuel standards, that utilities invest in charging infrastructure and ensure fair and reasonable electric rates for truck charging, and that cities create low- or zero-emission zones that give electric trucks preferred access to urban centers and freight hubs like ports and warehouses. These policies, investments and incentives would quickly transition the trucking industry from diesel to electric, according to the report.

16. House Panel Weighs Competing Plans To Boost Low-Emitting Truck Sales

House lawmakers are weighing competing plans for boosting adoption of lower-emitting heavy-duty trucks as part of the next highway bill, which is due in 2020, though they are at odds over whether to support still-emerging electric vehicle (EV) models or promote readily-available gas-fueled trucks that are more efficient than the current fleet.

“I am committed to looking at a range of options under the purview of this committee to move trucking towards zero emissions,” said Del. Eleanor Holmes Norton (D-DC), chairman of the House Transportation & Infrastructure Committee’s panel on highways and transit, at the opening of a December 5 hearing titled “Where’s My Stuff? Examining the Economic, Environmental, and Societal Impacts of Freight Transportation.”

Lawmakers framed the hearing as an early step toward the next iteration of the 2015 Fixing America’s Surface Transportation (FAST) Act, including areas of focus for project authorization and potential policy provisions to include in the infrastructure bill. The 2015 version of FAST authorized \$305 billion in road construction and other transportation infrastructure and expires in 2020.

Democrats and the lone environmentalist on the six-witness panel, Environmental Defense Fund (EDF) Director of Vehicle and Freight Strategy Jason Mathers, said the committee should focus as much as possible on boosting EVs in the transportation bill, whether through tax credits or other measures that could encourage freight companies to replace gas-burning trucks with electric models.

“Despite the recent zero-emission truck product announcements, the pace of progress remains much too slow. At our current pace of adoption, diesel trucks will still account for more than half of the trucks on the road in 2050. Federal policy leadership will be critical to accelerate the uptake of zero-emission vehicles, which would drive down carbon emissions; reduce air pollution,

especially in urban communities; and strengthen a cornerstone manufacturing base that provides well-paying jobs,” Mathers said in his opening testimony.

Mathers’ testimony suggests four policy prongs to boost adoption of electric trucks: direct loans to manufacturers of zero-emitting models, based on the Advanced Technology Vehicles Manufacturing Direct Loan Program for light-duty trucks; increased Energy Department funding for EV research and development; tightening emissions limits on heavy-duty vehicles; and backing any of the broad array of proposed legislation aimed at boosting consumer demand for EVs such as expanded tax credits or creating new grants for zero-emission school buses.

Some lawmakers raised the potential for logistical improvements that could reduce trucking emissions without upgrades to the fleet, by cutting annual miles traveled. For instance, in response to a question from full transportation committee Chairman Peter DeFazio (D-OR), Mathers said “information and data-sharing between companies” can further that goal, by allowing them to pool shipping resources and avoid sending out half-empty trucks.

DeFazio answered, “I agree about the data-sharing. We have to find ways to incent that or encourage that.”

However, Republican members of the committee argued that rather than looking for ways to drive adoption of an emerging technology lawmakers should be prioritizing steps that could lead to lower fleet emissions in a matter of months. Specifically, Rep. Doug LaMalfa (R-CA) said the bill should include repeal of a long-standing excise tax on heavy-duty trucks that he said adds tens of thousands of dollars to the vehicles’ purchase price and thus encourages firms to stick with older, high-emitting models instead of upgrading to modern ones. “We’re not talking zero-emission trucks, we’re talking extremely low-emission trucks, available right now,” LaMalfa said.

And Rep. Scott Perry (R-PA) said Mathers’ claim that electric trucks can enter the shipping fleet immediately “is not based in reality.” “If they were economically viable and provided lower total cost of ownership as you claim, then the industry would be embracing them due to the market incentives alone. However, the high cost of current battery technology combined with its limited energy density level makes EV trucks infeasible and an expensive alternative for shorter operation,” Perry said.

He also attacked the idea that EVs are “zero-emission,” calling the term a “deceptive and misleading labeling practice” due to the higher carbon emissions associated with manufacturing the vehicles and their batteries compared with traditional cars and trucks.

In response, Mathers argued that manufacturers’ continued development of electric trucks shows that they recognize the market potential of those vehicles, even if they are not yet entering the fleet in significant numbers. “These manufacturers are doing this because they see that’s where the future is,” he said.

17. Northeast States’ Emissions Plan Announced, Attacked

The 12 states that belong to a coalition looking to reduce greenhouse gas emissions from transportation have released a plan for a regional “cap and invest” program. The group of Northeast and Mid-Atlantic states, as well as Washington, D.C., are seeking comments on the plan, known as the Transportation and Climate Initiative (TCI), through the end of February.

TCI would set a regional carbon dioxide emissions cap at current emissions levels. That cap would then decline over time to an undetermined level.

Regional fuel importers would buy emissions allowances at auction based on how much on-road gasoline and diesel they sell in each state. States would then spend the auction proceeds on pollution-reducing measures such as public transit, making downtowns more walkable and electric vehicle incentives.

“In the long term, it’s what our communities look like and how they’re organized that ... details what sort of transportation services we need,” said Peter Walke, deputy secretary of the Vermont Agency of Natural Resources, who is heading the state’s TCI team.

While key details, such as the regional emissions cap, are still being ironed out, the group modeled the costs and benefits of a 20-25% reduction by 2032. Those models predict fuel prices could rise seven cents from TCI under a 20% reduction scenario, 14 cents under a 22% reduction and 17 cents under a 25% reduction.

A new U.N. report said keeping global warming below 1.5 degrees Celsius would require a 55% reduction in emissions by 2030.

The “assumption that we’ve been operating under” for modeling purposes is that all of the costs will be passed on at the pump, Walke said, adding that this did not occur under the Regional Greenhouse Gas Initiative, the power sector cap and invest program. Greenhouse gas emissions in the power sector were reduced by 40% over the past decade in RGGI’s nine member states.

The program was a small part of the market factors influencing power prices and the “same thing could happen in the fuel market” if distributors decide to absorb the costs rather than slightly increasing prices for customers, Walke said.

The TCI modeling also found that a 25% decrease in emissions would lead to an estimated 1,014 fewer air pollution related deaths and a half a percent increase in GDP, or gross domestic product, compared with “business as usual,” or a 19% emissions reduction.

The cap-and-trade market for transportation reflects how policymakers have increasingly shifted their focus from the power sector — where natural gas and renewables have quickly replaced coal, helping energy companies to reduce their carbon footprints — toward transportation, where internal combustion engines still dominate.

The region’s cars, trucks and other forms of transport are now responsible for more than 40 percent of its greenhouse gas pollution, according to the Energy Information Administration.

The plan’s backers also stress the importance of regional action at a time when the Trump administration is rolling back a range of climate policies, including weakening standards that would have forced automakers to meet far more stringent fuel efficiency rules.

“When we’re going backward at the federal level, for states to step up and take action on climate, take steps to modernize our transportation system, it’s just an unprecedented opportunity,” said Jordan Stutt, carbon programs director at the Acadia Center, a research and public interest group in New England that is pushing for cleaner energy. “If designed well, this can be the most significant sub-national climate policy ever.”

Cap-and-trade systems for transportation are already in place in California and in Quebec, Canada, and those programs have generated funds for clean transportation. And the Northeast plan has the backing of businesses like General Motors, which last month called it a “an effective and efficient approach.”

But some oil industry groups are pushing back against the proposal. The Mid-Atlantic Petroleum Distributors Association, an association of fuel companies in Maryland, Delaware and the District of Columbia, warned that the plan would “have ramifications that have not been verified or well thought-out.” Higher gas prices will disproportionately affect poor and rural communities, they argued, and could also affect prices of transported goods in the Northeast, a major trucking corridor.

The effort involves the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and Virginia, and the District of Columbia.

TCI plans to release more detailed modeling of the program’s potential effects -- down to the county level -- early next year.

Next steps are to finalize the MOU in the spring, including a model rule that would formalize the cap, the types of fuels covered and which entities hold allowances, among other details. The 13 jurisdictions considering participating in the regional program would then decide whether to sign the document and begin steps to craft state-specific implementing policies.

Each state could decide how to structure its program -- including whether it is binding and whether it is implemented legislatively or by regulation.

Kathleen Theoharides of the Massachusetts Executive Office of Energy & Environmental Affairs told a December 17 press call that the TCI program could achieve more than three times the GHG cuts than the Regional Greenhouse Gas Initiative (RGGI), a similar power plant cap-and-trade program that has been operating in the region for about a decade.

Theoharides said if all 13 jurisdictions participate, their cumulative effect on GHG reductions would be significant. That “speaks to the power of this region coming together to chase not only our own climate goals but to make progress on climate change that really has a global impact.” She also cited strong public support for the program, and said polling released this month found that 66 percent of registered voters in the seven largest states in the region support it.

On October 1, TCI released a draft framework of the policy that had some operational details but no information about the stringency or costs. It did significantly elevate the issue of equity, which public commenters urged it to do during meetings over the summer.

The modelers devised six types of clean technology investments and predicted how much funding they would receive; each jurisdiction can make its own decisions on what to do with allowance proceeds. The assessed technologies are EVs, clean buses, transit, pedestrians and bikes, system efficiency and indirect/other.

The modeling found that all three of the regional GHG caps would drive significant cuts in both GHGs and other pollutants, such as soot, and that those cuts would be locked in, compared to federal regulations that could change.

The program would also improve access to clean transportation options and bring a “sustained improvement” in public health worth between \$3 billion and \$10 billion.

It would also have a positive effect on the economy and would grow jobs, raising regional gross domestic product up to 0.05 percent, and increasing disposable income.

The GHG cuts and avoided climate change damages would be worth \$249 million to \$892 million annually in 2032 across the region, the modeling found.

More stringent caps would result in more GHGs cuts and more allowance proceeds for clean transportation investment. Specifically, the possible regional cap could raise annual proceeds ranging from \$1.4 billion per year in 2022 in the 20 percent case to \$5.6 billion in the first year in the 25 percent case.

The modeling contains preliminary numbers but researchers from the Harvard University school of public health are performing more careful analysis including county-level data that will be released in January.

Theoharides noted that cap-and-invest is a “tried and true method that has worked well in the region,” pointing to the success of RGGI.

She noted that the draft MOU did not study caps that decline over time, though she stressed that TCI states would have opportunities to increase ambition during the program’s 10-year period.

Fuel distributors would also have options to reduce costs, including by selling cleaner fuels, banking allowances and taking advantage of multi-year compliance periods, she added.

Environmental groups hailed release of the MOU, with the Natural Resources Defense Council calling it a “huge step forward in fixing our region’s broken and dirty transportation system.” The Conservation Law Foundation added that the MOU “moves us toward much-needed regional collaboration to confront the climate crisis” that includes needed “urgent and bold action.”

18. CARB Adjusts Vehicle Emissions Model To Assess EPA’s Waiver Revocation

California officials are adjusting their model for estimating vehicle greenhouse gas and other emissions to account for reductions they expect to be lost as a result of the Trump administration’s revocation of the state’s waiver to implement tougher GHG standards and zero-emission vehicle (ZEV) sales mandate, even as they await clarification from EPA on which model years are affected by the revocation.

“As a result of the loss of the ZEV sales requirements, there may be fewer ZEVs sold and thus additional gasoline-fueled vehicles sold in future years. This would increase criteria pollutant emissions in multiple ways,” states a November 20 staff document, “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One,” from the California Air Resources Board (CARB).

CARB is adjusting its Emission FACtors (EMFAC) mobile source emissions estimation model to factor in the Trump administration’s “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program,” which EPA and the National Highway Traffic Safety Administration (NHTSA) published in September.

The part one rule revokes California's authority to set its own GHG emission standards and ZEV mandates in California, which were established in a 2013 Clean Air Act (CAA) waiver issued by EPA.

Part two, which is expected to be published in the coming months, is likely to roll back Obama-era vehicle GHG standards to require only roughly a 1.5 percent annual increase in fuel economy for MY22-26 vehicles. Because the details of the part two rule have not been released, CARB at this time is adjusting its EMFAC2014 and EMFAC2017 model assumptions based on the ZEV rule impacts alone.

Under the new modeling, CARB staff assumed that the ZEV sales mandate will be frozen at model year 2020 levels, meaning that the projected ZEV fleet for 2021 and beyond was modified to reflect a lower number of future ZEVs and a corresponding greater number of future gasoline internal combustion engines with a higher portion of vehicle miles traveled.

"A ZEV inherently has zero evaporative emissions of hydrocarbons in the form of gasoline vapors, which escape from the tank and fuel lines during operation and while parked," the CARB document says. "A gasoline-fueled vehicle with evaporative emissions is assumed to take the place of each ZEV that will not be sold. This leads to an overall increase in hydrocarbon emissions. Additionally, tailpipe emissions of [nitrogen oxide (NOx)], hydrocarbons, carbon monoxide, and particulate matter also increase as a result of each additional gasoline-fueled vehicle."

The increase in emissions occurs for several reasons, "despite the presence of a criteria pollutant 'fleet average' standard that CARB has in place for hydrocarbons and NOx," according to the document.

- First, the fleet average does not apply to particulate matter and carbon monoxide, "meaning each incremental gasoline-fueled vehicle generates additional tailpipe emissions of both pollutants."
- Second, because the fleet average is based on a single test cycle and does not fully capture all operating conditions, "additional tailpipe emissions of all criteria pollutants occur for every incremental gasoline-fueled vehicle."
- Third, "and most significantly, both tailpipe and evaporative criteria pollutant emissions substantially increase over time due to deterioration of the emission controls on gasoline-fueled vehicles," the document states. "ZEVs have no such deterioration. Thus, even with the fleet-average standard offsetting a portion of the tailpipe emissions by starting some gasoline-fueled vehicles at lower emission levels early in their life, this slight difference is overwhelmed by the increase in emissions from deterioration over the life of the vehicle."

CARB says that more stringent ZEV and GHG standards are critical to reach attainment of air quality standards and meet climate needs. If standards cannot become more stringent, "these mandates will be very difficult to meet. ZEV technologies, in particular, are needed in both light-duty and heavy-duty fleets to help commercialize this technology. As a result, the long-term threat to air quality is substantial as cleaner technologies, especially ZEVs, do not penetrate the fleet at the scale necessary and emissions are not reduced as needed."

CARB is revising its model even as officials are awaiting an EPA response to an October 9 “petition for clarification/reconsideration” of the part one rule submitted by California Attorney General Xavier Becerra (D) on behalf of CARB.

State attorneys general charge the federal agencies have made “contradictory statements” and created confusion about whether the waiver revocation would affect only MY21-25 vehicles, or also include earlier models.

“CARB has received inquiries about this issue from regulated parties and other stakeholders, and we respectfully ask that EPA clarify and reconsider the statements that are creating this confusion,” the petition states. “CARB and the public are entitled to know, promptly and unambiguously, the temporal scope of EPA’s waiver withdrawal.”

In the final federal rulemaking, EPA withdrew the January 9, 2013, waiver of preemption for California’s GHG and ZEV standards that are applicable to “new model year (MY) 2021 through 2025,” the state asserts.

However, “other EPA statements in the Final Actions create confusion by suggesting a broader scope to EPA’s waiver withdrawal. For example, while EPA states that it has ‘finalize[d] EPA’s proposed determination,’ it also states that its ‘January 2013 grant of a waiver of CAA preemption for [the GHG and ZEV standards] was invalid, null, and void’ and ‘is hereby withdrawn on that basis, effective on the effective date of this joint action.’”

These statements “are ambiguous and confusing,” the California officials assert in their petition. “EPA simultaneously asserts that it is finalizing its ‘proposed determination,’ the scope of which was plainly limited to model years 2021 through 2025 . . . and uses language suggesting EPA is withdrawing California’s waiver for its GHG and ZEV standards for all model years at issue in the 2013 waiver grant (including those before 2021).”

EPA then exacerbates the ambiguity by stating that its finding that “California’s GHG and ZEV standards are preempted as a result of NHTSA’s finalized determinations, issued in this joint action, with respect to [the Energy Policy & Conservation Act’s (EPCA)] preemptive effect on State GHG and ZEV standards, is effective upon the effective date of this joint action.”

EPA adds that its finding is “separate and apart from findings with respect to EPA’s 2013 waiver for CARB’s Advanced Clean Car Program as it pertains to its 2021 through 2025 MY relating to GHG and ZEV standards and accompanying withdrawal of the waiver, pursuant to CAA section 209(b)(1).”

The California officials say that the statements make it unclear “whether EPA intends its purported separation of these two ‘findings’ to have implications for the scope of its waiver withdrawal, in part because EPA only references withdrawal in the second sentence. But this text at least arguably suggests that EPA is withdrawing California’s waiver for model years prior to 2021, pursuant to its reliance on NHTSA’s action.”

EPA should “explain the intended meaning of these statements, revising them as necessary, and clarify exactly which model years are implicated in its waiver withdrawal action(s), quickly, officially, and publicly,” the petition adds.

19. DOJ Seeks Quick Ruling Finding California-Quebec GHG Link Unlawful

The Trump administration is urging a federal judge to quickly back its litigation challenging California's decision to link its greenhouse gas trading program with a similar system in Quebec, arguing in a summary judgment motion that the move tramples on the president's role in setting foreign policy. In addition, the Justice Department (DOJ) is arguing that President Donald Trump's decision to withdraw from the Paris climate agreement supports the case because it fleshes out the federal government's approach to international climate policy. "The Constitution simply forbids states to enter into agreements with foreign powers that would usurp the federal government's responsibility for foreign affairs," the Justice Department (DOJ) writes in its December 11 motion for summary judgment in *United States v. State of California, et al.*, pending in the U.S. District Court for the Eastern District of California.

DOJ argues that California's 2013 deal with Quebec linking their respective cap-and-trade programs -- a deal that was revised in 2017 -- is "just such an unconstitutional agreement," and that the state "compounds" the problem because it is "undermining the United States' foreign policy." The motion adds more detail to DOJ's October complaint in the case, and California faces a January 6 deadline to respond to the complaint or move to dismiss the suit.

An administration victory would not entirely scrap California's program, but would rather scuttle the state's link with the Canadian province. Supporters of the program note that the connection is important because it helps reduce compliance costs, and that it provides a model for broader international carbon markets.

DOJ's motion broadly argues that the state's agreement violates the Constitution's Treaty Clause, which bars states from entering into treaties, and that the agreement violates the Compact Clause, which prohibits "compacts" between states and foreign governments without congressional approval.

Regarding the Treaty Clause claims, DOJ says the 2013 deal is a treaty because it "constitutes a political alliance" between the state and the province, and that it is a "binding instrument" that includes various obligations on the two jurisdictions. "[A]nalysis of the Agreement's terms reveals one of political alliance between the two jurisdictions," the motion says. While the Constitution does not define the term "treaty," DOJ argues that the Supreme Court has "said more than once that the term, as it is used in the Article I Treaty Clause, is best understood as applying to agreements 'of a political character.'"

In addition, DOJ says that even if the court does not agree that the deal is a treaty, "at a minimum" it violates the Constitution's limits on "compacts" because California did not secure congressional approval of the deal. DOJ says the agreement is such a compact because it does not deal with purely "local" concerns. "The Agreement is about as 'local' as the United Nations," the motion says. "California and Quebec do not share a border. They are not seeking to abate a nuisance that affects them in some entirely localized way, apart from every other state or province of Canada."

