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1. ICCT Issues Call To Increase Scope Of EU Car Emissions Limits

Vehicle emissions limits should be extended to cover the harmful chemicals ammonia and formaldehyde, and the climate impact of gases such as methane, the International Council on Clean Transportation (ICCT) has said.

In a study funded by the European Climate Foundation, the Berlin-based think tank commissioned tests on a 2018 Volkswagen Golf TSI to gain a better understanding of overall emissions from a vehicle compliant with the EU’s current Euro 6c standard.

While the vehicle met current emissions limits for pollutants including NOx and carbon monoxide in lab and real-world testing cycles, it exceeded limits for hydrocarbons and particulate number (PN) in cold-start tests at -7°C.

“The low-temperature PN emissions are up to three times the Euro 6 limit... and up to six times the PN emissions measured at 23°C over the same cycle,” the ICCT reported, calling for legislators to extend the low temperature test at -7°C to include all regulated pollutants.

The report also called for the size threshold for counting particulate matter (PM) to be reduced from 23nm to 10nm, arguing this could be done “without large investment costs or significant modifications to existing measurement systems”.

The tests for unregulated pollutants also showed significant levels of formaldehyde, which increase with the ethanol content of a petrol blend. The ICCT called for limits to avoid an increase in atmospheric content of the genotoxic material.

Similarly, ammonia, more often associated with the farming sector, should also be controlled, the think tank argued. “The results of the measurements from this study show that ammonia emissions are comparable to the emissions of NOx,” it concluded.

The tests also found levels of the powerful greenhouse gases methane and nitrous oxide sufficient to contribute up to 0.75% of the car’s global warming impact. They should be limited, or their impact counted under legislation on CO2 emissions, the report concluded.

The campaign group Transport & Environment broadly agreed with the ICCT’s recommendations, but Anna Krajinska, an emissions engineer with the group, said a future EU standard (Euro 7) should go further by setting out “a clear roadmap for all vehicles to go towards zero emissions in the next decade”.

It was unacceptable that emissions limits are breached at the common European winter temperature of -7°C and the EU should review its real-world testing procedure, Krajinska told reporters.

The campaigner also criticized the current rules for allowing diesel cars to emit 30% more NOx than petrol, and the short duration of emission tests for new cars. “At the moment cars will only be tested up to 100,000 km or five years, but the average car in the EU is driven for 11.7 years, and up to 17.1 years in eastern Europe,” Krajinska said.
2. Germany’s Bosch Fined $100 Million Over Diesel Scandal

German prosecutors have fined auto parts and technology company Bosch 90 million euros ($100 million) over its role in the diesel emissions scandal that erupted at Volkswagen in 2015. Prosecutors in Stuttgart said that the company was fined for a negligent violation of supervisory obligations, and that the company had decided not to appeal.

Bosch delivered millions of engine control systems that were installed on various manufacturers' cars starting in 2008 and whose software, in prosecutors' words, “contained in part prohibited strategies” — leading to cars emitting more nitrogen oxide than permitted by regulators.

However, prosecutors said they believe that “the initiative to integrate and shape the prohibited strategies came from employees of the auto manufacturers.”

They said that the fine does not affect ongoing criminal probes of Bosch employees. The bulk of the fine — 88 million euros — stems from profits on the sales of the parts, with the remaining 2 million euros covering the misdemeanor itself.

Prosecutors said that they took account of Bosch managers' full and constructive cooperation with investigators since 2015.

Bosch agreed to a $327.5 million civil settlement in the United States for supplying emissions software to Volkswagen, Audi and Porsche vehicles that enabled cheating on diesel emissions tests.

3. The Diesel Fuel Price Advantage in Europe is Declining

Using data from the European Commission, ICCT looked at the trends in the price of diesel fuel compared to gasoline over the past approximate decade. Diesel fuel is still significantly cheaper than gasoline—especially when you factor in its higher energy density—but that cost advantage seems to be fading.

The price advantage of diesel fuel in Germany is way above the EU-average. France (FR), Italy (IT) and Spain (ES) have reduced tax subsidies for diesel, and in the UK the same tax applies for both fuels; diesel fuel is actually more expensive there.
4. EEA: Small Increase In EU’s Total Greenhouse Gas Emissions In 2017

According to the EEA’s Annual European Union greenhouse gas inventory 1990-2017 and inventory report 2019, total greenhouse gas emissions (including international aviation) rose by 0.7 % in 2017 compared with 2016. These official data confirm the preliminary estimates published by the EEA in October 2018. From 1990 to 2017, the EU reduced its net greenhouse gas emissions by 21.7 %. The EU is therefore still exceeding its 20 % reduction target set for 2020.

EU greenhouse gas emissions have decreased since 1990 as a combined result of policies, economic and structural factors and, on average, milder winters (requiring less energy for heating). The largest emission cuts have been made in the energy sector, due to efficiency improvements, increased use of renewables and a less carbon intensive mix of fossil fuels — more gas, and less coal and oil. Energy efficiency and renewable energy will continue to play a key role in cutting future emissions and helping the EU achieve its 40 % reduction target by 2030.

The 0.7 % increase in EU greenhouse gas emissions observed in 2017 resulted from the main following factors:

- Transport emissions continued to grow: for the fourth consecutive year since 2013, carbon dioxide emissions from road transportation increased — both for freight and passenger vehicles. Most of the increase was accounted for by higher diesel consumption by trucks and vans, but consumption and emissions also increased for passenger cars. Emissions from international aviation increased substantially as a result of higher demand and consumption of jet kerosene.
- Across the EU, several industrial sectors recorded higher emissions in 2017 as a result of higher economic and industrial activity compared to 2016.
These increases were partly offset by improvements in the energy and carbon intensity of the economy, due to:

- Lower fossil-fuel consumption and emissions in the production of heat and electricity in power stations, with lower use of coal and higher use of natural gas and renewables.
- Lower transformation losses and better energy efficiency.

Poland and Spain accounted for the largest increases in greenhouse gas emissions in absolute terms in 2017. In Poland, the increase was mainly due to higher emissions from road transportation. In Spain, the bulk of the net increase in emissions was accounted for by higher use of coal for power generation. The largest increases in relative terms in 2017 occurred in Malta, Portugal and Estonia.

5. Preliminary Results: Europe's CO2 Emissions Begin To Decrease Again in 2018

Europe’s CO2 emissions fell by 2.5% last year after remaining almost flat for four years and even rising slightly in 2017, according to preliminary figures released by the EU’s statistical office. Eurostat’s early estimate based on national data relates to CO2 output from burning fossil fuels – which accounts for some 80% of the EU's greenhouse gas emissions – showed wide differences on the rate of reduction across the bloc. Portugal saw the greatest fall, with emissions down 9%, and Germany, which is alone responsible for over a fifth of emissions in the EU, recorded a drop of 5.4%, followed by the Netherlands on 4.6%.

At the other end of the scale, Latvia recorded an increase in CO2 output of 8.5%, while Poland, which generates some 80% of its electricity from coal, saw its emissions rise by 3.5%.

Eurostat noted that a country by country comparison is complicated by the fact that national figures are based on the place where fossil fuels are burned, so cross-border imports of electricity from coal- or gas-fired plants would not count towards the emissions in the consuming country.

Roughly a fifth of EU greenhouse gas emissions – which include substances such as methane measured by the ‘CO2 equivalent’ greenhouse effect – come from areas not covered by the fresh 2018 estimate, mainly agriculture, but also industrial processes and waste management.

6. City Of Amsterdam To Ban Polluting Cars From 2030

Gasoline and diesel fueled cars and motorcycles will be banned from Amsterdam from 2030 in an effort to clean up the city’s air, the Dutch capital’s council has announced.

“Pollution often is a silent killer and is one of the greatest health hazards in Amsterdam,” said the city’s traffic councilor, Sharon Dijksma.

Despite the widespread use of bicycles by many Dutch, air pollution in the Netherlands is worse than European rules permit, mainly due to heavy traffic in the cities of Amsterdam and Rotterdam. The health ministry has warned that current levels of nitrogen dioxide and particle matter emissions can lead to respiratory illnesses, with chronic exposure shortening life expectancy by more than a year.

Amsterdam said it aims to replace all gasoline and diesel engines by emission-free alternatives, such as electric and hydrogen cars, by the end of the next decade. It will start next year by banning
diesel cars built before 2005 from the city and will gradually expand the range of vehicles that are barred.

Amsterdam will need to increase the number of charging stations in the city from 3,000 to between 16,000 and 23,000 by 2025, Ms. Dijksma, the traffic councilor, told Dutch News.

The city said it will use subsidies and parking permits to stimulate people to switch to cleaner cars.

However, a spokesman for the RAI Association, Amsterdam’s motoring lobby, said the plan would adversely affect poorer families, according to The Guardian. “Many tens of thousands of families who have no money for an electric car will soon be left out in the cold,” he said.” That makes Amsterdam a city of the rich.”

7. Greenpeace Challenges UK To Phase Out Diesel And Petrol Vehicles By 2030

Greenpeace has challenged the government to phase out diesel and petrol-fueled cars by the end of the next decade after Amsterdam said it would ban them from 2030. “Amsterdam authorities are getting tough on air pollution and carbon emissions from road traffic, and that’s exactly what the UK government should be doing,” Rebecca Newsom, a spokeswoman for the charity, told The Independent.

She said transport had become the biggest contributor to Britain’s carbon footprint, as well as a major source of air pollution.

“Getting rid of diesel and petrol cars and vans will be crucial both to tackle the climate emergency and to clean up our air, yet ministers have set a phase-out date for sales of new petrol and diesel vehicles that’s more than 20 years away. The government needs to bring that date forward to 2030 while also boosting public transport and investing more in walking and cycling infrastructure.”

Activists from the Extinction Rebellion movement tweeted: “The banning of petrol and diesel cars and motorbikes can be done because Amsterdam is doing it. If they can do it then your city should be able to also.”

London introduced an ultra-low emission zone (Ulez) earlier this year, with plans to expand the boundary by 2021.

Edinburgh has recently joined an 18-month trial to examine the effects of banning vehicles from its historic Old Town between midday and 5pm on the first Sunday of each month.

Meanwhile Madrid has banned petrol vehicles made before 2000 and diesel vehicles made before 2006 from its city center. Rome will also ban diesel vehicles from 2024.

8. Madrid’s Incoming Mayor Vows To Scrap Low Emissions Zone

The Madrid Central low-emissions and traffic restriction scheme introduced in Spain’s capital last year will be eliminated following the victory of right-wing parties in the recent local elections, mayor-elect José Luis Martínez-Almeida, announced.
“Madrid Central is a failed model in terms of pollution,” Martínez-Almeida told a radio interviewer and he promised alternative measures including €200 million in subsidies to update Madrid’s vehicle fleet.

Spain’s draft National Energy and Climate Plan published in February requires all medium and large cities to have low emissions zones in place by 2023. Moreover, the country’s actions to protect citizens from air pollution are being monitored by the European Commission.

The EU executive decided, in 2018, not to take Spain to court over NO2 levels in three zones including Madrid after the government, then controlled by Martínez-Almeida’s Popular Party, presented plans, including Madrid Central, as proof of action being taken to protect citizens from air pollution.

Any alternative measures would have to be presented to the commission for approval, Xavier Querol, air quality expert at the Spanish government’s scientific research council CSIC, told reporters. “Although the definitive data is not in, the indications are that Madrid Central has been effective” in reducing levels of NO2 and particles, he said.

Data from April 2019 from the only measuring station within central Madrid showed NO2 declined 48% compared to 2018 and was at the lowest monthly level since 2000, environmental NGO Ecologistas en Acción reported this month. “Madrid was slow in introducing emissions-reduction measures but they are working well and have a high level of public acceptance,” according to spokesman Paco Segura.

“The trend across the EU is to expand low-emissions zones such as in London, with the ultra-low emissions zone, or in Paris, with the creation of Paris Central which directly acknowledges the example of Madrid, or in Milan,” Segura said.

Isabel Buschel of the NGO Transport & Environment said, “our specialized consultant whose website tracks all the low emissions zones in Europe is not aware of any example of an existing zone being eliminated.”

Spanish ecological transition minister, Teresa Ribera, said “the (false) debate over Madrid Central ignores three uncomfortable truths: EU air quality requirements in our cities, contempt for the health of Madrileños, and the development of citizen awareness”.

9. Citizen Scientists To Monitor Air Quality Near Schools

Pupils, teachers and parents are to carry out air quality monitoring around urban schools as part of a joint initiative of the European Environment Agency and the European Network of the Heads of Environmental Protection Agencies (EPA Network).

The aim of this ‘citizen science’ initiative, gathering people who voluntarily contribute to scientific research, is to complement official data collection that falls under the remit of the EEA whilst raising awareness of the impact of air pollution on human health.

Poor air quality from exposure to outdoor sources, mainly road transport emissions, is a major cause of premature death and diseases in Europe, according to an EEA report published in October.
The initiative, running until the end of 2019, involves gathering measurements and running surveys at each school to assess the impact of efforts to cause behavioral changes, such as discouraging the use of cars.

At the EU level, it is meant to support the European Commission’s efforts to streamline environmental reporting and to engage citizens in learning about monitoring and reporting processes.

Low-cost measuring devices will be distributed and used to monitor nitrogen dioxide (NO2) concentrations around schools. The high cost of monitoring equipment has in the past been a barrier to tracking air pollution at the local level.

Nine EU countries’ environmental protection agencies will participate in the project – Belgium, Estonia, Ireland, Italy, Netherlands, Malta, Spain, Sweden and the UK – plus Iceland and Switzerland.

EU governments were required to submit by the end of April their National Air Pollution Control Programs (NAPCPs) for meeting 2020 and 2030 national reduction targets set out in the National Emission Ceilings (NEC) Directive. They are currently awaiting feedback from the EU executive.

Citizen scientist air quality initiatives have already been running at the regional level in the EU. One example is the Belgian ‘Curieuze Neuzen’ (‘Curious noses’) project, the result of a collaboration by the Flemish Environment Agency, the University of Antwerp and De Standaard newspaper. The consortium has delivered 20,000 low-cost air quality monitoring devices to homes, schools and businesses across the Flemish region of northern Belgium.

**10. Deutsche Post Beats VW, Daimler With Fuel-Cell Delivery Van**

Deutsche Post AG will start running a fleet of electric vans with fuel-cell technology from 2020, potentially creating a follow-up success to the German mail operator’s own no-frills delivery vehicle that left Volkswagen AG and Daimler AG trailing.

Five years ago, the company started developing bare-bones electric vans with startup StreetScooter after Deutsche Post’s requests for a low-cost vehicle fell on deaf ears. Its electric fleet has grown to more than 9,000 and the company sells the vehicles to third parties, irking incumbent manufacturers. The new hydrogen model will add more range for longer routes.

The H2 Panel Van, a bigger version of the StreetScooter Work XL and the first of its kind according to the company, will have more room and payload with a range of as much as 500 kilometers (310 miles). It’ll hit roads next year when the first batch of 100 vehicles will be handed over to the company’s DHL Express unit in 2020 and 2021.

“We’re convinced that fuel cell technology will grow in importance,” Fabian Schmidt, chief technical officer of Deutsche Post’s unit StreetScooter GmbH, said in a statement. “We’re entering a new phase of innovation and are starting a new chapter of our growth story.”

The fuel cell fleet could quickly grow to 500 vehicles, according to the unit’s German head Markus Reckling. While the hydrogen model will be deployed in-house only for the time being, StreetScooter is already selling hundreds of smaller electric models to customers from the U.K. to Japan.
Vehicle Specifications

Range up to 500 kilometers
Top speed 120 km/h
Payload 800 kilograms (1,764 pounds)
Total weight 4200 kg

Demand for delivery vans is set to balloon as Internet shopping becomes more prevalent and an increasing number of people move to cities. Van sales in the U.S., Europe and China are set to jump by three-quarters through 2040 to reach 8.5 million vehicles annually, according to BloombergNEF’s “Electric Vehicle Outlook 2019.” Vans will move toward electrification faster than mid- or heavy-duty trucks due to their lighter payloads and shorter distances, the report said.

