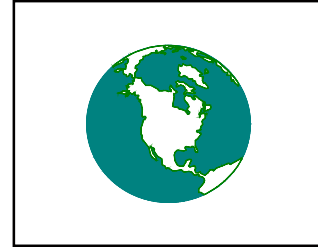


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CAR LINES

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EUROPE

1. GDI Vehicles Without Filters Cause Serious Health Concerns

Gasoline direct injection (GDI) engines are sold in growing numbers worldwide. In Europe around 50 million GDI cars are expected to be on the road by 2020. The technology owes its success to improved fuel economy compared to conventional engines. This year's winner of the Swiss Aerosol Award, Maria Muñoz from Empa, has investigated the emissions of GDI engines together with a team of scientists and engineers from industry and research as part of the GASOMEPE project, led by Empa researcher Norbert Heeb. For comparison, a diesel vehicle with state-of-the-art particle filter technology was also tested. The results of the study are alarming: All tested GDI vehicles - they were built between 2001 and 2016 - produced genotoxic exhaust gases. The carcinogenic potential of these exhaust gases was up to 17 times higher than that of the investigated diesel vehicle.

The health hazards by GDI engines are, therefore, significantly higher than the ones posed by modern diesel cars, all of which are already equipped with particle filters. The health risks are increased by the interaction of soot particles with carcinogenic exhaust components: The unfiltered GDI exhaust gases contained up to 1,000 times more particles and 20 times more genotoxic PAHs (polycyclic aromatic hydrocarbons) than exhausts of a Euro 5 diesel vehicle equipped with a standard filter. Similar to a Trojan horse, the soot particles then transport their cargo inside the body: When inhaled, the particles transport the carcinogenic substances directly into the alveoli of the human lung, from where they can easily enter the bloodstream.

Since 2004, an EU directive has limited the concentration of carcinogenic benzo(a)pyrene in ambient air to 1 ng/m³. In GDI exhaust gases, benzo(a)pyrene concentrations in the new regulatory cycle (WLTC) were between 8 and 2600 ng/m³. One cubic meter of exhaust gas must thus be diluted up to 2600 times in order to maintain the ambient air limit value.

Due to the chemical composition of the exhaust gases and the high particle emissions, GDI engines are a health risk comparable to unfiltered diesel engines, and the WHO has classified unfiltered diesel exhausts as a class 1 carcinogen, which can cause lung cancer. Particle filters in GDI engines could reduce the hazards of these exhaust gases. In the meantime, the legislator has reacted: Since September 2018, newly registered GDI vehicles have to comply with the same particle limits as diesel engines. This is virtually impossible without filters. What remains problematic, however, is that all vehicles purchased before that time may continue to be driven without filters. Retrofitting of older vehicles with particle filters could drastically improve their emission behavior.

There are also significant differences in the filters themselves: The work of Maria Muñoz shows that choosing the "right" filter technology is crucial. By using the best available filter technology, it would be technically possible to reduce the current particle limit value by 90 percent.

2. Diesel Pollution Stunts Children's Lung Growth, Major Study Shows

Pollution from diesel vehicles is stunting the growth of children's lungs, leaving them damaged for life, a major study has found. The research, conducted with more than 2,000 school children in London, is the first such study in a city where diesel pollution is a significant factor, and has implications for cities around the world. It also showed that charges to deter polluting trucks from entering the city did reduce air pollution a little but did not reduce the harm to children's lungs.

The World Health Organization classifies air pollution, which causes 7 million early deaths every year, a global public health emergency. Ninety per cent of children around the world breathe unsafe air. Growing children are especially vulnerable to toxic air and previous research has linked it to low birth weights, cot deaths, obesity and mental health problems.

Most urban areas in the UK have illegal levels of nitrogen dioxide (NO₂) pollution, and the government has suffered three legal defeats over the inadequacy of its plans. The latest government action plan, which environmental lawyers called “pitiful”, revealed air pollution was even worse than previously feared.

“We are raising a generation of children with stunted lung capacity,” said Prof Chris Griffiths, at Queen Mary University of London, who led the research team. “This reflects a car industry that has deceived the consumer and central government, which continues to fail to act decisively to ensure towns and cities cut traffic. The public very much wants better air quality, and they are right.”

The study, published in the *Lancet Public Health*, found the capacity of children’s lungs was reduced by about 5% when NO₂ pollution was above legal levels. Lung capacity peaks at age 18, then declines, Griffiths said. “If your lungs are already smaller than they should be as you enter adulthood, then as they decline with age you’ll be at higher risk of an early death,” as well as at a higher risk of lung diseases, he said.

The researchers said doctors should consider advising parents of children with lung problems to avoid living in high-pollution areas if possible, or to limit their exposure.

“This new study reveals the terrible legacy of successive governments’ failure to act over illegal levels of air pollution,” said Andrea Lee, at environmental lawyers ClientEarth. A new, stricter ultra-low emission zone (ULEZ), which will extend the low emission zone (LEZ) charge that applies to polluting trucks to cars, will begin in London in April 2019, but Lee said: “Action is also needed at a national level.”

The new research tested the lung capacity of eight- to nine-year-old children from 28 primary schools across east London between 2009 and 2014. It began just after LEZ charges began and continued after the rules were tightened in 2012. Air pollution was reduced by an average of 1-2µg/m³ at the roadside, but at the end of the study the annual average was still about 70µg/m³, far above the 40µg/m³ legal limit.

Referring to the stunting of lung growth and asthma symptoms, Griffiths said: “It is disappointing that we didn’t see an impact.” But he said it was critical that public health policies were evaluated to test their effectiveness, and that the work has informed the design of the stricter ULEZ.

It was revealed by the press in 2017 that hundreds of thousands of children were being exposed to illegal levels of air pollution from diesel vehicles at schools and nurseries across England and Wales, with the poorest neighborhoods most severely affected.

The new research has “many notable strengths”, including detailed air pollution measurements and high quality data on the children’s respiratory health, according to a commentary in the *Lancet Public Health* by Hanna Boogaard and Annemoon van Erp, at the Health Effects Institute in Boston, US. But they noted it was not possible to include control groups in the study and that the NO₂ reductions were quite small, making it harder to link air pollution to stunted lungs.

Nonetheless, a statistically significant link was shown. Evidence from California suggests it is a causal link, because children's lung damage there reduced as air quality improved between 1994 and 2011.

3. Health Impact Of Traffic Fumes '€67bn A Year'

The health impact of air pollution from road transport is costing tens of billions of euros annually across the EU but is set to fall dramatically over the coming decade, according to a new report. The study, commissioned by the European Public Health Alliance, a campaign group, seeks to make an economic case for action on air quality, an area in which most national governments have repeatedly failed to comply with EU pollution limits.

The Dutch research consultancy Delft estimated that road transport air pollution, based on available emissions data, costs €66.7bn a year, with 83% of this attributable to emissions – mainly NOx and particulate matter – from diesel engines alone. Roughly three-quarters of these costs are born directly by governments and insurers through healthcare costs, the report estimates.

Moreover, the cost could be as much as €79.8bn based on current estimates for 'real world' emissions, the report concludes. And even this might not give the full picture: in the absence of accurate data for buses and HGVs, said Huib van Essen, the lead author of the report.

The study includes projections to 2030, noting the future economic impact of road pollution will depend on factors such as the replacement of current vehicles with those meeting the latest Euro 6 emissions standards, and the uptake of zero-emissions vehicles.

The report examines different policy scenarios and estimates that even under a 'business as usual' scenario, existing EU policy is set to drive down the cost of transport-related health impacts by some three quarters. This could be reduced further by pushing the uptake of zero-emissions vehicles such as electric cars, increasing fuel taxes, charging per kilometer for road use, or restricting access to cities.

The European Commission has taken a tough stance on widespread non-compliance with EU air quality rules, referring several persistent offenders to the EU Court of Justice. Although there is a lack of specific data, van Essen said it was probable that "significant costs are associated with exceeding air quality limits".