The filing invokes the Paris Agreement to counter claims by supporters of the California-Quebec linkage that the federal government has "no foreign policy in the area of GHGs for the [state] Agreement to impair." It notes that even when the United States leaves the Paris deal -- with the departure formally set to take effect in November 2020 -- it will remain a party to the broader U.N. Framework Convention on Climate Change, and that Trump officials have pledged to "engage with foreign countries on matters related to climate change and GHG emissions in meetings of the parties to that agreement and in other fora."

The filing adds: “Moreover, the President’s very decision to withdraw from the Paris Agreement constitutes an exercise and implementation of foreign policy.”

20. Environmentalists Defend California-Quebec Climate Pact in Court

Environmental groups are backing California in a legal spat with the Trump administration over California’s climate pact with Quebec. The Environmental Defense Fund and Natural Resources Defense Council on December 23 moved to intervene in the case to help defend the Western Climate Initiative, a cap-and-trade arrangement aimed at cutting greenhouse gas emissions.

Trump officials sued California over the program in October, calling it an unconstitutional treaty or compact and arguing that it steps on the federal government’s turf by interfering with foreign affairs.

EDF and NRDC told the U.S. District Court for the Eastern District of California they need a spot in the case because they helped advocate for California’s climate program and are pushing for similar policies in other states and regions.

“These interests may be impaired if the provisions in California’s cap-and-trade program governing coordination with Quebec’s program are invalidated, as this could interfere with the smooth operation of the programs in both jurisdictions and potentially deter other jurisdictions in the United States from developing and coordinating their own cap-and-trade programs,” the groups said in a legal filing.

The ability to link cap-and-trade programs across jurisdictions “generates several administrative, economic, and environmental benefits that could be lost if California and Quebec are forced to disassociate their emissions markets and other jurisdictions are precluded from participating in coordinated markets,” they said.

21. Trump Says U.S. Will Finalize New Fuel Efficiency Rules Next Year

U.S. President Donald Trump said recently that his administration will finalize its rollback of Obama-era vehicle emissions standards next year and expected it would provoke a new legal challenge by California.

The administration had signaled in recent months it could finalize its proposed revisions to the requirements before the end of 2019 but that target has apparently slipped. The administration has argued that the rollbacks are necessary for economic and safety reasons but California and environmentalists reject that analysis, saying consumers would spend hundreds of billions more in fuel costs.

In August 2018, the administration proposed freezing vehicle efficiency requirements at 2020 levels through 2026, which would result in average fuel efficiency of 37 miles per gallon (mpg) by 2026, compared with 46.7 mpg under rules adopted in 2012. The Trump administration’s “preferred option” would hike U.S. oil consumption by about 500,000 barrels per day by the 2030s but reduce automakers regulatory costs by more than \$300 billion.

Republican Trump has sought to reverse his Democratic predecessor Barack Obama’s climate change policy, which was aimed at reducing greenhouse gas emissions.

Trump said in recent comments that the dispute was over “a tiny amount of fuel - of which we have plenty.” He said the rules would lead to “safer and more affordable vehicles.” Trump, without citing any evidence, said the existing rules would require “extra computers put on the engine.”

The administration has said the rules would reduce traffic deaths because it would cut future vehicle price hikes and prod speedier purchases of safer vehicles. But some EPA staff disputed that contention, according to documents released last year, arguing it would actually lead to more traffic deaths in some years because of an increase in vehicle travel.

22. Seeking Speedy Ruling, DOJ Asks Court To Fast-Track Auto Waiver Suit

The Trump administration is urging an appellate court to put litigation over its rule preempting California and other states’ auto greenhouse gas rules on a fast track, calling for a schedule that includes oral argument before next summer and a potential ruling by the end of the year.

The Justice Department (DOJ) filed a December 18 motion to expedite the case in the U.S. Court of Appeals for the District of Columbia Circuit, seeking speedy review of *Union of Concerned Scientists, et al. v. National Highway Traffic Safety Administration (NHTSA), et al.*

But the filing comes even before the administration and its critics have resolved a dispute about the correct venue for the court challenge.

The request thus underscores Trump officials’ desire for a speedy legal review of the preemption rule, in hopes of getting the policy to the Supreme Court by the end of President Donald Trump’s current four-year term -- a step they believe would make it more difficult for a potential Democratic successor to quickly reverse the policy.

The Trump EPA recently failed in a similar effort on another high-profile climate policy rollback -- its Affordable Clean Energy (ACE) rule that replaces the Obama-era Clean Power Plan (CPP) GHG standards for power plants.

There, the D.C. Circuit in late November declined to expedite *American Lung Association, et al. v. EPA, et al.*, which challenges the ACE rule. That raises significant questions about whether the court will issue a ruling in the case before next summer, or whether the administration could try another tactic to speed the case such as a unique appeal to the high court.

In both cases, critics are hoping for a repeat of the litigation scenario for the CPP -- in which the D.C. Circuit heard oral argument over the case just before the November 2016 elections but never issued a ruling due to the change in administration in early 2017.

The court only recently dismissed the challenge in the CPP case as moot.

“Proponents have every incentive to expedite, while opponents have every reason to slow walk this as much as possible, to take it past the election,” one source tracking the ACE litigation said.

DOJ justifies its request to accelerate the California auto preemption case using claims that automakers face massive “uncertainty” about which GHG and fuel economy standards they must achieve, given that a Trump loss creates the potential for California and allied states representing about a third of the country to enforce tougher requirements than the federal government.

The auto sector's "plans for the design, production, and distribution of passenger cars and light trucks for model years 2021-2025 will be directly impacted by the outcome of this case. Those decisions will, in turn, affect the vehicles available to the public and sold in the 50 states," the filing says.

The consolidated litigation -- brought by a coalition of major environmental groups, nearly two dozen states led by California, industry groups related to electric vehicles (EV) and utilities -- challenges a joint September action by EPA and NHTSA that preempted California's auto GHG and zero-emission vehicle (ZEV) rules.

Specifically, NHTSA finalized a rule preempting the state's authority under the Energy Policy & Conservation Act (EPCA), while EPA withdrew a 2013 Clean Air Act preemption waiver allowing the state's rules to be implemented.

Notably, however, critics have styled their D.C. Circuit suits over NHTSA's rule as "protective" challenges and are advancing separate suits over that measure in the U.S. District Court for the District of Columbia. They argue that EPCA's structure requires suits over NHTSA's rule to first be considered in lower courts.

All parties agree that litigation over EPA's waiver withdrawal belongs in the D.C. Circuit, though Trump officials argue the two actions are "interrelated" and thus should both be reviewed in the first instance in the appellate court.

DOJ has sought to quash the lower court case and has even urged D.C. district court Judge Ketanji Brown Jackson to refrain from ruling on whether she has jurisdiction over the NHTSA rule suit, arguing that the D.C. Circuit should resolve the venue dispute.

Even before that procedural fight is over, though, DOJ is urging the D.C. Circuit to speed its review of the litigation over EPA and NHTSA's preemption. It floats a briefing schedule in which California and its allies would file their initial merits brief by February 10, followed by the government's response March 11. Automakers supporting the Trump administration would file their brief March 18, and Trump critics would file reply briefs by March 25. Briefing would conclude April 6.

This "would allow for oral argument in the spring 2020 term," the DOJ motion says. "A more extended schedule would delay resolution of the case considerably, as it would likely result in oral argument being postponed until the fall of 2020. An extended delay in resolving the case would leave automakers without much-needed clarity concerning the scope of their obligations for upcoming model years."

"The validity of NHTSA's regulations and EPA's waiver withdrawal is thus of central and immediate importance to the automotive sector's forward planning concerning the design, production, and state-by-state distribution of passenger cars and light trucks. This is no small concern. Corporate average fuel economy standards have billions of dollars of impacts on the economy," the filing states.

Quickly resolving the litigation "will provide the automotive industry with greater certainty and security in making decisions for the impending 2021-2025 model years," preventing industry "disruptions" and associated compliance cost increases.

23. D.C. Circuit Restarts Trailer GHG Case, Rejects Bid For Quick Argument

The U.S. Court of Appeals for the District of Columbia Circuit is restarting truck manufacturers' suit over EPA and Transportation Department rules limiting greenhouse gases from tractor trailers, though the court is rejecting the trailer makers' call to quickly hold oral argument within the first few months of 2020.

In a December 26 order, a three-judge panel lifted the court's long-standing abeyance in *Truck Trailer Manufacturers Association (TTMA) v. EPA, et al.*, outlining in its place a briefing schedule for industry, EPA and supporters of the 2016 Obama-era GHG standards, with briefing slated to conclude June 2.

That date is important because the D.C. Circuit generally does not hear arguments during a summer break that starts in mid-May, and the court's rules require briefing to conclude at least 45 days before argument.

TTMA had called for a quick briefing schedule that would allow for oral argument in the case in May, though the Justice Department (DOJ) countered with a schedule in which briefing would conclude in early July. That "would still make it possible for the Court to hold argument and issue an opinion before 2021," DOJ said.

The litigation has long been held in abeyance while EPA and the National Highway Traffic Safety Administration (NHTSA) reconsidered the Obama-era standards. The D.C. Circuit has already stayed EPA's GHG rules, though it has not done so for NHTSA's related fuel economy standards, which are slated to take effect in early 2021.

However, the truck manufacturing industry asked to restart the case in early December, arguing the agencies have made "no discernible progress" in their reconsideration process.

The standards were included in EPA and NHTSA's joint Phase 2 GHG rule for heavy-duty trucks, including steps to make the equipment more aerodynamic to help the trucks they are attached to burn less fuel. The trailer requirements have been previously estimated as providing about 10 percent of the emission-reduction benefits of the overall Phase 2 rule.

TTMA argues trailers should not be regulated for GHGs or fuel economy because they do not have engines and are not "motor vehicles" as defined by the Clean Air Act.

Backers of the standards counter that the emissions limits are critical because trailers significantly affect the GHGs and fuel economy of tractor-trailers, and that the rules will cut significant levels of emissions from the heavy-duty trucking sector.

Environmental groups and states that support the rules earlier warned they might be the only parties to defend the standards in the case, saying that the Trump administration might not defend the rules in court even though the administration supports industry's push to restart the litigation.

As such, they sought additional time to write their brief to assess how DOJ responds to the merits of industry's arguments, as well as larger word counts for their filings.

Under the court's briefing schedule, TTMA must file its opening brief by Feb. 10, followed by DOJ's response March 31. Environmental groups and states would get until April 21 -- about a week short of their requested amount of time -- to file their briefs. TTMA's reply would be due May 12.

The order adds that the court will “schedule oral argument for the first appropriate date following conclusion of the briefing,” though it does not add any additional details on this point.

24. LA County Boycotts Automakers That Sided With Trump in Emissions Fight

Los Angeles County will only buy cars from automakers that comply with California’s clean air laws, joining the state’s boycott of companies like General Motors and Toyota that have sided with the Trump administration in the high-profile bout over emissions standards. The order prevents the approximately \$30 million the county spends annually on its fleet from going to automakers that are supporting the Trump administration’s push to revoke a waiver that gives California the ability to set its own emissions standards rules.

LA County Supervisor Sheila Kuehl says the decision is necessary to protect public health and uphold the state’s climate change policies. “We have a choice and we’re taking our buying power elsewhere,” Kuehl said after the board approved her motion. “We don’t want to go back to Smogville.”

The decision will go into effect early 2020 and makes Los Angeles the first county to align with the state’s boycott of GM, Toyota, Fiat Chrysler and Nissan.

Last month Gov. Gavin Newsom hit back at the automakers for aligning with the president and announced the state would no longer buy their vehicles. He went a step further by ordering state agencies to only buy sedans that are electric or hybrid models. “Carmakers that have chosen to be on the wrong side of history will be on the losing end of California’s buying power,” Newsom said of the move.

California’s emissions laws, which have been adopted by a dozen other states, have forced automakers to produce cleaner, more efficient cars to help clear California’s infamously smoggy skies. The clean air laws are also a critical component of the state’s ambitious climate change goals, as tailpipe emissions are the major contributor of greenhouse gas emissions in the state.

Kuehl says the strict emissions laws have been a particular success in Los Angeles, where smoggy skies regularly plagued residents throughout the 1970s and 1980s. “There were days where kids couldn’t go to school and people would walk around downtown with masks,” Kuehl said.

As the fight over California’s clean air laws plays out in courtrooms nearly 3,000 miles away, Kuehl hopes the county’s move will be adopted by other states and local governments. “By channeling our investment dollars, we can protect public health, particularly at-risk children and the elderly,” said the former child actor and state senator.

25. Canada Charges Volkswagen With Contravening Environmental Law

The Canadian government has announced that it is charging Volkswagen for importing cars into Canada that company executives knew violated emissions standards. The German automaker faces 58 charges of violating the Canadian Environmental Protection Act for bringing 128,000 cars into Canada with illegal emissions between 2008 and 2015. The company faces two other charges of providing misleading information.

Volkswagen issued a statement saying that it has co-operated fully with Canadian investigators and that a deal is prepared ahead of the company’s first court appearance in Toronto.

“At the hearing, the parties will submit for the court’s consideration a proposed plea resolution and seek its approval,” the statement said. “The details of the proposed plea resolution will be presented at the hearing.”

Environment Canada officials published notice of the charges but said they would not comment further because the matter is before the courts.

Canada’s case against Volkswagen comes more than four years after the company admitted to installing software on 11 million cars worldwide to trick emissions-testing equipment into concluding the cars ran more cleanly than they actually did.

Volkswagen pleaded guilty to charges in the case in the United States in March 2017 and was fined more than \$4.3 billion.

Several Volkswagen executives and managers involved in the deception were charged in the U.S. and Germany, and some have already been sent to prison.

In total, the elaborate scheme has cost the company more than \$30 billion in legal fines and civic lawsuits as well as compensation to customers who returned affected cars for refunds or exchanges.

Environment Canada’s investigation, launched in September 2015, was repeatedly criticized by environmental experts and lawyers for taking too long.

The affected cars in Canada included diesel engine vehicles sold under Volkswagen, Audi and Porsche brands.

26. Volkswagen Loses Bid to Keep Health Evidence From Diesel Trial

Testimony about respiratory and other health effects allegedly caused by diesel emissions will be allowed at a February trial of 10 consumers’ claims that they lost money because Volkswagen AG installed software to cheat on emissions tests in their vehicles, a federal court in California ruled. The proposed testimony, by the plaintiffs’ environmental medicine expert Dr. George Thurston, is relevant to punitive damages, Judge Charles R. Breyer of the U.S. District Court for the Northern District of California said December 23.

In 2015, Volkswagen admitted to rigging diesel vehicles to cheat on U.S. emissions tests. Litigation over VW’s use of “defeat devices” in nearly half a million diesel vehicles resulted in a settlement valued at over \$10 billion. Some drivers, however, opted out of the deal. Breyer decided to consolidate multiple plaintiffs’ claims into bellwether trials.

Thurston intends to testify that higher nitrogen oxide emissions from VW diesel automobiles have increased adverse effects on human health, according to the court. VW didn’t immediately attack the testimony as unreliable. Instead, it said it’s not relevant.

Breyer disagreed. “Under California law, the trier of fact may award punitive damages if it finds that the defendant engaged in ‘despicable conduct’ with a ‘willful and conscious disregard of the rights or safety of others,’” he said. And adverse health effects are relevant to people’s safety, he said.

27. Divided CASAC Endorses Retaining 2015 Ozone and PM2.5 Limits

EPA's Clean Air Scientific Advisory Committee (CASAC) is endorsing EPA staff's recommendation to retain the agency's existing federal ozone standards, voting 6-1 to keep the "primary" health-based limit in place, and unanimously backing the current "secondary" standard that is designed to protect the environment.

At the conclusion of a four-day meeting on December 6, the majority of the seven-member panel voted in favor of EPA staff's conclusion that the current primary national ambient air quality standard (NAAQS), set in 2015 at 70 parts per billion (ppb), adequately protects public health.

Staff arrived at this conclusion in a policy assessment (PA) that gives the agency administrator options to either retain current standards or alter them.

Even so, CASAC's sole research scientist, Mark Frampton, voted against this assessment, finding that the 70 ppb primary limit is not sufficient to protect public health with the "margin of safety" required by the Clean Air Act. Frampton based his view largely on the findings of the previous CASAC in 2014, which recommended EPA set the primary limit within a range of 60 ppb to 70 ppb, with 70 ppb affording "little" safety margin to protect sensitive groups such as asthmatics.

The panel's split is similar to its earlier determination that EPA's air standards for fine particulate matter (PM2.5) are adequate to protect public health. There, the panel rejected EPA staff's position in a separate PA that the PM2.5 primary standard should be tightened. In that CASAC opinion, Frampton was again the only voice contradicting the panel majority led by Chairman Tony Cox, an industry consultant and noted skeptic of EPA's methods for assessing the health risks of air pollution.

CASAC did, however, agree unanimously that EPA's current secondary ozone NAAQS is adequate to protect the environment and should be retained. Cox will convey the panel's conclusions to Administrator Andrew Wheeler in writing, to inform a final rule retaining the ozone standards or altering them. That rule is due by late 2020, along with a final PM NAAQS rule, under the agency's ambitious and compressed schedule.

The Obama EPA in 2015 set the secondary limit identical to the primary level, with the same "form." Both ozone standards are therefore expressed as the fourth-highest eight-hour ozone reading averaged over three years.

This finding by the panel has significance for EPA's ultimate response to a remand from the U.S. Court of Appeals for the District of Columbia Circuit, which ruled August 23 in *Murray Energy v. EPA* that EPA failed to explain its decision to set the secondary limit with the same "form" as the primary NAAQS.

EPA staff, endorsed by CASAC, had found a different form would be more appropriate, based on a three-year measure of cumulative exposure of plants to ozone.

EPA staff in the current PA finds that the secondary ozone NAAQS provides the equivalent protection of a standard for cumulative exposures known as W-126.

New CASAC member Ronald Kendall, a Texas-based toxicologist, said EPA staff in the new PA and underlying integrated science assessment (ISA) correctly summarized the evidence of

ozone's harmful effects to plant life. Indeed, the evidence of "causal" effects has increased, for a wider variety of effects, Kendall said.

Nonetheless, Kendall added that the original target ozone exposure level under W-126 sought by the Obama-era CASAC, of 17 parts per million-hours, is being attained all over the country, including in "Class 1" areas such as national parks and wilderness areas. Hence the current NAAQS is sufficiently protective, he said. The Clean Air Act also has no "margin of safety" requirement for secondary standards, making it easier for the committee to reach a unanimous position on the secondary NAAQS.

When questioned by CASAC member and Georgia air regulator James Boylan on why the draft ozone PA makes little mention of EPA's response to the D.C. Circuit remand, EPA staff at the meeting said the final PA will include a more thorough response, and that the proposed and final NAAQS rules themselves also will address this point.

Much of the four-day discussion on PM and ozone standards reflected profound differences between Cox, largely backed by Utah toxicologist Steven Packham and Texas toxicologist Sabine Lange, and Frampton over the "causality framework" EPA uses in ISAs. Cox favors a tougher definition of "causation" of health effects by exposure to pollutants, using concepts of "manipulative causality."

Using such a concept is particularly problematic for epidemiological studies, which Frampton noted are the main driver of research finding harmful effects from PM_{2.5} at concentrations below the current NAAQS. Epidemiological studies cannot be repeated in a laboratory, nor can they be perfectly controlled for "confounders" that could bias the results, such as pre-existing health conditions, presence of other pollutants, or air temperature, critics say.

CASAC's letter to Wheeler is therefore likely to be strongly critical of the agency's methods, and may place heavy emphasis on the need to better control for confounders, to ensure appropriate study selection, to check the accuracy of computer models, to explain uncertainties, and to otherwise control for errors in the interpretation of the science.