Competition for access to increasingly emissions-restricted city centers is picking up. Daimler started deliveries of its eVito Sprinter this year. Ford and Amazon.com Inc. are investing $500 million in U.S. start-up Rivian, which electrifies trucks and SUVs. Workhorse Group Inc. is competing for a contract worth as much as $6.3 billion to supply next-generation mail trucks to the U.S. Postal Service. In the U.K., UPS and Royal Mail are trialing battery vans from Arrival Electric Vehicle.

Fuel cells create energy from the chemical reaction that combines hydrogen and oxygen to power an electric motor. The process only emits water. While fuel cells offer the prospect of more range and faster recharging than battery-powered electric vehicles, they require a complex infrastructure for storing and refueling the hydrogen tanks.

For DHL, the extra range means the vehicle will be better suited to handle deliveries of parcels with mixed priorities. Some express services are more urgent than others, leaving drivers unable to pick the best route to maximize range but to hand over first things first. The new vans will cover routes too long for the battery-only vehicles.

**11. Siemens Sees a Future for Electric Trucks Powered by Overhead Lines**

The first test route for electric trucks powered by an overhead line opened on a German highway earlier this month, backed by a group of government agencies and private-sector partners, including Siemens Mobility GmbH.

Using the same catenary technology that powers public transit bus trolley lines or light-rail train cars, hybrid trucks on the route connect to an overhead power line via a roof-mounted pantograph. The overhead line powers the electric motor and charges onboard batteries when the truck is connected to the line. When the truck leaves the overhead line, it can operate on battery power or with its diesel engine.

Trucks will operate on a 10-kilometer (6.2-mile) stretch of the A5 autobahn between Frankfurt and Darmstadt in the German state of Hesse. By mid-2020, five trucks operated by multiple shipping companies will make several trips daily on the test track.

Germany’s Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) provided €14.6 million ($16.3 million) for construction of the test track, and another €15.3 million ($17 million) to cover field testing through 2022.

Additional test routes are planned for the German states of Schleswig-Holstein and Baden-Württemberg. In total, Germany’s BMU has allocated more than €70 million towards the development of the overhead line hybrid truck system.
The state of Hesse commissioned Siemens Mobility to build the overhead contact line system in August 2017, following Siemens' introduction of its “eHighway” technology in 2012.

“Electrified overhead line trucks are a particularly efficient solution on the way to climate-neutral freight transport,” Rita Schwarzelühr-Sutter, parliamentary state secretary at BMU, said as the test route opened.

Road vehicles account for more than 95 percent of Germany's transportation CO2 emissions, and one-third of that total comes from short- and long-distance road freight transport.

12. European Climate Foundation Criticizes ‘Low Ambition’ Of National Climate Plans

Spain's national energy and climate plan (NECP) has come out on top in a ranking of all 28 draft strategies to meet the EU’s 2030 targets, in a report commissioned by the European Climate Foundation (ECF). But even the Spanish plan – delivered late by Spain's socialist-led government – scored only 52 out of a possible 100 points based on the level of targets set, details of policies and measures to meet them, and the inclusiveness of the drafting process.

Other countries fared far worse, with Germany coming joint second from the bottom (with Slovakia) on 12 points. Overall, the plans “fall short on ambition and credibility”, according to the report.

The points were awarded on potential for achieving net-zero CO2 emissions by 2050 – not the stated aim of the NECPs, but an idea that has gained traction and an endorsement from German chancellor Angela Merkel in the wake of an alarming IPCC report last October.

However, most of them were also deemed inadequate even for their official purpose of meeting the EU's 2030 targets, including 32.5% energy savings and meeting 32% of energy demand from renewable sources. “With a few notable exceptions, they also show low ambition when it comes to concretely reaching their...targets and fall short of properly supporting the climate and energy transition required in Europe,” said Julian Pestiaux, one of the authors of the report.

Although the European Commission has outlined ways in which the EU could achieve climate neutrality by mid-century, no such goal has been agreed by national governments, who last year rejected a call from the European Parliament to adopt the target.

The Energy Union Governance Regulation – which calls for the NECPs as a means to enforce the EU's 2030 climate and energy targets in the absence of legislation calling for legally binding national targets – instead calls for Europe to reach climate neutrality “as soon as possible”.

The European Commission is due to issue country specific recommendations by the end of June, possibly after the European Council adopts its position on Europe's longer term climate ambition. Governments are required to finalize their national plans by the end of the year.

Wendel Trio, director of Climate Action Network (CAN) Europe, said the Commission should hold governments accountable for the quality of their plans and push for a 65% greenhouse gas emission reduction target by 2030 as well as climate neutrality by 2050. “Issues that can be addressed include the insufficient level of the national targets, the lack of concrete policies and measures, or the fact that some member states still plan to rely heavily on and subsidize fossil fuels,” Trio told the press.
13. Elections Could Fracture EU Environment, Climate Policy Blocs

The European Parliament usually takes an aggressive stance when it comes to European Union climate and environment policy, but European elections that started on May 23 could change that. The Parliament—751 lawmakers from the EU’s 28 countries—has consistently pushed for the bloc to take on tougher targets in areas including greenhouse gas emissions reductions, renewable energy deployment, and energy savings.

Such positions have generally been made possible by the Parliament’s largest political blocs—the center-right European People’s Party (EPP) group and the center-left Progressive Alliance of Socialists and Democrats—voting together on the main environment and climate issues.

In March, both blocs swung behind a call for the EU to become a carbon-neutral greenhouse gas emissions economy by 2050.

But projections ahead of the late-May vote show that those main blocs will lose ground, in particular to political parties that emphasize controls on immigration and other issues, campaign against rising energy costs, and want the return of some EU powers to national governments.

Such parties feed off public discontent with some environmental policies, as expressed through public demonstrations like the gilets jaunes, or yellow vest, movement in France, which began last October as a protest against a tax on diesel fuel.

The EU has agreed a binding target for 2030 of a 40 percent emissions reduction compared to 1990, as the bloc’s contribution to the Paris Agreement on global climate change, but environmental groups and green lawmakers have said the emissions cut should be steeper.

EU environment and climate policy is a compromise negotiated between the European Parliament and the Council of the European Union, which represents the governments of EU countries. The council, in general, adopts less stringent positions than the Parliament.

Another prominent issue on which there could be pushback is the electrification of transport. In March, the European Parliament approved a law requiring automakers by 2030 to cut by more than a third the average per-kilometer carbon dioxide emissions of the new cars they sell and ensure that 35 percent of new sales are zero- or low-emissions models. The law is seen as pushing the EU in the direction of electric vehicles as part of the battle to reduce emissions, but the new European Parliament could try to backtrack if a center-right and right bloc is dominant.

And protest movements like the yellow vests aren’t the only public expressions of discontent lawmakers must pay attention to.

Climate change and the environment have been steadily rising in importance among voters for a year, according to the European Parliament’s public opinion unit. An April polling report attributed voters’ shifting priorities to worsening natural disasters, such as wildfires in Portugal and Sweden, and increased visibility from the youth-led global climate strikes, spearheaded by 16-year-old Swedish Greta Thunberg.

NORTH AMERICA
14. When LA's Air Got Better, Kids' Asthma Cases Dropped

An analysis of air quality and childhood asthma in Los Angeles found that kids' health improved when smog declined.

Children who live in areas with bad air pollution are more likely to develop asthma, which is the most common chronic illness among young people. But when you clean up the air does that actually protect the health of kids? A study published recently in JAMA, the journal of the American Medical Association, looked to answer that question.

The research focused on Southern California, long notorious for its smog. Over the past two decades, air quality has been markedly getting better, as stricter rules limit pollution from vehicles.

The change led Erika Garcia, a postdoctoral fellow at the University of Southern California, to ask a simple question. "We know there have been reductions in air pollution," she says. "Let's see if concurrently there are improvements in health outcomes during that same time period."

As it happens, scientists have been checking in periodically on the health of students in 12 different communities in the Los Angeles area. The Southern California Children's Health Study studied three different time periods, 1993-2001, 1996-2004 and 2006-2014.

Garcia and her colleagues reconstructed air-quality trends in these regions. "Some communities declined a little bit," she says. "Some communities declined a lot. Some communities didn't decline at all."

Garcia wondered whether new cases of asthma would be lower in communities where the air improved the most. The answer was yes, especially for nitrogen dioxide, which is an indicator of tailpipe emissions, and fine particles, which are a major type of pollution from diesel engines.

Overall, the USC scientists report that these pollutants declined about 20 percent over the 20-year period. "This corresponded with about a 20 percent decline in the rate of new asthma cases in children," Garcia says. "It's fairly substantial."

There were other positive trends in these communities as well. The study found that pregnant women sharply reduced their smoking over this time period, and children were exposed to far less secondhand tobacco smoke. Garcia says her results show improvements above and beyond what those changes might have delivered as well. The study can't prove cause and effect, but the findings provide strong circumstantial evidence that reducing air pollution reduces illness.

John Balmes, an environmental health professor at the University of California, San Francisco and the physician member of the California Air Resources Board, says it's no surprise that cleaner air means less illness. But it's still important evidence in the ongoing debate over just how much money we should spend to improve the air.

"There's been a concerted effort in California over the period of this study to reduce motor vehicle emissions in general and diesel emissions in particular," Balmes says. "And I think this study shows that it's paying off."

State policy, aimed at both health and climate change, calls for the gradual phasing out of gas and diesel vehicles in favor of electric cars, trucks and buses. Industry, once resistant to those
rules, is now split, with electric car and renewable energy companies in favor of clean air regulations.

"That has allowed us to move forward I think perhaps at brisker pace than we might have otherwise," Balmes says.

It's a different story on the federal level, however. The Environmental Protection Agency in the Trump administration is skeptical of the health link between clean air and health.

George Thurston, a professor of environmental medicine at New York University, says the new findings from Southern California come at a key moment "because it confirms what is being questioned by the present EPA, which is that there really are health benefits to cleaning the air.

"We think that should be obvious," Thurston says, "but that's a question that they're asking." He says the new asthma study is "a landmark" in demonstrating the benefits of cleaning the air.

15. Improvements in U.S. Air Quality Are Saving Thousands of Lives a Year

Recent improvements in U.S. air quality are saving thousands of lives per year, according to the latest Health of the Air report from the American Thoracic Society (ATS) and New York University (NYU).

The report¹, published in Annals of the American Thoracic Society, looked at the health effects of particulate matter and ozone pollution above ATS-recommended levels. The annual number of premature deaths associated with these substances fell from about 12,600 in 2010 to 7,140 in 2017, the report says. Together, the pollutants were also responsible for some 15,500 serious illnesses, down from nearly 27,000 in 2010.

Those changes were driven almost entirely by improvements in particulate matter pollution, rather than reductions in ozone pollution, the report says.

U.S. air quality has improved dramatically since the Clean Air Act passed in 1970. Subsequent addendums to the law and newer policies, like regulations on vehicle emissions and the Obama-era Clean Power Plan, have also reduced air pollution. Since 2010 alone, the report says, mortality associated with particulate matter—exposure to which is associated with health problems including respiratory issues, cancer, and heart disease—fell by 60%.

But progress began to stall at the tail end of that time period, according to the report—around the time the Trump Administration began to roll back some environmental protection policies. Other research supports that idea. The American Lung Association’s most recent State of the Air report found that more cities had days of high particulate and ozone pollution from 2015-2017 than they did in 2014-2016.

In the ATS’ new report, only 15% of the 530 counties analyzed for particulate matter concentrations exceeded the group’s recommendations. Western U.S. cities, especially those in California, tended to have the highest pollution levels.

Meanwhile, levels of ozone pollution, which is associated with a range of respiratory problems, have remained stubbornly stable since 2010, the report says. More than 80% of the 726 counties analyzed by the ATS for ozone levels did not meet the group's standards.

Kevin Cromar, co-author of the study and director of the Air Quality Program at NYU, says that’s in part because ozone is more difficult than particulate matter to manage. Particulate matter comes either from direct particle emissions, such as those from smokestacks or fires, or from gases that convert into particulate matter in the atmosphere, such as sulfur dioxide and nitrogen oxides produced by power plants and industry. Controlling emissions at the source, Cromar says, reliably cuts down on particulate pollution in the atmosphere. But the chemical reaction that creates ozone pollution is more complicated, so it usually takes a coordinated effort at the state, regional and national levels to reduce its impact, Cromar says.

The ATS’ paper comes just days after the New York Times reported that the U.S. Environmental Protection Agency (EPA), which is planning to replace the Clean Power Plan with a new rule that would relax some regulations for the energy industry, intends to use a new calculation system that would reduce the number of premature deaths predicted to be associated with its rule. Initial estimates said the proposed plan, called the Affordable Clean Energy rule, would be associated with an additional 1,400 deaths per year. But according to the Times, the EPA’s new projections would “assume there is little or no health benefit to making the air any cleaner than what the law requires,” slashing that number.

Gary Ewart, chief of ATS advocacy and government relations, commented: "The proposed roll back of several Clean Air Act regulations and the proposed roll back of the greenhouse gas standard for automobiles will make it hard for communities to maintain their air quality, and even harder for cities with poor air quality to clean up."

The authors wrote: "Under the Trump Administration, the EPA has proposed to roll back or weaken several EPA policies that have a direct and indirect impact on PM2.5 emissions. Of great significance is the recent repeal of the Clean Power Plan, which would have implemented federal requirements on the best system of emission reductions of carbon pollution from the energy generating sector."

They also expressed concern that the Affordable Clean Energy Rule, which replaces it, "will significantly relax energy sector requirements."

"Data from the EPA itself predicts that this repeal will result in hundreds of deaths and thousands of morbidities that would have been prevented under the Clean Power Plan," they said.

As populations increase, the impact of air pollution could grow over time, the authors warned. Compounding this is the rise of global temperatures, which could see levels of ozone increase.

Lead author Kevin Cromar, director of the Air Quality Program at the Marron Institute and an associate professor of population health and environmental medicine at the New York University School of Medicine, commented: "The large number of adverse health impacts attributable to ozone should motivate cities and states to start now to reduce their local emissions of precursors pollutants.

"Coordinated actions at the regional level, as well as strong actions at the federal level, will also be needed in order to make consistent gains in reducing ozone in many parts of the country."
Wildfires, such as those that tore through California last year, were not included in the research. Even so, they are becoming more common and ferocious and could also worsen the situation, according to the authors.

16. CARB Floats Plan To Limit Truck NOx

California air regulators have floated a phased approach for implementing tougher nitrogen oxide (NOx) limits for heavy-duty trucks, including stricter numerical standards starting in model year 2024 and regulatory timelines that are synchronized with greenhouse gas controls -- though they are hedging on long-term NOx targets. The key element is getting at least a 90% reduction in NOx emissions from in use vehicles compared to currently produced vehicles.

“Staff is considering a three-step phase-in for the low NOx program,” says the April 19 white paper.

The CARB white paper responds to pressures for further air pollution cuts from the truck sector in order to meet both ozone and particulate air quality standards, given continuing challenges in the state that include ozone levels in California’s South Coast Air Quality Management District that are the highest in the country.

The white paper notes that heavy duty trucks are responsible for over 70 percent of NOx emissions from on-road mobile sources in the state, and that since NOx contributes to secondary particulate matter formation, NOx reductions will also help meet particulate pollution goals.

CARB in the paper thus lays out approaches for another round of deep pollution cuts below the current federal NOx standard for trucks of 0.2 grams per brake horsepower hour (g/bhp-hr) required since 2010 at the federal level and in the state's program.

The paper outlines regulatory approaches for MY22-23, MY24-26 and post-MY27 -- with more rigorous numerical standards starting in MY24 -- as well as changes to in-use testing, durability and emissions credits. Staff is preparing to bring a proposal to CARB's board, based on the paper, in the “first quarter of 2020.”

“Staff believes a NOx standard of .05 to .08 g/bhp-hr . . . is feasible” for MY24-26, the paper says, referencing a proposed tightening of NOx limits as measured by the federal test procedure (FTP). It suggests these requirements are attainable “without significant hardware architecture changes.”