However, he believes the most important factor in reducing the health impact of transport will be getting old cars off the road over the next decade. "The difference between zero-emissions vehicles and Euro 6 is significant, but the difference between Euro 6 and Euro 1 is bigger," van Essen said.

4. MEPs Call For Action On Air Pollution

The European Parliament's environment committee has called for more action from the EU and member states on air pollution. MEPs on the committee adopted a motion for a resolution in response to the 'clean air for all' communication adopted by the European Commission in May outlining measures to support member states to tackle air pollution. The committee's motion will now go before a full plenary session of the Parliament.

The Commission has referred six member states to the European Court of Justice for breaching air quality limits and not taking appropriate measures to reduce exceedance periods.

Greens/EFA co-rapporteur Keith Taylor told reporters the half a million deaths linked to air pollution in the EU every year demonstrated the urgency of the crisis and the resolution passed was “a vital step in the right direction.”

Among the measures agreed by the committee, the resolution urges member states to prioritize implementation of coordinated action to improve air quality, considering all areas involved including farming, energy and mobility. “It’s essential we take a holistic approach to tackling the toxic air crisis,” said Taylor. “That means alongside combatting transport emissions we must reform agriculture, address indoor air pollution and urgently updating the EU air quality directives to align with the latest science-based WHO limits. That is what we have voted for today.”

Seb Dance, co-rapporteur for the Socialists and Democrats group, said the motion should give “food for thought” for governments and the next Commission. “I’m pleased we have found a political consensus across the environment committee on a resolution which recognizes the damaging impact of intensive livestock farming on air pollution and on the need for future CAP funding to be linked to mandatory pollution abatement measures.”

Dance said he was “disappointed” that the right-wing groups had voted down his amendment supporting the right of cities to implement low emission zone and diesel bans. “Given the failure of diesel Euro standards to deliver real world emission reductions, vehicle restriction measures are the only tools cities and regions have today to reduce harmful emissions.”

The resolution also calls on the Commission to define harmonized testing standards to measure indoor pollution, and to encourage governments to draw up urban mobility plans to reduce access to personal cars.

5. European Parliament Backs Tougher CO2 Emissions Cuts For Trucks

The European Parliament has backed plans for trucks to cut CO2 emissions by 2030. MEPs adopted a higher target (35%) than the European Commission (30%) for new trucks to reduce the EU’s greenhouse gas emissions by 2030, with an intermediate target of 20% by 2025.

Manufacturers will also have to ensure that zero- and low-emission vehicles (which emit at least 50% fewer emissions) represent a 20% market share of the sales of new trucks by 2030, and 5% by 2025.

Before 2020, the European Commission should come up with plans for a real-world CO2 emissions test for on-road emissions.

The MEPs also said that the European Commission should consider assessing CO2 emissions produced by heavy-duty vehicles during their full life-cycle, and propose, if necessary, reporting obligations for manufacturers.

Parliament adopted its position with 373 votes to 285 and 16 abstentions. MEPs will now enter into negotiations with the Council of Ministers.

Heavy-duty vehicles are responsible for 27% of road transport CO2 emissions and almost 5% of EU greenhouse gas emissions (2016 data). Since 1990, heavy-duty vehicle emissions have increased by 25%, mainly as a result of an increase in road freight traffic. In the absence of new policies, emissions are projected to increase further.

The Parliament sent a strong signal that manufacturers “have a duty to drive down emissions from their vehicles and join the race for a cleaner future”.

On the other hand, ACEA secretary general Erik Jonnaert said the Parliament's “excessively aggressive” targets would negatively affect production processes. The trade body criticized MEPs’ decision to replace the Commission’s ‘super-credit’ system to incentivize zero and low emissions truck production with benchmarking with a 5% sales target by 2025 and 30% by 2030.

This ignores the fact that the potential for electrifying trucks was far lower than for cars, said Jonnaert. Campaign group Transport and Environment’s cleaner trucks officer Stef Cornelis said the sale target was “essential to ensure we develop the market in Europe and start moving beyond diesel”. “MEPs have played a key part in moving towards the EU’s climate and transport policy goals,” said Cornelis.

Socialists and Democrats group environment spokesperson Miriam Dalli said the final aim should be a procedure for certification of CO2 emissions as already exists in USA, Canada, Japan and China.

6. Rising Energy Consumption Slows EU Progress On Renewables And Efficiency

Progress on increasing the use of renewable energy and improving energy efficiency is slowing across the European Union, putting at risk the EU’s ability to achieve its energy and emissions reduction targets. Rising energy consumption, particularly in the transport sector, is to blame for the slowdown, according to preliminary data released in the European Environment Agency’s (EEA) annual analysis on the EU’s progress towards its targets on renewables and energy efficiency.

The EEA’s updated assessment on the EU’s progress on renewable energy and energy efficiency targets completes this year’s ‘Trends and Projections in Europe: 2018: Tracking progress towards Europe’s climate and energy targets’ package. The report is based on the most recent reported and approximated data from EU Member States on greenhouse gas emissions, renewable energy uptake and energy consumption. Complementing the report are updated climate and energy country factsheets. The first part of the ‘Trends and Projections’ report, which includes an assessment of progress towards the EU’s climate targets, was published in October.

While the EU as a whole remains on track to meet its 2020 targets to reduce greenhouse gas emissions and increase renewable energy use, recent increasing trends in energy consumption need to be reversed in order to meet the 2020 targets. Renewed efforts will also be necessary to meet the 2030 climate and energy targets.

Progress on renewables

The uptake of renewable energy as part of the EU’s energy mix resulted in a 17.4 % share of renewables in gross final energy consumption in 2017, according to preliminary EEA data. This indicates that the EU remains on track to reach its target of a renewables share of 20 % by 2020. However, the pace of increasing renewables use was only up marginally from 17.0 % in 2016. There has also been insufficient progress towards the 10 % target for renewables in the transport sector by 2020. With 2020 approaching, the trajectories needed to meet the national targets are becoming steeper. Increased energy consumption and persisting market barriers are hindering the uptake of renewables in several Member States.

Preliminary EEA data for 2017 show that 20 Member States were on track to reach their individual targets on renewable energy by 2020 - a decline from 2016, when 25 countries were on track. In many countries, the slowing of progress is due to increases in total energy consumption, which caused the share of renewables in energy consumption to fall.

Energy efficiency hampered by increased consumption

Over the past decade, energy consumption generally decreased at a pace that could ensure the achievement of the EU's 2020 targets on energy efficiency. However, in 2015, energy consumption in the EU began to increase, and the EEA's preliminary estimates for 2017 indicate that both primary energy consumption and final energy consumption now lie above the indicative trajectory towards 2020. Notably, in 2016, growing demands for energy in the transport sector reached 33 % of final energy consumption in the EU. The continued growth in energy consumption, particularly in transport but also in other sectors, makes achieving the 2020 target increasingly uncertain.

Preliminary EEA data from 2017 show that 13 Member States are expected to have increased their primary energy consumption to levels above the trajectories to their 2020 targets. That is an increase of three countries from 2016. Member States will need to increase their efforts to bring the EU back on track and reverse the trend of increasing energy consumption, in particular in the transport sector.

Stepped up measures needed to meet 2030 targets

New EU-wide targets are set for 2030 in the areas of greenhouse gas emissions, renewable energy and energy efficiency, namely to:

- reduce the EU's greenhouse gas emissions domestically by at least 40 % (compared to 1990 levels);
- increase the share of renewable energy sources to at least 32 % of gross final energy consumption; and
- achieve at least a 32.5 % improvement in energy efficiency (compared to the 2007 baseline).

The EEA's Trends and Projections report indicates that the current trends will not be adequate to reach the 2030 targets, and additional and enhanced efforts will be necessary in the coming decade.

To this end, Member States will submit by the end of 2018 their first draft national energy and climate plans, including details on climate and energy objectives and policies that that will help them achieve the 2030 targets.