Frampton noted, however, that ozone-related science relies more on controlled laboratory studies of human subjects -- although for ethical reasons, such studies are not conducted on vulnerable subjects such as asthmatics. He defended the causality framework, which weighs the available studies under a weight of evidence approach. The method has been used for decades, with the endorsement of CASAC, Frampton said.

Nevertheless, it appears that the panel may ultimately recommend that the National Academy of Sciences examine the causality framework, according to remarks by Cox and other panelists.

The panel continues to be split over the accelerated schedule and pared-down review method EPA is using for the current ozone and PM reviews. Under the approach introduced by former Administrator Scott Pruitt, EPA has combined or eliminated certain steps of the NAAQS review process, restricted the agency to a single draft of documents, and limited CASAC's input. The agency has also appointed all-new members to the panel, without any epidemiologists, and has eliminated expert subcommittees that have traditionally participated in CASAC's work.

While Cox has encouraged the panel to work with the new arrangements, other panelists have complained about the tight schedule and lack of outside assistance. In response to an April letter

from CASAC, EPA convened a pool of experts to assist with both ozone and PM NAAQS reviews, but this did not satisfy some CASAC members.

“The precedent that is being set is of concern to me,” said Frampton, who advocates a return to larger subpanels to help with reviews. Packham broadly supported that view, arguing that face-to-face consultation with experts is desirable, a position also backed by Boylan. The current “emergency action” should not become precedent for future NAAQS reviews, Packham said. “I would not want this to become standard practice.”

While Packham and others pushed for CASAC’s letter to Wheeler to reflect these concerns, Cox was reluctant, stating that “I don’t want to be used as a political hammer.” Cox expressed concern that any CASAC criticism of the review process could be used against EPA in likely litigation over NAAQS rules.

Packham replied that “I feel more like an anvil than a hammer,” following a review that “has been incredibly taxing on us.”

Cox also rejected the “false narrative” that the current seven-member CASAC lacks the expertise to conduct the PM and ozone reviews. This is a direct response to accusations from environmentalists and many former CASAC members that the panel lacks expertise, and hence credibility. For example, Chris Frey, a former chair of both CASAC and the disbanded special PM panel, in his comments at the meeting denounced the truncated review as “specious, arbitrary and capricious,” citing the Clean Air Act legal standard for courts to overturn EPA regulations.

Despite CASAC’s majority views on the PM and ozone NAAQS, as well as the Trump administration’s broader deregulatory agenda, public health groups continue to push for tougher standards. In oral comments to the panel, the American Lung Association pushed for a primary ozone NAAQS between 55 ppb and 60 ppb, while the American Thoracic Society pressed for a 60 ppb limit.

Meanwhile, the U.S. Chamber of Commerce urged EPA to retain the current 70 ppb limit, while Julie Goodman, a consultant working for the American Petroleum Institute, said the current standard is overly conservative and EPA could consider weakening it.

CASAC delivered a split verdict on whether the agency should tighten its annual standard for fine particulate matter (PM_{2.5}), reflecting profound disagreements between the panel’s majority that opposes a tougher limit, and its sole research scientist who supports tightening the standard.

CASAC Chairman Cox announced the outcome of CASAC’s debate on the national ambient air quality standard (NAAQS) for PM_{2.5} in a December 16 letter to EPA Administrator Andrew Wheeler, advising him on how to proceed with the agency’s ongoing review of the NAAQS for various forms of PM.

In the letter, Cox on behalf of CASAC acknowledges that the panel is fundamentally divided, with some members opposing EPA staff’s suggestion in a draft policy assessment (PA) document to tighten the annual PM_{2.5} standard to protect human health from the level set in 2012, while others -- specifically research scientist Mark Frampton, although Cox does not name him as the dissenting voice -- support the staff recommendation.

Cox writes on behalf of the panel that “some CASAC members conclude that the Draft PM PA does not establish that new scientific evidence and data reasonably call into question the public

health protection afforded by the current 2012 PM_{2.5} annual standard." However, "Other members of CASAC conclude that the weight of the evidence, particularly reflecting recent epidemiology studies showing positive associations between PM_{2.5} and health effects at estimated annual average PM_{2.5} concentrations below the current standard, does reasonably call into question the adequacy of the 2012 annual PM_{2.5} [NAAQS] to protect public health with an adequate margin of safety," the letter continues.

In its September draft PA, EPA staff recommended tightening the primary annual limit to a level between 8 ug/m³ and 12 ug/m³, while leaving the remaining suite of PM standards unchanged for both PM_{2.5} and coarse particulate matter (PM₁₀).

The Clean Air Act requires EPA to set health-based primary NAAQS at a level sufficient to provide "an adequate margin of safety" for public health. Secondary NAAQS, meanwhile, are designed to protect the environment.

In meetings to review the draft PA, CASAC split 5-1 against any tightening of PM standards, with only Frampton ultimately advocating a tougher annual PM_{2.5} limit. Georgia air regulator James Boylan initially voiced support for tightening the annual PM_{2.5} standard, only to later change his view. The panel's seventh member, Texas toxicologist Ronald Kendall, recently joined the committee and did not participate in the PM review.

CASAC unanimously concurs, however, with EPA staff's view that PM secondary standards to protect the environment should be left unchanged.

CASAC's letter also reflects harsh criticism from Cox and other panel members against EPA's draft integrated science assessment (ISA) for PM, which synthesizes the latest "policy-relevant" science and supports the PA's conclusions that a stricter NAAQS is necessary.

The draft ISA "does not provide a sufficiently comprehensive, systematic assessment of the available science relevant to understanding the health impacts of exposure to PM, due largely to a lack of a comprehensive, systematic review of relevant scientific literature; inadequate evidence and rationale for altered causal determinations; and a need for clearer discussion of causality and causal biological mechanisms and pathways," Cox writes.

Despite those criticisms of the case for a stronger NAAQS, the letter also urges EPA to include mention of the unusually truncated timetable it has imposed on the review process, and the agency's decision to disband a specialized subpanel that advised the chartered CASAC on PM science in the run-up to prior NAAQS decisions.

"The CASAC recommends that the EPA consider adding a discussion of the exceptional nature of the current CASAC and NAAQS review process, including (a) [former Administrator Scott Pruitt's] 'Back to Basics' memorandum; (b) the disbanding of the CASAC PM Review Panel and streamlining of the review process to promote timely advice; and (c) the appointment of a pool of nonmember consultants to expand the expertise and fields of knowledge used to inform the CASAC's review," Cox writes.

Pruitt's memo paved the way for shorter reviews of all existing NAAQS, and reduced CASAC input into the agency's decision-making process.

“A brief discussion of the accelerated timeline, which has led to tight schedules, condensed procedures, and a Draft PM PA being produced before the PM ISA was revised/finalized, might also be useful,” the letter says.

28. MIT Experts Say CAFE, Low-Carbon Grid Key To Reduce Vehicle GHGs

Experts with the Massachusetts Institute of Technology (MIT) say efforts to decarbonize vehicles and reduce mobile source greenhouse gas emissions will depend on strengthening federal corporate average fuel economy (CAFE) standards for gasoline-fueled vehicles and creating a low-carbon electricity grid that can support electric vehicles (EVs).

In a press interview, Jennifer Morris, a research scientist at the MIT Joint Program on the Science and Policy of Global Change, discussed the new MIT Energy Initiative report, “Insights Into Future Mobility.” The study presents the findings of a three-year multidisciplinary analysis of how to transform vehicle transportation through complex interactions involving government policies, consumer choices, refueling infrastructure, and other factors affecting a sector that is a major source of GHG emissions.

The report comes as the House Ways and Means Committee November 19 introduced a “discussion draft” of the “Growing Renewable Energy and Efficiency Now (GREEN) Act,” which would extend and expand various incentives for EVs, wind, solar, biofuels, energy storage, and other clean energy technologies. Parts of the bill could be attached to a must-pass continuing resolution expected December 20, say renewable energy experts.

The report assessed the impact of various options for government policies on passenger vehicles. Analyses examined a Paris Agreement scenario, a 2° C scenario, and other scenarios for growth in demand, especially in China, along with the impacts of incentives for EV adoption. “Across-the-board, regardless of the scenarios,” deployment of EVs will grow significantly, driven by increasingly competitive economics over time, Morris says. By about 2030, MIT’s research suggests, EVs will reach “total cost parity” with internal combustion engines (ICE), she adds.

Some characterizations of the report said it portrayed a pessimistic future for EVs.

MIT researchers carefully analyzed how EV costs can be expected to evolve over time and found that while the cost of batteries is falling rapidly, “there is a floor to how low that cost can go” that is based on the costs of cobalt, lithium, and other raw materials. Other studies do not account for that floor and thus see battery costs falling toward zero, Morris says. “We have a more realistic assessment,” and factoring in the floor is why the MIT numbers “are different” from those of other studies.

EV adoption will be significantly affected by whether a tax credit or subsidies are available, Morris says. MIT’s base analysis removes subsidies, but if they are restored -- as proposed in the GREEN Act -- EV penetration would occur more rapidly. The report’s researchers will share their findings with GREEN Act sponsors.

The need for strong CAFE standards is one of two key findings about what is needed for decarbonizing the transportation sector, Morris says. Another “key takeaway” is that EVs cannot be an effective decarbonizing strategy unless the electrical grid is also “cleaned up,” which will also take time, so continued fuel efficiency improvements will be critical, especially since light-trucks and SUVs are costlier to electrify.

Morris notes that EV fueling and charging infrastructure will be critical to boost adoption of the vehicles. The report says current limitations on EV batteries, including a relatively low range and long charging time, contribute to a fear among consumers that they will run out of energy before reaching their destinations. The researchers cite that “range anxiety” as a barrier to EV adoption. Even if EVs and ICE cars reach cost parity, infrastructure and range issues will be important factors for consumers, Morris says.

Following release of its recent study, MIT launched a new “Mobility Systems Center,” one of several university Low-Carbon Energy Centers, to build on the report’s research, focused on a range of issues including heavy-duty trucking and how developing regions such as India could transition to decarbonized transportation.

29. Rivian Gets \$1.3B Funding Boost, For Electric Truck Deliveries By Late 2020

Electric-vehicle upstart Rivian has announced that it has closed a \$1.3 billion investment round led by T. Rowe Price—including new investments from Amazon, Ford, and BlackRock. The fresh funding, together with previous investments in the company announced this year, have helped assure that Rivian will deliver product—in the form of electric pickups, SUVs, and cargo vans.

That’s just what Rivian has continued to confirm for 2020 and 2021. Its R1T electric pickup and R1S electric SUV, both with operating ranges of 400 miles or more in their top versions, are due for customer deliveries at the end of 2020. Electric delivery vans for Amazon, which will use some of the same platform technology, will arrive starting in 2021, with a total of 100,000 due over several years.

Both of the trucks, as well as the delivery vans, will be produced at the company’s Normal, Illinois facility, a former Mitsubishi assembly plant.

That brings this year’s investments to more than \$2.8 billion, on top of a \$700 investment from Amazon, a \$500 million investment from Ford (likely resulting in a Lincoln vehicle, according to reports), and a \$350 million investment from Cox Automotive. All of this is on top of previous funding Rivian received from multiple sources, including Japan-based Sumitomo and Saudi auto distributor Abdul Latif Jameel—making Rivian one of the best-funded, best-positioned standalone electric vehicle makers outside of Tesla, heading into 2020.

Ramping up to production at the level that Rivian is aiming for—with ground-up new designs—is incredibly cash-intensive. So, such an influx of cash is necessary not just for making it to a production start and assuring all the necessary logistics (customer support included) but also making that sustainable in early months.

On the subject of money, Rivian plans to sell what are best described as premium vehicles. The company hasn’t said anything more in recent months about pricing, but last year when it introduced the vehicles in prototype form it said that it expected to sell the R1T and R1S for starting prices of \$69,000 and \$72,500, respectively.

30. During a Time of Cutbacks at EPA, 30 States Also Slashed Environmental Funding

During a decade of cuts at EPA fueled by rhetoric that environmental responsibility should be shifted from the federal to state level, 30 states cut funding for their own environmental agencies and 40 reduced their staffing, according to a new study of state budget records. The nonpartisan Environmental Integrity Project’s report, “The Thin Green Line: Cuts to State Pollution Control

Agencies Threaten Public Health,” examined spending and staffing in state pollution control programs in the lower 48 U.S. states from 2008 to 2018.

“The Trump Administration has been trying to roll back EPA’s authority and funding by arguing that the states will pick up the slack and keep our air and water clean,” said Eric Schaeffer, Executive Director of the Environmental Integrity Project.

“This is just a shell game, however,” said Schaeffer, former Director of Civil Enforcement at EPA, “because state agencies are often badly understaffed and the EPA workforce is already at its lowest level in more than thirty years. Neither EPA nor states have the funding they need to meet their responsibilities under the Clean Air Act, Clean Water Act and other laws that protect the public’s health and our environment from dangerous pollution.”

The White House and Congress reduced EPA’s funding and staffing for pollution control and science programs by 16 percent from 2008 to 2018, when adjusted for inflation. During this period, many states slashed their own environmental agency funding by an even greater percentage—notably Texas (35 percent), North Carolina (34 percent), and Illinois (25 percent). The reductions in these state environmental programs came even though state spending was growing overall, and environmental threats were rising, including a booming oil and gas industry and climate change.

Luke Metzger, Executive Director of Environment Texas, said: “With one-third of our waterways unsafe for fishing and swimming and two-thirds of Texans living in areas with unsafe air quality, Texas has major environmental problems. But instead of meeting this challenge, our legislature is deprioritizing the environment and public health.”

The steep reductions at state environmental agencies came despite evidence that many environmental violations are resulting in no enforcement or penalties. For example, EPA records show there are 2,098 sewage plants, factories, and other industrial sites across the U.S. that are currently in significant violation of federal air, water, or hazardous waste pollution control laws, including 1,255 that have been in violation every quarter continuously for the last three years. Of these 1,255 sites with chronic violations, 80 percent (1,008) are in states with environmental agencies that have suffered staffing cuts, records show.

31. \$18 Million Tugboat Project Will Move To Hybrids At Ports Of Long Beach, LA

With buy-in from the Port of Los Angeles, a program to design and develop a hybrid electric-drive tugboat that would replace today’s diesel-only standard is set to begin next year. Port commissioners have voted to spend \$117,000, matching an amount the Port of Long Beach had already approved, to support the project, which private company Millennium Maritime is developing.

The project will cost \$18 million altogether, with other funding coming from Millennium and a grant from the California Air Resources Board. The Long Beach port is the lead agency on the project, which stems from the 2006 Clean Air Action Plan agreement between both ports. The goal is to usher in diesel-electric hybrid technology for working tugboats in the twin harbors.

Chris Cannon, director of environmental management at the Port of Los Angeles, said the diesel tugs are “low-hanging fruit” in the ongoing battle against pollution-spewing equipment that operates in the ports.

The new tug will be developed and built during 2020 and will likely be ready for deployment sometime in early 2021, Cannon said. The idea is to replace existing diesel tugs with cleaner models that look the same. A single hybrid tugboat would have six high-speed diesel engines and two electric propulsion motors.

L.A. Harbor Commissioner Edward Renwick suggested the port begin looking into ways it can share in the future proceeds of clean technology it helps pay for and test in its early stages.

He urged the port to think about creating a mechanism with which the port can reap future proceeds from new technology created with its funding help.

"This may very well be the next generation of tugboats all over the world, or not," Renwick said at the December 19, commission meeting at which the tugboat funding was OK'd. "But if they are, we should get a piece of it."

32. First Commercial Electric Plane Takes Flight In Canada

The world's first fully electric commercial aircraft took its inaugural test flight recently, taking off from the Canadian city of Vancouver and offering hope that airlines may one day end their polluting emissions.

"This proves that commercial aviation in all-electric form can work," said Roei Ganzarski, chief executive of Seattle-based engineering firm magniX. The company designed the plane's motor and worked in partnership with Harbour Air, which ferries half a million passengers a year between Vancouver, Whistler ski resort and nearby islands and coastal communities.

Ganzarski said the technology would mean significant cost savings for airlines -- not to mention zero emissions. "This signifies the start of the electric aviation age," he told reporters.

Civil aviation is one of the fastest growing sources of carbon emissions as people increasingly take to the skies and new technologies have been slow to get off the ground. At 285 grams of CO2 emitted per kilometer (mile) traveled by each passenger, airline industry emissions far exceed those from all other modes of transport, according to the European Environment Agency. The emissions contribute to global warming and climate change.

The e-plane -- a 62-year-old, six-passenger DHC-2 de Havilland Beaver seaplane retrofitted with an electric motor -- was piloted by Greg McDougall, founder and chief executive of Harbour Air. "For me that flight was just like flying a Beaver, but it was a Beaver on electric steroids. I actually had to back off on the power," he said.

McDougall took the plane on a short loop along the Fraser River near Vancouver International Airport in front of around 100 onlookers soon after sunrise. The flight lasted less than 15 minutes.

"Our goal is to actually electrify the entire fleet. There's no reason not to," said McDougall. On top of fuel efficiency, the company would save millions in maintenance costs, as electric motors require "drastically" less upkeep, McDougall said.

However, Harbour Air will have to wait at least two years before it can begin electrifying its fleet of more than 40 seaplanes. The e-plane has to be tested further to confirm it is reliable and safe. In addition, the electric motor must be approved and certified by regulators.

In Ottawa, Transport Minister Marc Garneau told reporters ahead of the maiden flight that he had his "fingers crossed that the electric plane will work well." If it does, he said, "it could set a trend for more environmentally friendly flying."

Battery power is also a challenge. An aircraft like the one flown on the inaugural test could only fly about 100 miles (160 kilometers) on lithium battery power, said Ganzarski. While that's not far, it's sufficient for the majority of short-haul flights run by Harbour Air.

"The range now is not where we'd love it to be, but it's enough to start the revolution," said Ganzarski, who predicts batteries and electric motors will eventually be developed to power longer flights.

While the world waits, he said cheaper short-haul flights powered by electricity could transform the way people connect and where they work. "If people are willing to drive an hour to work, why not fly 15 minutes to work?" he said.

33. Paris Disagreement: States Split On Climate, So U.S. To Miss Emissions Target

When the United States formally withdraws from the 2015 Paris Agreement in less than a year, nearly half of the states — or at least their governors — will remain committed to meeting the goals of the global compact to reduce greenhouse gas emissions to stave off the worst effects of climate change.

Collectively, the 24 states that have formed the U.S. Climate Alliance are nearly on pace to reach the emissions targets set forth in the agreement, and governors say their progress in the absence of federal leadership is a success story.

But even where states have succeeded in shrinking their carbon footprint, they've been hampered by the Trump administration's rollbacks to regulations on power plants and vehicle emissions. And scant progress in the remaining 26 states, which produce more than half of the country's emissions, shows the limits of state action in meeting the national milestones that scientists say are essential.

"The challenge has been that for each step that they take forward, the administration continues to unwind our national climate framework," said Julie Cerqueira, executive director of the Alliance.

According to a report released recently by the group, the participating states collectively are on pace to reduce their emissions 20% to 27% below 2005 levels by 2025. The Paris Agreement calls for the United States to lower emissions by 26% to 28% in that time. But as a group, the states that haven't joined are projected to see carbon cutbacks of only 3% to 11%, leaving the nation well short of the necessary reductions. Taken together, national emissions would drop 10% to 17%.

Opponents of state action often note that one state's emissions are a fraction of the global total and ask why some governments must sacrifice when others are not doing the same. Many also suspect that carbon-reduction efforts will increase the reach and bureaucracy of state governments. New Hampshire Gov. Chris Sununu, a Republican, said in 2017 that he would not join the Alliance because of the unknown economic effects. He added that it's not his job as governor to analyze global agreements, saying he trusted that the Trump administration had made that assessment before withdrawing.