CARB then floats a separate numerical range for allowable NOx emissions during low load cycles when emissions controls are typically weakest, specifying that NOx levels under those conditions would be up to three times weaker than the FTP.

In addition, staff also cites a possible NOx idling standard of 10 grams per hour, which would take effect within five minutes of a cold start. It also floats a particulate matter (PM) standard of .005 g/bhp-hr, which is meant to address recent certification of some engine families at higher PM emissions levels, even though such engines still comply with current PM rules.

The paper also outlines roughly a dozen engine calibration, after-treatment and engine hardware technologies that “may be employed” to meet the MY24-26 standards, and that are either commercially available or “planned to be implemented” by at least some manufacturers in the next few years.
CARB staff then delve into the issue of MY27 and later standards, including lists of potential engine technologies for compliance such as cylinder deactivation.

But the paper hedges on possible standards for this timeframe, citing ongoing demonstration projects involving the South Coast Air Quality Management District, EPA, the Manufacturers of Emissions Controls Association and Southwest Research Institute. “At this point, it is essential to note that the staff does not have sufficient data to provide specific details on what may be technically achievable and cost effective in 2027 and subsequent model years,” the paper says.

In remarks at a January workshop, CARB staff said they were considering a standard between 0.01 and 0.035 g/bhp-hr, with a phase-in beginning in MY24 and the full standard possibly taking effect for all engines in MY27.

Even so, the CARB paper is the clearest indication to date that the state intends to sync the timelines for NOx controls with existing state and federal rules for heavy-duty truck GHGs, after the industry earlier objected to the notion that the state might impose tougher NOx standards more quickly.

“It should be noted that [MY24-26] low NOx implementation dates would coincide with the second part of Phase 2 GHG implementation dates,” CARB staff says, touting such coordination as enabling lower GHG and NOx emissions. “This would allow the engine manufacturers to introduce the necessary calibration and hardware changes for low NOx and GHG simultaneously.”

EPA's Brian Nelson said during an April 4 SAE International event that EPA and CARB are “aligned” on the “long term program” out to MY27, but that California has the lead in the earlier years. Similarly, CARB’s Bill Robertson told the same meeting that the state will probably move “a little sooner,” but remains interested in “coordination” and “a mutually beneficial program.”

In response to a query on this issue, the CARB spokesman noted that if CARB establishes emissions standards different than EPA, that would affect all criteria pollutants’ averaging, banking and trading programs. Creating a California-only averaging, banking and trading program would mean that manufacturers would have to track California-only credits and federal credits separately.

With respect to emissions credits, CARB’s white paper adds that its emerging NOx approach for MY24-26 envisions termination of all “pre-2010 MY generated credits,” as well as expiration of post-2010 MY credits after five years.

Another issue in the paper is the need for regulatory improvements to address vehicles’ in-use emissions, noting that the current in-use testing program relies on a not to exceed (NTE) methodology with numerous outdated exclusions. As such, CARB outlines a process -- beginning with changes to some reporting requirements in MY22-23 -- to replace that method in MY24 with a “moving average window” approach similar to that used in European regulations. “Staff believes manufacturers will need to do additional calibration and potentially aftertreatment hardware improvements,” CARB staff write.

But since real-world testing can create conditions that are “challenging from an emissions control perspective,” the paper also promises that regulators will offer ongoing “technical assessment” and “provisions” to address issues that the European rules do not contemplate.
While the stricter rules would not apply to the more than 13 million diesel trucks currently on the nation’s roads, diesel engine makers are leery of California’s plan, especially if its standard goes into effect before the EPA’s, which looks likely.

“When it comes to heavy-duty truck emissions standards, this is the first time that California and the EPA have been out of sync,” said Sarah Dirndorfer, spokeswoman for the Diesel Technology Forum, the nonprofit education arm of diesel engine makers including Cummins Inc., Daimler AG, and the Volvo Group. “So, we’re all working with quite a bit of uncertainty as to how it will all shake out.”

Both California and the EPA are expecting to issue proposed diesel engine standards at the start of next year. But California, which started its regulatory process earlier than EPA, is looking to finalize its standards later in 2020. The EPA is unlikely to set national standards before 2021 at the earliest.

Since the Clean Air Act requires the EPA and California to give engine manufacturers four years lead time to make engines compliant with the newly finalized standards, California’s emissions limits could be imposed a year or more before the EPA’s. The disparity in the effective dates worries the industry players involved.

Nitrogen oxide (NOx) emission limits for diesel trucks nationwide have remained unchanged since the final days of the Clinton administration despite the key role NOx pollution plays in forming ground-level ozone and fine airborne particle pollution. And the EPA estimates that heavy duty trucks across the nation will be responsible for one-third of NOx emissions from transportation in 2025.

While tougher standards would be a challenge for truckers to meet, competing standards in California and the rest of the country could be worse, setting up a logistical nightmare for the nation’s trucking industry.

The automobile industry is already caught between California’s decision to pursue Obama-era greenhouse gas limits for newer passenger cars, and the Trump administration’s plan to reconsider those standards.

The California Air Resources Board set an optional 90 percent NOx reduction goal for heavy duty diesel engines in 2013 and decided to pursue a mandatory standard three years later. Around the same time, California’s South Coast Air Quality Management District joined several air quality agencies around the country to petition the Obama administration’s EPA to consider the same goal. The EPA in December 2016 agreed, but left it to the Trump administration to respond.

Last November, the EPA said it would join California through its 2018 Cleaner Trucks Initiative to craft a single, national standard for nitrogen oxide pollution.

“The goal is always to harmonize,” agreed Daniel Sperling, a CARB member and founding director of the Institute of Transportation Studies at the University of California, Davis. “This is one of the few environmental actions [EPA] actually proposed to take action on.”

Engine makers like Cummins want both California and federal regulators to consider real-world driving conditions, not just laboratory emissions tests, in setting new rules. “Much of the attention is on the nitrogen oxide limits, the numerical standard, but there are a whole range of stringent
requirements that truck engines have to meet,” said Brian Mormino, Cummins’ executive director for environmental strategy and compliance.

The ideal is to have standards that are based on sound science, economically achievable and don’t cause disruption in the marketplace, Glen Kedzie, vice president at the American Trucking Associations, said.

If California were to craft tougher-than-national standards, truckers could be in a bind. Trucks have to travel across the country and they cannot afford to avoid driving through California, by itself one of the largest economies in the world, Kedzie said.

Truckers with business in the state could be tempted to “pre-buy” fleets of trucks before the more stringent standards take effect, he said. But such an approach would defeat the purpose of reducing ozone-forming emissions.

If California and the EPA can’t agree, the state is considering another option: allowing truckers to use “emission credits” to comply with the tougher law when traveling through the state. That would work by essentially allowing truckers who pollute below the standard to earn credits and sell them to truckers that are using newer engines but unable to meet those limits.

“California has a history of not wanting to wait,” Sperling said. “With the U.S. EPA you don’t always know what’s going to happen.”

17. Regulator Says California Might Make Dramatic Moves If Trump Relaxes Standards

A top California environmental regulator is threatening to enact tough new pollution rules — including an unprecedented ban on cars burning petroleum-based fuels — in response to a Trump administration plan to relax vehicle emission standards. California Air Resources Board Chairwoman Mary Nichols said the state would have to pursue “extreme” requirements to offset the uptick in pollution that would be unleashed if federal vehicle emission and fuel economy standards are weakened.

“If we lose the state vehicle standards, we have to fill up the gap with other measures,” Nichols said at a forum on the issue. “We will be faced with dramatic alternatives in terms of tighter, stricter controls on everything else, including movement of vehicles and potentially looking at things like fees and taxes and bans on certain types of vehicles and products.”

Nichols did not explicitly outline possible changes at the event, which was held to discuss the consequences of the Trump proposals and potential California countermeasures. But in remarks prepared for the meeting, she raised the specter of outlawing conventional vehicles with combustion engines, as well as tougher anti-pollution requirements on everything from fuel to the refineries producing it.

“CARB will be exploring ways to ensure communities get the reductions of air pollution they so desperately need to keep the air clean and breathable — and continue to fight climate change,” Nichols said in the drafted remarks. “That might mean, for example, tougher requirements for low-carbon fuels, looking at tighter health-protective regulations on California refineries, doubling down on our enforcement efforts on mobile and stationary sources — and might lead to an outright ban on internal combustion engines.”
The move marks an escalation in the car standards clash between Washington and Sacramento that would increase uncertainty for automakers in their biggest U.S. market. California has already gone to court to challenge the Trump administration’s determination that the vehicle standards are too stringent. In the meeting with air quality and transportation agencies, California officials stressed they won’t stop there.

Relaxing tailpipe standards could mean higher-than-expected emissions of smog-forming nitrogen oxide, further straining California’s ability to satisfy national ambient air quality standards, said Jennifer Gress, chief of the Air Resources Board’s Sustainable Transportation and Communities Division.

Without strict vehicle emissions requirements, “we will need to get deep reductions, and we will look to the transportation sector as well as other sectors” to achieve them, Gress said.

President Trump’s administration is developing a final plan for easing tailpipe carbon dioxide emissions standards and fuel economy requirements, after proposing to cap the mandates at 37 miles per gallon after 2020. Under existing Obama administration rules, fuel economy requirements are set to rise to 47 mpg.

In February, the Trump administration terminated months of talks between federal regulators and California officials to maintain a common standard. Automakers had urged the two sides to reach an agreement to avert a prolonged legal battle with California, which has unique authority to establish its own emissions rules.

The fight has already caused uncertainty for the auto industry, threatening to undermine business plans heavily reliant on predictability. A prolonged court battle over mileage mandates could upend technology development and investment plans for the United States, even as European countries press on with tougher requirements.

But Nichols’ comments show increasing peril for other industries too, particularly oil refineries. California already encourages zero-emission vehicles, and legislation proposed in the state last year would effectively mandate them by 2040.

Britain, China, India and other nations have announced their own plans to phase out conventional vehicles that use internal combustion engines. Yet an outright ban on new vehicles powered by liquid, oil-based fuels would be unprecedented in the U.S.

Critics said California was making a last-ditch effort to revive the Obama vehicle requirements, even as the Trump administration finalizes its changes.

Nichols said at the meeting California wasn’t “defying the federal government” and signaled she was loath to use “language that’s too colorful.” But “the consequences are dire” and “the alternatives we face are extreme,” she said. “We’re going to keep on fighting but also keep on doing everything we can to be part of a worldwide movement toward cleaner transportation, which is where we need to go.”

### 18. Revised EPA Agenda Sees Deadlines Slip For Major Obama Rule Rollbacks

EPA in its just-updated Unified Agenda of pending regulations is acknowledging that its deadlines have slipped considerably for many high-profile rollbacks of Obama-era rules, including climate
standards for power plants and vehicles, as well as the 2015 Clean Water Act (CWA) jurisdiction standard.

While the agency earlier hoped to complete many major rules this spring, it is now officially projecting that several of these rulemakings will not be finished until sometime in the summer or even the fall -- an important point given that all will face major legal challenges and the administration hopes to finish at least initial court review during President Donald Trump’s current four-year term.

Meanwhile, the revised Unified Agenda, released May 22, includes a host of other updates regarding EPA’s regulatory work, including new efforts to limit heavy-duty vehicle air pollution. In addition, some long-stalled regulations that were launched in the Obama administration have re-surfaced, including greenhouse gas limits for new aircraft and a “renewables enhancements and growth support” (REGS) rule for the agency’s renewable fuel standard (RFS).

EPA’s Safer Affordable Fuel Efficient (SAFE) Vehicles rule to scale back Obama-era GHG requirements appears to be on a slower track than previously announced. The Unified Agenda projects a final rule to be issued in June though sources have said they don’t expect a completed rule to come until at least after the July 4 holiday. California-led states and environmentalists appear poised to launch a protracted court battle over the new vehicle standards themselves, as well as EPA’s plan to scrap the Golden State’s current waiver of federal preemption to enforce stricter emissions limits than the federal government.

One rule that has been sped up is the agency’s controversial science transparency rule. The Unified Agenda reflects Administrator Andrew Wheeler’s goal of finalizing the rule by December, a month earlier than the previous agenda, which included the rule on its long-term actions list and set a goal of January 2020.

But deadlines have slipped for various other air rules. For instance, EPA’s plan to “reset” statutory RFS blending requirements for various types of biofuels is projected to be issued in June though sources have said they don’t expect a completed rule to come until at least after the July 4 holiday. California-led states and environmentalists appear poised to launch a protracted court battle over the new vehicle standards themselves, as well as EPA’s plan to scrap the Golden State’s current waiver of federal preemption to enforce stricter emissions limits than the federal government.

A new air rule on the agenda is an effort to control nitrogen oxides (NOx) and other emissions from heavy-duty trucks, an effort the agency is hoping to eventually coordinate with a separate rulemaking by California. However, EPA says a proposal would not be issued until February 2020, and it does not project a date to complete the measure. California’s heavy-duty NOx rulemaking is on a much faster timeline.

The agency is also for the first time detailing a plan to “revisit” the trailer portions of the Obama EPA’s 2016 heavy-duty vehicle GHG rule, which industry charged were unlawful. It plans to issue a proposal in October, though a date for final action is still “to be determined.”

Meanwhile, a long-stalled plan to scrap Obama-era limits on “glider” trucks remains classified as a “long-term action,” for which the agency does not expect movement within the next year.

Another new item is “benefit-cost reforms” for the Clean Air Act, a measure that grew out of an advance notice of proposed rulemaking that sought to increase “consistency” and “transparency” across all of the agency’s cost-benefit reviews. EPA now hopes to float a proposal limited to air rules by December, though it gives no date for when the rule could be finalized.
EPA is also reviving two Obama-era air rules. One -- setting GHG limits for new aircraft to align with a 2017 international agreement -- is backed by the airline industry. After earlier dropping all planned timelines for the measure, the latest Unified Agenda now says a proposal could be issued in September, though it gives no date for a final rule.

In addition, the agenda says EPA will finalize the long-pending REGS measure for the RFS in November, after the proposal was issued in the waning months of the Obama administration. The proposed measure was “intended to provide further opportunity for expanding the production and use of renewable fuels” under the program, including the addition of several new feedstock and fuel pathways.

In a related item, the Unified Agenda says EPA hopes to finish a plan to allow summertime sales of 15 percent ethanol -- which is being paired with changes to the RFS compliance credit market -- by June, which would align with public goals to complete the rule by the June 1 summer driving season.

19. Democrats Suggest EPA Chief Misled the Congress On Vehicle Emissions Rollback

Democrats are asking Environmental Protection Agency (EPA) head Andrew Wheeler to turn over documents tied to the agency’s proposal to roll back emissions standards for vehicles, suggesting he made misleading statements on the topic. House Energy and Commerce Committee Chairman Frank Pallone Jr. (D-N.J.) and Sen. Tom Carper (Del.), the top Democrat on the Senate Environment and Public Works Committee, said the request was “in light of numerous comments from Administrator Wheeler, including statements made to Congress, that plainly contradict data presented to him by EPA’s own experts.”

"Despite the fact that you were briefed on these concerns before the rule was proposed, you have continued to make assertions about the proposal that you must know do not reflect the views of EPA's expert staff," the lawmakers wrote.

The EPA’s controversial proposal would freeze emissions standards set by the Obama administration in 2020 rather than have them tighten into 2026. Vehicle manufacturers oppose the plan, and the proposal has sparked a lawsuit with California, with the state threatening to enact other tough measures to reduce greenhouse gas emissions.

In a letter to the agency, the Democrats homed in on one particular comment Wheeler made to Congress in April. “I have been told by my staff that the CO2 reductions, the impact of the CO2 reductions are pretty similar to what the Obama administration proposal would have received under their — would have gotten under their proposal. Because the Obama proposal had a number of exemptions and off-ramps. And the car, automobile manufacturers aren’t complying with the Obama standards today,” Wheeler told the House Energy and Commerce Committee then.

The legislators said that was demonstrably false.