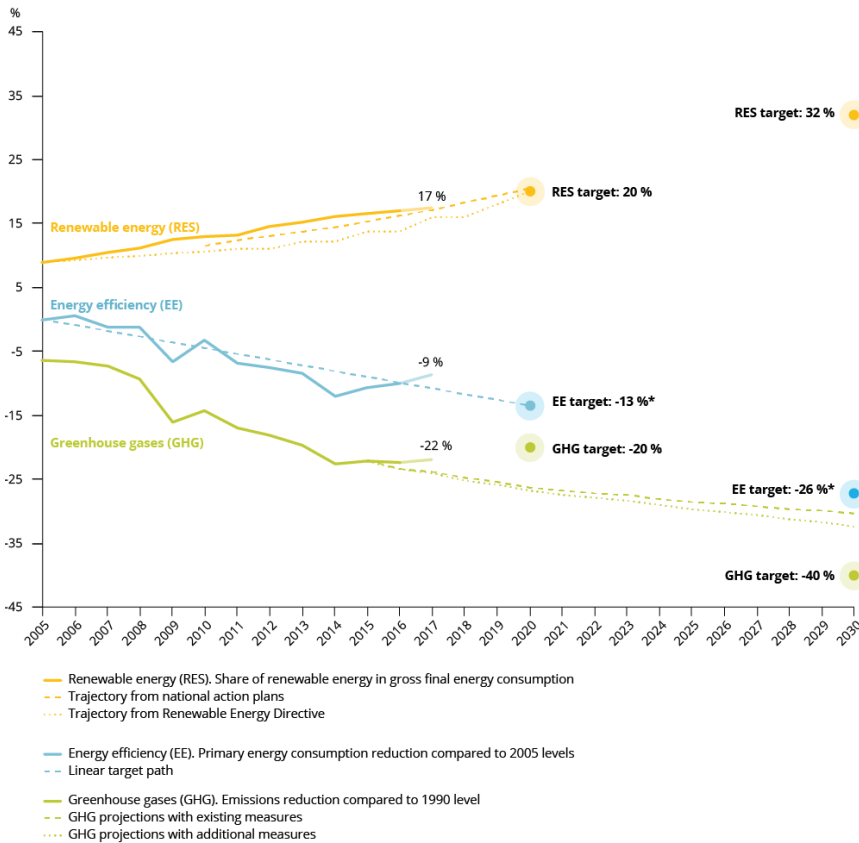


FIGURE ES.1 EU progress towards 2020 and 2030 targets on climate and energy

Notes: The energy efficiency targets for 2020 and 2030 are defined as absolute targets, set at 20 % and 32.5 % below the level in primary and final energy consumption projected for 2020 and 2030 in the European Commission's 2007 Energy Baseline Scenario. In this figure, the target is expressed as a relative change compared with 2005 levels of primary energy consumption in the EU to show the required reduction in primary energy consumption over

time. The year 2005 was chosen because it is used as a base year for GHG emissions (in the EU ETS and under the Effort Sharing Decision (ESD)) and renewable energy targets; this base year is not set in the energy efficiency legislation. It also corresponds to a peak in energy consumption in the EU.

The 'with existing measures' (WEM) scenario reflects existing and adopted policies and measures, whereas the 'with additional measures' (WAM) scenario considers the additional effects of planned measures reported by Member States.

7. EU Commission Floats Zero Emissions By 2050

The European Commission's eagerly awaited plan to slash greenhouse gas output by mid-century sets out eight scenarios, ranging from an 80% cut, as agreed by EU leaders even before the Paris Agreement, to a goal of net-zero emissions by 2050.

Five of the eight pathways outline different strategies to cut emissions by 80% compared to 1990 levels, which the EU executive assumes would equate to an 85% net reduction when the potential for land use and forestry as a carbon sink is factored in. All require large increases in the consumption of renewable electricity – an approach enthusiastically championed by utilities and generators – with differences such as a six-fold increase in storage capacity, or conversion to hydrogen or synthetic liquid fuels.

A sixth approach outlined by the Commission would combine all of the above at lower levels, which the executive estimates could lead to an emissions cut of 90%, when carbon sinks are included.

Only the last two mooted pathways envisage achieving 'carbon neutrality' by 2050. "The seventh scenario pushes all zero-carbon energy carriers as well as efficiency and relies on a negative emissions technology in the form of bioenergy combined with carbon capture and storage to balance remaining emissions," the Commission's communication states.

The eighth "assesses the impact of a highly circular economy and the potential beneficial role of a change in consumer choices that are less carbon intensive" and looks at the potential to "strengthen the land use sink, to see by how much this reduces the need for negative emissions technologies".

"The status quo is not an option," according to the communication, which comes a day after the UN produced its '2018 Emissions Gap Report', which suggests that current global pledges under the Paris Agreement are only likely to limit global warming to 3.2°C, way beyond the agreed target.

8. Industry Argues That Data Shows New Diesels Meeting EU Pollution Limits

Modern diesel cars are increasingly less polluting, automakers have said citing fresh test data, but environmental campaigners claim the EU's new testing regime does not measure the full impact of vehicle pollution.

Results of the latest diesel car type-approvals published recently by carmakers' body ACEA show all new vehicles performing below the real driving emissions (RDE) test NOx limit, which came into force in September 2017. The data show that many of the new cars tested already meet the 80mg/km NOx Euro 6 threshold that will apply from 2020.

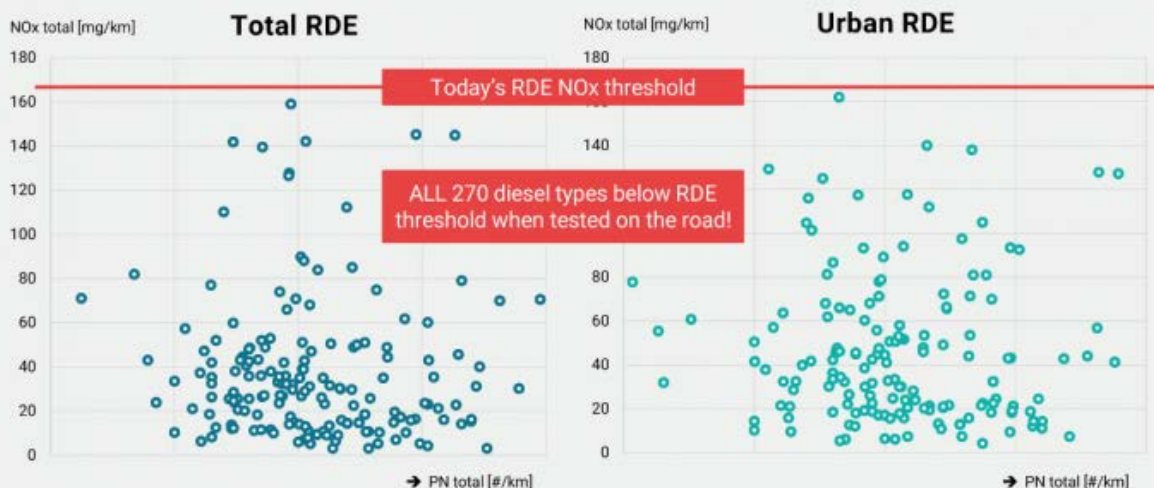
"Auto makers have made major investments to quickly deliver these massive reductions in NOx emissions," said ACEA secretary general Erik Jonnaert. "It is important that we stop demonizing diesel technology as a whole. Instead, we need to differentiate between the old diesel fleet and the latest generation of vehicles."

ACEA said that the number of diesel types compliant with the RDE had increased nineteen-fold in the eight months to October 2018. Environmental campaigners, however, pointed out that the data shows some new vehicles producing double the 80mg/km Euro 6 limit. For example, Clean Vehicles Director at Transport and Environment, Greg Archer, told reporters, there were increasing concerns the RDE test was "unrepresentative" of the way cars are driven. When driven outside the narrow conditions allowed for in the testing, Archer said, emissions can be "much higher".