Proponents respond that climate investment does not necessarily mean economic sacrifice. The latest report shows Alliance states have grown their economic output at a faster rate than the rest of the country. They also point out that a new presidential administration could recommit the country to emissions targets, and that states that invest now will be better prepared if fighting climate change again becomes a national priority.

However, many of the top states for oil and natural gas production, such as Texas, Oklahoma, North Dakota and Louisiana, are not members of the Alliance. Such states likely would face more economic fallout under an aggressive move to cut emissions.

States join the Alliance via a nonbinding declaration from their governors that does not set official emissions goals, add new regulations or invest in clean energy — state laws are required to do that. But members say the group gives state leaders a powerful collective voice and a forum to collaborate and share ideas.

“We are capable of doing this together, especially as states continue to make progress,” said Lauren McCloy, a senior energy policy adviser to Washington Gov. Jay Inslee, a Democrat and one of the Alliance’s three founding members. “We want to make sure that we’re accounting for that progress to the rest of the world and showing what can be done.”

Inslee has been one of the nation’s governors focused most on climate. Earlier this year, he signed a sweeping package of climate legislation, ranging from clean energy mandates in the power sector to building-efficiency standards to limits on the super-pollutant hydrofluorocarbons.

34. EPA Reportedly Spurns ECOS After State Group’s Cooperative Federalism Rebuke

EPA has been quietly pushing back against the Environmental Council of the States’ (ECOS) recent criticism of “unilateral” agency actions that threaten EPA-state cooperation, including by recalling to the agency staff that had been assigned to assist the group of state environment chiefs and throttling back communication with it.

ECOS is “kind of in the wilderness right now and is not getting a lot of access” to people at EPA they would normally be engaging with, says a source reportedly familiar with the issue.

The dispute underscores the continuing friction between the Trump EPA and many states, especially California, where officials have clashed over a range of EPA policy and budget threats. As such, the disputes between EPA and ECOS raise further questions about the EPA-state relationship, despite some state officials defending EPA early on.

According to press reports, the “back and forth” between the agency and states has spawned a walking-on-egg-shell dynamic in which at least some state officials are feeling pressure to “tone down” critiques of the agency in subsequent written comments on agency policies.

The agency’s latest actions come after a September letter ECOS sent to EPA requesting a meeting with EPA Administrator Andrew Wheeler to discuss a series of policies curbing state powers, including threats to block California’s highway funds because of a backlog of air pollution plans and indications EPA might also revoke the state’s clean water authority due to failure to curb water pollution.

But there is little sign EPA granted ECOS the meeting it requested, even though the request was reportedly approved by the heads of each of the 50 state environmental agencies.

And a state source cites some indications that “more than one” pending grant to the group was held up in the wake of the ECOS letter and is “in limbo.” But EPA is denying claims that grants are being held up in retaliation for the September letter. “No pending grants have been held up and it is inaccurate to say otherwise,” EPA said in a December 12 statement. EPA added that it also “recently issued several grants” to the Interstate Technology & Regulatory Council, a group managed by ECOS, “that will fund work important to both the states and EPA.”

But the source familiar with the issue adds that in addition to ECOS’s access to EPA being in the “wilderness right now,” EPA recalled an agency staffer that had been working at ECOS under an Intergovernmental Personnel Act (IPA) agreement, a long-established process that allows for temporary assignment of personnel between the federal government, state, and local governments and other organizations.

The goals of such temporary assignments, as described by the federal Office of Personnel Management, can include strengthening the management capabilities of federal or state agencies, assisting the transfer and use of new technologies and approaches to solving government problems and facilitating involvement of state and local officials in developing and implementing federal policies.

35. CARB Approves Air Quality Plan For South Coast Air Basin Ahead Of 2023 Deadline

The California Air Resources Board (CARB) voted to approve an updated plan for the South Coast Air Basin aimed at further cutting smog-forming emissions to attain the federal 8-hour ozone standard. The air quality plan is the most stringent in the nation.

In order to address some of the country’s highest levels of smog, the plan includes new strategies to improve air quality, ranging from a new statewide locomotive regulation to more stringent off-road diesel engine standards. The plan also includes current efforts to transform California’s vehicle fleet to zero-emission.

Combined, these measures will provide an additional 25 tons per day of NOx reductions that can be credited toward the 108 tons of NOx per day reduction that is still needed to attain the federal 8-hour ozone standard by 2023. The remaining reductions are reasonably available from further action at the federal level, CARB said.



CARB estimates controls on these sources for which the federal government is primarily responsible—e.g., interstate trucks, planes, trains and ships—could lower NOx emissions in the South Coast by more than 60 tons per day. Even while calling for more action by the federal government to reduce pollution, in taking its action, CARB underscored that it will

continue to use its authority to the fullest extent to achieve more reductions from pollution sources it regulates.

“The plan approved today reflects more hard work by California air quality regulators to use all the tools and authority at our disposal to achieve emissions reductions needed to protect people in the South Coast who are exposed to unhealthful air. But it is imperative that US EPA move quickly to do its job and reduce pollution from the sources it has the responsibility to regulate.”

“To meet the 80 parts per billion ozone standard in the South Coast, all levels of government must do their part. The updated plan serves as a call to action. California is prepared to coordinate with US EPA on all efforts to focus on real actions to reduce emissions.”

—CARB Chair Mary D. Nichols

The US EPA first established the 80 parts per billion 8-hour ozone standard (80 ppb averaged over 8 hours) in 1997. Since then, CARB and the South Coast Air Quality Management District have together achieved NO_x reductions of 900 tons per day. Sources under state control have been reduced by between 70% and 90%, while sources under federal jurisdiction have been reduced by only 16%, and some federal sources of emissions are growing.

While much progress has been made to clean up the air in the South Coast Air Basin—home to more than 17 million people in Los Angeles, San Bernardino, Orange, and Riverside counties—the air basin still has the worst smog in the country.

36. Vermont Launches \$1.1 Million Electric Vehicle Incentive

The State of Vermont has launched an incentive program for the purchase or lease of new plug-in electric vehicles (PEVs), which include all-electric vehicles and plug in hybrid electric vehicles, with a total of \$1.1 million in funding to help Vermonters go electric.

The incentives are available to individuals with an annual household income of \$92,000 or less applying for a new PEV with a base price of \$40,000 or less. More than 20 PEV models are eligible with \$1,500 incentives for plug-in hybrid electric vehicles and \$2,500 incentives for all-electric vehicles. Larger incentives of \$4,000 for plug-in hybrid electric vehicles and \$5,000 for all-electric vehicles are available for individuals whose households qualify for Vermont's Weatherization Program. The statewide incentive may be used in combination with additional PEV incentives offered by the state's electric utilities and federal tax credits for greater savings.

This incentive program was proposed by Governor Phil Scott and authorized by 2019 legislation intended to move Vermont toward its goal of at least 50,000 electric vehicles on its roads by 2025.

“We know the transportation sector accounts for about 45% of the state's greenhouse gas emissions,” said Governor Scott. “These incentives will help get more Vermonters in electric vehicles and help us move forward on our clean transportation and energy goals.”

Vermont's Comprehensive Energy Plan established a goal to increase the share of renewable energy in the state's transportation sector to 10% by 2025 and 80% by 2050. This translates to 50,000-60,000 PEVs registered in Vermont in five years. Currently, there are about 3,300 PEVs registered in Vermont. “It's clear we have more work to do to move the needle in this transition, and this will be a continued area of focus for my administration, with an approach that ensures we're not leaving our most vulnerable Vermonters behind,” added Governor Scott.

The Agency of Transportation (AOT), through Drive Electric Vermont, is working with electric utilities, car dealers and Vermont Energy Investment Corporation (VEIC) to administer the program.

The new program allows eligible customers to receive the incentive directly from a participating car dealer in the form of a reduced purchase or lease price or receive a direct cash reimbursement from the electric utility that serves their household.

Non-utility customers are eligible to participate in the program. Incentives are limited to one per household and to Vermont residents. Incentives are not available retroactively for purchases or leases made prior to the program launch.

37. EPA Releases Its Final 2020 Renewable Fuel Quotas

The US Environmental Protection Agency issued its final 2020 quotas for renewable fuels and 2021 quotas for biomass-based diesel under the federal Renewable Fuel Standard. EPA is committed to assure that a net 15 billion gal of biofuel are blended during the coming year, it said on December 19.

“President [Donald] Trump committed to our nation’s farmers that biofuel requirements would be expanded in 2020,” EPA Administrator Andrew R. Wheeler said. “EPA is delivering on that promise and ensuring a net of 15 billion gal of conventional biofuel are blended into the nation’s fuel supply.”

EPA said that under the newest final rule, it has modified the RFS program by projecting small refinery relief to assure that final volumes are met, while adjudicating small refinery relief when appropriate.

“As proposed, we are finalizing a projection methodology based on the 2016-2018 annual average of exempted volumes had EPA strictly followed US Department of Energy) recommendations of 770 million Renewable Identification Numbers (RINs) in those years, including granting 50% relief where DOE recommended it,” EPA explained.

“This is our general approach to adjudicating Small Refinery Exemption (SRE) petitions going forward, beginning with 2019 SRE petitions and including 2020 SRE petitions and beyond, we are committed to following the DOE recommendations. By proposing effectively 15.8 billion gal for 2020, we will ensure meeting our target of 15 billion gal,” it said.

Under the December 19 action’s key elements, EPA said that:

- Conventional biofuel volumes, primarily met by corn ethanol, will be maintained at the 15 billion gal target set by Congress for 2020.
- Cellulosic biofuel volumes for 2020, and thus advanced biofuel volumes, will increase by almost 170 million gal over the 2019 quotas.
- Biomass-based diesel volumes for 2021 will be equivalent to the 2020 quotas, but still be more than double the statutory requirement.
- It will closely examine labeling requirements for motor fuel with a 15% ethanol blend (E15), and “move forward with clarifying requirements as needed.”

- It will modify the way RFS obligations are determined to better ensure that these volumes are met, while still allowing for relief for small refineries consistent with the direction provided by Congress.

EPA added that in response to Trump's earlier decision to allow year-round E15 sales, it will work to streamline labeling and remove other barriers nationwide. It also said that it is making important reforms to its Renewable Identification Number (RIN) compliance system to make it more transparent and to discourage price manipulation.

The agency also said that it will continue to engage with stakeholders to expand the number of approved fuel pathways and add diversity to the US biofuel mix.

"Since January 2017, EPA has approved 25 petitions for new fuel pathways, including a final rule in August 2018 that approved new pathways for biofuels derived from sorghum," it noted. "EPA will continue to further explore opportunities to remove regulatory burdens that prevent marketplace entrance and growth to natural gas, flexible fuel vehicles, and E85 fuels."

The Fueling American Jobs Coalition, which said it represents union workers, family retailers, and independent refiners, strongly criticized EPA's approach. "The entire concept of prospectively recovering small refiner exemption (SRE) volumes is based on a false premise. The overwhelming consensus of data, confirmed by this EPA, clearly demonstrates that SREs do not suppress US ethanol production, demand or exports," it said in a statement.

"Year-to-date domestic ethanol blending levels are higher than ever, and the bulk of additional volumes will be satisfied by imports of foreign biofuel rather than US biofuels producers," the group suggested.

"To be clear, neither the reallocations nor the partial waivers contained in today's announcement are legal. Both threaten to raise the cost of compliance credits known as RINs, and refineries that have not requested exemptions will find themselves saddled with even higher volume requirements applied without due process. Court challenges will ensue," it warned.

38. U.S. Companies Pursue 'Science-Based' GHG Cuts To Meet Paris Goal

More than 285 companies, including major U.S. firms such as the Coca-Cola Company and Dominion Energy, have set "science-based targets" aligned with the Paris climate agreement for reducing greenhouse gases (GHGs) that will eliminate the equivalent of emissions from closing 68 coal-fired power plants, according to a major new study.

With the Trump administration in the process of withdrawing from the Paris Agreement, the corporate actions reflect a significant effort to respond to policy and market pressures for action on climate change threats that a growing number of bankers and investment firms also say pose serious "material risks" to business operations.

The findings are detailed in a December 4 report released by the Science Based Targets initiative -- a collaboration between climate advocacy non-profit CDP, the United Nations Global Compact, World Resources Institute, and the World Wildlife Fund for Nature (WWF). The initiative says its purpose is to mobilize companies to set science-based targets and boost their competitive advantage in the transition to a low-carbon economy.

The initiative launched its new report², to coincide with the 25th Conference of the Parties. It is the initiative's first impact assessment since its 2015 launch and finds that if the 285 participants meet their science-based targets they would see a drop in GHG emissions of 265 million metric tons, equal to the effect of closing 68 coal-fired power plants.

In all, the 285 companies that have set science-based targets are responsible for 752 million metric tons of CO₂ equivalent emissions per year from their operations -- more than the combined annual emissions of France and Spain, according to a release announcing the new findings.

The 285 companies' climate targets "are proof that acting on climate science goes hand-in-hand with a successful business and economy," Alexander Farsan, WWF's global lead for science-based targets says in the release. He describes the companies as "at the vanguard in the fight against climate change. . . . Every company in every sector must step up and reduce their emissions in line with what science says is needed, or risk being left behind in a changing world."

According to the initiative's website, targets companies adopt to cut their GHG emissions are considered "science-based" if they align with "what the latest climate science says" is necessary to meet the Paris Agreement goals of limiting global warming to under 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C.

39. House Democrats Weigh Federalism Framework For Broad GHG Cuts

Top House Democrats are exploring a policy framework for achieving deep greenhouse gas cuts across the economy under which the federal government sets an enforceable goal for emission reductions while giving states discretion on how to reach that goal.

"We are interested in that. . . . There is some value to it," said Rep. Paul Tonko (D-NY), chairman of the House Energy & Commerce Committee's environment panel, in remarks to reporters after a December 5 hearing on economy-wide approaches to GHG curbs. He added: "The goal here is to achieve a carbon emission reduction. And if we do that with flexibility that would be fine, but there has to be an overarching standard that keeps us all united."

Democrats are scheduled to release a discussion draft of a climate mitigation policy this month or in January, though it is not clear if they will fully embrace such a federalism-based model.

Tonko's remarks came after the conclusion of the panel's hearing on "Solutions for Economy-Wide Deep Decarbonization," the seventh in a series of hearings on committee Democrats' goal of achieving a 100 percent clean economy by 2050 that has included both sector-specific and economy-wide approaches.

Hearing witnesses include Tim Profeta, director of Duke University's Nicholas Institute for Environmental Policy Solutions, who touted the idea of a "state-federal partnership" for achieving carbon cuts as an alternative to a federally imposed carbon price in the form of a cap-and-trade program or a carbon fee.

"A single price on carbon . . . has long been the preferred approach among economists and other climate policy experts," Profeta said, noting in his written testimony that while cap-and-trade programs or a carbon tax might be the most effective GHG-reduction policy, they both come with political baggage.

² "Raising The Bar: Exploring The Science Based Target Initiative's Progress In Driving Ambitious Climate Action"

“Today I want to propose that there may be another way to solve this conundrum,” he added, floating a concept in which Congress sets enforceable national GHG targets and divides those among the states, which would be “empowered” to reach those goals.

But Profeta’s testimony cited roughly half a dozen advantages of an alternative “comprehensive federal-state climate partnership” approach, including: ending current fragmentation of climate efforts; promoting regional fairness by allowing states to tailor action plans to their circumstances; keeping any revenues generated by the program within state economies, and allowing states with existing climate programs to build on their efforts while giving lagging states flexibility to implement their plans.

He also touted the approach as a route toward resolving legal questions that complicate the creation of multi-state GHG programs under current law.

Profeta’s concept is more of a broad framework than a specific policy, but some more detailed elements include flexibility for individual states to choose a base year against which to measure percentage emission reduction targets. “In that scenario, states that have reduced their emissions can get credit for those reductions while states with higher emissions today can set targets based on their current circumstances, so they are not put at a disadvantage,” his testimony says. “It will be role of the federal government to judge the sufficiency of the state plan. How it will be judged should be clear and transparent to all parties from the outset.”

Proposals for a federal clean energy standard have already surfaced in several venues including multiple bills in Congress and a recent Center for Climate & Energy Solutions report touting a possible federal standard as well as the potential for linking state clean energy standard programs.

Other Democratic witnesses included Yale University environmental law professor Dan Esty -- who touted a possible carbon fee beginning at \$5 a ton and escalating over two decades to \$100 per ton. In addition, Columbia University climate and energy economist Noah Kaufman cited the need to “surround” a carbon price with other policies to enable GHG cuts, including efficiency standards, measures to spur technological innovation and efforts to prod deployment of technologies including alternative vehicles.

Tonko in his opening remarks referenced Profeta’s “cooperative federalism” approach, as well as the need to examine a broad portfolio of solutions, including carbon pricing and complementary policies related to the workforce, research and development, environmental justice and resilience.

He also pressed Kaufman for a response to the notion that a carbon price must be set at very high levels -- such as hundreds of dollars per ton -- to be truly effective. Kaufman noted such estimates often rely on assuming a carbon tax is doing “all of the work itself” to cut emissions, and that there is little technological innovation. He added that a \$25- or \$35-per-ton price would enable meeting the Obama administration’s 2025 GHG target under the Paris climate deal, while doubling that figure would get the U.S. on a much steeper carbon reduction curve.

Energy & Commerce Democrats have previously pledged to release a climate policy discussion draft by the end of this year or early next delving into economy-wide approaches, but Tonko in his post-hearing comments to reporters continued to hedge on precisely when the draft would be released.

The hearing itself continued to showcase partisan divisions on climate change, with multiple Republican lawmakers criticizing cap-and-trade, carbon taxes and Green New Deal-style approaches in favor of relying on innovation policies such as encouraging zero-carbon nuclear power.

GOP lawmakers in that vein focused on testimony from the University of Georgia engineering professor David Gattie, who argued that boosting nuclear power should be “central to U.S. policy” both domestically and abroad to avoid countries that “don’t share America’s values” -- namely, China and Russia -- from partnering with other nations on the technology and expanding their influence.

40. Mexico Postpones Clean Diesel Rule For Pemex For Five Years

Mexico’s energy regulator has voted to defer for five more years a rule requiring national oil company Pemex to produce, distribute and sell ultra-low-sulfur diesel (ULSD) nationwide. By a unanimous vote, Mexico’s Energy Regulatory Commission (CRE) decided to postpone the closely watched rule in a meeting that lasted barely a few minutes, with no public discussion and no reason given.

The postponement follows an earlier deferral late last year amid an ongoing legal battle over the matter.

Under the CRE’s resolution, Pemex can continue marketing ULSD only in Mexico City, Guadalajara and Monterrey - Mexico’s three largest cities - and on the northern border with the United States through the end of 2024. In the rest of Mexico, companies may choose which type of diesel they will offer.

The government argues that technical and operational conditions for distributing ULSD nationwide will only exist in late 2024, according to a document sent to the regulator by deputy energy minister Miguel Maciel.

Pemex does not produce enough clean diesel to satisfy the demand the new rule would create, which was passed during the administration of former President Enrique Peña Nieto. It was aimed at reducing emissions and replicating regulations in neighboring countries.

U.S. refiners last year prepared to produce surplus ULSD for export to Mexico, one of the world’s top fuel importers. But the higher demand never occurred as the rule was postponed and later suspended while Pemex and the CRE disputed the issue in court.