“These and other statements like it are remarkable since analysis in the proposed rule clearly demonstrates that carbon pollution will increase by 8 billion tons during this century if the Trump Administration proposal is finalized,” they wrote in the letter.
The Democrats argued that the only discernible purpose for the proposed rollback is to increase the profits of the oil industry and said the request for documents was to shed light on how outside groups may have influenced the agency.

The two are asking the agency to turn over a number of materials, including briefing slides prepared by EPA staff, a list of meetings held with a number of fuel industry and conservative groups and any correspondence between them and political appointees.

The legislators also ask for information presented to Bill Wehrum, the head of EPA’s air office and a former lobbyist who Democrats have probed on a number of issues.

**20. Colorado Considers Voluntary Proposal To Bring More Electric Vehicles To The State**

On May 6, 2019, the Colorado Department of Transportation (CDOT) and Colorado Energy Office (CEO) responded to a proposal from the Alliance of Automobile Manufacturers (“Alliance”) to advance zero emission vehicle (ZEV) goals in Colorado. Rulemaking is currently underway by the state’s Air Quality Control Commission (AQCC), in response to an Executive Order issued by Governor Polis in January, to consider adopting a ZEV standard which, if adopted, would require automakers to increase the percentage of ZEV vehicles they sell in Colorado each year through 2025.

The Alliance proposal, presented as a potential alternative to a ZEV standard, is designed to increase the availability of electric vehicle models beginning in 2020, increase access to hybrid vehicles, support marketing and sales, and advance ZEV infrastructure investment and deployment.

According to Will Toor, Director of the Energy Office, “Colorado is committed to a fast, large scale shift towards electric vehicles – this is essential to cleaning up the ozone pollution in the front range and tackling climate altering greenhouse gas emissions. We are open to considering an alternative path to a ZEV standard- but only if it is going to get more EVs on the road, earlier and faster. In the meantime, we urge the AQCC to move forward with the ZEV rulemaking, to keep us on track for timely adoption of a ZEV standard if we are unable to reach an agreement that would accelerate adoption even faster than a regulatory standard.”

CDOT Executive Director Shoshana Lew stated, “CDOT is unwavering in our commitment to accelerating the tremendous progress that our state is seeing with respect to ZEV adoption. It is of the utmost importance that we act boldly and aggressively to reduce congestion in the air and on the road — both through a cleaner fleet of vehicles and through providing more sustainable and efficient transportation choices for citizens that help stem currently projected increases in vehicle miles traveled. We appreciate the manufacturers’ interest in working collaboratively with us to see if an out-of-the-box approach could help us achieve our ZEV goals faster, and we must ensure that any proposed solution can deliver results and meet the test of rigorous analytics.”

Colorado’s response highlighted several key areas that would need to be negotiated:

- Model availability to ensure that Coloradans have full access to ZEV vehicles and hybrids for companies where EVs are not yet being produced;
• Automaker investments in marketing, consumer incentives, and EV infrastructure, potentially through a third party and in partnership with the public sector and other industry sectors;

• A push to expand use of assignable tax incentives. It is very important for Colorado to see multiple financing entities, representing a significant share of the Colorado market, build assignability into their financing offerings;

• Clearly articulated metrics and enforceability.

Colorado’s response also highlighted that no agreement would prevent the state from vigorously enforcing its adopted Low Emission Vehicle standards, opposing the Trump administration attempt to weaken vehicle fuel efficiency and carbon pollution regulations, or fighting any attempts to reduce state authority to adopt vehicle emissions standards

The State will explore the Alliance’s proposal in parallel to the ZEV rulemaking, which will continue to proceed on an independent path. The response proposes that the State and Alliance engage in up to 4 weeks of negotiation. If this is successful, the State would facilitate an independent, rigorous evaluation of the effects of a voluntary agreement, as compared to the proposed regulation. The State will make any resulting proposal available for public review prior to submitting a final recommendation to the AQCC about which path to pursue.

Colorado is committed to a zero-emission vehicle future and is deeply interested in finding the best solution that achieves that goal. According to CDOT Executive Director Shoshana Lew, “we’re open to any alternative that guarantees more vehicles that Coloradans want, sooner. More affordable options and SUVs with all-wheel drive will do very well in Colorado, and we want to make sure our drivers have the choice to buy them.”

21. NY Backs California To Block Trump Auto Emission Rollbacks

New York is backing California’s stricter auto emission standards as that state sues the administration of President Donald Trump to block its roll-back of tighter standards for the coming decade. An online notice from the state Department of Environmental Conservation indicated the state was incorporating stricter vehicle emission standards by California "in response to the U.S. Environmental Protection Agency's stated intent to freeze and roll back existing 2021-25 standards."

"Gov. Andrew Cuomo's move to stick with the California tailpipe standards is great news for breathers," said Peter Iwanowicz, executive director of the Albany-based environmental lobbying group Environmental Advocates, and a former acting DEC commissioner in the Gov. David Paterson administration.

"Clean air and a safe climate are what we need, not more Trump attempts to roll back the progress being made by the states," said Iwanowicz.

DEC officials posted the notice in the Environmental News Bulletin. Asked about its impact, DEC issued this notice: "In New York State, transportation is the largest source of greenhouse gases, representing 40 percent of the total greenhouse gas inventory. DEC is continuing New York's Low Emission Vehicle program through adoption of revisions California has made to those standards. The program is successfully reducing emissions of smog-forming pollutants, including hydrocarbons, carbon monoxide, and oxides of nitrogen, as well as greenhouse gases."
This month, California sued the Trump administration over its plans to lower future standards on tailpipe pollution emissions for cars and trucks. California is backing a ramping up of emission standards for 2021-25 that were established by EPA in 2012 under former President Barack Obama.

California has the authority to set its own greenhouse gas rules for cars under the federal Clean Air Act and a waiver granted by the Obama administration. New York and a dozen other states follow California’s standards for cars sold within their borders, representing about 40 percent of the nation’s vehicle market.

Filed by the California Air Resources Board, the lawsuit seeks to force the EPA and National Highway Traffic Safety Administration to provide the scientific rationale used by the two agencies in August to roll back the stricter emission rules.

The Trump administration’s rule would freeze emissions standards at 2020 levels without any future changes. His administration has argued the tighter pollution limits are unachievable and threaten the auto industry.

Supporters said tighter pollution standards will both improve air quality, especially around congested cities, and reduce emissions of greenhouse gases that drive man-made climate change.

22. House Ramps Up Scrutiny Of Controversial EPA Science Data, PM Measures

House appropriators are ramping up their scrutiny of some of the Trump EPA’s controversial science decisions, all but barring the agency from advancing its data transparency rule until after consulting with its own science advisors and then requiring the agency to seek National Academy of Sciences (NAS) review of any final data rule.

“The Committee expects the Agency to take no final action on the [data transparency] rule until the Agency has concluded such consultations [with its Science Advisory Board (SAB)],” says draft report language that accompanies the House’s fiscal year 2020 spending bill for EPA and other agencies.

In addition, the appropriators are also requiring the agency to seek NAS review of its scientific assessment of the risks of particulate matter (PM).

The directives signal that the appropriators are turning to science experts to block, or at least temper, planned administration measures that are expected to reverse long-standing agency assumptions and scientific practices that critics have charged would significantly weaken future protections.

Moreover, the reviews the House appropriators are seeking would almost certainly slow completion of any new data transparency rule and any future PM standard until well after whatever deadlines the administration had been planning to set.

While the bill language contained few if any policy riders, the report language highlights appropriators’ concerns with two controversial Trump EPA efforts that have drawn widespread criticism from the scientific community as well as the agency’s own advisers.
As proposed, the science transparency rule generally seeks to bar EPA's use of any scientific research where the underlying data is not publicly available, a move which could block many existing studies from EPA's use. Critics, including SAB, have raised particular concerns about the rule limiting EPA's access to studies involving human health effects and trade secret information.

While SAB had initially asked EPA for a broad review of the rule before its finalization, EPA Administrator Andrew Wheeler recently sought to limit such a review and instead asked SAB to review a narrow issue related to how the science data rule could be amended to allow non-government entities to review confidential business or health data on which many studies rely.

But in a document posted late last week on the SAB website, an SAB workgroup pushed back on Wheeler's approach, asking a series of questions about the rule and a host of key undefined terms in an effort aimed at broadening advisors' review of the measure beyond what Wheeler had proposed.

Now appropriators are ordering EPA to consult with SAB on all the issues on which the board is seeking consultation.

"The Agency is directed to engage in formal consultation on the proposed rule with the SAB. Further, given the centrality of scientific studies in Agency decision-making and the unique experience and expertise of the SAB on such matters, the Committee urges the Agency to seek feedback on the full list of issues on which SAB indicated the Agency would benefit," the report language says.

In addition, the report directs EPA to consult with NAS after any rule is finalized. "Within 30 days after enactment or 30 days after this rule is finalized, whichever is later, the Committee directs the Agency to enter into a contract with the NAS to review this rule," the report language says.

"The review should assess the manner in which the rule alters the ability of the Agency to use publicly available peer-reviewed scientific and medical studies in its regulatory decision-making, including what the NAS considers to be the best available scientific information, and be completed within 270 days."

In addition to any NAS review of the science data rule, the report also directs EPA to contract with NAS for an independent review of EPA's "Integrated Science Assessment for Particulate Matter," seeking a report back from NAS within one year that evaluates issues including the ISA as a "scientific foundation for evaluating the adequacy" of current particulate matter standards.

The House language on PM is the latest turn of events in response to the scrappage of the PM panel -- undertaken by Trump EPA officials with the stated goal of speeding PM standard review but which could actually slow down the process. The elimination has already prompted calls from the agency's Clean Air Scientific Advisory committee to reconstitute its special PM panel and draft a new second integrated assessment, a request that House appropriators reference in their report language by stipulating that the NAS review include both the 2018 draft and "any subsequent ISA review" produced by EPA.

"The committee is concerned by the Agency's decision in October 2018 to eliminate the Particulate Matter review panel," the report language states, referencing a highly controversial decision by EPA air chief Bill Wehrum to scrap an expert PM subcommittee that has historically provided input for periodic EPA review of air quality standards.
Other issues where the draft report language scrutinizes or pushes back against Trump administration policies include language denying EPA funding for additional “workforce reshaping efforts” at EPA, and a statement that the committee is “extremely concerned” about the drop in EPA compliance and enforcement activities and thus seeks a detailed breakdown of inspection and monitoring activities since 2013.

23. EPA Focuses on Air Rules in Rewriting Cost-Benefit Analyses

The EPA’s plan to revamp its decades-old practice of estimating costs and benefits from all environmental rules has taken a slight turn with its decision to immediately focus on air pollution rules, according to the agency’s regulatory agenda released May 22.

The Environmental Protection Agency plans to propose to revise the way it estimates costs and benefits for Clean Air Act regulations by December 2019.

The EPA said it’s the first time it is publishing plans about this rule. It marks a change from the agency’s year-ago plan, when it sought comment on how to improve the way it estimated costs and benefits from all environmental regulations. At the time, the plan was to have a proposal out this month.

The EPA in its current agenda did not mention revising the same analysis for other regulations, beyond air pollution. But on May 21, EPA Administrator Andrew Wheeler outlined suggestions for improving the consistency of the cost-benefit process across all environmental rules.

“The agency underestimated costs, overestimated benefits or evaluated benefits and costs inconsistently,” Wheeler said on May 22, adding that the regulatory agenda was meant to protect air, water, and land while “alleviating unnecessary regulatory burdens.”

Critics say Wheeler’s push, and its emphasis on air rules in particular, builds on other efforts by the EPA under the Trump administration to discount the health benefits of environmental regulations—particularly mercury standards at coal-fired power plants—and limit what scientific research can be used to justify them.

“That’s because benefit-cost analysis shows the Clean Air Act overwhelmingly delivers the largest source of monetized benefits by any federal environmental statute,” John Walke, director of the clean air, climate and clean energy program at the Natural Resources Defense Council, told reporters. “This EPA’s top priority is strangling the Clean Air Act.”

Because the changes to the cost-benefit analysis would take the form of federal rulemaking that could be finished during President Donald Trump’s first term, the changes could bind future administrations until they could be rewritten.

The nation’s manufacturing industries welcomed EPA’s move in “reforming” the cost-benefit analysis and taking on the air regulations first. “From our perspective, we have had the most problems with the cost-benefit procedure in the air space,” Ross Eisenberg, National Association of Manufacturers’ energy and resources vice president, told the press.

Eisenberg said the Obama EPA “drastically understated” the costs associated with the 2015 ozone standard. In the haste to regulate greenhouse gases as a pollutant for the first time, it also overstated the benefits due to particle pollution captured in the 2012 mercury standards for power plants and failed to account for the full range of Clean Air Act permitting costs.
The EPA is proposing to undo the cost-benefit analysis that served as the basis of a 2012 rule that imposed limits on power plant emissions of mercury and other toxic air pollutants. Specifically, the EPA is seeking to eliminate from its analysis the billions of dollars in indirect benefits that were gleaned when coal- and oil-fired utilities captured fine airborne particle pollution with technologies that were aimed at reducing mercury.

Environmental groups also oppose the EPA mercury proposal, saying the effort is an attempt to weaken public health protections. And the coal-fired electric utility industry sees the proposal as an attempt to kill the standards that they have already met after spending billions of dollars on controls.

At a May 21 hearing on the mercury rule, Janet McCabe—the former acting air chief in the Obama EPA who helped shape the 2012 toxic air pollution limits—accused the agency of helping the coal industry, which opposed the standards, at the expense of the rest of the country’s public health. “This administration will do anything they can to help the coal industry. This rule is on top of their list and even though the rule has been implemented, they want to use this rule as a flagship to inaugurate a new way of looking at benefits,” McCabe told the House Energy and Commerce Oversight and Investigations panel.

24. Paris Climate Bill Passes House, but Senate Won’t Follow

The House passed the first major climate change bill in nearly a decade, in a symbolic gesture for Democrats eager to show they are serious about addressing global warming.

Lawmakers voted 231-190 on May 2 in favor of H.R. 9, known as the Climate Action Now Act, largely along party lines. It would force the Trump administration to remain in the international Paris agreement negotiated by 196 countries to keep the increase in global average temperature to well below 2 degrees Celsius (3.6 degrees Fahrenheit) above pre-industrial levels.

Three Republicans voted in favor of the bill—Reps. Brian Fitzpatrick (Pa.), Elise Stefanik (N.Y.), and Vern Buchanan (Fla.)—with no Democrats opposed.

Passing the bill “is crucial to leaving behind a healthier, safer and more sustainable world for our children and grandchildren,” House Speaker Nancy Pelosi (D-Calif.) said in a tweet. “We must not ignore our duty to future generations to take swift, strong, and smart action.”

But before the House even voted, Senate Majority Leader Mitch McConnell (R-Ky.) said the legislation “will go nowhere” in the Republican-controlled Senate. McConnell criticized the Paris Agreement as “the big international deal that the Obama administration cheered on” but that had “tons of red tape and real economic damage for zero measurable effect.”

The legislation would force the Trump administration to remain in the agreement by restricting all funds to withdraw from the accord.

The nonbinding international accord, agreed to in late 2015 in Paris, allowed countries to make “nationally determined contributions” to reduce greenhouse gas emissions over time. The Obama administration set its reduction target to be at least 26 percent below 2005 levels by 2025.

In 2017, President Donald Trump announced his intention to remove the U.S. from the agreement, though he can’t officially do so until 2020.
Democrats say the agreement keeps the country on a path to increase renewable energy and other low-carbon fuel sources, while putting pressure on other nations to also cut their greenhouse gas emissions. “A vote against H.R. 9 is a vote to let China off the hook,” Rep. Kathy Castor (D-Fla.), the lead sponsor of the bill and the chairwoman of the House Select Committee on the Climate Crisis, said on the floor May 1.

Democratic leaders also hope passage of the bill can illustrate party unity on climate in the wake of splits between progressives who ardently back the ambitious Green New Deal (H.Res.109) and other lawmakers wanting to proceed more cautiously.

“You can criticize us for starting too small,” said Rep. Sean Casten (D-Ill.) “But criticizing us for doing something that might alienate people who don’t understand what Paris does, I don’t have a lot of patience for that.”