The RDE was established in 2017 as the EU's first on-road test to cover air pollutants in the wake of the dieselgate scandal, alongside the World Harmonized Light Vehicle Test Procedure (WLTP) lab test which includes CO2.

T&E recently published results of NOx testing it commissioned, which was carried out beyond the conditions of the RDE. The test on a Honda Civic X diesel car approved under the RDE found NOx emissions of 1,450mg/km, almost nine times the limit, when driven outside the RDE boundary conditions. T&E said the RDE boundary conditions were too narrow and unrepresentative of how cars are actually driven and called for the test to be reformed.

MODERN DIESEL CARS EMIT LOW POLLUTANT EMISSIONS ON THE ROAD, NEW DATA PROVES



Some 270 new types of diesel cars type-approved against the latest Euro 6d-TEMP standard were introduced on the European market over the past year. The new data shows that all of these diesel cars performed well below the NO_x threshold of the real driving emissions (RDE) test, which applies to all new car types since September 2017. What is more, already today most of these vehicles show results that are below the stricter NO_x threshold that will be mandatory from January 2020.

Each of these 270 RDE-compliant diesel vehicle types represents a whole 'family' of similar cars of differing variants, so a multitude of low-emitting diesel cars are now available on the market. The German automobile club, ADAC, estimates that there are more than 1,200 different RDE-compliant cars available today¹. Moreover, their availability is increasing rapidly.

9. Germany Eases Diesel Vehicle Bans, Angering Environmentalists

The German government will ease the air pollution law so as to spare cities that only slightly exceed limits on harmful nitrogen dioxide (NO₂) from diesel vehicle bans, ministers agreed recently, sparking sharp criticism by environmentalists.

Major cities like Hamburg, Frankfurt and Stuttgart have put in place or are preparing exclusion zones for older diesel vehicles in order to bring NO₂ levels under the EU-wide annual average limit of 40 micrograms per cubic meter, with more towns on the way. Judges have ordered some of the bans, while politicians in other urban areas moved to preempt the courts.

But such measures have outraged diesel drivers, who complain that older vehicles are set to lose a massive chunk of their resale value as a result.

¹ ADAC overview of RDE-compliant cars available on the market (counting 1,206 different vehicles on 30 October 2018):

https://www.adac.de/infotestrat/umwelt-und-innovation/abgas/modelle_mit_euro_6d_temp/

The car industry - the heart of the German economy and politically well-connected - has escaped at home the tens of billions in fines it has had to pay out in the United States over diesel emissions cheating. It has also avoided any binding obligation to retrofit older cars to meet the latest emissions norms.

Beyond softening the threshold for implementing a ban from 40 to 50 micrograms per cubic meter, Berlin plans other changes to allay fears among owners in the most-polluted cities still subject to bans. Ministers will further alter the law to allow cars meeting the older Euro 4 and 5 standards and emitting less than 270 milligrams of NO₂ per kilometer to enter the zones.

"The government is obviously in panic mode. Otherwise there would be no explanation for its rushing through an update to the law that infringes in several ways EU law," said Jürgen Resch, head of environmental pressure group DUH. "We will secure the right for clean air in all cities in 2019, the courts will ignore the weakening of the thresholds," he added.

DUH plans to sue the federal government for breaking EU law if it presses ahead with the changes.

10. German Court Imposes Diesel Ban On Western Cities And Motorway

A German administrative court has ruled that the western state of North Rhine-Westphalia must ban older diesel vehicles from parts of the nation's industrial heartland, including a busy motorway, in the latest extension of such bans in the country.

The ban affects Gelsenkirchen and Essen, including part of the A40 motorway, which are located in the Ruhr region, one of Germany's most densely populated areas.

The ban, which will come into effect next year, follows a lawsuit brought by the DUH environmental lobby group. It has called for a ban of diesel vehicles in various German cities, invoking legal thresholds of nitrogen dioxide (NO₂) in the air.

Scandals involving schemes to conceal the true levels of pollutant emissions from diesel cars have dealt repeated blows to the global reputation of Germany's car industry in recent years.

German cities are starting to introduce bans on older diesel vehicles that emit higher amounts of pollutants than later models after the country's highest administrative court in February confirmed such bans are permissible.

Germany's cities have for years flouted Europe's clean air rules, prompting environmental groups to sue local governments in an attempt to force bans of some heavily polluting vehicles. The first diesel ban took effect in May in Hamburg.

Diesel car sales in Germany fell to 31.1 percent of the total in the first half of 2018 from 41.3 percent a year earlier, while in the European Union sales declined by 16 percent during the period.

Below is a summary of the rulings on diesel vehicles in various cities so far:

ESSEN AND GELSENKIRCHEN

A court ruled that the western state of North Rhine-Westphalia must ban older diesel vehicles from parts of the nation's industrial heartland, including a busy motorway as well as the city center of Essen and some areas of Gelsenkirchen.

BONN AND COLOGNE

A court ruled that Cologne must introduce bans on older diesel vehicles in certain areas from April 2019. The nearby city of Bonn must impose bans for two roads.

MAINZ

A court ruled that Mainz, the state capital of Rhineland-Palatinate, must impose a driving ban on older diesel vehicles in September 2019, if nitrogen oxide and fine particulate matter pollution levels are not brought down to agreed limits. The city can appeal against the ruling.

STUTTGART

The state of Baden-Wuerttemberg plans to ban older diesel cars with engines conforming to the Euro 4 emissions standard, which stems from 2005, in Stuttgart in 2019. A ban on diesel cars adhering to the Euro 5 emissions standard, which applied to vehicles made from 2009, is still before the court.

AACHEN

A local administrative court in June said driving bans would be imposed unless values for nitrogen oxide pollution were met by the end of year.

FRANKFURT

From February 2019 diesel cars made to Euro 4 standard and older will be prohibited from entering the city center, the administrative court in Wiesbaden ruled in September. The air pollution control plan, to be updated by the state of Hesse, must also include a driving ban for diesel vehicles of the Euro 5 standard from September 2019.

BERLIN

In October, the administrative court (See story below) ruled that by the end of June 2019, cars and trucks with diesel engines that comply only with the Euro 5 or lower emission standard, should not be allowed to drive on at least eleven routes.

MUNICH

In Munich, city authorities have not implemented a court ruling from February 2017, to ban some diesel vehicles on certain routes, despite facing fines for their failure to do so.

DUESSELDORF

In Duesseldorf a court ordered, as early as 2016, that a driving ban for diesel vehicles should be seriously examined. Despite that, in August 2018 the district government of the city presented a new air pollution control plan without driving bans.

Below are the German cities where regional courts are due to decide on the introduction of bans on diesel cars, along with the provisional ruling dates.

* Darmstadt - 21 Nov 2018

* Wiesbaden - 19 Dec 2018

11. VW To Appeal German Court Ruling Ordering Diesel Car Buyback

Volkswagen says it will appeal a court ruling that orders it to buy back a six-year-old diesel vehicle at the original sales price. In a statement, Volkswagen said it expects an appeals court to overturn the verdict issued by judges in the southern German city of Augsburg.

The company has paid billions of dollars in fines and compensation to diesel car owners since 2015 for cheating on emissions tests. But until the Augsburg verdict, courts in Germany had deducted a usage fee when ordering VW to buy back affected diesel cars.

In their ruling, judges in Augsburg said VW had acted "immorally" by manipulating the emissions control software in its cars in order to increase sales.

Volkswagen insists that "customers suffered neither loss nor damage."

12. Confusion In Berlin And Brussels Leads To Cancelled Diesel Meeting

A battle of words erupted between German Transport Minister Andreas Scheuer and EU Commissioner Elzbieta Bienkowska after Brussels cancelled a planned ministerial meeting on diesel when Scheuer said he wouldn't attend. It was "pointless" to hold a meeting on the increasingly unpopular fuel without Europe's largest car-manufacturing country present, Bienkowska told business newspaper Handelsblatt, adding that Scheuer's cancellation was "disappointing".