Pemex was not ready to boost output and start distributing ULSD nationwide by the time the rule was created in 2016, due to storage and production limitations, the company told Mexico’s Energy Ministry, according to Maciel’s letter, signed December 11. “As it did not have the required infrastructure for producing ULSD, (Pemex) was unable to immediately comply,” Maciel wrote.

A project to produce ULSD at Pemex’s Cadereyta refinery was suspended, and similar projects only reached 9% completion due to insufficient capital, Pemex said.

Pemex was meant to switch to ULSD nationwide at the end of 2018. The CRE approved a first six-month postponement that was never published officially. A Pemex lawsuit put a hold on the regulation until the court rules.

The postponed ULSD rule was also intended to help require trucks and buses to include equipment that required the use of clean diesel from 2021.

41. EPA Loosens Fuel Restrictions In US Ahead Of IMO 2020

U.S. regulators made a small but important change to federal rules that will allow refineries to sell and distribute to ship owners less expensive marine fuels that still meet the IMO 2020 clean fuel standard taking effect January 1. The new global sulfur limit in marine fuels will be reduced from 3.5% to 0.5%. That limit is not as stringent as requirements within the emissions control area (ECA) that extends 200 nautical miles off U.S. shores, in which fuel burned by ships must have a sulfur content of 0.1% or below.

However, fuels burned outside the ECA zone with a sulfur content of between 0.1% and 0.5% — which complies with the new global fuel standard come January 1 — had not been legally cleared for distribution. The changes being made by the U.S. Environmental Protection Agency (EPA) are aimed at solving the problem.

Without the rule change — which was requested by U.S. fuel suppliers — a ship looking to purchase fuel in the United States would be able to buy only 0.5% sulfur residual fuel (non-distillate), and only if it was available, according to an EPA document signed by Wheeler on December 10. “Otherwise, the ship would be limited to purchasing higher-price ECA fuel or delaying its fuel purchase to the next port of call to avoid that additional cost,” the document stated.

In addition, U.S. fuel suppliers participating in the global fuel market would be faced with exporting the much cleaner but higher-cost 2020 distillate global marine fuel for distribution elsewhere, which refineries asserted could lead to market inefficiencies and increased costs, as well as cause them to lose a portion of the U.S. share of the global fuel market.

“In sum, removing the restriction on the distribution of distillate fuel between [0.1% and 0.5%] in the United States, for use outside of ECA boundaries, will provide greater flexibility for U.S. fuel suppliers participating in the global marine fuel market, which could reduce fuel costs in that the ship operator would not be faced with either purchasing more expensive ECA fuel or going to another country to purchase fuel,” EPA stated.

“This change ... will also provide a level playing field for all potential U.S. suppliers — those that supply distillate or blends as well as residual fuel. Such clarity will aid them in finalizing their fuel supply and distribution plans.”

Marine fuels account for 7% of global transportation demand, but 90% of global sulfur dioxide emissions. Sulfur dioxide pollution contributes to acid rain, impairs visibility, and causes respiratory problems including lung cancer.

The IMO estimates the new global standard, which lowers the limit for sulfur content to 0.5% from 3.5%, will prevent over 570,000 premature deaths between 2020 and 2025. The standard has the backing of refiners and shippers, who say they are ready to meet it.

42. EV Tax Credit Extension Likely Dead, Because Of Trump Opposition

Despite strong support for the extension and expansion of the federal EV tax credit, the effort appears to have run out of juice in Washington—specifically, at the Oval Office. The proposal, which in November had bipartisan support in the Senate, was cut out of a massive \$1.4 trillion federal spending bill due to be passed in December—because of what Michigan Senator Debbie Stabenow described as "extreme resistance" from the White House.

It would have extended the existing cap of 200,000 eligible sales (plug-in hybrids or electric vehicles) to 600,000, while cutting the maximum credit from the current \$7,500 to \$7,000 and reinstating a tax credit for fuel-cell vehicles. There has been a long list of supporters for the proposal, including the auto industry, the utility sector, and of course environmental groups.

The two automakers most affected by the EV tax credit, as it is today, are the two automakers that have sold far more plug-in vehicles than others: Tesla and General Motors.

GM is likely the most affected by the White House—mandated withdrawal of the credit extension, as the only electric vehicle it currently sells in America is an affordable one—the U.S.-produced Chevrolet Bolt EV, for which \$7,500 is a major dent toward its viability.

The amount of the credit that can be claimed by those who take delivery of Tesla vehicles fell to \$1,875 in July 2019, and it will phase out completely to Tesla buyers after December 31, 2019. GM's credit amount dropped to \$1,875 in October, and it will go out completely after March 2020.

Both automakers have already hit the sales ceiling of 200,000 qualifying plug-in vehicle deliveries. The annual quarter after an automaker hits that total, the credit sunsets for applicable deliveries with a graduated decrease every two annual quarters—\$3,750 for six months, then \$1,875 for six months.

Those who buy products from other automakers will be able to continue to claim the credits under the existing rule until the respective companies also hit the ceiling. As of mid-2019, Nissan, Ford, and Toyota were all over the 100,000 mark—halfway toward exhausting their applicable deliveries.

43. EPA Declares Colorado A “Serious” Violator Of Federal Air Quality Standards

The Environmental Protection Agency recently reclassified Colorado as a “serious” violator of federal air quality laws, forcing stricter state efforts to reduce air pollution. “EPA is taking this action based on monitoring data showing that ozone remains a challenge in Denver and northern Front Range communities,” the agency’s regional administrator Greg Sopkin said in a prepared statement announcing the decision.

This triggers a requirement that Colorado must reduce pollution by 2021, and the state health department plans to issue permits for any industrial operation that emits more than 50 tons of pollution a year, down from the current permitting threshold of 100 tons.

Colorado Department of Public Health and Environment air pollution control officials are planning to issue about 600 more permits, which set limits and give a basis for compliance inspections. Within a year, the officials must submit a plan to the EPA for reducing ozone levels to meet health standards.

Ozone contributes to a degradation of air quality along the Front Range that has led to respiratory problems, such as asthma, which occurs in Denver at higher rates than in other U.S. cities and above the national norm.

“The department is on it,” agency director Jill Hunsaker Ryan said in a statement. “We already adopted a zero-emission vehicle rule this year. We are pursuing additional resources that will allow us to nearly double our capacity to inspect oil and gas production facilities. And starting tomorrow, the Colorado Air Quality Control Commission will begin its hearing on proposed rules under Senate Bill 181 that will reduce pollution and unnecessary leaks at oil and gas operations.”

State air quality commissioners are expected to approve tighter regulations for the oil and gas industry, a source of the volatile organic chemicals that contribute to the formation of ozone.

Zero-emission electric vehicles are expected to reduce emissions from more people driving. Earlier this year, state air commissioners required better technology at breweries and set standards for consumer products and architectural and industrial coatings that can release volatile organic chemicals that boost ozone.

Since 2004, Colorado has been flunking federal air quality health standards with ozone air pollution exceeding a decade-old federal limit of 75 parts per billion, let alone the current limit of 70 parts per billion. The World Health Organization recommends no more than 50 parts per billion to protect human health. Europe has set a limit of 60 parts per billion.

ASIA-PACIFIC

44. Optimism About China's Green Future

Amid the ongoing 2019 U.N. Climate Change Conference which began in early December in Madrid, a serious review of China's achievements over the past decade has been taking place. This was promptly followed by an even more crucial outlook of its upcoming goals for the next decade.

China has showed its strong commitment to resolving the issues associated with environmental impact by claiming a "war on pollution" in 2014. Its many pledges to date are widely recognized as more than just empty promises and over the past five years, China has made incredible transformations to reduce its carbon dioxide emissions.

An examination of China's Progress Report on the implementation of the 2030 Agenda for Sustainable Development shows that it has achieved favorable outcomes. The goals it set forth in previous climate-related summits such as the Paris Agreement, Kyoto Protocol and U.N. Framework Convention on Climate Change have also been met ahead of schedule. China has already accomplished the majority of its 2015 nationally determined contributions (NDC) goals – its 2020 target to reduce carbon intensity by 40-45% from its 2005 level was reached three years ahead of schedule in 2017. NASA satellite data recorded earlier this year found a 5% increase in the world's total green area, and at least 25% of this gain was attributed to China.

China's role as the world leader in taking action to deal with climate change has been widely recognized in recent years. Despite the challenges ahead, China has done a lot to deal with the issue, with its investment in renewable energy now accounting for 61% of the total investment by developing countries. Currently, China's capacity in renewable power production is almost double that of the U.S., and far surpasses the rest of the BRICS countries.

Michael Baldinger, an official representing the Swiss financial institution UBS, noted the admirable results of China's continued dedication to stay on track, claiming "no other country has come close to matching China's dominance in transitioning to a low carbon economy." In 2017, 85 mega-power coal plants were dismantled – the biggest closure globally to date. This was followed by a 2.5 trillion-yuan investment pledge into renewable power generation by 2020, which was largely due to the strong efforts of China's environment ministry. As a result, China is now the largest manufacturer of wind-turbines and lithium ion batteries – two crucial elements to becoming a green-energy-based economy. New legislation has also placed strict restrictions on energy-intensive industries in an effort to assist the integration of renewable energy. Polluters found to be in breach of the newly-set standards for harmful emissions now face strict penalties.

Subsidies offered by authorities to Chinese electric vehicle manufacturers have also allowed for the development of a sustainable EV-based auto-industry, as part of China's hope to become "the Detroit of electric cars." Joint efforts are now taking place across industries, and even spilling over to China's tech giants. The world's largest ride-hailing service – Didi Chuxing – was the first to jump on the eco-friendly bandwagon, initiating partnerships with 12 Chinese and international electric carmakers, and aiming to set the standard for a more sustainable ride-sharing experience.

These nation-wide, future-oriented developments are very reassuring indicators. Public participation is also beginning to be strongly monitored and issues such as trash sorting are now being enforced more strictly due to unsatisfactory results in previous years. Hefty fines and lowered social-credit for citizens who don't follow the new trash sorting rules are part of the new regulations already being enforced in first-tier cities and are expected to be implemented in 46 major cities next year.

The UN Environment Program's Executive Director Inger Anderson addressed China's success in demonstrating climate leadership and is "pleased to see China taking an active role in promoting this approach." China's efforts in transitioning and maintaining the global standard for active participation and commitment to global climate governance will hopefully raise the bar for the rest of the world, and lead to a sustainable green future.

45. China Vehicle Output Begins To Recover, But Pressure Remains For Carmakers

After declining for 16 straight months, light-vehicle output in China grew in November, the China Association of Automobile Manufacturers has announced. Encouraging as it is, the development may not offer much relief for carmakers for two main reasons.

First, vehicle demand in China remains subdued. While production showed a modest recovery in November -- rising 1.9 percent from a year earlier to top 2.16 million -- light-vehicle demand did not. Sales contracted for the 17th consecutive month, dropping 5.4 percent to below 2.06 million. With output exceeding consumer demand, dealerships saw their stockpiles rise to a 45-day supply, on average, in November from 42 days in October, according to the China Automobile Dealers Association.

Rising production cannot be sustained unless vehicle demand picks up to match supply. How soon demand will recover remains unknown, as it largely depends on the performance of the economy. The general view held by economists is that if China cannot resolve trade disputes with the United States, economic growth will slide to below 6 percent in 2020, from 6.2 percent in the first three quarters of this year.

The International Monetary Fund predicted last month that the Chinese economy will grow only 5.8 percent next year.

The second reason is that carmakers face intensifying regulatory pressure to expand electrified vehicle output.

Beijing's new carbon credit program, which became effective at the start of the year, is essentially a quota system. It stipulates passenger-vehicle manufacturers must earn one carbon credit for every 100 vehicles they produce. Carmakers can build plug-in hybrids to earn two credits per vehicle or EVs to obtain two to five credits per vehicle, depending on its range.

The program requires carmakers to earn credits tantamount to 10 percent of their annual output in 2019. For 2020, the rate is set to increase to 12 percent.

In contrast to Beijing's fervor in driving electrification, genuine consumer interest in EVs or plug-ins has yet to materialize. After a steep cut in subsidies in late June, electrified vehicle sales have plunged for five months in a row.

In November, sales of NEVs fell 43.7 percent, CAAM said, following a 45.6 percent drop in October. NEV sales had jumped almost 62 percent last year even as the broader auto market contracted. NEVs include plug-in hybrids, battery-only electric vehicles and those powered by hydrogen fuel cells.

China has been a keen supporter of NEVs and has implemented sales quota requirements for automakers. But it cut subsidies this year and plans to phase them out after 2020 amid criticism that some firms have become overly reliant on the funds, making NEVs costlier and dampening demand.

In the first 11 months, cumulative sales of EVs and plug-in hybrids in China edged up 1.3 percent to around 1.04 million. During the period, EV deliveries rose 5.2 percent to about 832,000 EVs while plug-in hybrid sales dropped 12 percent to roughly 210,000.

In 2018, annual sales of EVs and plug-in hybrids in China surged 62 percent year on year to approach 1.26 million.

"Next year there will be different NEV manufacturing quotas for carmakers. I think next year will also be an adjustment period and sales of new energy vehicle will be better than this year," said Xu Haidong, assistant secretary general at CAAM.

NEV sales at both BYD and BAIC's electric vehicle unit BluePark, in which Daimler has a stake, fell around 63 percent last month from a year ago.

46. China Light-Vehicle Demand Forecast To Fall For Third Year In 2020

China's vehicle sales will decline for a third straight year in 2020, an industry body predicted, bringing more pain to global carmakers awaiting an end to the historic slump in the world's biggest market. Sales will fall 2 percent to 25.3 million units in 2020, the China Association of Automobile Manufacturers predicted. That follows a drop of about 3 percent last year -- the first decline in decades -- and about 8 percent this year.

"The China 5-6 emission standard change is the biggest reason for this year's sales plunge," said Chen Shihua, deputy secretary general at CAAM, referring to how local governments had accelerated changes to emission standards this year.

"There are still no signs of recovery," Luo Lei, a deputy secretary general of CAAM, said at the group's event in Changsha, China.

China's dominance means any recovery in the global car market is also in doubt, given Europe and the U.S. are sputtering too. The industry is suffering worldwide as trade tensions and tariffs raise costs, just as competition from ride-hailing services reduces the need for individual car ownership.

After years of growth, global vehicle sales fell last year and are set to decline again in 2019, according to researcher LMC Automotive. The market will grow less than 1 percent to 92.1 million vehicles next year, the research firm currently predicts.

While the pace of the decline in China is slowing, the market is still far from recovery as a cooling economy keeps buyers away from showrooms. Market leader Volkswagen Group and rivals such as Honda Motor Co., Daimler AG and BMW AG have continued to invest in the country of 1.4 billion people throughout the slowdown in the hopes that demand will pick up.

Global carmakers have relied on China for growth for decades as more mature markets slowed down. China's annual vehicle sales soared to more than 28 million from 1.58 million in 1998.

Last year's sales decline in China was the first since 1990. This year's intensifying slump came as a surprise to CAAM -- a year ago, the industry group had predicted that the market would be little changed in 2019.

German and Japanese car brands have weathered the slowdown better than local and American ones, gaining a combined 5.5 percentage points of market share in China in the first 11 months of the year.

Yet the German brands too have had to adapt to a diminishing market. Daimler, Germany's second-largest automaker after VW, outlined plans in November to cut more than 10,000 jobs worldwide to trim labor costs. VW's Audi division, the group's largest profit contributor, said earlier the same month it planned to cull as many as 9,500 jobs.

47. Tesla Model 3's Built in China Will Be Eligible for New Energy Vehicle Subsidies

Tesla has announced that its Chinese-built Model 3 cars would receive state subsidies, a move that will help boost Tesla's push into China, the world's biggest market for EVs and an important market for the California-based electric automaker.

Previously China's industry ministry said Tesla's Model 3 cars, being built at the automaker's \$2 billion Shanghai factory were only on a list of vehicles recommended for subsidies for new energy

vehicles (NEVs) and now the Model 3 has been officially confirmed by China's Ministry of Industry and Information Technology.

China's government defines NEVs as fully-electric, plug-in-hybrid and hydrogen fuel cell models and the government wants consumers to buy more of them. China plans to be the world leader in EV sales and aims for an aggressive target of one quarter of all vehicle sales by 2025. In 2018, the total number of NEVs sold was around 4.6%. Two versions of the Model 3 will be eligible for the state NEV subsidies, according to China's Ministry of Industry and Information Technology.

It's still not clear how much of a subsidy the Tesla Model 3 would receive. The China-built Model 3 starts at 355,800 yuan (\$50,550), according to Tesla's website.

In August, China's Ministry of Industry and Information Technology said Tesla models will also be exempt from a 10% purchase tax.

The federal EV tax credit for Tesla in the U.S. expires on Jan 1, 2020, so the subsidies in China are welcome now that the company's Shanghai factory is gearing up for production.

In the U.S., the federal EV tax credit was made available for qualifying vehicles purchased from Jan 1, 2010. At the time, sales of plug-in-hybrid and fully-electric models were still a very small percentage of overall vehicle sales in the U.S. and the federal tax credit was designed to help boost sales and incentivize consumers to purchase a lower emissions vehicle.

The full tax credit is only available to each vehicle manufacturer until U.S. sales reach 200,000. After reaching sales of 200,000 qualifying EVs, which Tesla already achieved in July 2018, the credit begins to phase out. The tax credit is halved every six months once sales limit is reached.

When Tesla introduced the Model S in 2012, it became one of the most desirable electric models and the electric sedan was eligible for the full \$7,500 credit, which helped the company advertise its vehicles with a lower price and entice buyers.

Now that the company has exceeded the 200,000 vehicle limit, consumers purchasing a Tesla vehicle will no longer eligible for the federal tax credit. However, buyers can still take advantage of any state or local incentives.

China is an important market for Tesla in order to reach sustained profitability and its vehicles remain popular with Chinese consumers. Tesla is aiming for a production rate of 1,000 vehicles per week by the end of the year with deliveries to customers before the Chinese New Year on Jan 25, 2020. After that, production will ramp up to around 250,000 vehicles per year or 4,800 per week.

Tesla also plans to build the upcoming Model Y crossover in China. In March, Tesla CEO Elon Musk said the Model Y will be built in the U.S. and at its new Shanghai factory. The China-made Model Y will likely be eligible for state subsidies as well.

48. Beijing Air Quality Improves In First 11 Months

Beijing's air quality continued to improve this year, with major air pollutant concentrations falling year on year, according to the Beijing Municipal Bureau of Ecology and Environment. Data released by the bureau showed that the average concentration of PM2.5 from January to November was 42 micrograms per cubic meter, dropping by 14.3 percent year on year.

Three days of heavy air pollution were recorded, a decrease of 10 days compared with the same period last year.

49. Chinese Car Giants Rev Up For India As Rivals Hit The Brakes

Chinese automakers Great Wall Motor and Changan Automobile are accelerating plans to build cars in India after the initial success of rival SAIC Motor in one of the world's biggest markets, three sources said.

Great Wall, one of the biggest sellers of sports-utility vehicles (SUV) in China, expects to secure a production site in the first half of 2020, likely a General Motors plant in Maharashtra, a source familiar with Great Wall's plans told the press. Buying a factory is seen as the best way to get up and running fast and Great Wall is finalizing which SUVs it plans to make in India, including whether to kick off its launch with an electric SUV, the source said.

Great Wall said it would make an announcement next month about its plans for India.

A spokesman for GM in Detroit said it was continuing to make vehicles for export at its Talegaon plant in Maharashtra state. "As we have said previously, we continue to explore options to improve utilization of the plant. We do not comment on speculation," he said.

Changan, too, is reportedly scouting for a production base and has held talks with suppliers. Both automakers, which produce electric vehicles (EVs) in China, are also considering whether to set up EV battery assembly plants in India, the sources said.