Rep. Alexandria Ocasio-Cortez (D-N.Y.), the Green New Deal’s chief House sponsor, has said “there is no harm in passing” the Paris bill, but that she still backs the bolder action in her resolution. The Green New Deal calls for meeting all U.S. demand for electricity with “clean, renewable, and zero-emission” sources. It also calls for investments to build resiliency against climate change; rebuilding infrastructure to eliminate pollution and guarantee access to clean water; and upgrading the energy and water efficiency of every building in the country and promoting distributed and “smart” power grids.

Republican leadership derided the process by which the bill came to the floor, saying it was rushed through the House Foreign Affairs Committee and without a hearing in the Energy and Commerce Committee.

“There was no outreach to Republicans whatsoever,” Rep. Fred Upton (R-Mich.) said. Upton voted against the bill even though he opposed Trump’s decision to leave the Paris agreement.

The GOP also said the legislation would let other countries to take less aggressive measures to address climate change while protecting their economies. “Clearly today is more about the politics of climate change than rolling up our sleeves and getting to work,” Energy and Commerce’s ranking Republican Rep. Greg Walden (Ore.) said.

But Casten, who ran a clean-energy company before being elected in 2018, said it was important for the House to get the ball rolling. “I don’t think anybody would suggest we’ve solved the climate crisis now that we’ve got HR 9,” he said. “But by committing us to taking demonstrable action—admittedly on a voluntary basis, but Paris still says you’ve got to roll out a plan, you’ve got to say how you’re going to get there, you’ve got to direct the agencies on how to do it—we start a process that, in my own business experience, is rather addictive. Because once you commit yourself to lowering CO2, the next question is, how do we do this as affordable as possible?”

Despite widespread GOP disapproval of the bill, some Republican amendments were added to the bill. Those included a measure from Rep. Mike Bost (R-Ill.) to submit the administration’s plan to meet the Paris Agreement’s goals for notice and comment, and an amendment from Del. Jenniffer Gonzalez-Colon (R-Puerto Rico) to publish a report on the positive and negative effects of the agreement on U.S. territories.

House Democrats will continue to address climate change in the face of GOP opposition, said Rep. Harley Rouda (D-Calif.). “We’re going to keep pushing forward an agenda that can address
climate change, the impact it has, while recognizing that there has to be a process that doesn’t disrupt the economy,” said Rouda, who chairs the House Oversight and Reform Committee’s environment panel. “The challenge is getting Republicans to actually speak their mind and not be afraid of what the president’s views are on this matter.”

25. CEQ Rewrite Of NEPA Implementing Rule May Face Challenging Timeline

The White House Council on Environmental Quality’s (CEQ) plan to streamline agencies’ requirements under the National Environmental Policy Act (NEPA) may face long delays that threaten hopes to finish the policy in President Donald Trump’s current term, sources say, even though CEQ will submit the plan for inter-agency review next month.

These sources reportedly expect White House regulatory officials to take an extended time reviewing the draft proposal and say it might not be publicly released until the fall at the earliest. Given the widespread attention it will receive, it could be difficult to complete the NEPA implementing rule overhaul by the end of 2020.

CEQ’s NEPA director Ted Boling told a May 22 NEPA conference in Baltimore that the council would send its draft NEPA plan to the White House Office of Information & Regulatory Affairs (OIRA) in June. “This is a significant undertaking and I expect we will hold to a fairly ambitious schedule moving through the OIRA process,” he said.

CEQ last June issued an advance notice of proposed rulemaking soliciting input on how it should update and streamline its NEPA implementing rules, and it received more than 12,000 public comments. Democratic state attorneys general, former EPA officials and scores of environmental groups urged CEQ to drop the effort, arguing that NEPA is rarely the reason for delays to major infrastructure projects. But major industry groups offered a host of suggestions and charged that NEPA reviews take an unacceptable amount of time to complete.

The “end product of the current process” is a proposed rule that will face “thousands of comments during whatever period the CEQ allows -- likely three to four months,” the source says. Then, CEQ “would have to consider those comments and get out” a final rule. “In short, even if the OIRA process goes right on time and very smoothly, the administration will be scrambling to get this out before the end of its term.”

The source adds that Trump officials must also “worry about the triggering of the Congressional Review Act, which covers rules issued within a certain number of days before the end of an administration.”

A final rulemaking could also be litigated, the source notes, while acknowledging that it could be more difficult than a traditional EPA rule for opponents to establish standing to sue, since it will apply to government agencies. “But in theory, it could be challenged.”

A second NEPA expert agrees that any final streamlining rule is likely to face legal challenges, including that it fails to follow the Administrative Procedure Act or is inconsistent with NEPA. On substantive issues, however, this source notes that courts have “traditionally given considerable deference to CEQ.”

Even if the Trump CEQ completes the rule before 2020, it is possible that Trump loses his re-election bid and that a new administration drops legal defense of the measure or seeks to pause its effective date.
The greenhouse gas guide is being issued to address a slew of adverse court rulings rejecting NEPA reviews for not adequately considering climate change. The Trump administration early in its term revoked the Obama CEQ’s detailed NEPA climate guide and did not replace it. The contents of the replacement are not yet known but are likely to be far less sweeping than the prior version. CEQ will publish the GHG guide for public comment once it clears OIRA, a CEQ spokesman has said.

OIRA has held three meetings with outside groups on the GHG guide, including a March 1 meeting with representatives of the electric utility Duke Energy, a March 5 meeting with several environmental groups and a March 14 meeting with oil industry representatives, according to recent notices posted OIRA’s website.

One environmentalist says the delay in releasing the climate guide for public comment is likely “attributable to some combination of incompetence, lack-of-bandwidth/leadership, and a desire to avoid the legal and political landmines those [guides] raise. That’s not very helpful, though, since those factors essentially define every action and inaction of this administration.”

This source adds, however, that “OIRA does not seem to wield much influence in this administration,” either, while for the Trump administration, re-issuing the guide is a “damned if we do, damned if we don’t” scenario. That is because court losses are applying pressure to have at least a minimal NEPA roadmap for GHG issues, but “doing so seems to amount to a tactic acknowledgement that climate change is real, which doesn’t play well with the Trump base. When faced with these kinds of scenarios in the past, it seems the Trump administration has resorted to slow-walking and letting things get lost in a bureaucratic black box (a role that OIRA is nearly tailor made to perform).”

26. Cummins Ships Record Number Of Engines, But EPA Has Emissions Questions

Cummins Inc. continued to benefit from strong truck production in the U.S. and increasing demand in global construction markets as the Columbus, Indiana-based engine maker posted an 8 percent increase in first quarter revenues over the comparable quarter in 2018. Revenues for the quarter were $6 billion as North American sales increased 13 percent.

However, Cummins faces emissions-related questions over the diesel engines it manufactures for Dodge Ram pick-up trucks.

“The company shipped a record number of truck engines in North America during the first quarter,” said Chairman and CEO Tom Linebarger. “Our market-leading position in this region reflects our close partnerships with our customers, who rely on us to provide a broad range of power solutions for their needs.”

For the second time in less than one year, though, Cummins is facing questions about one of its engines. The company announced on April 29, that it is reviewing its “emissions certification and compliance process for its pickup truck applications” after questions from the U.S. Environmental Protection Agency and the California Air Resources Board (CARB) over the Cummins diesel engine that powers the 2019 Ram 2500 and 3500 trucks.

The engine is a newly designed 6.7-liter turbo diesel offering up to 1,000 pound-feet of torque and up to 400 horsepower. At an unveiling of the redesigned Ram 2500 and 3500 models at the Detroit Auto Show in January, Ram touted the Cummins engine’s power and towing capabilities.
“This is a voluntary action,” Linebarger emphasized, noting that the company holds “conditional certification” for those engines from both EPA and CARB. “Because they are conditional, they have the right to make us stop if we don’t meet the conditions of these certifications,” Linebarger said.

An FCA spokesperson told FreightWaves that sales of the Ram models are not affected.

“FCA appreciates the efforts Cummins is taking to conduct its review,” the spokesperson said. “While the issues that are being discussed are between Cummins and other stakeholders, we will cooperate fully as necessary. FCA will advise customers if any action is required.”

Linebarger noted that Cummins does its own compliance testing that is submitted to both EPA and CARB for approval. The agencies have come back with questions.

“We got a lot of questions from the EPA, questions that we take very seriously,” Linebarger said. “Cummins remains committed to ensuring its products meet current and future EPA [regulations]. It is too early in our review to determine what and if there are any actions that we must take, and what impact it will [have on our financials].”

In July 2018, Cummins announced record second quarter earnings, but also a recall of 500,000 engines due to emissions problems. Those engines first impacted 230,000 heavy-duty Ram pickups and grew to include an additional 500,000 heavy-duty truck models. The recall was related to a catalyst that degrades faster than expected, allowing Cummins engines to exceed emissions control limits.

On the earnings call today, Linebarger dismissed any connection to previous engine problems, but declined to say what questions EPA and CARB had on the 2019 Ram engines.

“Right now, we don’t have a way to quantify it or put a timeframe around it and it doesn’t make much sense to compare it to previous ones,” he said. “We will work with urgency to get to the bottom of the questions we got and to examine our certification and compliance processes.”

First-quarter earnings before interest, taxes, depreciation and amortization (EBITDA) were a record $1 billion, or 17.2 percent of sales, compared to $700 million or 12.6 percent of sales a year ago. First quarter results include a non-segment and non-taxable gain of $37 million ($0.23 per diluted share) related to the mark to market impact on assets related to a non-qualified benefit plans.

Net income in the first quarter was $663 million ($4.20 per diluted share), compared to net income of $325 million ($1.96 per diluted share), or $403 million ($2.43 per diluted share) excluding the impact of tax legislation in the first quarter of 2018.

“We achieved record EBITDA² in the first quarter while also celebrating our 100th anniversary,” Linebarger said. “We are on track to deliver record results for the year and return significant capital to investors and will continue to invest across our broad portfolio to power a strong future for our stakeholders.”

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² Earnings before interest, taxes, depreciation and amortization.
Linebarger said Cummins is maintaining its 2019 revenue guidance of flat to up 4 percent. He attributed this to continued demand in the North American on-highway markets. EBITDA is expected to be in the range of 16.25 percent to 16.75 percent of sales, an increase from the prior range of 15.75 percent to 16.25 percent of sales, primarily due to lower projected material costs.

Linebarger said Cummins was increasing its heavy-duty NAFTA truck forecast to 300,000 units for 2019, up from prior guidance of 292,000 units. He expects market share to finish between 32 percent and 34 percent this year. Medium-duty (Class 6-7) engines will be up 6 percent to 140,000 units in 2019, Linebarger said. It held a 79 percent market share in the first quarter of 2019, down slightly from the first quarter of 2018’s 81 percent. Brazil is also expected to be up 13 percent this year. China, down 10 percent, and India, down 5 percent, will not fare as well in 2019.

In its various segments, Cummins reported 8 percent growth for its engine segment with sales of $2.7 billion and EBITDA of $438 million, compared to $286 million in 2018. On-highway revenues jumped 9 percent, led by North America, while off-highway revenues improved 6 percent as the global construction markets picked up.

In the Distribution segment, North American revenues again powered a gain of 8 percent on sales of $2 billion. EBITDA was $171 million compared to $123 million in 2018. The company said that data center sales were particularly strong in North America, but a stronger U.S. dollar impacted overall sales by 2 percent.

A 17 percent increase in North American revenues from higher heavy- and medium-duty truck production helped offset an international sales decline to lead the components segment up 6 percent to sales of $1.9 billion. International sales fell 8 percent, but the segment managed an EBITDA of $325 million, compared to $227 million in 2018.

Neither the Power Systems segment nor the Electrified Power segment fared as well as other segments. In Electrified, Cummins reported sales of $3 million and a loss of $29 million as it seeks to build up its electrification strategy and made several investments in these efforts, the company said. The Power Systems segment recorded sales of $1.1 billion, but that was flat compared to 2018, with industrial revenues up 1 percent and power generation revenues down 1 percent. EBITDA for the segment was $138 million, compared to $142 million in 2018.

27. Ford Under U.S. Criminal Investigation of Emissions Testing

The U.S. Justice Department has opened a criminal investigation into Ford Motor Co.’s emissions certification process, intensifying an issue the automaker disclosed months ago.

The government notified the company of its investigation earlier this month, Kim Pittel, group vice president of sustainability, environment and safety engineering, said April 26 in a statement. Ford said in a regulatory filing that it is cooperating with all government agencies.

The probe makes Ford at least the third major automaker to fall under U.S. federal investigation over emissions in the span of a few years. Volkswagen AG paid a $4.3 billion penalty in 2017 for misleading regulators and customers about its diesel engines’ emissions. Fiat Chrysler Automobiles NV, which last month recalled almost 863,000 vehicles that violate pollution standards, faces an ongoing criminal probe, the press has reported.
Ford said in February that it may have taken a flawed approach to calculating the effect of aerodynamic drag and tire friction on the fuel economy of its vehicles outside of testing labs. It hired a company earlier this year to help investigate that could stretch into the summer.

“The government can conduct investigations that are civil or criminal. It chooses criminal when it thinks it may find evidence that the company intentionally violated the law,” said Erik Gordon, a professor at the University of Michigan’s Ross School of Business.

Ford discovered potential flaws in how it calculated key data used to determine new-vehicle fuel economy ratings and tailpipe pollution levels. It’s unclear whether the problems Ford discovered led to inaccurate mileage ratings.

When Ford disclosed the issue in February, the automaker said, “there’s been no determination that this affects Ford’s fuel economy labels or emissions certifications.”

“Our focus is on completing our investigation and a thorough technical review of this matter and cooperating with government and regulatory agencies,” Pittel said April 26.

The investigation doesn’t involve the use of so-called “defeat devices” that VW was found to be using to game emissions testing, he said.

Ford has had fuel-economy issues before. It restated ratings on six models, including the Fiesta, C-Max and Fusion hybrid cars, in 2014 and cut checks for as much as $1,050 to more than 200,000 owners to compensate for their vehicles’ mileage shortcomings.

Hyundai Motor Co. and Kia Motors Corp. in 2014 were hit with a $100 million civil penalty after selling roughly 1.2 million vehicles with inflated fuel economy ratings. The inaccurate ratings stemmed from faulty procedures used by the companies to calculate road-load forces.

ASIA-PACIFIC

28. Air Pollution Around Beijing Increases As Coal Consumption Rises By 13%

Air quality in the region around Beijing deteriorated as coal consumption increased during the past winter, according to analysis of government data by the Greenpeace Air Pollution Unit. However, PM2.5 concentrations continued to fall nationwide, achieving a reduction of 9.2% over the same period.

Air pollution levels increased in the region – which spans Beijing, Tianjin and 26 surrounding cities – by 6.5% vs the previous year between the months of October and March, when the government’s winter air pollution action plan was in force. Only four out of the 28 cities met their smog reduction targets, according to official data released by the Ministry of Ecology and Environment. The number of heavily polluted days increased by 37%.

The region had a target of reducing PM2.5 pollution levels and number of heavily polluted days by 3%. The target was determined by the central government, but in a departure from the previous winter, it seems that local governments were given wide berth in deciding and implementing the measures to meet this target.
Predictably, local governments did away with restrictions on industrial operation that had squeezed output and emissions in 2017-18. Production of steel products plummeted 26%, non-ferrous metals 18%, cement 23% and thermal power 4% in winter 2017-18, only to rebound 30%, 25%, 4% and 16% during the past winter.

As a result, coal consumption increased by 13% in the six provinces included in the air pollution control region, buoyed by demand from power plants and metals industry, based on proprietary data from Fenwei Energy Information.

The 6 provinces around Beijing burn about 1,200 million tons of coal, 30% of the national total and more than the EU and the U.S. put together. The increase from winter 2017-18 to 2018-19, about 60 million tons, is more than Poland’s total consumption over the same period.