In Berlin, the German minister said a diary clash he had let Brussels know about long in advance held him back from attending. "I didn't know anything about this diesel summit...we can keep talking about diesel in Europe, just on a different day," Scheuer said in a video uploaded by the transport ministry.

In a statement, the Commission said that given few ministers planned to attend, the meeting would be "conducted at a technical, services level, with a similar agenda".

Politicians across Europe fear the proliferation of planned or already implemented driving bans for older diesels in cities, put into place to clean up polluted air of harmful fine particles and gaseous nitrogen oxides (NOx).

Under pressure from the Commission, Berlin presented a "diesel plan" in early October supposed to satisfy air quality concerns while limiting driving bans, which are widely resented by drivers. It calls for trade-in bonuses for older diesels or hardware retrofits to bring them up to the latest emissions standards - with the former option the clear preference of the auto industry, a vital sector for Germany that employs 800,000 people.

Governments and the Commission are also looking to promote alternatives to the internal combustion engine, as the EU aims to slash carbon dioxide emissions from cars 40 percent by 2030.

13. VW To Spend \$50.2 Billion On Electric, Autonomous Vehicles By 2023

Volkswagen Group has said it will spend 44 billion euros (\$50.2 billion) on electric vehicles, digitalization, autonomous driving and new mobility services by 2023. The automaker also plans to increase productivity of its factories by 30 percent by 2025, by building more vehicles with different brands on the same production line, it said. This will help lower the carmaker's capital expenditure ratio at the group's automotive division to six percent of revenues from 2020 onward, the carmaker said.

The 44 billion euro plan is 10 billion euros (\$11.4 billion) more compared with last year's planning round.

VW is launching upscale electric Porsche and Audi models due to go on sale next year to keep up with other global automakers as well as more affordable vehicles under VW's I.D. sub brand starting in 2020. VW said it could build up to 15 million electric cars over several years on its new MEB EV production platform.

"Volkswagen must become more efficient, more productive and more profitable in order to finance the high expenditure in the future and stay competitive," CEO Herbert Diess said during a press conference. Diess said he hoped to have an outline agreement on Ford cooperation fleshed out by year end, with the initial focus on commercial vehicles. He said a merger with Ford was not on the agenda and also said there were no plans to take a stake in the American company.

Labor unions, who control half the seats on Volkswagen's supervisory board, need to sign off on the plan to create global production capacity for 1 million electric vehicles by 2025 amid their concerns that assembling battery driven cars will require fewer workers.

Around 436,000 industrial jobs in Germany are tied to building gasoline- and diesel-powered vehicles. Jobs are under threat because a combustion engine car has 1,400 components in the motor, exhaust system and transmission, while an electric car's battery and motor has only 200 components, according to analysts at ING.

Volkswagen's management has outlined plans for converting car plants in Zwickau, Emden and Hannover to build electric cars, providing job guarantees to workers until 2028.

The first ID electric car is due to roll off the production line in Zwickau in 2019, as the plant ramps up to a production capacity of 330,000 electric vehicles. Zwickau currently builds the VW Golf and the Golf Estate.

Volkswagen's MEB electric vehicle platform is also being eyed by Ford as the two companies continue exploratory talks about an alliance to develop self-driving and electric vehicles. "Our two companies complement each other very well in terms of both products and regions. The joint development and manufacture of a range of light commercial vehicles is at the core of the envisaged cooperation," Diess said.

VW expects significant synergy effects from this alliance, which may allow potential for developing a next generation Amarok pickup truck series and more SUVs, Diess said.

Volkswagen personnel head Gunnar Kilian said that workers were given a jobs guarantee through 2028, but that the company would work to reduce positions "in a socially responsible way" since electrics require fewer production steps.

Analysts say carmakers will need to add electric cars to their sales lineups to meet the new European Union rules on greenhouse gas emissions from 2021. Volkswagen and other car makers had bet heavily on diesel models, which get better mileage than gasoline powered vehicles, to meet tough limits on emissions of carbon dioxide, a greenhouse gas scientists say causes global warming. Diesel sales in Europe have eroded, however, since Volkswagen was caught using software to cheat on diesel emissions tests and paid more than 28 billion euros (\$31 billion) in fines, settlements and penalties. Subsequent scrutiny of diesel technology showed that other carmakers' vehicle emitted more nitrogen oxide pollution in real-life driving than during tests. The EU introduced new test procedures Sept. 1 that are intended to measure emissions in daily driving conditions.

As diesel sales fall carmakers are turning to electric vehicles to meeting the new CO2 limits, even though consumer uptake has been slow because of higher costs and lack of convenient places to charge up. Battery electric cars were 0.6 percent of EU auto sales last year.

14. Spanish Government Planning To Ban Sale Of Gasoline, Diesel Cars From 2040

A draft law covering Spain's approach to climate change and the transition from fossil fuels to clean energy is expected to reach Congress before the year. But the Ministry for Environmental Transition has already informed the country's political parties of some of the key elements of this legislation. And among the proposals is a 2040 ban on the sale of all vehicles that use fossil fuels, whether they be powered by gasoline, diesel or natural gas.

What's more, in 2050 the government hopes to be working with local councils to prohibit the circulation of such vehicles and is also proposing the obligatory installation of electric charging points in gas stations.

Transportation in Spain – and in most of the European Union – is the straggler when it comes to the fight against climate change. While the use of renewable energy continues to grow in the power sector – with a realistic target of 100% of electricity coming from clean sources in the future – road transportation is not progressing at the same speed in the fight against climate change.

Just over a quarter of all greenhouse gases emitted in Spain are from the transportation sector, and most of those come from the roads. Forecasts from the government suggest that if measures are not taken, these emissions will grow 15% from here to 2030.

In the draft text presented recently, the 2040 ban on "passenger and light commercial vehicles with direct emissions of carbon dioxide" would also mean an end to the sale of hybrids, which also burn gasoline or diesel. This kind of veto has already been announced in other EU countries, such as the United Kingdom and France, which have also set a target date of 2040, and Denmark, Ireland, Germany and the Netherlands, which have set a date of 2030.

The ministry's proposal also includes measures that would see municipalities with more than 50,000 people have low-emission zones installed "no later than 2023."

The law, which also sets a 20% reduction in greenhouse gas emissions by 2030 (compared to 1990 levels) will have to be negotiated in Congress and given that the Socialist Party (PSOE) is governing in a minority, the process may take a long time as the government seeks cross-party support.

The PSOE and the left-wing anti-austerity party Podemos have already created a work group in Congress, and the rest of the political parties received the draft document several days ago. The ministry claims that its objectives are very ambitious and go further than what has been demanded by the European Commission (EC).

15. Greater Paris Will Ban Diesel Cars Registered Before 2000 Starting In 2019

Beginning in the summer of 2019, the Greater Paris region will become a low-emission zone, limiting the circulation of old diesel cars. The ban will use France's new "Crit'Air" vignette system, which identifies cars' age and pollution level with color-coded stickers. Cars with the Crit'Air 5 sticker (1997 to 2000-registered diesels) as well as cars without a sticker will be banned.

The Metropole du Grand Paris council said on its Twitter feed it had voted to ban diesel cars registered before December 31, 2000 from the area within the A86 second ring-road, which includes Paris and 79 municipalities around it, a region with 5.61 million inhabitants.

The council plans to gradually tighten regulations in order to allow only electric or hydrogen-fueled cars on Greater Paris roads by 2030. In central Paris, pre-2000 diesels have been banned since July 2017.

Fifteen French metropolitan areas including Lyon, Nice, Aix-Marseille and Toulouse last month agreed to install or reinforce low-emission zones by 2020. The French government hopes this will prevent European Union sanctions over non-respect of European air quality standards.

16. London Could Meet Pollution Targets By 2025, Says Deputy Mayor For Environment

London is gearing up for the launch of the Ultra-Low Emission Zone (ULEZ) in April next year. While environmental campaigners see it as a huge step forward in the battle for clean air, many think it could go much further.