The companies see India as a chance to combat slowing sales at home. While car sales in India are stuttering, the market is expected to become the world's third biggest by 2026, behind China and the US, according to consultancy LMC Automotive

The Chinese firms also hope to capitalize on gaps left by global automakers such as Fiat Chrysler, Ford Motor and GM, which have scaled back plans in a market still dominated by smaller, low-cost cars made by Maruti Suzuki and Hyundai Motor.

"It is an opportune time for China's automakers to enter India. There is a gap in competition and it may take a couple of years for some of the established carmakers to bring new products to the market," said LMC Automotive's Ammar Master.

GM's retreat from India, for example, could help Great Wall get going quickly. GM stopped selling cars in India in 2017 and has already sold its other plant in Gujarat to SAIC, where the state-owned Chinese automaker now makes the Hector SUV it launched in June under its MG Motor brand.

India is reportedly part of Great Wall's planned global expansion into South America, South Africa, Southeast Asia and Australia, and it also plans to export from there to places such as Europe and the US. "The plant in India is expected to be the biggest for Great Wall outside of China," the source said.

Great Wall has hired a former executive from Maruti Suzuki, India's biggest carmaker, for its product and business planning, and appointed a former executive from SAIC's India division as a consultant to liaise with the government.

“For global automakers, India is one of the many markets they are in but for the Chinese it is the first major market outside of home and so the level of investment and commitment will be proportionately high,” said the source.

One of the biggest hurdles in India will be fighting perceptions about the quality and reliability of Chinese products and winning over brand-conscious buyers, say analysts.

Chinese smartphone makers such as Xiaomi Corp. faced similar perception issues when they launched in India but they now dominate the market. However, cars remain a significant outlay for most Indians and the Chinese brands will need to make their mark quickly.

“Once the likes of Volkswagen and Ford start launching new models in India, the entrants from China could face tougher competition because a lot of buyers in India are still very brand conscious,” said LMC’s Master.

Still, the initial success of SAIC’s Hector SUV, launched at the end of June, helped. It had sold more than 13,000 cars by the end of November and plans to sell 24,000 next year.

“SAIC has changed the perception about whether a Chinese brand can be made and sold in India,” said Santosh Pai, partner at law firm Link Legal which advises Chinese companies setting up in India. “Fence sitters are getting in and have realized they can sell in India if the price and strategy is right.”

Lessons for Great Wall and Changan from SAIC’s India launch include marketing the brand aggressively, packing the car with features to differentiate it from rivals and giving extended warranties to dispel doubts over reliability, analysts say.

Another advantage for Chinese carmakers in the coming years will be their EV expertise. With the sale of EVs slowing in China they can deploy some of their existing capacity to India where the government is encouraging clean fuel cars.

SAIC, which will soon launch an electric SUV in India, is also scouting for a second manufacturing site and is expected to decide in early 2020.

50. Tata Motors Unveils India’s Own Electric SUV, The Nexon EV

Tata Motors has unveiled India’s Own Electric SUV – the Nexon EV, an aspirational SUV for personal car buyers looking for a thrilling, connected drive experience with zero emissions. Powered by the cutting-edge Ziptron technology, this vehicle promises an efficient high voltage system, zippy performance, long-range, fast charging capability, extended battery life and class leading safety features. Scheduled to be launched in January 2020, the Nexon EV is expected to be priced between INR 15 to 17 Lakhs³.

The car will come with a warranty of 8 years or 160,000 kms (whichever is earlier) on battery & motor.

Speaking at the unveiling ceremony, Mr. Guenter Butschek, CEO & MD, Tata Motors said, “After introducing our cutting-edge EV technology, Ziptron, we are thrilled to unveil the first EV featuring

³ 100,000

this technology – The Nexon EV. This is a high performance, connected vehicle that is uniquely suited to address the aspirations of Indian customers and break all barriers for EV adoption. We are confident that this development will mark an important milestone in India’s electrification journey, and further reinforce our commitment towards developing sustainable and responsible mobility solutions for India.”

Nexon EV is equipped with a powerful and high-efficiency 129 PS permanent-magnet AC motor powered by a high capacity 30.2 kWh lithium-ion battery. The motor produces 245 Nm of instant torque from a standstill, enabling Nexon EV to accelerate from 0 to 100 kmph in just 9.9 seconds. The EV comes with a best-in-industry dust and waterproof battery pack which meets IP67 standards. This high-density battery pack is liquid-cooled to excel in Indian conditions. The battery pack is placed underneath the vehicle body, giving the SUV a center of gravity more akin to that of a sedan or a hatchback, ensuring maximum stability and excellent dynamic performance on winding roads.

The vehicle comes with two drive mode options – DRIVE & SPORT. It utilizes smart drive tech features – Regenerative Braking to charge the battery while coasting, Hill Ascent & Descent Assist to make driving on slopes more convenient and Smarter Regen with Creep feature allows user to tackle congested city traffic without fatigue.

Nexon EV delivers an anxiety free long range of more than 300 kms on a single charge with zero emissions. When plugged into a Fast DC Charger, the Nexon EV will replenish 80% battery capacity within 60 minutes. In addition, the Nexon EV can be charged from any 15 amp plug point.

The Nexon EV retains all its learnings from the Nexon Global NCAP rating and comes with class leading safety features. Proving its reliability, the car has been rigorously tested across 1 million kms across the toughest terrains in India, covering high altitudes, unpaved roads, steep gradients and under extreme weather conditions.

51. EV Policy Adopted To Check Vehicular Pollution in Delhi

The Delhi Cabinet has approved the Electric Vehicle Policy with an aim to check vehicular pollution in the national Capital. Under this policy, subsidy will be given for purchasing E-vehicles. It will also generate employment in the transportation sector.

Under the EV Policy, the Delhi Government is providing a subsidy of Rs 5,000 per KW of battery capacity on the purchase of two-wheelers. Scrapping incentive up to Rs 5,000 will be offered for the scrapping of a non-electric two-wheeler vehicle and switching to an electric vehicle.

The first draft of the Delhi EV Policy was released in November 2018 and was put on the public domain to invite suggestions. "We received comments from various associations such as the United Nations Environment Program, International Council on Clean Transportation, and industry bodies such as CII, and Society of Manufacturers of Electric Vehicles and non-profit organizations such as CSE, etc. The comments were considered and incorporated in the formulation of the policy," said the Chief Minister (CM).

As per the officials, the biggest source of pollution in the National Area are vehicles which amount to 40 per cent of PM 2.5 air pollution levels and 80 per cent of carbon monoxide in the air.

Delhi Electric Vehicle Policy 2019 aims to induce electric vehicles which shall contribute to 25 per cent of the newly registered vehicles across Delhi.

"Along with reducing pollution levels in the city, the policy also aims to generate employment in the transport sector. The maximum emphasis is laid on two-wheelers, public transport and shared vehicles, and goods-carriers," said Kejriwal.

Currently, the percentage strength of electric two-wheelers in national capital is less than 0.2 per cent and three-wheelers is almost zero. With approval of the policy the government is aiming to have about 35,000 electric vehicles by next year. The Government is also working with the municipal corporations of Delhi to install and construct 250 e-charging stations across the city.

"We also hope that within the next five years, five lakh electric vehicles will be registered in Delhi. Over their lifetime, these electric vehicles are estimated to save approximately Rs 6,000 crores worth of oil and liquid natural gas consumption. They will also avoid emissions of 4.8 million tons of CO₂ (carbon dioxide) emissions, which is equivalent to avoiding CO₂ emissions from nearly one lakh petrol cars over their lifetime. They will also help avoid about 159 tons of PM 2.5 emissions," he added.

Besides, the Government has also made a special provision to for aggregator based cabs such as Ola and Uber, wherein they will be allowed to operate electric two-wheeler taxis. All two-wheelers engaged in last-mile deliveries, such as food delivery vehicles, courier services, and e-commerce logistics, will be expected to transition 50% of their fleet to electric by March 2023, and 100% of their fleet to electric by March 2025. Likewise, the purchase subsidy on electric autos, e-rickshaws, and e-carriers is up to Rs.30000 and loans on a subsidy of 5% will be provided to them.

The Chief Minister added that, "All leased/hired cars used for the commute of GNCTD officers will be transitioned to electric vehicles within a period of one year. The Delhi Government also aims to transition 50% of the newly purchased buses into electric buses by the year 2024 and 100 per cent by the year 2030. There will be no road tax on registration fees on electric vehicles."

Further, a special dedicated Electric Vehicle (EV) cell will be established within the Transport Department for the effective day-to-day implementation of the Delhi State EV Policy. Funding for the various incentives under Delhi EV Policy will be obtained from multiple sources such as Pollution/Diesel Cess, Road Tax, and Environment Compensation Charge (ECC) and so on, which will be monitored under the newly established 'State EV Fund'. A State EV Board will also be created as the apex body for the effective implementation and monitoring of Delhi EV Policy 2019, said the officials.

Meanwhile the Cabinet also approved transport allowances of Rs 4,000 per month for the regular employees of the Delhi Transport Corporation (DTC). Till now, the benefit was only availed by the employees of Transport Department.

52. India's Car Dealers Again Face Risks Transitioning To Tighter Emission Norms

India's automobile dealers face an existential crisis next year, an industry body said. Dealers in India may go out of business if they're not allowed to sell older vehicles after April 1, the Federation of Automobile Dealers Association said in a recent statement. Rather than sensibly stopping production of Bharat IV vehicles earlier, FADA said most manufacturers will start making vehicles with the latest emission norms only by end-February, which means they'll be stuck with previous models unless the Supreme Court modifies its order mandating sales of only Bharat Stage VI-compliant vehicles.

A potential flip flop by the court risks further confusing consumers -- who are already in two minds about which vehicles are eligible for purchase -- a confusion that has contributed to the worst slowdown for carmakers in India. The world's fourth-largest automobile market is home to some of the planet's most polluted cities and is skipping one level of emission standards to promote cleaner fuel and an eventual move to electric vehicles.

"There is a possibility that many of our members are not able to ensure 100% liquidation of BS-IV inventory purchased by them in the course of business before the deadline," said Ashish Harsharaj Kale, the president of FADA. Such a situation will mean "many of them will face financial hardships which could even threaten the existence of their business."

53. Tackling Air Pollution: Researchers Present Emissions Inventory For Nepal

Data on emission amounts and sources have an important role to play in shaping policy on climate protection and air quality. Now, scientists from the Institute for Advanced Sustainability Studies (IASS) in Potsdam, Germany, have presented the first high-resolution inventory⁴ to record emissions of greenhouse gases and air pollutants in Nepal over an extended period of time. Their research reveals that the air pollution problem is growing at a much faster rate than the economy.

"Over eighty percent of Nepal's energy needs are met by biomass, in particular, wood. This gives rise to considerable amounts of particulate matter and ozone precursors, which adversely affect the climate, air quality, human health, crops and the cryosphere, those parts of the Earth's surface where water is in solid form. The emissions inventory helps us identify the main causes of emissions, the proportional contributions of individual sources or sectors, and critical regions," explains lead author Pankaj Sadavarte. The researchers estimated emissions from fuel consumption due to technology use in private households, industry, agriculture, the transport sector, and other economic sectors in the period from 2001 to 2016.

In Nepal, private households account for a much larger share of fuel consumption and hence emissions, especially particulates, than in industrial nations like Germany. For example, in 2011 they were responsible for 58 per cent of emissions of soot, one of the main components of particulate matter. The traditional low-efficiency wood-burning stoves used in most Nepalese homes for cooking and heating are the main culprits here. As well as being detrimental to human health, soot is an important climate forcer, perhaps the second largest after carbon dioxide. Carbon dioxide emissions in the same year came mainly from industries (46%), notably cement factories, followed by private households (31%), and transport (14%).

The significant increase in total emissions from industry and the transport sector is particularly striking. In the period from 2001 to 2016 industrial emissions tripled and emissions from transport more than quadrupled. By contrast, the increase in emissions from private households, though still the dominant source, was only marginal over the same period. "Fossil-based energy consumption increased manifold during the investigation period. For example, consumption of LPG, petrol and diesel rose by a factor of 7, 6 and 4 respectively. But the national gross domestic product increased by only 74% from around US\$11.42 billion in 2001. This means that the pollution problem is growing at a much faster rate than the economy -- a trend that should ideally be reversed," says co-author Maheswar Rupakheti.

⁴ Pankaj Sadavarte, Maheswar Rupakheti, Prakash Bhawe, Kiran Shakya, Mark Lawrence. Nepal emission inventory – Part I: Technologies and combustion sources (NEEMI-Tech) for 2001–2016. *Atmospheric Chemistry and Physics*, 2019; 19 (20): 12953 DOI: 10.5194/acp-19-12953-2019

The researchers are currently working on part 2 of the inventory, which will present data on emissions from open fires, like agriculture waste and municipal solid waste. According to Rupakheti, as well as advancing research, the data can make a valuable contribution to analyzing the mitigation potential of various measures and designing evidence-based policies. "They are helpful when it comes to evaluating potential air quality solutions with co-benefits to climate and other associated issues. We have calculated, for example, that the most important air pollutants can be reduced by 30 per cent if so-called super emitters -highly polluting vehicles -- are removed from the transport system. So that would be a good immediate policy target." With this new emissions inventory and the forthcoming second part, the researchers are working to develop further air quality and climate protection strategies together with stakeholders on the ground in Nepal.

54. Thousands Rally in Sydney Against Inaction Amid Bushfire And Air Quality Crisis

Thousands gathered in Sydney recently to demand climate change action in the midst of a devastating bushfire season which has destroyed more than 700 homes and seen smoke blanket much of the NSW. Outside Sydney's Town Hall, protesters gathered wearing face masks, asking the government to act on the role global heating had in making bushfire seasons longer and more devastating.

Speakers called on the state and federal governments to increase funding to the Rural Fire Service and provide P2 masks and Hepa air filters to firefighters, hospitals, aged care facilities and schools.

Leighton Drury, the NSW secretary of the Fire Brigades Employees Union, said that firefighters were "spread thin". "I am well-qualified to say that these are the worst fires we've had in decades, and they're not going to get better unless we take action," he said.

"A decade of denial about own environment changing has led to this ... the solution is simple. Firefighters put out fires. Politicians put out policies and budgets. We've got our job; they need to do theirs better".

Dr Janet Rowden from the Nurses and Midwives' Association said the weeks of smoke were now posing a public health risk. "Already four of our members have lost their homes in the fires," she said.

"We are suffering a public health climate emergency. We need to go on for another three months we are told."

Former fire chiefs called for a national emergency summit on bushfires, and former prime minister Malcolm Turnbull said it was a "national security issue".

The NSW Greens MP David Shoebridge told the crowd of protesters in Sydney that the NSW premier, Gladys Berejiklian, was "missing in action" and Morrison had not done enough. "His big policy announcement has been a draft religious discrimination bill," Shoebridge said to loud boos.

Natalie Wasley from the Maritime Union of Australia said this week's smoke haze was among the worst she had ever seen. "As a wharfie, I work in extreme conditions," she said. "We work in heat, we work in rain, we are exposed to diesel particulates, we are exposed to dust. But like you,

we have never, never experienced what has been happening in the past couple of weeks in our worksite”.

High school student Amy Lamont told the crowd that a fire had threatened her home that very day. “There was a fire two kilometers from our house, and one kilometer from old primary school,” she said. “And if you’re not directly experiencing these fires, you’re breathing in about 30 cigarettes a day.

“Students shouldn’t have to worry, when going to school, that they might come back to a burned home.”

55. Volkswagen Is Fined A Record \$125million In Australia Over Diesel Scandal

Volkswagen has been fined a record \$125million in Australia for lying about the diesel emissions of its cars. The Federal Court imposed the penalty more than four years after 11million cars were recalled worldwide over the scandal where software was installed to cheat laboratory tests.

Justice Lindsay Foster described their offending being at the 'most serious end of the spectrum' as he delivered his verdict. He slammed Volkswagen AG, the German car giant, for deceiving Australian authorities and motorists without showing any remorse.

'It has shown no contrition,' he said in his judgement.

The Australian Competition and Consumer Commission, which acted against Volkswagen in 2016, said the fine was designed to send a message to companies that lied.

'Volkswagen's conduct was blatant and deliberate,' ACCC chairman Rod Sims said. 'This penalty reflects a trend of ever higher penalties for breaches of Australian consumer law.'

While the \$125million fine was a record for Australia, it was nowhere near the \$US2.8billion (\$A3.6billion) penalty which an American district court judge Sean Cox imposed on Volkswagen in April 2017.

The scandal affected 100,000 cars on Australian roads manufactured between 2007 and 2015. Volkswagen subsidiaries were also affected including German luxury brands Audi and Porsche, and Czech manufacturer Skoda.

The Australian Automobile Association and the Paris-based Federation Internationale de l'Automotive later carried out on-road tests on Volkswagens that had been recalled and repaired. They found Volkswagens recalled in Australia, to remove the software program from its top-selling cars, were emitting levels of poisonous nitrogen oxides that were 4.11 times higher than the legal limit.

The tests, done outside a laboratory, also found affected VW diesel cars were using up to 14 per cent more fuel after the recall and still emitting noxious emissions that were 400 per cent higher than results documented in a laboratory.

56. Very Unhealthy Hanoi Air Quality Evokes Calls For Emergency Measures

Air pollution indexes in the capital city stayed at alarming levels for four days recently, prompting experts to call for emergency measures. The capital's Air Quality Index (AQI) was recorded at above 200 on a recent weekday by 11 air monitoring stations scattered throughout the city.

At 8 a.m. AQI at the Minh Khai air monitoring station in Bac Tu Liem District reached 261 and at the French Embassy, 266. All other stations recorded an average AQI of over 240.

At this level, experts advise children, seniors and individuals with heart or lung diseases to stay indoors and avoid outdoor activities.

This was the fourth day in a row the capital's air quality had risen to above 200, deemed very unhealthy for humans. The levels have stayed consistently high between midnight until noon. At 4 a.m. the AQI at one station on Nguyen Thi Minh Khai Street was measured at the extremely unhealthy level of 336.

The AQI is a metric used by multiple governmental agencies to determine how polluted the air is. An AQI level above 100 is considered polluted or unhealthy for humans. Children, seniors and individuals with respiratory and heart diseases are recommended to avoid sustained and high-intensity outdoor exercises when AQI levels reach 150 or above.

IQAir AirVisual, a Switzerland-based air quality monitoring facility that generates data from public, ground-based and real-time monitoring stations, recorded Hanoi's AQI level at 333 as of 7a.m.

According to Airvisual, AQI in Tay Ho District was at 405. Independent air quality analysis system PamAir recorded the air quality index of staying above 200 at 40 monitoring stations throughout the city.

The Vietnam Environment Administration said that Hanoi and other parts of the north region are in the dry season and a period of seasonal transition when air pollution is usually at its highest level of the year.

Hoang Duong Tung, President of Vietnam Clear Air Partnership, said Hanoi's air quality has been returning to 'hazardous levels' since December 8, and has only gotten worse since. "It can be seen that the air quality in Hanoi this year has been continuously polluted. I think it is necessary to seriously talk about the sources of waste and seek emergency measures to tackle air pollution," he said.

Tung noted Hanoi is not taking the matter seriously. "There's been no major inspection on environment standards at construction sites for example." He said the authorities are creating a mindset that air pollution is a natural problem that people have to live with, while it comes mostly from human activities.

Air pollution is not new in Hanoi, but it has gathered increasing urgency. Heightened levels of pollutants and smog have been seen in recent months, including a five-year high in September.