Beijing itself achieved a 2% year on year decline in PM2.5 during this time, which was reached despite less favorable weather conditions than the previous year and a relaxation of industrial output

*Source: Wind Information / National Bureau of Statistics*
restrictions. In the region as a whole, weather conditions remained much more favorable than during the most polluted winter seasons, but not as good as previous winter which saw strong winds from the northern grasslands for much of the winter. Less favorable weather conditions account for a part of the rebound in pollution levels, but even accounting for weather there was little to no progress.

Major improvements were seen in a number of southern provinces where thermal power generation fell and heavy industry output cooled, compounding the effects of air quality policies. PM2.5 levels fell by over 20% in Guangdong and Guangxi and over 10% in neighboring Fujian and Hunan.

Coal consumption outside the provinces that are a part of the Beijing air pollution control area increased by 3% over the same period, slowing to zero growth on the first quarter.

For the past two years, environmental regulators have expended heroic efforts to keep air pollution levels falling while industrial output and coal consumption climb. As PM2.5 pollution tends to peak in the winter, they have also pushed industrial output to summer months, contributing to worsening summertime ozone episodes.

This winter’s defeat in key northern China cities suggests that it is getting harder and harder to maintain air quality improvements unless coal consumption starts falling again.

China’s record improvements in air quality since 2012 have shown how enforcing strong emissions standards and shifting away from coal can reduce pollution and save lives. The next step is long-term planning away from coal and heavy industry. Future air quality gains are dependent on successfully reducing reliance on coal through accelerated clean energy investment and by setting strong coal reduction targets in energy plans and targets beyond 2020.

29. Shanghai Joins Push for Stringent Vehicle Emissions Standards

Shanghai has become the latest city in China to move forward with stricter vehicle emission standards similar to those in Europe and California, as the world’s largest automotive market tries to reduce air pollution.

Shanghai’s municipal government announced May 6 that it was moving ahead with China’s 6b emissions standards for new gas-powered light vehicles as of July 1, a year before the national start date. The city joins several provinces and cities, including Beijing, that are already planning to speed up adoption.

The China 6b emissions standard is based on Euro 6 standards and the Ultra Low Emission Vehicle standard used by the California Air Resources Board, but it has more stringent testing requirements and remote emissions monitoring systems.

“The new policy will help gradually phase out vehicles unable to meet the China 6 standard, which can be of great significance in curbing vehicle emissions in the long run,” Cui Dongshu, secretary-general of the China Passenger Car Association, said by phone on May 7.

With the fast increase in the number of vehicles on the road in major Chinese cities in recent years—from around 62 million in 2009 to more than 320 million in 2018—vehicles have become one of the major sources of urban air pollution.
Beijing announced in May 2018 that vehicles passed coal as the main source of PM2.5—particles smaller than 2.5 microns in diameter known to be damaging to the respiratory system.

The stricter standard will reduce emissions by 50 percent compared to the current China 5 standard that is still applicable in most areas, according to government statements.

“The policy will put heavy pressure on the auto industry since a lot of companies will have to make technological upgrades to meet the new standards, and for many of them, the upgrades can be difficult, so for these companies, it’s going to be a survival-of-the-fittest scenario,” Cui said.

China is in a long-term attempt to move away from internal combustion engine vehicles in favor of electric vehicles.

In December 2018, the National Development and Reform Commission released a policy restricting investments in new production of internal combustion vehicles.

The island province of Hainan off the coast of South China aims to ban the use of all internal combustion engine vehicles by 2030 and only allow electric or hydrogen-powered vehicles.

Shanghai joins other cities—Beijing, Tianjin, Hangzhou, Guangzhou, and Chengdu—and the provinces of Shandong, Hainan, Hebei, and Shaanxi in announcing earlier adoption of the China 6b standard, most either on July 1, 2019, or Jan. 1, 2020.

In Beijing, new light-duty passenger vehicles will need to meet the China 6b requirements by Jan. 1. Guangzhou, the capital of Guangdong province, was the first to adopt the China 6b standard, starting on March 1.

Most of the early adopters are located in what the government calls “key air pollution control regions,” which have more stringent quotas on air pollution emissions targets such as sulfur dioxide and nitrogen oxide levels and particulate matter concentrations PM2.5 and PM10.

Auto sales in China sagged in 2018 for the first time in 28 years, and the government this year has been trying to increase them.

Shanghai in March introduced a policy for promoting the removal of around 600,000 older, higher-emitting vehicles from the road that don’t meet China 3 standards or better backed by 3 billion yuan in subsidies ($444 million).

This includes cash rewards for around 10,000 yuan for purchases of traditional vehicles and 15,000 yuan for electric, hydrogen fuel-cell and hybrid vehicles, when those older vehicles are retired.

In addition, 10 ministries in January jointly released a policy for local governments to boost auto sales. The effort is mostly concentrated on increasing sales of lower emissions and electric vehicles due to air pollution problems and China’s desire to be a leader in new vehicle technologies.

30. JAC Motors Facing Emissions Fraud Charges In China

JAC Motors is currently facing allegations of emissions fraud, with the firm scheduled to defend itself in a hearing in China. If regulators find it guilty of fraud, the company could be facing stiff
fines that would essentially ruin its reputation globally. This could be an additional burden to its already weak financial performance.

The company reportedly received a notice earlier in the month from the Beijing Municipal Ecological Environment Bureau. The agency accused the company of distributing defective pollution control device used for emissions inspections. Reports have revealed that most of the vehicles in question are commercial vehicles. However, the specific models and types of vehicles being investigated remain unclear.

The Anhui-based manufacturer currently suffered from poor first-quarter performance, with a 69.13 percent drop in profits when compared to the same quarter last year. JAC Motors reported net first-quarter profits of around $9.51 million.

Apart from the ongoing investigation, JAC Motors was previously the center of a separate emissions scandal in 2014. The company was caught intentionally altering some of its car's engine and model numbers on qualification certificates.

This was reportedly done by the company to make it seem like its cars had passed the National IV emissions standards during that time. JAC Motors admitted to the wrongdoing in 2014 and was asked to pay hefty fines as punishment.

Following the slew of international automotive companies being caught in emissions scandals within their respective countries, China has tightened its regulations for domestic automakers. Just recently, Chinese regulators had fined two Shandon-based manufacturers $5.52 million for attempting to cheat in emissions tests with defective pollution control devices.

The two companies, which included truck manufacturer Shandong Kama Automobile, were found to have hundreds of diesel-powered commercial vehicles with excessive emissions well above the national limits.

The Kama was also found guilty of tampering with its vehicle's pollution devices in an attempt to fool emission testing systems. Apart from the hefty fine, the company was also asked to return its illegal gains from the sales of its trucks.

31. Vehicle Sales Growth Expected To Stall This Year In China

New light-vehicle sales will be about around 28.1 million this year, unchanged from 2018, the official Xinhua News Agency reported, citing a report released by the China Association of Automobile Manufacturers and other unidentified parties.

Recent data showed China’s new-vehicle sales plunged for an 11th month in April, with little relief in sight for automakers as trade tensions and an economic slowdown weigh on demand.

Sales of passenger vehicles will be about 23.7 million units, in line with last year, Xinhua reported.

Sales of new energy vehicles, however, are likely to remain buoyant and grow about 27 percent to hit 1.6 million from 1.26 units in 2018, the report said.

The country's auto market contracted last year for the first time in more than two decades due to softer domestic demand and a trade war with the United States.
SAIC’s chairman is optimistic that new-vehicle sales in China will start rebounding in the fourth quarter. Chen Hong, chairman of SAIC Motor Corp., predicted this at the company’s shareholder meeting.

Three factors will drive demand for new-vehicles in the country, according to Chen.

- New-vehicle demand hasn’t come close to reaching a saturation point. At the end of 2018, there were 170 vehicles for every 1,000 people in China. That was lower than the world average of 190 vehicles per 1,000 people and way below the average of 500 to 600 vehicles per 1,000 residents in developed countries.

- The population of the middle class in China is still expanding, a trend that will continue to shore up vehicle demand.

- Vehicle replacement is still growing and consumers in general opt for better products when replacing vehicles.

Chen expects the downturn in the new-vehicle market to continue in the second and third quarters amid a slowdown in China’s economic growth. As a result, annual new-vehicle sales in China will drop 5 percent in 2019, he predicted.

In the first four months of the year, new-vehicle deliveries slumped 12 percent to roughly 8,353,000.

Industrywide sales fell in 2018 for the first time in decades.

SAIC, based in Shanghai, is the largest state-owned carmaker in China. While building light vehicles and buses for its proprietary brands, it also runs light vehicle joint ventures with General Motors and Volkswagen Group.

32. New Coal Plant Restrictions Eased in China

The National Energy Administration has announced that only 10 of the 28 provinces under its control will be restricted from authorizing new plants until 2022 due to overcapacity. This runs contrary to government measures implemented since 2013 to curb coal power overcapacity by restricting the construction of new plants. The NEA annually releases three-year forecasts for coal power development. This year eight provinces received a red alert restriction while the number was 16 last year and 26 the year before that. The loosening of the restriction follows a forecasted increase in electricity demand that may have exceeded previous predictions. Non-restricted provinces will be able to approve new coal plant construction. Some of these provinces, such as Tianjin and Hebei, will still be required to exercise strict control in approving new projects due to water scarcity, air pollution and efforts to limit total coal consumption.

33. Electric Vehicles Journey To Begin With Hybrid Technology In India: Honda

Japanese auto major Honda will use hybrid vehicles as intermediates in the next two years in India before going for full electric vehicles (EVs) as it expects setting up of supporting infrastructure such as charging stations to take time, according to a senior company official.

The company aims to follow the government's push for environment-friendly vehicles by driving in models with green technologies.
"In India, we will follow the EV direction set out by the central government. EV is surely the way forward for mobility technology and we expect that with government's initiative, energy sources will shift to more renewable ones in next few years," Honda Cars India Ltd (HCIL) Senior Vice President and Director Rajesh Goel told PTI.

This will drastically reduce the 'well to wheel' emissions in the future, he added.

"Till such time and also till the development of suitable charging infrastructure in the country, we feel that hybrid vehicles can be considered as good intermediate technology in electrification initiatives. Accordingly, we will begin our electrification journey in two years with hybrid technology," Goel said.

The company sells just one hybrid model -- Accord Hybrid in the domestic market. Currently, not many auto companies in India are keen to introduce hybrid models as under the GST regime, such vehicles have been put in the same category as big petrol and diesel luxury cars, attracting 28 per cent rate with a cess of 15 per cent.

Globally, Honda has been at the forefront of technology development for environment-friendly vehicles. As per its Vision 2030, the company strives to electrify two-thirds of its global automobile unit sales in 2030 with its range of hybrid electric vehicles (HEVs), plug-in hybrid electric vehicle (PHEVs), battery electric vehicle (BEVs) and fuel cell vehicles (FCVs).

When asked about company's plans to shift to BS VI emission norms compliant engines, Goel said the company remains on course for technology and safety features upgrade.

"Smooth run-out of BSIV vehicles and switchover to BS6 vehicles will be a key task during this financial year. HCIL will progressively introduce BS6 compliant models from the fourth quarter of FY19-20," he added.

34. India May Electrify All Two- And Three-Wheelers By 2025

India is looking to make an extremely ambitious move in electrifying vehicles in the country, with new reports suggesting required electrification of two- and three-wheeled vehicles sold in the coming years.

Two separate reports paint a slightly different picture of what government think tank Niti Aayog might be proposing.

The committee may mandate the sale of electric three-wheeled vehicles from April 2023 onward, The Times of India reports. Additionally, all two-wheeled vehicles up to 150cc would have to be electric by April 2025. These bold moves would make a huge impact on both the electric bike and scooter industry, as well as India's emissions and pollution. More than three-quarters of vehicles on India's roads now fall under the two- or three-wheeler category.

The Times of India reports similar deadlines may be set for delivery vehicles and school buses. An increase in the amount of subsidies for electric three-wheelers is being considered, as are more stringent fuel economy regulations.
A report from Reuters also notes the think tank is making such a proposal, but the language doesn’t go quite as far with specifics, only saying the country looks to electrify “most motorbikes and scooters within the next six to eight years.”

Further illustrating the dominance of such vehicles in India, more than 21 million motorbikes and scooters were sold prior to March 31, compared to just 3.3 million cars and utility vehicles.

Electric scooters only accounted for a fraction of those sales, but sales did more than double in the past year. If India goes through with this proposal, sales of electric motorbikes and scooters are going to do much more than that in the following years, as a source told Reuters, “We have lagged in electrifying the car segment … India has decided to take the lead in two-wheelers and three-wheelers.”

Whatever the exact specifics may be, it’s clear something big is in the works. Within a span of five to six years, India could see its electric scooter and motorbikes sales leap from hundreds of thousands to tens of millions. Pollution and emissions would be cut drastically.

This is a huge opportunity for domestic and foreign manufacturers in India, and the initiative could resonate throughout the global market, as well. But this can also be a reminder of what can be done — in a so-called “short” amount of time — if those in power actually want it to happen.

**35. Indian Automobile Sector’s Shift To Greener Fuels Gathers Pace**

Over the last few months, India’s automobile sector has started to accelerate its shift towards cleaner and more efficient fuel technology. Two of the market’s top passenger vehicle (PV) makers — Maruti Suzuki India (MSIL) and Tata Motors — have already announced their plans to curtail the production of diesel-powered vehicles from next year, while many other players are gearing up to meet the upcoming implementation of BS-VI emission norms and upping their alternate fuel game.

According to experts, the fuel option which is likely to benefit from a departure of diesel engines in the near future is compressed natural gas (CNG), with studies claiming that it will power 30-50 per cent of four wheelers within the next 10 years.

Besides CNG, hybrid electric technology and fully electric vehicles (EV) are also gaining traction in the country. Many automakers are now coming up with hybrid options for their new vehicles, with the latest being the British carmaker MG Motor, whose first car in India — the Hector — will come with a 48-volt mild-hybrid architecture. It also claims that this will enable its SUV to give best-in-class fuel efficiency in the segment and reduce emissions by up to 12 per cent.

On the other hand, Maruti Suzuki, which at present offers Ertiga, sedan Ciaz and Baleno with mild hybrid systems, is gearing up to launch a mild hybrid version of the S-Cross. The carmaker’s managing director Kenichi Ayukawa recently said that the government should encourage hybrid vehicles to boost localization of EV components.

“Our cars are almost completely localized; the residual imports are mostly electrical parts and so further localization of electric car and electric components is very important… If we encourage hybrid vehicles then the volume of these core components goes up and we will be able to achieve much higher depth of localization,” he said. Ayukawa’s comment refers to the localization clause in the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) scheme, which makes it mandatory for automakers to have 50 per cent localization to avail benefits.
On the EV front, a number of carmakers are readying themselves to launch lithium battery-powered vehicles, and by the end of next year almost every carmaker is likely to have offered EV options to consumers so inclined. On the infrastructure side too, a number of players are engaging in setting up charging stations.

For example, Japanese electric major Panasonic which recently launched its EV charging service-Nymbus has set a target of catering to a million EVs in the next five years. Fleet operators such as Ola have already announced initiatives to operate one million electric vehicles in the country by 2021.

36. India’s Largest Carmaker Will Stop Selling Diesel Cars From April 2020

India’s largest carmaker will have sold its last diesel car by the end of this financial year.

“From April 1, 2020, we will have no diesel car on sale,” Maruti Suzuki chairman R C Bhargava said on April 25th. “Depending on how customers react… if we find there is a market for diesel cars (after the new emission norms kick in) we will develop it in a reasonable amount of time.”

Maruti Suzuki has diesel versions for seven of its models: Swift, Dzire, Vitara Brezza, Baleno, Ertiga, Ciaz, and S-cross. The decision to stop making them comes at a time when India is set to implement new emission norms that could make them substantially more expensive.

In 2016, prime minister Narendra Modi’s government decided to leapfrog the country’s emissions standards from stage IV to stage VI, Bharat Stage VI (BS VI), which will be enforced from 2020, involves heavy upgrades in diesel car technology to curb the emission of nitrogen oxides.

The Indian auto industry, including Maruti, had opposed the move. “An estimated increase of Rs1 lakh ($1,425) for diesel cars and Rs20,000 for petrol cars is expected with the switch to BS-VI,” Bhargava had said.