Shirley Rodrigues, Deputy Mayor for Environment and Energy, and Christina Calderato, Head of Delivery Planning at Transport for London, recently discussed the move towards electric vehicles in the capital. "In London we are much more ahead on delivering and tackling air pollution with the toxicity charge, which is the world's first, and the ULEZ. We have also seen the first two of our low emission bus zones in Putney and Brixton," says Ms. Rodrigues.

Since being introduced, Putney High Street has seen a fall in the number of exceedance hours by 98 per cent, which it is hoped will be replicated in the other six zones to be introduced by the end of 2018. But the ULEZ is the keystone. Starting in the congestion charge zone in 2019, Ms. Rodrigues claims it will result in the quickest reduction in emissions to most people. In 2020 this will expand to Heavy Goods Vehicles London-wide, and to all cars up to the North and South Circular in October 2021.

"This is a progressive approach, it's sequential over time, and will see 96 per cent of London's roads in compliance with EU standards. The small remainder, we will work to mop up as smaller

pollution hotspots, where we might divert or close a road for example, using the lens of the low emission neighborhood approach,” she said.

She hopes this will help London meet its legal limits by 2025 but admits reaching WHO standards will take longer.

Any vehicle that meets the ULEZ standard will be able to travel in the zone without paying the ULEZ charge of £12.50. This is dependent on the vehicle’s emissions, not the age, but generally speaking all electric and hybrid vehicles, as well as petrol cars registered after 2005 and diesel cars after September 2015, will be compliant.

Along with investment projects to fund more charging points, the Mayor is ramping up the city’s campaign against air pollution by encouraging electric alternatives. “There are 3,960 charge point connectors in London, which is more than 20 per cent of the UK total, so we’re still leading the way,” says Ms. Calderato from TfL. “We’re very quickly building more rapid chargers, which charge cars in 20-30 minutes. We’ve built 116 so far and have a target of 300 by 2020.

“We recognize this is not good enough, but with the mayoral taskforce, and a series of workshops with industries, stakeholders, businesses and the public sector, we hope to have a meeting of minds to establish what kind of charging we need in the future.”

Half of the rapid chargers currently in use are dedicated to taxis, raising questions about how feasible it is for members of the public to switch to electric.

But Ms. Calderato believes this will improve as part of the £4.5 million Go Ultra Low scheme that will see a further 1,150 residential charge points installed across London boroughs by 2020. She says: “Our priority is to make sure the public have the confidence to charge. The aim is for chargers to be available to everyone and not limited to the TfL road network, so we’re working with the boroughs to ensure more rapid charging across a wider geographical spread.

“We need to assess what’s in that mix as not everyone needs a rapid charger. Many will want to charge at home overnight, in the workplace or while they are shopping. We need to make sure there is a range of chargers in different locations to make charging an easy part of people’s everyday lives.”

Toxic air contributes to thousands of deaths in the capital each year, but Ms. Rodrigues does not think it is too late to change the tide: “We’re on our way to better and cleaner air, which will help correct past damage.”

17. UK Government's Air Pollution Strategy 'A Shambolic Mess'

The government’s plan to tackle air pollution in some of the worst affected cities in the UK is unravelling into a “shambolic and piecemeal mess”, according to environmental lawyers. ClientEarth, which has successfully defeated the government three times in court, said the emphasis on local authorities taking action was backfiring with no joined-up strategy, delays and poorly researched proposals.

Two of the first five authorities tasked with tackling dangerous levels of poisonous air missed their targets. ClientEarth said one authority, Derby, was proposing a scheme that would lead to new traffic lights and traffic-calming measures on one road, the removal of a bike lane and “bus infrastructure”, but little else.

Katie Nield, a ClientEarth lawyer, said Derby's proposals were "deeply concerning". "Their preferred option does not seem to be based on any kind of assessment of the possible impacts on air pollution in the city ... from our point of view that is totally inadequate and seems to be creating more space for more cars and little else."

In 2015, five local authorities with some of the worst pollution outside London – Derby, Southampton, Leeds, Nottingham and Birmingham – were ordered to produce proposals to tackle air pollution by 15 September.

Scores more councils are being tasked with tackling air pollution in their cities in the coming months, but Nield said the Derby plan would set a dangerous precedent.

She said that unless the national government took more forceful enforcement action and drove through a coordinated plan, the UK's air pollution crisis would continue. "What we are concerned about is a lack of government leadership on this. Things are coming out in a piecemeal fashion, different schemes being put forward by different authorities of different quality, with different charging levels with different exemptions. It is creating a very confusing picture and it is coming across as pretty shambolic."

Air pollution kills tens of thousands of people each year across Britain and affects the health of hundreds of thousands more. Recently, the UN warned that the UK government was endangering people's health by denying their right to clean air, and the world's biggest children's charity, UNICEF, told the press it had refocused its British operation to tackle air pollution because of the scale of the "health crisis" facing young people in the country.

In October, the World Health Organization said air pollution was the "new tobacco", causing 7 million deaths around the world and harming billions more.

Health experts say that, as well as respiratory conditions such as asthma, emphysema and bronchiectasis, air pollution causes developmental problems for children's lungs, making them more vulnerable to these conditions in adulthood. Other effects include chronic obstructive pulmonary disease, cancer, strokes, dementia and reduced cognitive ability.

A Defra spokesperson said: "Tackling air pollution requires collective action, which is why we are working with towns and cities to improve local air quality. We have published a £3.5bn plan to reduce harmful emissions and our ambitious new clean air strategy has been welcomed by the World Health Organization. Our forthcoming environment bill will also include provisions to improve air quality.

"We have given local authorities technical support in developing their plans and nearly £500m in funding for air quality improvements, but they are best placed to decide how to tackle air quality in their communities."

18. Step Up Climate Action, German Minister Tells Carmakers

Germany's auto industry must move from being the "problem child" of climate action to a "beacon of hope", secretary of state for the environment Jochen Flasbarth has said. Speaking at a conference organized by the green transport association Verkehrsclub Deutschland, Flasbarth called for a radical reorientation in Germany's transport policies.

“Since 1990, greenhouse gas emissions in all other areas combined have fallen by around 28%,” he said. “Only transport has failed to deliver, instead actually increasing its CO2 output. This obstinacy must end.”

The federal government should work towards incentivizing electrification of Germany’s transport system through the tax system, he said. “It is a mistake that electricity, which is becoming ever more renewable and which we increasingly want to use for transport, is so highly taxed, while fossil fuels are too cheap to prompt a shift in mobility.”

Alongside the adoption of electric mobility, German cities must invest in new cycle infrastructure, rail and buses, Flasbarth added. “By contrast, quieter and freer-flowing vehicle traffic will play a subordinate role. This will be achieved through freedom to design integrated urban areas.”

Flasbarth’s comments come after German carmakers agreed last Thursday to spend up to €3,000 per diesel vehicle to reduce emissions, with Volkswagen and Daimler indicating they were prepared to offer hardware retrofits for older models. A deal struck last month between carmakers and the federal ministry of transport already paved the way for owners of Euro 4 and 5 diesel vehicles in municipalities that breach legal air pollution limits to receive a premium on a new or used vehicle that met nitrogen oxide emission limits.

Environment minister Svenja Schulze welcomed the retrofit pledge but said via Twitter: “I cannot accept that some manufacturers are still refusing to do so. Not everyone can so easily buy a new car through the car-scrapping premium.”

19. Malta Again Fails Emission Test, Has To Pay "Hundreds Of Thousands"

Malta will again have to dig into its pockets to make good for not reaching EU-wide emission targets, according to a new report. A European Commission progress report found that Malta had failed to reach its emission reduction target “every year since 2013” and would again need to buy emission reduction credits from other countries that had exceeded theirs.

Times of Malta reported last year that in Bulgaria a solar farm or some other mystery green project was being funded by Maltese taxpayers because the island kept missing its targets.