Officials have said the low quality of air in Hanoi is caused by construction, a growing number of cars and motorcycles and heavy industry, including steel works, cement factories and coal-fired plants. However, they have not outlined any comprehensive plan to deal with the causes of pollution.

The city of eight million people has more than five million motorbikes and 550,000 cars, and the number of private vehicles is increasing at a rate of 4.6 percent a year.

57. Environmental Groups To March Against Air Pollution In Taiwan

A coalition of Taiwanese environmental groups will hold a march in Taipei December 29, with the aim of bringing attention to the issue of air quality, the group's leaders announced. In a press conference at the Legislative Yuan, groups including Air Clean Taiwan and the Taiwan Environmental Protection Union announced four themes for the march, aimed at linking clean air and renewable energy to the concepts of democracy, freedom, equality and sustainability.

According to Air Clean Taiwan Chairman Yeh Kuang-peng, the march will begin at noon at the Environmental Protection Administration's headquarters near the Ximen MRT Station. The planned five-kilometer route will pass the Executive and Legislative Yuan buildings, as well as the ruling Democratic Progressive Party headquarters, before ending at Liberty Square, Yeh said.

Noting that the timing of the march is less than two weeks away from Taiwan's January 11 presidential and legislative elections, Yeh said the groups hope to amplify the voices of voters who care about air quality and climate change.

According to 2018 Taiwan Power Company statistics, coal and liquefied natural gas each account for 39 percent of Taiwan's energy generation, in comparison to 11 percent for nuclear power and 5 percent for renewable energy sources, with the remainder coming from oil and hydro power.

Regarding the debate over using nuclear power to reduce the impact that coal-fired power plants have on air quality, both the Taiwan Environmental Protection Union and Air Clean Taiwan have previously stated their opposition. Instead, the groups are calling for a rapid transition to renewable energy sources, along with measures aimed at reducing consumption, though it is unclear how long such a process would take in practice.

MIDDLE EAST

58. Air Pollution Choking Iranian Cities, Some 14,000 Hospitalized



Recently, polluted air in the country sent 13,931 people to hospitals and medical centers due to heart and respiratory problems, Mojtaba Khaledi, Emergency Medical Services Organization spokesman has said.

Due to air pollution and increased particulate matters in provinces of Isfahan, Alborz, Tehran, Markazi, Qazvin, Qom, East

Azarbaijan, West Azarbaijan, Khuzestan, and Yazd, 13,931 people referred to hospital

emergency services throughout the country, of whom 8,547 were cardiac patients and 5,384 were respiratory patients, he explained.

He went on to add that 931 people also received pre-hospital emergency services, IRNA news agency reported.

Khaledi also stated that Tehran had the highest number of patients as a result of pollution, as 6,852 citizens referred to emergency medical centers and hospitals, of whom 4,219 were suffering from cardiac problems and 2,633 from respiratory problems.

Some 4,000 to 5,000 Tehrani citizens die each year from direct exposure to PM emissions, and air pollution brings Iran a loss of over \$2.6 billion per year, or about \$2,000 a day.

Polluted air also resulted in the closure of schools and universities for five days.

Tehran air quality index (AQI) reached an unhealthy level of pollution for 57 days since the beginning of this year (March 21), according to a report published by the Tehran Air Quality Control Company.

An AQI is used to communicate to the public how polluted the air currently is or how polluted it is forecast to become. The index categorizes conditions according to a measure of polluting matters into excellent (0-50), good (51-100), lightly polluted or unhealthy for sensitive groups (101-150), moderately polluted (151-200), heavily polluted (201-300) and severely polluted (301-500).

Some of the air control stations in the capital exceeded the 210 level, including the southern city of Shar-e Rey and the southwestern city of Shadabad.

During the aforementioned period, heavily polluted air haunted the capital for 4 days which was almost dangerous for all the residents. Compared to last year over the same period 42 days were unhealthy for sensitive groups, and Tehraners did not breathe a single day of heavily polluted air.

The leading cause of air pollution in the capital is PM 2.5, PM 10 and Nitrogen Dioxide (NO₂).

The Municipality of Tehran prepared a comprehensive plan to mitigate air pollution in the metropolis, based on which a total budget of 174 trillion rials (nearly \$4 billion) is required over the course of four years.

The plan focuses on reducing particulate matter and the concentration of PM 2.5, so it reduces primary PM sources and secondary precursors like nitrogen oxides (NO_x) and volatile organic compounds (VOCs). It was envisaged that primary PM sources will be reduced by 55 percent and secondary precursors by 45 percent.

The plan claims that the main reasons behind air pollution intensification in the capital are lack of clean and cheap public transport, overcrowded transport fleet, poor quality vehicles, extremely old public transportation fleet, and poor urban development policies.

According to the World Bank, most of the pollution in Tehran is caused by heavy-duty vehicles, motorbikes, refineries and power plants. Smog is mostly caused by heavy traffic as well as factory pollution and has been worsened by a lack of wind and rain, Tehran's provincial governor Anoushirvan Bandpay said.

Bandpay said vehicles are responsible for 60 percent of air pollution in Tehran, with diesel trucks playing a major role. Factories account for 18 percent, while electricity-generating plants are responsible for 12 percent. However local authorities have rejected claims about low-quality gasoline, saying it conforms to Euro 5 emissions standards.

The Tehran municipality disclosed that a major source of air pollution in the city of nine million has been the usage of nonstandard mazut – a low-quality fuel oil used in power plants, which contains high-density sulfur – at industrial complexes located in the nearby town of Shahr-e Rey.

Meanwhile, environmental officials in Shahr-e Rey claim that using mazut in the city's cement plant has been banned.

Mazut is a byproduct of distilled crude petroleum. While the refined oil is exported as kerosene or petroleum, the heavier refuse – mazut – gets used as fuel. Since Iran's refineries are old and deprived of new technologies due to sanctions, 24 percent of crude oil has turned into mazut, which compared with gasoline and diesel has a very low value.

The level of sulfur density in mazut produced in Iran is nearly 3.5 percent, The use of the fuel has been strictly banned in Iran's urban areas, specifically in cities like Tehran, which are struggling with air pollution.

Industrial plants' use of mazut may be out of desperation. Iranian authorities have confirmed that the flow of natural gas to industrial plants during the cold seasons has been stopped. But at the same time, officials have boasted that Iran is fully self-sufficient in its usage of natural gas – a much cleaner-burning fuel that does not produce a fraction of the pollution of other fossil fuels like mazut.

CLIMATE CHANGE

59. Greenland's Ice Losses Are Now In Line With Its Highest Sea-Level Scenario

The Greenland ice sheet's losses have accelerated so fast since the 1990s it is now shedding more than seven times as much ice each year, according to 89 scientists who use satellites to study the area.

The sheet's total losses nearly doubled each decade, from 33 billion tons per year in the 1990s to an average now of 254 billion tons annually. Since 1992, nearly 4 trillion tons of Greenland ice have entered the ocean, the new analysis found, equivalent to roughly a centimeter of global sea-level rise.

While a centimeter may not sound like much, that uptick is already affecting millions. "Around the planet, just 1 centimeter of sea-level rise brings another 6 million people into seasonal, annual floods," said Andrew Shepherd, a University of Leeds professor who co-led the massive collaboration with NASA researcher Erik Ivins.

The results, from a scientific group called the Ice Sheet Mass Balance Inter-comparison Exercise (IMBIE), were published recently in the journal *Nature*.⁵

⁵ Shepherd, A., Ivins, E., Rignot, E. et al." Mass balance of the Greenland Ice Sheet from 1992 to 2018". *Nature* (2019) doi:10.1038/s41586-019-1855-2

The research suggests an alarming pace of change for the Earth's second-largest body of ice, which could theoretically drive over 20 feet of sea-level rise over a millennium.

The recent Greenland losses, the experts suggest, match a more dire sea-level projection outlined by the United Nations' chief climate science body, the Intergovernmental Panel on Climate Change. Under that high-end scenario, Greenland could contribute about 16 centimeters, or around half a foot, to ocean levels by 2100.

"What that means is that really, the midrange scenario becomes what was previously the upper scenario, and they will have to invent a new upper scenario, because one currently doesn't exist," Shepherd said.

Much more sea-level rise would then come from melting in Antarctica and smaller glaciers around the world, along with the expansion of ocean water that stems from warmer temperatures. It is not yet clear whether these other components of the sea-level equation are also following the high end, or worst-case, path, however, and the current study was focused only on Greenland. (While Greenland is the biggest contributor to sea-level rise at the present moment, Antarctica ultimately has a larger long-term potential to raise seas.)

Greenland is the world's largest island, covered with a continuous sheet of ice produced by many thousands of years of snowfall. The ice sheet's size rivals that of Alaska, and its center is well over a mile thick.

The ice flows outward under its own weight toward the ocean, but because of Greenland's mountainous and rocky coastline, it usually reaches the sea in fingerlike glaciers that extend outward through fjords. These fjords are partially submerged valleys, which were themselves excavated over vast stretches of geological time by the glaciers' movement.

Several large glaciers account for the biggest ice losses — with Jakobshavn Glacier, in central Greenland, leading the way. But there are hundreds of glaciers overall, and now more are losing ice as warming seas come in contact with them through the fjords.

The ice sheet itself is also being exposed to warming air temperatures. Most of Greenland has warmed by more than 2 degrees Celsius (3.6 degrees Fahrenheit) already, compared with the late 19th century, according to a Washington Post analysis of the globe's fastest-warming regions. That is double the global average rate of warming.

In summer these higher temperatures produce more and more meltwater atop the ice sheet, which also runs into the ocean. A little more than half of the Greenland losses have arisen through this process, the study found, which is now happening too quickly to be offset by annual snowfall.

The remaining losses are driven by the faster flow of the glaciers out into the extremely deep waters of Greenland's fjords, where they break off into the ocean in pieces. This faster flow may account for the fact that the ice sheet is losing more mass than previously expected. More and more glaciers are losing ice, said study co-author Beata Csatho, a Greenland expert at the University at Buffalo. This includes several very large glaciers in Greenland's far north, she said, which lie closest to the Arctic Ocean and had previously been slow to change.

The new research is based on 26 separate satellite analyses, all individually published as separate studies. These employ a variety of methods to measure the recent change in the Greenland ice sheet.

In some cases, scientists tracked how rapidly ice is flowing toward the sea; in others, they sought to measure how the loss of ice has decreased the total mass of the ice sheet, based on the gravitational tugs it makes on satellites positioned high above.

Each approach has its own quirks. But by synthesizing all of them into a single study, it represents close to a consensus on what is happening in Greenland.

The IMBIE group, which has been trying to collate scientific results in this way for about six years now, has done the same analysis for Antarctica. It found rapidly increasing losses there as well.

The new Greenland report comes just months after the U.N. Intergovernmental Panel on Climate Change — the central source for sea-level-rise projections — suggested in a special report that it could be higher than it previously estimated. But the number was increased, by about half a foot, because of additional possible ice losses from Antarctica, rather than Greenland. Now, some experts say, the forecast may need to be raised yet again.

“If the [report] were starting now instead of two years ago, we would certainly take a hard look at the [Greenland] estimates and take this new paper into account,” said Michael Oppenheimer, a Princeton climate scientist who co-led the sea-level-rise chapter of that report.

Even if Greenland is tracking a high-end sea-level pathway at the moment, however, ice losses would still have to continue to escalate over the course of the century to reach that scale.

Csatho said prior research had already suggested that Greenland was trending toward higher losses than expected, but individual studies varied significantly. The consensus of these different studies, she said, confirms the ice sheet’s major losses. “Now there is one voice,” she said. “This is what is coming out from taking it all together. It’s a much stronger argument.”

60. A Melting Arctic Is Driving Up CO2 Emissions, New US Government Report Says

The Arctic is undergoing a profound and rapid shift into a new condition, one that is greener, features less ice, warmer temperatures and which emits greenhouse gasses on par with several industrial nations due to melting permafrost, according to a new US government report.

These changes will be felt far away from the North Pole in the form of more severe weather swings, increased greenhouse gas emissions and rising sea levels due to a thaw in Greenland’s ice sheet (See story above.) and melting mountain glaciers.

Such are the findings of the Arctic Report Card 2019⁶, a major annual climate change assessment published by the National Oceanic and Atmospheric Administration in the United States. Its ominous conclusions show a region that is evolving into something chillingly unfamiliar.

At a time when the US presidential administration seeks to politicize climate change and dull the work of government agencies charting its effects, the report offers a striking and gloomy rebuke. It was only a few weeks ago that the White House threatened NOAA staff with reprisals for correcting a fabrication about hurricanes spread by President Trump.

⁶ <https://www.arctic.noaa.gov/Report-Card>

Trump's administration has meanwhile sought to withdraw the United States from the landmark 2015 Paris Climate Accord, under which nearly every nation on earth pledged to help keep global average temperature rises to 1.5 to 2 degrees Celsius by stemming greenhouse gases.

The UN climate talks currently taking place in Madrid, however, have made clear how unlikely that goal has become, as nations fail at making meaningful progress to dent their carbon emissions. In order to limit warming to Paris targets, the world's nations would have to cut their planet-warming emissions in half by 2030 and become entirely carbon neutral by mid-century.

Even if industry, power and transport could be revolutionized in that short period, a melting Arctic could still put those temperature goals out of reach. That's because the Arctic may already have become a net emitter of carbon dioxide due to thawing permafrost, which will accelerate global warming, the new report says.

Permafrost is the carbon-rich frozen soil that covers nearly a quarter of the Northern Hemisphere. It encompasses huge swathes of territory across Siberia, Alaska, Greenland and Canada. These frozen Arctic soils are thought to contain some 1,460 to 1,600 billion metric tons of organic carbon, which can be converted into the greenhouse gases of carbon dioxide and methane by microbes in soil. These microbes become more populous as temperatures warm. As a result, melting permafrost across the world's northerly climates could release twice as many greenhouse gases as are already in the atmosphere.

The Arctic Report Card 2019 shows that this process may already be underway, concluding that permafrost ecosystems could be releasing as much as 1.1 billion to 2.2 billion metric tons of carbon dioxide annually – making the Arctic as big an emitter as Japan on the lower end and Russia on the higher.

While there is still some uncertainty surrounding carbon emissions estimates, the Report Card warns that Arctic region – whose temperatures are climbing twice as fast as the rest of the world – could accelerate climate change.

A melting Arctic is of special concern to Siberia, where entire cities are built on foundations of permafrost. A recent Russian government report found that some 75,000 kilometers of oil pipelines are vulnerable to spills and ruptures should the ground melt beneath them. The same is true of Siberia's highways and railroads, to say nothing of buildings, the foundations of which are expected to corrode and crumble as the ground thaws and softens.

The NOAA Report Card contained more bad news. Levels of Arctic sea ice continue to retreat, hitting the second lowest metric last year since scientist began keeping records. In the Bering Sea in particular, the Report Card says ice levels have been at record lows, comprising only about 30 percent of the mean levels between 1981 and 2010.

The warming temperatures are disrupting life for more than 70 indigenous communities that live around the Bering Sea. Hunting on the ice is becoming more hazardous and access to subsistence foods is shrinking, the report's authors found. As the region warms, Arctic fish species are retreating to more northerly waters.

61. Carbon Markets Fail to Win Backing at Disappointing UN Climate Talks

A last minute commitment by EU governments to target climate neutrality by 2050 failed to spur similar undertakings at the global level, with the COP25 summit in Madrid petering out amid

wrangling over the accounting rules for carbon markets and the use of old credits in lieu of fresh emissions cuts. Envoys from almost 200 countries endorsed a limited set of measures to rein in climate change, shelving efforts to expand carbon markets as a tool to fight global warming.

Delegates at a United Nations meeting in Madrid expressed an “urgent need” to make more ambitious cuts in fossil fuel emissions and advanced work on a mechanism to compensate some of the poorest nations for loss and damages related to climate change. However, for a second year, they were unable to agree on the creation of a system of credits for projects that would cut emissions. They also didn’t endorse any language about how to spur finance for fighting climate change, one of the pillars of the landmark 2015 Paris Agreement on climate change.

“It’s not what the world had hoped for and what Europe would’ve hoped for,” said Karsten Sach, an official speaking for Germany at the meeting in Madrid. “We couldn’t agree on a market mechanism. The process was sometimes a little bit cumbersome slow.”

The delegates from environment and energy ministries stumbled over the details for a new market instrument to rein in pollution. They were trying to work out how to prevent double counting of credits and integrate into the new system an existing mechanism that funnels at least \$138 billion into green projects.

The impasse leaves companies that encouraged carbon trading, including the oil major Royal Dutch Shell Plc and the Spanish utility Iberdrola SA, with fewer price signals showing how quickly the cost of pollution is rising.

“This is a huge disappointment,” said Dirk Forrister, chief executive officer of the International Emissions Trading Association. “The fact is that countries’ ability to deliver stronger targets in line with net zero goals will depend on having access to international market cooperation.”

The meeting was meant to flesh out the last rules needed to implement the 2015 Paris Agreement, under which all nations promised steps to cut greenhouse gas pollution.

The delegates are working toward limiting the Earth’s average temperature increase to 1.5 degrees Celsius since the start of the industrial revolution. Even that would be the biggest shift in the climate since the last ice age ended some 10,000 years ago, and scientists say rising temperatures are already lifting sea levels and causing more violent storms.

“The key polluting countries responsible for 80% of the world’s climate-wrecking emissions stood mute while smaller countries announced they’ll work to drive down harmful emissions in the coming year,” said Jake Schmidt, who is following the talks for the Natural Resources Defense Council.

While carbon markets were the main strand of discussion this year in Madrid, the most visible disagreement at the talks was over what the delegates call “ambition.” That relates to the voluntary commitments nations make toward cutting emissions. The language adopted this year was so weak that for many envoys it marked a step backward from the Paris Agreement, under which nations agreed to offer deeper reductions every few years. The reversal, aided by President Trump’s decision to back away from reductions the U.S. had pledged in previous years, undermined the integrity of the talks.

“There is no sugarcoating it: The negotiations fell far short of what was expected,” said Helen Mountford, vice president for climate and economics at the World Resources Institute, a U.S.

research group. “Instead of leading the charge for more ambition, most of the large emitters were missing in action or obstructive.”

From Egypt to Uruguay, Saudi Arabia and Malaysia, nations expressed concern there was no language in the decision about how to spur climate-related aid.

That backtracks on a principle of the 1992 convention that set up the talks: that rich countries have the biggest historical responsibility for emissions and should pay to help the poor to fix the problem. Since 2009, industrial nations have been promising to boost climate aid to \$100 billion a year by 2020. Uncertainty about how that money will flow eroded the willingness of countries to compromise on their demands.

Envoys aimed to elaborate on Article 6 of the Paris deal. That section of the 27-page accord allowed market mechanisms to be used in meeting emissions goals, though it didn’t spell out how those would work.

The ambition was to revive the Clean Development Mechanism and other tools that channeled aid to poorer nations for projects that cut emissions. Those projects generated tradable securities representing emissions cuts.

To some extent, the consequences of failure this year are low. Markets were the main agenda item, and many nations and green groups were skeptical about involving those mechanisms. They see carbon trading as a distraction from the broader need for much deeper and faster cuts in emissions, which no market mechanism would force.

“It symbolizes profits for their private sector and the chance to give the appearance that they are meeting their commitments while continuing to pollute and operate business as usual,” said Tina Stege, the climate envoy for the Marshall Islands.

Failure in Madrid puts a spotlight on the U.K., which is hosting next year’s talks in Glasgow. The agenda there was focused on raising the ambitions of countries to promise deeper cuts than they have set out for the Paris deal. Markets will now complicate that discussion.