The company’s decision comes amidst muted earnings for financial year 2019 and a bleak growth forecast, which Bhargava blamed on “a downturn in the overall industry, uncertainty over petrol prices, and a shift to the BS VI model.”

Maruti is now betting on cars fueled by the less-polluting compressed natural gas (CNG), favored by the government. In 2020, the market leader also plans to launch its first electric car, a modified version of its popular hatchback, Wagon R.

37. What Is Behind The Trend Against Diesel Fuel In India?

As noted above, on April 25, Maruti Suzuki, India’s top carmaker, announced that it would phase out production of diesel models from April 1, 2020, when stricter Bharat Stage VI emission standards come into force. What does this mean for the auto industry? Explaining its rationale, the leading passenger vehicle manufacturer said the enhanced emission standards would make diesel engines costlier by up to ₹1.5 lakh\(^3\), and the acquisition cost of diesel vehicles for consumers would be markedly higher than petrol equivalents. Given the market dynamics, it would not make business sense for the company to invest in developing new diesel engines to

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\(^3\) One lakh = 100,000.
meet the BS VI norms. Compressed Natural Gas could be a replacement for both fuels, according to Maruti.

Diesel cars account for about 23% of Maruti’s domestic sales and it sold a total of 4.63 lakh diesel-powered vehicles during 2018-19.

On the consumer side, diesel vehicles are not particularly attractive today. The traditional advantage of lower operating costs due to a wide gap between expensive petrol and lower cost diesel has narrowed significantly. Recently, the price of diesel in a city like Chennai was ₹70.48 per liter compared to ₹75.92 per liter for petrol.

Environmentally, diesel is a heavy polluter and is losing ground in leading passenger vehicle markets such as the European Union. The rigging of emissions data by Volkswagen to show lower levels of nitrogen oxides accelerated the move away from diesel. Even in Germany, which is a leading maker of diesel cars, some cities want to ban them.

India has a growing vehicle-to-population ratio, although it is still lower than several other big countries. While Maruti’s is a business decision, policy decisions on emission norms will steer the industry, and are therefore critical to improving air quality.

Ambient air quality has deteriorated so badly that 15 Indian cities led by Gurugram are among the 20 most polluted cities globally as per the IQAir AirVisual ‘World Air Quality Report’ for 2018, based on fine particulate matter (PM2.5) that penetrates the lungs and bloodstream. Transport emissions, particularly from diesel, are a major contributor.

As of 2017, India’s installed capacity for vehicle production stood at 7 million four-wheelers and 27.56 million two and three-wheelers. Commercial three-wheelers, such as large autorickshaws, sold in the past include heavily polluting diesel models that continue to operate even in densely populated cities.

During 2017-18 the auto industry produced over four million passenger vehicles and just under 900,000 commercial vehicles, according to the Society of Indian Automobile Manufacturers.

After the decontrol of diesel pricing about five years ago, the share of diesel models in car sales has dropped from nearly 43% in 2012-13 to 23% at the end of 2018.

The Auto Fuel Vision and Policy 2025 published by the erstwhile Planning Commission, which laid out the road map for a transition to less polluting fuels, pointed out that sulfur in diesel is a contributor to particulate matter both in the vehicular exhaust and in the atmosphere. Sulfur is found in petrol too, but for comparison, it was 2,000 parts per million (ppm) in petrol before introduction of standards in 2000, but in diesel it was 10,000 parts per million (ppm) in 1996. Sulfur content was reduced with each phase of upgradation of emission standards to touch 50 ppm under BS IV. In BS VI, which is already dispensed in Delhi, it is 10 ppm.

Sulfur plays a key role since higher concentrations have an impact on technologies for control of other pollutants in the emissions, such as carbon monoxide, particulates, oxides of nitrogen and hydrocarbons.

The importance of cleaner diesel was studied in Karnataka, and data show that adoption of Bharat IV diesel in 2015 had an impact on the sulfur dioxide (SO2) concentrations. The sulfur content of diesel changed from 350 ppm to 50 ppm. There was a 25% drop in nitrogen dioxide (NO2)
concentrations too, which could also be linked to change in the fuel quality. But such gains were neutralized by traffic growth. The rise in larger PM10 concentrations by 50%, was linked to growing numbers of vehicles and dust resuspension, besides construction activity.

Even with cleaner fuel, increase in vehicle numbers, especially those running on diesel cut into the gains. It was witnessed in Delhi, where, in spite of a shift of buses and autorickshaws to CNG during 1998-2002, the air quality gains were soon lost to explosive motorization.

Bengaluru also had a similar experience, as a study by the Air Pollution Knowledge Assessment City Program by Urbanemissions.info showed. The city has steadily motorized, and number of vehicles registered per 1,000 population increased from 150 in 1990 to 300 in 2001 and 600 in 2016.

Within the transport sector, more than 70% of PM2.5 emissions were found to originate from a small fraction of diesel-powered vehicles. Also, an estimated 200 million liters of diesel are used by diesel generator sets in the city annually.

Data for Delhi from 2011 led researchers to conclude that on-road commuters are exposed to 1.5 times the average ambient concentrations. Automotive emissions add to the pollution burden imposed by manufacturing and construction activity, power plants, biomass burning for cooking and heating, and incineration of farm residues and garbage.

Air pollution is a leading contributor to non-communicable diseases and accounts for a large number of premature deaths. The World Health Organization describes diesel exhaust as an occupational cancer-causing agent.

In India, the Global Burden of Disease Study 2017 attributed 8% of the disease burden, and 11% of premature deaths in people below 70 years of age to air pollution.

An assessment by researchers published by The Lancet Planetary Health in December 2018 said most Indian States, particularly those in north India, and 77% of the country’s population were exposed to an annual population-weighted mean [fine particulate matter], PM2·5, greater than the 40 micrograms per cubic meter of air limit recommended by the National Ambient Air Quality Standards.

Even with a reduction in the sulfur content in BS VI fuels, the health effects of lower emissions would be lost due to a growing number of vehicles. The best scenario to reduce PM2.5 exposure in India is, therefore, not just shifting to BS VI fuels but bringing about a reduction in use of private vehicles through augmented public transport and promoting alternative fuels including the use of electric vehicles.

In his book, The Invisible Killer, air pollution scientist Gary Fuller says diesel cars were promoted by a variety of actors, such as oil companies, governments, and vehicle manufacturers in the 1990s in order to create a market for the middle fractions of crude oil. Real-world emissions in new cars have not always aligned with expected type-approval tests. While test cycle nitrogen oxide emissions decreased by 80% since 1992, the real driving emissions from diesel cars increased about 20%, says Prof. Fuller in a recent paper.

In Europe, trucks and buses were already running on diesel, and industries and governments promoted its use in cars, giving petrol a lesser profile. Car makers produced newer diesel engines and promoted them citing lower carbon dioxide (CO2) emissions compared to petrol equivalents.
India has slowly moved towards stricter regulation through mass emission norms for vehicles. The first standards came into force in 1991 for petrol vehicles, and a year later, for diesel vehicles. Based on Supreme Court orders of 1999, the Central government notified the Bharat Stage II norms for the National Capital Region and Bharat Stage I for the rest of India, from 2000. After transitioning over the years to BS III and BS IV, BS VI (the equivalent of Euro VI) standard will cover vehicles manufactured on or after April 1, 2020. (BS V has been skipped altogether.) Its 10 ppm sulfur standard will be less polluting, since the current level is 50 ppm.

38. VynZ Research: Asia Electric Two-Wheeler Market Analysis and Forecast to 2024

The Asian electric two-wheeler market is predicted to grow at 7.0% CAGR during the forecast period with its fleet size reaching 59.3 million units by 2024. The Asian market is primarily driven by the technological advancements in battery technology, government support and initiatives for electric vehicles, and increasing awareness for curbing vehicular emissions. Different products including e-scooters and e-bikes are majorly contributing to the electric two-wheeler market size in Asia. The market has witnessed significant demand for these products over the last few years with the increasing disposable income and rapid urbanization.

China Electric Two-Wheeler Market Analysis and Forecast to 2024

The Chinese electric two-wheeler market is predicted to grow at 6.7% CAGR during the forecast period with its fleet size reaching 52.9 million units by 2024. The Chinese market is primarily driven by the increasing demand for electric scooters in the country, favorable government regulations, the presence of a large number of local players and increasing investment on battery technology development. Different products including e-scooters and e-bikes are majorly contributing to the electric two-wheeler market size in China. The market has witnessed significant demand for these products over the last few years with the increasing urbanization and increasing disposable income.

India Electric Three-Wheeler Market Analysis and Forecast to 2024

The Indian electric three-wheeler market is predicted to grow at 45.2% CAGR during the forecast period, in terms of its fleet size. The Indian market is primarily driven by the government support and subsidies, an entrance of new entrants in the market and the need for the alternative transport system to curb vehicular emissions. Passenger vehicles largely contributed to the Indian three-wheelers market.

39. M&M Stops Producing India’s First Electric Car Model Amid Flagging Sales

Mahindra Electric Mobility, the electric vehicle arm of Mahindra & Mahindra (M&M), has discontinued the production of the e2oPlus, the four-door hatchback based on the Reva platform, for the domestic market amid flagging sales and tightening safety regulations, said people aware of the development, marking the end of the road for India’s first electric car model. Mahindra produced the last unit of the e2oPlus on March 31.

The company had stopped the production of the model for the domestic market as part of its plan to reorient the electric hatchback segment, Mahesh Babu, chief executive, Mahindra Electric Mobility, was quoted as saying in the report.
While the model will be sold in neighboring markets such as Nepal, in India, the company will replace it with the electric version of the KUV100, Babu told the daily.

Presently, Mahindra is the only carmaker in India to sell electric cars. Mahindra had acquired a controlling stake in Reva Electric Car Co (RECC) in 2010 to gain the upper hand in the electric car market that was expected to dominate the automobile segment, the report added. However, the model failed to make an impact in the country due to various factors such as high acquisition cost and uncertainty over the government’s EV policy among others, the daily said.

**GENERAL**

### 40. The 2018 World Air Quality Report Finds South Asia Has Most Polluted Cities

Air pollution will take an estimated seven million lives globally in the next year, while costing the world’s economy nearly 225 billion USD. The latest data compiled in the World’s Most Polluted Cities ranking, reveals the state of particulate matter (PM2.5) pollution in 2018. It highlights a widespread but unequal distribution of PM2.5 pollution and limited access to public information.

The 2018 World Air Quality Report is based on the review, compilation, and validation of data from tens of thousands of air quality monitoring stations around the world. Key findings from the report include:

- **In South Asia:** out of 20 most polluted cities in the world, 18 are in India, Pakistan, and Bangladesh. This includes previously unseen data from Pakistan’s first public monitoring network of sensors.
- **In Southeast Asia:** Jakarta and Hanoi are Southeast Asia’s two most polluted cities. With Beijing’s air quality getting better, Jakarta risks overtaking China’s famously polluted capital soon.
- **In China:** average concentrations in the cities in China fell by 12% from 2017 to 2018. Beijing ranks now as the 122nd most polluted city in the world in 2018.
- **In the Western Balkans:** 10 cities in the Western Balkans - Bosnia Herzegovina, Macedonia and Kosovo - and four in Turkey have PM2.5 levels more than 3 times the WHO guidelines. 8 cities in the Balkans are among the world’s most polluted 10%, out of all the cities with data.
- **In U.S. and Canada:** While average air quality is good in global comparison, historic wildfires had a dramatic impact on air quality in August and November, with 5 out of 10 most polluted cities in the world during August found in North America.
- **Massive populations,** including on continental Africa and South America, do not have adequate air quality measuring infrastructure.

Climate change is making the effects of air pollution worse by changing atmospheric conditions and amplifying forest fires. In addition, the key driver of climate change—burning fossil fuels—is also the main driver of air pollution, globally. Therefore, tackling climate change will also greatly improve our air quality.

### 41. Bloomberg NEF Issues 2019 Electric Vehicle Outlook

According to Bloomberg NEF (BNEF), the way people and goods move is set to change dramatically over the next two decades, driven by a combination of policy, technology, economics, demographics and changing consumer preferences.
The Electric Vehicle Outlook is its annual long-term forecast of how electrification and shared mobility will impact road transport from now to 2040. The report draws on a team of specialists around the world and also looks at how these trends will affect electricity demand, oil use and demand for battery materials.

This year's forecast includes new analysis on how shared mobility will impact vehicle sales patterns, on the long-term demand for freight, and on how electrification will play out in the commercial vehicle market. It also included its latest analysis on the outlook for battery prices and battery chemistry.

Key findings are summarized below:

- Over 2 million electric vehicles were sold in 2018, up from just a few thousand in 2010, and there is no sign of slowing down. BNEF expect annual passenger EV sales to rise to 10 million in 2025, 28 million in 2030 and 56 million by 2040.

- Sales of internal combustion passenger vehicles have already peaked, and may never recover unless EV growth falters, or major economies such as China invest in significant stimulus programs.

- Battery prices keep falling. As a result, BNEF expect price parity between EVs and internal combustion vehicles (ICE) by the mid-2020s in most segments, though there is wide variation between geographies and vehicle segments.

- BNEF projected in 2017 that “the crossover point when electric vehicles will be cheaper upfront than a combustion vehicle” would be 2026 (nine years). But things have changed quickly since then and the timeframe has narrowed significantly: in 2018, it was 2024 (six years), and now, in 2019, BNEF projects the crossover point will be 2022 — just three years away. Bloomberg predicts that this crossover will start in 2022 for large vehicles in Europe, but quickly spread to smaller vehicles and other parts of the world as battery prices continue to plummet.

- Bloomberg further notes that as recently as 2015, batteries were 57% of the cost of a U.S. medium-sized car. Today that is down to 33%, and by 2025, batteries will be only 20% of total EV cost (see chart below).
Moreover, BNEF notes that other key parts of EVs — such as the electric powertrain — are also starting to see price drops, since “large-volume manufacturing is only now beginning for such parts.” Over the next decade, key components like motors and power electronics could become as much as 30% cheaper than they are today.

Achieving parity for upfront, initial cost means that the buying decision for electric vehicles (EVs) is about to become a no-brainer. And that means decarbonizing much of the transportation sector is also becoming a no-brainer. That’s because EVs are already superior to gasoline cars in many key respects: they have faster acceleration, much lower maintenance costs, zero tail-pipe emissions, and a much lower per-mile fueling cost than petrol cars, even when running on carbon-free fuel.

As battery performance and price improve, EVs are getting longer and longer ranges — some as much as 500 miles — and the charging time is dropping rapidly. Already, superfast chargers can charge an EV in as little as 20 minutes, and new chargers can cut that time in half. Next-generation batteries may be chargeable in three to five minutes.

Emissions regulations are getting tighter, both at the city level and the national level and automakers are responding with a surge of new EV models launching in the next 5 years.

Despite the rapid growth in EV sales, there are over a billion vehicles on the road and EVs are still less than 0.5% of the global vehicle fleet. Changing this over will take time. The total passenger vehicle fleet is expected to continue to rise to 1.68 billion vehicles in 2040, driven mostly by demand in emerging economies. This estimate is lower than many other
forecasters, as BNEF see ride-hailing, car-sharing urbanization, demographics and – eventually – autonomy, cutting deeper into vehicle demand growth, particularly in the 2030s.

- By 2040 BNEF expect 500 million passenger EVs on the road and over 40 million commercial EVs. The internal combustion passenger vehicle fleet continues to grow until 2030 before declining.

- While much of the attention to date has been on passenger vehicles, as battery technology continues to improve and more models become available, electrification will spread to other segments of road transport.

Figure 6: EV share of global new vehicle sales by segment

- In this year’s report BNEF did new, detailed analysis on the relative economics of different drivetrain technologies for light, medium and heavy commercial vehicles. Each of these vehicle classes operates in different duty cycles depending on the application.

- The electrification of the global bus fleet is already well underway with over 400,000 electric buses on the road. Thanks to China’s massive investment in and support for electric buses, electrics are now racing past a 50% share of new bus sales worldwide with China leading the world by far, outpacing the United States, for example, by an astounding 421,000 to 300 as of the end of 2018.