The issue dates back to 2007, when the EU first launched its 2020 targets, according to which member states must substantially reduce their greenhouse gases.

Malta has been lagging so far behind its greenhouse gas reduction targets that it was forced to resort to what are known as flexibility measures. This takes the form of a bilateral agreement to buy Bulgaria’s extra emissions-reduction points. The Bulgarian government is bound to use the money it makes from selling its extra reductions on climate change awareness projects, research or green energy initiatives.

The Maltese government refused to divulge how much taxpayers are forking out to buy Bulgarian points.

A source familiar with the transaction of such credits, told the Times of Malta the EU had published the total transacted volumes of emissions credits. So far, the Malta-Bulgaria transactions were the only ones that would appear to have gone through. In 2013, Malta had purchased about 82,000 credits at an undisclosed price. This had since gone up to 135,000 in 2015, the latest figures available on the transactions website.

Times of Malta had quoted government sources indicating that the cost of the agreement could well run into “hundreds of thousands of euros annually”. A spokesman for the Environment Ministry, however, would only say that the agreement reached could not be made public.

Neither would the Bulgarian government say how much had Malta spent, saying only that the money was directed to its National Trust Eco Fund to be used for climate change adaptation and mitigation measures. The money, Bulgaria said, had not all been spent yet.

The European Commission report says that most member states were expected to reach their 2020 targets. Malta, however, was among the eight that would not. Ireland has projected it may miss its target by 20 percentage points while Cyprus and Malta may miss theirs by 12 per cent and 11 per cent respectively. Belgium, Germany, Luxembourg, Austria and Finland may also fall short, but by smaller margins, the report says.

Describing Malta’s margins as “high”, the Commission says that, in addition to rising emissions from road transport, discharges have been rising sharply, mainly because of increased demand for air-conditioning.

In May 2018, as part of the European Semester annual cycle of economic coordination, Malta was urged to set targets and implement measures to reduce congestion and emissions from transport substantially by 2025, allowing for the periodic monitoring of progress.

20. UK Buses Emissions Testing Cycle Updated

Emissions testing on buses has been ‘streamlined’ in a move that it is hoped will make it simpler for manufacturers to access funding to put more low emission buses on the road. Developers say that the new testing cycle is more challenging than its predecessors, as it will place vehicles under more demanding testing conditions.

To qualify as an Ultra-Low Emission Bus (ULEB) – and to have access to funding under the government’s £48 ULEB funding scheme – manufacturers must test their vehicle over the UK Bus Cycle test procedure. A separate test cycle had also been used by TfL to compare the emissions performance of different bus technologies.

From 1 November, a unified test procedure is being used by both Transport for London (TfL) and the national Ultra Low Emission Bus (ULEB) accreditation scheme.

The use of the same test will enable manufactures to test a vehicle once and for it to be eligible for use in both the London market as well as qualifying for national grant schemes, according to the Low Carbon Vehicle Partnership (LowCVP), which has helped to develop the test procedure.

The new test applies to all new models. Those that have already achieved LEB or ULEB status will continue to be classed as such.

The new test will be called the UK Bus Cycle (UKBC) and will comprise of the London Bus Cycle (LBC) phase and a rural phase. The LBC section has been developed from the previous Millbrook London Test Bus (MLTB) cycle which has been used by TfL.

In a statement, LowCVP said: “The LowCVP Bus Working Group and TfL have worked closely over the last two years to refine the Millbrook London Test Bus (MLTB) and LUB (LowCVP UK Bus) to reflect modern requirements and combine them into one common test.

“The new test is more challenging for manufacturers as it includes requirements for ancillary loads such as lighting and heating to be switched on, with the test chamber temperature set to 10°C more demanding for exhaust aftertreatment systems.”

As part of the ULEB Scheme conditions, buses must have approved test certificates in order to receive government funding. These certificates are published on the LowCVP’s Low Emission Bus Hub web pages enabling comparison of vehicle emissions performance.

The certificates feature all regulated emissions including nitrogen oxides (NOx) and particulates (PM), as well as fuel consumption and well-to-wheel greenhouse gas emissions per passenger kilometer.

“This transparency is unparalleled in any other vehicle accreditation scheme in the UK or the world,” LowCVP said.

NORTH AMERICA

21. Latest U.S. Climate Assessment Paints a Bleak Picture

Global warming is now affecting the United States more than ever, and the risks of future disasters — from flooding along the coasts to crop failures in the Midwest — could pose a profound threat to Americans’ well-being. That’s the gist of Volume Two of the latest National Climate Assessment, a 1,656-page report issued on the day after Thanksgiving (the slowest news day of the year) that explores both the current and future impacts of climate change. The scientific report, which comes out every four years as mandated by Congress, was produced by 13 federal agencies and released by the Trump administration.

This year’s report contains many of the same findings cited in the previous National Climate Assessment, published in 2014. Temperatures are still going up, and the odds of dangers such as wildfires in the West and serious coastal damage continue to increase. But reflecting some of the impacts that have been felt across the country in the past four years, some of the report’s emphasis has changed.

Predicted Impacts Have Materialized

More and more of the predicted impacts of global warming are now becoming a reality. For instance, the 2014 assessment forecast that coastal cities would see more flooding in the coming years as sea levels rose. That’s no longer theoretical: Scientists have now documented a record number of “nuisance flooding” events during high tides in cities like Miami and Charleston, S.C. “High tide flooding is now posing daily risks to businesses, neighborhoods, infrastructure, transportation, and ecosystems in the Southeast,” the report says.

As the oceans have warmed, disruptions in United States fisheries, long predicted, are now underway. In 2012, record ocean temperatures caused lobster catches in Maine to peak a month earlier than usual, and the distribution chain was unprepared.

It's All Tied Together

The report suggests a different approach to assessing the effects of climate change, by considering how various impacts — on food supplies, water and electricity generation, for example — interact with each other. “It is not possible to fully understand the implications of climate change on the United States without considering the interactions among sectors and their consequences,” the report says.

It gives several examples, including recent droughts in California and elsewhere that, in combination with population changes, affect demand for water and energy. The report also cites Superstorm Sandy, six years ago, which caused cascading impacts on interconnected systems in the New York area, some of which had not been anticipated. Flooding of subway and highway tunnels, for example, made it more difficult to repair the electrical system, which suffered widespread damage.

The Impacts Go Beyond US Borders

The United States military has long taken climate change seriously, both for its potential impacts on troops and infrastructure around the world and for its potential to cause political instability in other countries. The report cites these international concerns but goes far beyond the military. Climate change is already affecting American companies’ overseas operations and supply chains, it says, and as these impacts worsen it will take a toll on trade and the economy.

Global warming and natural disasters are also affecting development in less affluent countries. That, the report says, puts additional burdens on the United States for humanitarian assistance and disaster aid.

Adaptation, Adaptation, Adaptation

Since 2014, more detailed economic research has estimated that climate change could cause hundreds of billions of dollars in annual damage, as deadly heat waves, coastal flooding, and an increase in extreme weather take their toll. To limit that harm, communities will need to take steps to prepare beforehand.

The previous assessment warned that few states and cities were taking steps to adapt to the impacts of climate change. That’s slowly changing, the new report finds. More and more communities are taking measures such as preserving wetlands along the coasts to act as buffers against storms.

But outside of a few places in Louisiana and Alaska, few coastal communities are rethinking their development patterns in order to avoid the impacts from rising seas and severe weather that the report says are surely coming.

The report warns that the country is particularly unprepared for the upheavals that will come as rising sea levels swamp coastal cities: “The potential need for millions of people and billions of dollars of coastal infrastructure to be relocated in the future creates challenging legal, financial, and equity issues that have not yet been addressed.”

Climate Change Will Impact Air Quality

The report notes with “high confidence” that climate change will increase ozone levels, as rising temperatures and changes in atmospheric circulation affect local weather conditions. But the increases will not be uniform. By near the end of the century, the worst ozone levels will be found across a wide expanse of the Midwest and Northern Great Plains, while levels are expected to improve, at least somewhat, in parts of the Southeast.