“For Glasgow to be a success, we need a clear message that countries will be called to revise and improve their climate action plans,” said Mohamed Adow, director of Power Shift Africa, an environmental group. “If that doesn’t come through, there’s going to be little that we can be able to harvest in Glasgow.”

A last minute commitment by EU governments to target climate neutrality by 2050 failed to spur similar undertakings at the global level, with the COP25 summit in Madrid petering out amid wrangling over the accounting rules for carbon markets and the use of old credits in lieu of fresh emissions cuts

“I am disappointed with the results of COP25,” UN secretary general António Guterres said as extended talks drew to a close. “The international community lost an important opportunity to show increased ambition on mitigation, adaptation and finance to tackle the climate crisis.”

Technical talks in Madrid centered on Article 6 of the 2015 agreement, dealing with rules on international carbon markets. The negotiations ended inconclusively, to be continued in Glasgow next year at the final summit before the implementation phase begins, where campaigners and the European Commission hoped the focus would be on accelerating emissions cuts.

Bas Eickhout, the Dutch lawmaker who headed the European Parliament's delegation to Madrid, noted the gap between climate action commitments and demands from the public and more progressive countries. "While the world is still heading for more than 3 degrees of warming, the final resolution fails to fully address the climate emergency and only includes a timid call for increasing ambition ahead of next year Glasgow summit," the Green MEP said.

"Brazil and Australia are among the major obstructers. This cannot go without consequences for the EU's negotiations with both countries on new trade agreements," Eickhout said.

62. Transportation Sector Falls Far Short Of Meeting Paris Climate Goals

Only slightly more than quarter of 57 major auto, shipping and aviation companies in the United States and other countries have emission-reduction plans in line with the Paris climate Agreement goal of keeping warming to below 2° Celsius, says a new report.

Tracking company emission-reduction commitments and progress is a major focus of non-profit and investor organizations seeking to apply pressure for action to reduce greenhouse gas emissions, as scientists report that climate change is steadily worsening and policy responses are uncertain as the Trump administration withdraws the U.S. from the Paris Agreement.

The report on the three major transportation sectors -- one of several assessments of corporate climate progress issued during the United Nations' 25th Conference of the Parties climate meeting, December 2-13 in Madrid -- was published December 4 by the Transition Pathway Initiative (TPI). It says more than 50 investors globally representing over \$15.5 trillion combined assets have pledged to support TPI and have committed to using its tracking tool and data in engaging with companies.

TPI is also aligning with the requirements of an industry-led Task Force on Climate-related Financial Disclosures (TCFD), co-chaired by Democratic presidential candidate Michael Bloomberg. In exploring how climate change could destabilize financial markets, the Commodity Futures Trading Commission in June invited testimony about the TCFD.

In a December 4 press release about its findings, TPI states that the transportation sector Carbon Performance shows "35% of companies are aligned with the least ambitious Paris/International Pledges benchmark and 19% are aligned with a path to keep global warming at 2° Celsius or below." As low as the scores are, they are "slightly higher than those for the whole TPI database," which includes oil and gas, electricity generation, and other major sectors.

In its examination of individual transportation sectors, TPI found that eight out of 13 shipping companies, or 61% of the total, are already aligned with the more ambitious 2°C or below benchmarks for 2030, despite the sector being "labelled a worst offender environmentally, due to its use of heavy 'bunker fuel'." TPI's results were calculated using "emissions intensity," or the "emissions relative to cargo mass and distance transported."

TPI's assessment of the automotive sector found that car makers "are showing steady climate progress," with nine of the 21 automotive companies, or 43%, showing an improved climate Management Quality score for 2019. But while the sector performs very well on incorporating climate change into executive remuneration, with 59% of firms meeting that target, and 77% disclosing emissions from use of their products they sell, along with an average drop in fleet emissions intensity of 2-2.5% per year based on 2016-2018 data, only two car companies,

Daimler and Tesla, “are projected to align with a path to keep global warming to 2°C or below,” TPI says.

The airline sector’s average climate Management Quality score “remains the second worst in the TPI database,” better than only oil and gas in terms of alignment with Paris benchmarks by 2030, according to the organization. Airlines improved by over 8% since the spring of 2019, with almost 60% of the 22 airlines assessed having emissions-reduction targets that align with the Paris pledges in 2020. But TPI notes that beyond 2020 most airline targets are based on net emissions, including offsetting. “TPI discounts these net emissions targets due to the uncertainty in quantifying them,” the group says.

63. Brookings Says Global Climate Diplomacy Insufficient For Paris Goals

The Brookings Institution in a new report says global climate diplomacy is insufficient to meet the Paris climate goals, and that additional efforts are necessary to convene major industrial sectors internationally to identify extra steps for reducing greenhouse gas emissions. In its December 9 report, *Accelerating the Low Carbon Transition*, the think tank notes that “annual global CO₂ emissions have risen by over 60%” since international climate talks began 30 years ago, “and they could plausibly keep rising a few per cent per year for at least the next decade.”

The report was launched at the 25th Conference of the Parties (COP 25). COP 25 focused on advancing implementation of the Paris Agreement on climate, even as President Donald Trump is in the process of withdrawing the United States from that pact.

The Brookings report argues that climate diplomacy should focus on processes of change rather than climate goals. It asserts that the Paris Agreement’s “broad-based multilateralism” is insufficient and “must be complemented with forms of international action that are stronger, more coordinated, and more focused on the critical actions that can accelerate change across the global economy.”

During COP 25, the progressive news program, *Democracy Now!* reported that despite not officially participating, the United States was nevertheless “obstructing progress.” The meeting ended with few goals met and disappointment among advocates for action.

With rising emissions already “baked in” to today’s high-carbon energy system, and more fossil fuel infrastructure, it is “becoming ever harder to meet” goals for limiting increases in global temperature, Brookings says on its webpage introducing the report.

“In comparison with previous reports, what is new is our focus on the processes of change, rather than on the end goal,” the Brookings authors write. Under their approach to how international climate goals might be met, they consider not only “which technologies are viable” but also “which actors could develop and deploy them, and how policy might motivate them to do so.” Noting that their central message is that a low-carbon transition “is not a purely technological or economic exercise, but also a social transition,” the authors propose drawing on knowledge in three areas to help drive action:

- Understanding of how technology transitions happen, with lessons drawn from such historical shifts as from horses to cars, coal to gas, and wells to piped water systems.
- Understanding how international cooperation has succeeded in the past for problems in trade, security, and the environment and the implications for how coordinated action can steer and accelerate technological transitions.

- Applying these insights to the main greenhouse gas emitting sectors to identify points of leverage for coordinated international action to accelerate low-carbon transitions.

Although formal climate diplomacy tends to be organized around countries, to meet the Paris Agreement goals “the real focus both for governments and for industry should be coordinating actions in sectors or systems,” with much greater effort needed to convene the key actors in each sector, the report says. “Alongside the policy actions for decarbonization, a strategic commitment to institution-building is therefore the single most important activity that can be undertaken by any government wishing to lead the global response to climate change.”

64. Going 100% Green Will Pay For Itself in Seven Years, Study Finds

A Stanford University professor whose research helped underpin the U.S. Democrats’ Green New Deal says phasing out fossil fuels and running the entire world on clean energy would pay for itself in under seven years. It would cost \$73 trillion to revamp power grids, transportation, manufacturing and other systems to run on wind, solar and hydro power, including enough storage capacity to keep the lights on overnight, Mark Jacobson said in a study published in the journal *One Earth*. But that would be offset by annual savings of almost \$11 trillion, the report found.

“There’s really no downside to making this transition,” said Jacobson, who wrote the study with several other researchers. “Most people are afraid it will be too expensive. Hopefully this will allay some of those fears.”

Some of Jacobson’s past findings have been questioned, notably a 2017 journal article that criticized his methodology on measuring the cost of phasing out fossil fuels.

The biggest challenge of ditching fossil fuels may not be economic. Even some clean-power advocates acknowledge technology isn’t available yet to run power grids entirely on renewables without jeopardizing reliability.

The new report looked at 143 countries that generate more than 99% of the world’s greenhouse emissions. The savings would come from not extracting fossil fuels, using higher-efficiency systems and other benefits of shifting entirely to electricity. It follows a paper Jacobson published in 2015 laying out a state-by-state plan for the U.S. to convert to 100% renewables.

65. Shipowners Propose \$5bn Fund To Cut CO2 Emissions

The global shipping industry has called on the International Maritime Organization (IMO) to create a \$5bn (€4.6bn) program for research and development to cut CO2 emissions from the sector. The proposal was presented by eight international shipowners’ associations representing 90% of the world merchant fleet.

The industry called for the establishment of a maritime research and development board overseen by IMO member states. The organization would be financed by shipping companies through a mandatory contribution of \$2 per ton of fuel purchased, raising about \$5bn in 10 years.

The funds would be used to research decarbonizing the sector and to deploy commercially viable zero-carbon emission ships by the early 2030s. This is needed to meet the IMO greenhouse gas emissions cut of at least 50% by 2050, a target that would rapidly lead the entire fleet to 100% decarbonization, according to the industry.

Simon Bennett, deputy secretary general of the International Chamber of Shipping, said the IMO goals “can only be achieved by improving carbon efficiency of the world fleet by around 90%.” But technologies are not currently available at scale.

While welcoming the proposal, Jo Dardenne, shipping expert at green group Transport & Environment, noted that the fuel levy is “a drop in the ocean compared to what is needed to actually clean up shipping.” \$2 per ton is less than 1% of the actual price the sector pays today for fuel and is 40 times cheaper than the carbon price paid in Europe, she said.

“If the industry is serious about changing, much more needs to be done, starting at the European level, by including shipping in the EU’s carbon market (EU ETS) and mandating CO2 standards for all ships coming to European ports,” Dardenne said.

The International Chamber of Shipping however maintains that the responsibility for regulating CO2 emissions in the sector lies within the UN’s IMO.

The industry groups will submit the proposal for discussion at the next IMO Marine Environment Protection Committee in March 2020 and the fund could be put in place by 2023. In the same year the EU could include shipping in its emissions trading scheme if the UN agency is judged to have made insufficient progress.

GENERAL

66. Reducing Air Pollution Comes With Instant Health Benefits

Continued exposure to air pollution has been linked to a whole host of diseases from pulmonary ailments to brain-related ones in people of all ages. It follows then that reducing exposure to toxic air should have health benefits. And indeed, that is what the authors of a new study have found.

In fact, say the researchers from the Environmental Committee of the Forum of International Respiratory Societies (FIRS), the health benefits can be quite dramatic. “Reducing pollution at its source can have a rapid and substantial impact on health,” they explain in the paper⁷ published in the *Annals of the American Thoracic Society*.

“Within a few weeks, respiratory and irritation symptoms, such as shortness of breath, cough, phlegm, and sore throat, disappear; school absenteeism, clinic visits, hospitalizations, premature births, cardiovascular illness and death, and all-cause mortality decrease significantly.”

They reached this conclusion after reviewing the results of various interventions worldwide that have served to reduce the extent of air pollution at its source. They then evaluated the outcomes and examined how long they took to manifest themselves. The results were eye-opening.

In Ireland, for instance, during the early stages of a ban on smoking the health benefits included a 13% drop in all-cause mortality, a 26% drop in the rate of ischemic heart disease, a 32% drop in the number of strokes, and a 38% drop in chronic obstructive pulmonary disease. Not only that

⁷ “Health Benefits of Air Pollution Reduction”, Dean E. Schraufnagel, John R. Balmes, Sara De Matteis, Barbara Hoffman, Woo Jin Kim, Rogelio Perez-Padilla, Mary Rice, Akshay Sood, Aneesa Vanker, and Donald J. Wuebbles; on behalf of the Forum of International Respiratory Societies Environmental Committee, <https://doi.org/10.1513/AnnalsATS.201907-538CME>

but nonsmokers also greatly benefited from the ban on smoking. Perhaps that should come as no surprise as secondhand smoking has been known to have adverse health effects for nonsmokers who are exposed to cigarette smoke.

Meanwhile, a 13-month-long closure of a steel mill in Utah, in the United States, led to a state of affairs whereby hospitalizations for pneumonia, pleurisy, bronchitis and asthma were halved. The daily mortality fell by 16% for every 100 µg/m³ PM₁₀ (a pollutant) decrease. Pregnant women were less likely to have premature births while school absenteeism by children also decreased by 40%.

In Nigeria, where indoor cooking has long been a health hazard, especially for poor families, in families that reduced indoor air pollution at home by using clean cook stoves pregnant women gave birth to children with higher birthweights, experienced greater gestational age at delivery, and had less perinatal mortality, the researchers say.

“We knew there were benefits from pollution control, but the magnitude and relatively short time duration to accomplish them were impressive,” said Dean Schraufnagel, a physician who was the report’s lead author. “Our findings indicate almost immediate and substantial effects on health outcomes followed reduced exposure to air pollution. It’s critical that governments adopt and enforce WHO guidelines for air pollution immediately.”

67. Renewable Hydrogen Solution To Decarbonize The Mining Industry

ENGIE, leader of the zero-carbon transition and Anglo American, leading global mining industry player, have announced an agreement to co-create and fuel the first hydrogen-powered mining haul truck. This project is part of ENGIE’s strategy to promote renewable hydrogen to help its customers decarbonize their operations. It is aligned with Anglo American’s initiatives towards mining with zero climate impact.

This collaboration between the two companies marks the first time a truck of this size and load capacity (300 metric tons) will be converted to run on hydrogen. ENGIE will provide the hydrogen generation solutions while Anglo American will develop the truck.

The modifications to the existing truck include replacing the diesel tank with hydrogen tanks and replacing the engine with hydrogen fuel cells and a battery pack. The hydrogen will be provided by the solar power generation capacity at the mining site.

First motion of the hydrogen powered truck is expected in 2020, followed by a testing and validation program at Anglo American’s Mogalakwena Platinum Group Metals mine in South Africa, after which additional trucks are expected to be rolled out at other Anglo American operations.

The mining sector operates in challenging conditions and represents a high portion of the global energy consumption. Jointly developing the hydrogen-powered truck is the first step to achieving both companies’ common ambition to decarbonize the mining sector, one of the key sectors in the energy transition.

The agreement was signed onboard the ENERGY OBSERVER during its London stopover. The first fully electric vessel traveling around the world, powered exclusively by hydrogen and renewable energies, the ENERGY OBSERVER demonstrates a full decarbonization solution that ENGIE is developing on an industrial scale.

68. On Electric Vehicles, China And California Aim For More Stick, Less Carrot

China and California, the world's largest electric vehicle markets, sent strong signals in December that their respective economies will shift away from public subsidies toward sales mandates, as both governments seek more aggressive actions to slash greenhouse gas emissions and pollution stemming from fossil fuel-based transportation.

China's Ministry of Industry and Technology released a 15-year "draft development" plan calling for new energy vehicles (NEV) to account for 25% of annual new vehicle sales by 2025. That target includes medium- and heavy-duty vehicles, according to Tony Wang, associate director, research and analysis for IHS Markit.

The new vehicle targets come as China is phasing out a NEV subsidy program that has led to soaring production and sales of alternative fuel vehicles. Around 1.23 million EVs roam the roads in China, the largest fleet of EVs in any country. Subsidies will be completely phased out by the end of 2020, to be replaced by mandates that shift more of the burden to manufacturers who will be required to sell increasing numbers of NEVs.

Separately, California recently moved forward with plans to implement the nation's first electric manufacturing standard for medium- and heavy-duty trucks. (See story above.) That standard, as it is currently written, would require half of all truck sales in California to be zero-emission vehicles (ZEVs) by 2030. Following a hearing December 12, the California Air Resources Board is expected to further toughen the mandate, amid widespread criticism from community groups that the existing sales targets are inadequate to meeting the state's air quality and greenhouse gas emissions reduction objectives.

California's passenger vehicle sales mandate has been in effect since 1990. The program, since adopted by 10 other states, is based on a credit system, in which automakers are required to acquire ZEV credits equal to a specific percentage of non-electric sales.

The credit requirement increases over time, rising to 22% in 2025, at which point ZEV sales would be around 8% of all car purchases.

Under the proposed electric truck manufacturing standard, companies that make clean trucks will be able to sell credits to conventional truck makers that don't invest in ZEVs.

Stronger credit requirements for passenger vehicles, along with the proposed truck program, come as California scales back subsidies for electric cars, part of a move to balance budgets while investing more resources in lower-income communities and away from affluent buyers.

Federal tax credits for EV purchases are also being phased out. (See story above.)

To meet its NEV target of 25% by the mid-2020s, China will likely deploy several strategies, with sales quotas ranking high on the list, Wang said. "We expect [mandates] will replace the current NEV subsidy to play an extremely important role in driving BEV [battery electric vehicle] sales increasing in the future," he said.

In some respects, China is following in California's footsteps as its sales targets are tied to a carbon credit scheme. China's program, launched in 2019, requires carmakers to earn carbon

credits — generated by EV sales — equivalent to 10% of their annual sales. That rate will increase to 12% in 2020.

It is unclear how the carbon credit program will be structured for heavy-duty vehicles. But generally speaking, according to Wang, manufacturers will have to meet "more and more stringent CO2 fleet credit targets and NEV credit targets by launching, producing and selling more and more BEV vehicles into the market."

One big differentiator between China and California EV policies is the level of federal support for zero-emissions targets.

California sued the Trump Administration earlier this year after the president revoked a California waiver allowing the state to set its own vehicle emissions standards and enforce its ZEV mandate. The administration's efforts to block California's authority could put the state's ZEV mandate and the proposed clean truck standard (expected to be adopted in 2020) at risk.

Although several automakers, including GM and Toyota, have sided with Trump in the vehicle emissions debate, those manufacturers will have to comply with similar programs in China if they want to sell vehicles in the world's largest car and truck market.

Even though China is eliminating its direct federal subsidy, Wang added, other "carrots," such as suspension of license plate fees for NEVs in certain cities, traffic preferences for BEVs during rush hour and preferential NEV purchasing on the part of government offices will likely continue.

69. IMO 2020-a Major Shake-Up for Oil and Shipping

From January 2020, United Nations shipping agency the International Maritime Organization (IMO) will ban ships from using fuels with a sulfur content above 0.5%, compared with 3.5% now. The regulations are aimed at improving human health by reducing air pollution.

Only ships fitted with sulfur-cleaning devices known as scrubbers will be allowed to continue burning high-sulfur fuel. Ship owners can also opt for other sources of cleaner fuel such as liquefied natural gas (LNG).

Failure to comply with the global regulations will result in fines or vessels being detained and in some jurisdictions the risk of imprisonment, which could affect vital requirements such as insurance cover.

Enforcement will be policed by flag and port states rather than the IMO and industry officials are still unsure about whether there will be full compliance when it kicks in.

Refineries separately face significant costs to adapt to the new fuel specifications.

Oil majors including BP and Royal Dutch Shell have announced they are producing very low sulfur fuels that meet the 0.5% requirements. While major fuel bunkering ports such as Singapore, Fujairah in the United Arab Emirates and Rotterdam in the Netherlands have compliant-fuel supplies, analysts and shipping firms are still unclear what will happen at smaller ports given the need for ships to plan their sailing routes.

There is still a question over whether jurisdictions and ports could restrict the use of certain types of scrubbers due to uncertainty over the effects of the wastewater that gets pumped into the sea.

Earlier this year ten environmental groups called on the IMO to impose an immediate ban on the use of scrubbers.

Users of the devices argue that there is no conclusive scientific research showing that discharges from open loop scrubbers - which wash out the sulfur - cause environmental harm and their use was safe. Analysts say there is still the possibility of tighter restrictions, which would add to the costs of those investing in them.

The IMO has encouraged further study into the impact of scrubbers on the environment.