- Shenzhen, the first Chinese city to switch to all electric buses, finished the transition in 2017 with the help of China’s $150,000-a-bus subsidy and a city-wide effort to accelerate the process. Today, the megacity of 13 million people has 16,000 electric buses. Now the national government is pushing major cities to establish deadlines to replace all diesel
buses with electric ones. The UK Guardian reported in December that “more than 30 Chinese cities have made plans to achieve 100% electrified public transit by 2020,” including such megacities as Guangzhou, Nanjing, Hangzhou, and Shandong.

- Commercial electric van and truck sales are set to accelerate in the 2020s.
- By 2040, BNEF expect 56% of light commercial vehicle sales and 31% of medium commercial vehicles in China, the U.S. and Europe to be electric.
- Long-haul, heavy duty trucks will be harder to electrify; there, natural gas and hydrogen fuel cells will also play a role.
- BNEF also did new analysis on the long-term demand for freight, and the types of vehicles used to deliver this. Freight demand growth slows over the next 20 years and a higher share of freight moves to smaller vehicles due to urbanization, city restrictions, and economics. The rise of e-commerce also contributes to this trend.
- Due to its aggressive policy-supported push at both the national and regional levels, China continues to lead on EVs in all segments in our forecast. China accounts for 48% of the passenger EV sales market in 2025, 34% in 2030 and 26% in 2040.
- BNEF expect Europe to quickly pull ahead of the U.S. as the number two EV market in the 2020s, driven by tightening fuel economy regulations and growing commitments from domestic automakers.
- India and other emerging economies are expected go electric much slower, leading to a globally fragmented auto market. In markets like India and South East Asia, two- and three-wheeled vehicles are more attractive targets for electrification in the short term. Japan, South Korea and Australia all see significant adoption of EVs by 2040 with EVs representing 63%, 52%, and 61% of passenger vehicle sales respectively.
- Today, shared mobility services – taxis, ride-hailing and car-sharing – account for less than 5% of total distance traveled annually by passenger vehicles. But the use of these services is rising quickly; over a billion people globally now use some form of ride-hailing app. These services will continue to grow and gradually reduce demand for private vehicle ownership. By 2040, BNEF expect the contribution from shared mobility services to rise to 19% of total kilometers traveled by passenger vehicles.
- Shared mobility services will adopt EVs faster than private owners, due to more attractive economics. Today, EVs account for 1.8% of the shared mobility fleet. By 2040, BNEF expect EVs to account for 80% of the shared mobility fleet.
- Despite the current hype, autonomous vehicles do not have a meaningful impact on global transport and energy patterns until the 2030s.
- Charging infrastructure remains a challenge in our forecast. There are already 630,000 public charging points installed globally, and utilities, oil and gas companies, automakers and pure-play operators are currently all active in this area. But much more will be needed to serve the growing EV fleet.
• A patchwork of solutions is emerging to improve the public charging experience, such as ultra-fast chargers (150kW+, and up to 350kW in some cases), wireless charging, battery swapping, and new roaming agreements between charging operators. But none of these make EVs fully competitive with internal combustion vehicles for consumers without access to home or workplace charging. Buyers with access to home charging will adopt EVs at a much faster rate than those without. Many of the most interesting questions over the next 10 and 20 years will be how to address buyers in the latter group.

• If, through technology innovation and government policy, EV charging barriers are significantly lowered, adoption could be faster in the 2030s. In this year’s outlook, BNEF have included the cost of a home charger for buyers of battery electric vehicles in our up-front and total cost of ownership calculations for electric vehicles. The added costs push adoption back very slightly, but do not change the overall trajectory.

• Privately-owned passenger EVs, shared EVs, commercial electric vehicles and e-buses displace a combined 13.7 million barrels per day (MMbd) of oil demand by 2040. This is up significantly from our 2018 forecast due to higher expected miles traveled, lower assumed internal combustion vehicle efficiency, a growing role of shared mobility and the inclusion of commercial vehicles in our forecast.

• BNEF expect the global motorization rate to increase, but EVs coupled with fuel economy improvements and shared mobility services will lead to a reduction in oil demand for passenger road transport. Kilometers travelled go electric faster than the fleet in our forecast due to high-utilization shared vehicles.

• Electric vehicles (EVs) of every kind will displace a total of 350,000 barrels of gasoline and diesel this year BNEF projects. Three-fourths of that displaced fuel will be from electric buses, 99% of which are in China.

• Passenger vehicle oil demand peaks in 2028 and commercial vehicle oil demand peaks in 2035 according to BNEF.

**Disappearing Demand**
Electric vehicles are increasingly displacing petroleum consumption

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Source: BloombergNEF
42. VynZ Research Forecasts High Growth in Electric Buses

The global electric bus market is predicted to grow at 16.2% CAGR\(^4\) during the period from 2018 to 2024, with the fleet size anticipated to reach 281.3 thousand units by 2024. The market is driven by the promising government strategies and supportive regulations, mounting price of gasoline, increasing government plans for electrification of public transport and launch of novel technologies.

Different governments across the globe are taking initiatives to replace the petroleum based automotive fleet with electric powered vehicles. Countries such as India and China provide incentives to boost electric vehicles adoption. Over the last few decades, the carbon emission has increased to extremely alarming level in Asia due to vehicular and industrial emission. This is a major concern at global and regional level; therefore, government are looking for low or no-emission alternative for transport and industrial processes.

According to the World Health Organization (WHO), globally exposure to ambient air pollution leads to 4.2 million deaths every year. In addition, 91% of the world’s population lives in a place where air quality exceeds WHO guidelines limits.

The different types of electric bus include battery electric bus, hybrid electric bus, and plug-in hybrid electric bus. Of all vehicle type, battery electric bus accounted for the largest share and is expected to grow at the fastest rate in the market, due to decreasing battery prices and least amount of carbon emissions.

On the basis of length, the market is subdivided into less than 10m and more than 10m. Among the two categories, the less than 10m accounted for the larger share in the electric bus market due to preference of smaller buses by the public transport authority.

On the basis of battery, the market is subdivided into lithium iron phosphate battery, lithium nickel manganese cobalt oxide, and others. Among all batteries, the lithium iron phosphate battery accounted the largest share in the electric bus market, as it is cost-effective and safer. In addition, the demand for lithium nickel manganese cobalt oxide battery powered buses is expected to grow at the fastest rate in the market due to reducing price, and higher energy density.

Asia-Pacific is the largest electric bus market and is observed to witness the fastest growth in demand for these buses due to the favorable government initiatives and support. In addition, increasing population, upsurge in air pollution, reducing cost of batteries, increasing disposable income, rapid urbanization, rising awareness of environmental safety, mounting price of gasoline, increase in the requirement of efficient vehicle with zero carbon emission and large population base are feeding the growth of the Asia-Pacific electric bus market.

R&D investment and technological advancements are the key factors leading to the launch of new electric buses

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\(^4\) “Global Electric Bus Market Analysis and Forecast to 2024 - Industry Insights by Vehicle Type (Battery Electric Bus, Hybrid Electric Bus, and Plug-In Hybrid Electric Bus), by Hybrid Powertrain (Parallel Hybrid, Series Hybrid and Series Parallel Hybrid), by Battery (Lithium Iron Phosphate Battery, Lithium Nickel Manganese Cobalt Oxide, and Others) and by Length (Less than 10m and More than 10m)”
Major players in the electric bus market are catering the demand by collaborating with small players and investing on technologically advanced product portfolio across the globe. In October 2017, Proterra introduced DuoPower drivetrain for its Catalyst zero emission buses at American Public Transit Association (APTA). Daimler AG, New Flyer Industries Inc., Zhengzhou Yutong Group, EBUSCO, King Long United Automotive Industry Co. Ltd., Shenzhen Wuzhoulong Motors, BYD Company Limited, Alexander Dennis Limited, and Proterra Inc. are the key players offering electric bus.

43. Global Diesel Engine Technology Roadmap for Heavy-Duty Trucks, 2019 to 2023

Greenhouse gas/fuel efficiency regulations in TRIAD countries\(^5\) and increasingly stringent tailpipe emission standards in developing countries will shape the powertrain strategies of OEMs over the next decade. This Frost and Sullivan study provides an overview of key future fuel efficiency and tailpipe emission regulations across different regions for heavy-duty commercial vehicles.

North America is adopting GHG regulations and will next focus on ultra-low NOx regulations (medium-term). Europe has developed a tool for CO2 monitoring and will soon implement GHG regulations. India will shift from BS IV to BS VI (equivalent to the Euro VI) by 2020; it will have a fuel efficiency regulation in place from 2018. China will shift to China VI in 2 phases - 2020 and 2023; Phase 3 fuel efficiency regulations will be implemented in 2023.

These regulations will augment the penetration of advanced diesel engine technologies such as advanced turbochargers, automated manual transmission, advanced after treatment systems, and electrification. In addition, novel engine architecture such as opposed-piston engines, split-cycle engines, double compression expansion engines, and the Miller cycle will be explored to improve the brake thermal efficiency of diesel engines.

Falling battery prices, broader incentive policies, and charging infrastructure developments will boost the trend of electrification. Battery pack prices are expected to fall below $100 per kWh by 2023, with high battery production capacities of 250+ GWh globally. With growing battery availability and technology-readiness, fully electric vehicles will gain prominence and will be largely used across all regions by 2025. OEMs have also announced plans to manufacture electric trucks and range-extended powertrains. Fuel cell technology will gain prominence after 2022 due to the advantages of reduced component weight and packaging size.

North American OEMs have commercialized most technological advancements from the SuperTruck I program, and a strong push for electrification across major OEMs and EV start-ups is being observed. European OEMs are shifting to vertically integrated engines and transmission with proprietary turbochargers, and these facilitate precise control over vehicle drivetrain. As part of powertrain diversification, OEMs are focusing on proprietary natural gas engines and EV platforms.

Chinese OEMs are leveraging technology partnerships with European OEMs and engine research institutes to upgrade diesel engines to meet upcoming regulations. Further, government incentives are driving rapid progress in electrification across different Chinese OEMs. Indian OEMs are adopting a two-pronged approach by improving in-house engine platforms and sourcing advanced diesel engine technologies from tier 1 engine suppliers, Japanese OEMs, and European engine research institutes.

\(^5\) North America, Europe and Japan
44. Norway, IMO Launch Initiative To Cut CO2 From Shipping

The government of Norway has teamed up with the International Maritime Organization (IMO) to help the shipping sector meet a target agreed last year to cut greenhouse gas emissions in half by 2050, with various approaches and technology-based solutions in more than 50 countries.

The ‘GreenVoyage-2050’ initiative between Oslo and the UN’s shipping arm will aim to draw upon private sector expertise and developed economies to help smaller nations to introduce pilot projects to save energy and shrink the carbon footprint of the shipping sector.

“The project will initiate and promote global efforts to demonstrate and test technical solutions for reducing such emissions, as well as enhancing knowledge and information sharing to support the IMO GHG reduction strategy,” the Norwegian government and the IMO said in a joint statement.

The initial stages of the initiative will involve eight countries from five ‘high-priority regions’ (Asia, Africa, Caribbean, Latin America and Pacific), who are expected to implement pilot projects and take actions at a national level.

“These pilot countries will then become ‘champions’, galvanizing momentum by supporting other partnering countries in their respective regions to follow a similar path,” the joint statement said.

Capacity building and international cooperation is seen as key to helping poorer countries, which tend to have much older, heavily polluting ships in their fleets, which are a key lifeline for shipments of food, fuel, machinery and technology.

The initiative comes as the IMO meets in London to move forward on a framework for countries to draw up and implement measures to cut greenhouse gas emissions from ships, estimated to account for around 2% of global output.

Delegates to the meeting at IMO headquarters in London are discussing a range of measures, including speed restrictions, greater energy efficiency and the potential use of alternative fuels such as biofuels, hydrogen, ammonia and batteries.

However, some groups of countries are resisting measures that might saddle their key, maritime-reliant industries with extra costs, clear progress is not expected until later meetings.

45. Super Sniffer Drones and Jail: Regulators Get Tough on Shipping

Teams of drones are about to start policing the skies of some of the world’s busiest shipping ports. Their target? Environmental rule-breakers.

It might sound—and look—like something out of a Marvel Avengers movie, but for many ports around the world, these so-called sniffer drones are the best way to enforce new regulations aimed at cutting the air pollution caused by ships.

Regulators are bracing for rules that are meant to lower shipping’s emissions of sulfur oxides, pollutants blamed for acid rain and aggravating human health conditions like asthma. Because the regulations, which start Jan. 1, will require most of the world’s ships to burn more expensive fuels, there’s been speculation some owners may try to cheat to drive down what is their single biggest cost. And that’s where the drones come in.
In the Netherlands, home to Europe’s largest port, preparations are underway to use a large, unmanned flying vehicle capable of traveling well over 10 miles from the shore to detect emissions from ships. The local enforcement authority calls it a ‘super drone.’

In Hong Kong, where rule breakers face large fines and up to six months in prison, similar -- albeit smaller -- machines are currently being tested for the same purpose. Maritime authorities in Denmark and Norway have also already started using the technology.

Authorities can use drones to effectively filter through the tens of thousands of vessels coming in and out of their ports. Knowing in advance if a ship is burning non-compliant fuel means they can target the right carrier for a manual inspection.

In Hong Kong and Shenzhen—where hundreds of ships are currently randomly selected for spot-checks—authorities are working with academics on using drones, said Professor Zhi Ning from the Hong Kong University of Science and Technology.

The unmanned vehicles will fly into plumes of smoke created by vessels, collecting real-time data that is then used to calculate how much sulfur is in the ship’s fuel. The university is field-testing its technology this month and will send staff on boat trips around Hong Kong, whose name means Fragrant Harbor.

“It takes only two to three minutes for us to finish one scanning of the plume of one ship,” said Ning. “We hope to have this joint effort between Hong Kong and Shenzhen for the Greater Bay area. In the end, the air pollution doesn’t have any boundaries -- it just flows around.”

In the Netherlands, where the marine fuel sulfur limit is already set at 0.1%, there are plans for unmanned aircraft to start being used for emissions testing in the second half of this year.

The local enforcement authority—the Inspectie Leefomgeving en Transport known as ILT—is also awaiting approval to start using a so-called super drone capable of analyzing the emissions of ships that are much further out to sea, with testing starting by the beginning of next year when the IMO rules kick in. That’s all in addition to Rotterdam’s “sniffer pole,” a fixed installation at the port’s entrance that tests the fumes of all passing vessels.

Drones are cost-effective and will make enforcement much more efficient, said Marco Buitelaar, program manager for clean vessels at the ILT.

While the data the drones collect can’t be used in a criminal court case, Buitelaar plans to use their findings to pinpoint which vessels’ fuel tanks to get physical samples from. His team is serious about enforcing the IMO’s rules and is aiming for full compliance. As of April, four ships were being investigated by the public prosecutor for exceeding the existing sulfur limit, according to Buitelaar.

“Drones are not the end of law enforcement,” said Ning. “After we scan the ships, our government can then take the fuel samples from these targets to use in court as physical evidence. The plume is gone after we finish taking the measurement, so it can’t be used.”

The shipping industry is likely to comply with IMO emission regulations, especially major companies that wouldn’t be able to escape the risk to their reputations from cheating, according to Richard Chatterton, an analyst with Bloomberg NEF in Singapore.
While using the drones could help spot cheats near coastal areas, it won’t necessarily help to catch them in international waters, often hundreds of miles from land -- especially if vessels that are supposed to be using scrubbers to eliminate sulfur emissions choose to switch off the equipment.

“It would be really expensive to be flying these drones out into international waters left, right and center,” said Chatterton. “Flag states are responsible for enforcing pollution regulations, but why would anybody pay that money? “

Back closer to land, other ports are continuing to take enforcement seriously. Last year, Norway’s maritime authority uncovered at least five violations of sulfur regulations and started using drones. Denmark launched its own for the same purpose in April. In Singapore, the world’s largest bunkering port, rule-breakers risk jail terms of up to two years.