The report reiterates what residents of the West have learned from hard experience: that warmer springs, longer dry seasons in the summer and other impacts are lengthening the fire season. The smoke from fires affects not only health, the report says, but visibility.

“Intelligent” Trump Doesn’t Believe Report

President Trump dismissed the landmark report compiled by 13 federal agencies detailing how damage from global warming is intensifying throughout the country, saying he is not among the “believers” who see climate change as a pressing problem.

The comments were the president’s most extensive yet on why he disagrees with his own government’s analysis, which found that climate change poses a severe threat to the health of Americans, as well as to the country’s infrastructure, economy and natural resources. The findings — unequivocal, urgent and alarming — are at odds with the Trump administration’s rollback of environmental regulations and absence of any climate action policy.

“One of the problems that a lot of people like myself, we have very high levels of intelligence but we’re not necessarily such believers,” Trump said during an interview in which he was asked why he was skeptical of the National Climate Assessment.

“As to whether or not it’s man-made and whether or not the effects that you’re talking about are there, I don’t see it,” he added.

Trump did not address the fundamental cause of climate change. The president ruffed on pollution in other parts of the world. He talked about trash in the oceans. He opined on forest management practices. But he said little about what scientists say is actually driving the warming of the planet — emissions of carbon dioxide from the burning of fossil fuels.

“You look at our air and our water and it’s right now at a record clean. But when you look at China and you look at parts of Asia and you look at South America, and when you look at many other places in this world, including Russia, including many other places, the air is incredibly dirty, and when you’re talking about an atmosphere, oceans are very small,” Trump said in an apparent reference to pollution around the globe.

Katharine Hayhoe, a climate scientist at Texas Tech University, told the press that the president’s comments risk leaving the nation vulnerable to the ever-growing impacts of a warming planet. “Facts aren’t something we need to believe to make them true — we treat them as optional at our peril,” Hayhoe said. “And if we’re the president of the United States, we do so at the peril of not just ourselves but the hundreds of millions of people we’re responsible for.”

Andrew Dessler, a professor of atmospheric sciences at Texas A&M University, struggled to find a response to the president’s comments. “How can one possibly respond to this?” Dessler said, calling the president’s comments “idiotic” and saying Trump’s main motivation seemed to be attacking the environmental policies of the Obama administration and criticizing political adversaries.

Trump wasn't the only administration official to shrug off the federal government's latest climate warnings. In a television appearance in California, Interior Secretary Ryan Zinke acknowledged that fire seasons have grown longer in the state but added, "Climate change or not, it doesn't relieve you of responsibility to manage the forest."

Meanwhile, asked about the findings of the nearly 1,700-page climate report, White House spokeswoman Sarah Sanders echoed her boss. "We think that this is the most extreme version and it's not based on facts," Sanders said of the National Climate Assessment. "It's not data-driven. We'd like to see something that is more data-driven. It's based on modeling, which is extremely hard to do when you're talking about the climate. Again, our focus is on making sure we have the safest, cleanest air and water."

22. At Climate Talks, Trump Team Plans To Promote Fossil Fuels

At climate talks scheduled for next month, where nations are expected to set up rules to follow to meet targets set out in the Paris Climate Accord in 2015, the Trump administration is planning a sideshow to promote fossil fuels.

President Trump notoriously announced six months after taking office that he would withdraw the U.S. from the Paris Climate Accord, leaving the country alone in refusing to abide by international standards to reduce climate change. With about 5 percent of the world's population, the U.S. accounted for almost 15 percent of global greenhouse-gas emissions in 2014, though that amount has fallen somewhat in recent years.

The ability to run on low-carbon power, such as renewable solar and wind power, is one of the main advantages of electric cars. And since transportation and electric power are the two largest sources of global-warming CO2 emissions, converting more travel miles to electricity and cleaning up power plants together are the quickest ways to reduce global-warming emissions.

The Trump administration's plans came to light in a report by Reuters, which spoke with three insiders familiar with them.

The move follows the same playbook that the State Department followed at last year's climate where it set up a booth outside the summit in Bonn, Germany, to promote technologies that burn fossil fuels more efficiently.

This year's summit is scheduled to take place in Katowice, Poland, a coal mining region known as one of the most polluted in Europe, December 2-14.

Reportedly, the U.S. sideshow was designed to ensure "U.S. interests are paramount." In announcing his intention to withdraw the U.S. from the Paris accord last year, President Trump questioned the climate science and said the agreement would be harmful to the U.S. economy.

23. Colorado Joins California Low Emission Vehicle Program In Rebuke To Trump

Last spring, when the US Environmental Protection Agency first proposed rolling back the fuel economy standards put in place by the Obama administration on its way out the door, Colorado governor John Hickenlooper saw the handwriting on the wall and decided to act. He issued an executive order directing the Colorado Department of Public Health and Environment to establish

a Colorado Low Emissions Vehicle program that incorporates the requirements of the program developed by the California Air Resources Board.

Under the Clean Air Act, only California has been granted a waiver that permits it to impose more stringent vehicle emissions rules than the federal standard. But other states are free to adopt the California rules if they wish to. So far, a dozen states and the District of Columbia have done so. As the result of the governor Hickenlooper's executive order, Colorado has now become the 13th state to sign on to the CARB initiatives.

At the time his executive order was promulgated, Hickenlooper said, "As the highest-elevation state in the country, Colorado has unmatched natural beauty and world-class recreational opportunities, but it also creates unique challenges. Our communities, farms and wilderness areas are susceptible to air pollution and a changing climate. It's critical for Coloradans' health and Colorado's future that we meet these challenges head on." It should be noted that Colorado already has one of the highest EV incentives of any US state — a \$5,000 state tax credit.

The governor made it plain his order was aimed directly at protecting the residents of Colorado from the emissions rollback being proposed by the federal government and vigorously supported by US automakers. "Colorado has a choice. This executive order calls for the state to adopt air quality standards that will protect our quality of life in Colorado. Low-emissions vehicles are increasingly popular with consumers and are better for our air. Every move we make to safeguard our environment is a move in the right direction."

The Air Pollution Control Division of the Colorado Department of Public Health and Environment has now completed the necessary public hearings and unanimously approved a new regulation entitled Colorado Low Emission Automobile Regulation (CLEAR) which adopts the provisions of the California low emissions program. That means automakers now will have to build cars that comply with California rules for one more state. Combined, all those states and Washington, DC account for about 40% of the US new car market.

The new rules are a "cost-effective and sensible backstop" for Colorado in the event of the federal rollback actually takes place.

Under the rules, new vehicles sold in Colorado must average 36 mpg (15 kilometers per liter) by 2025. That's about 10 mpg (4 kilometers per liter) over the existing standard.

Automobile dealers and industry officials argued the rules will add thousands of dollars to new vehicle prices — especially pickups, SUVs and all-wheel-drive vehicles that burn more gasoline and are widely used in Colorado's rugged mountain areas. Steven Douglas, director of environmental affairs for the Alliance for Automobile Manufacturers, urged Colorado regulators to delay any decision until the EPA decides what to do.

The Colorado Automobile Dealers Association criticized the decision as a misguided interference in the free market that limits consumers' choice. "This will add a \$2,110 tax to the sticker price of average new vehicles in Colorado, a tax that will be even higher on the SUVs and trucks that Coloradans prefer," CEO Tim Jackson said in a statement.

Under the new rule, state officials say, the average price of a model year 2025 vehicle would increase by \$1,138. But they also contend that car owners would save up to \$1,682 on fuel and other maintenance costs.

The move would also reduce greenhouse gas emissions by about 30 million tons through 2030, according to state officials.

"I applaud the commitment of the Air Quality Control Commission and the Air Pollution Control Division to protect the quality of our air and safeguard against returning to the days of the 'brown cloud,'" Hickenlooper said in a statement Friday.

The Trump administration has proposed freezing the standards at the 2020 model year level and rescinding California's power to follow its own path on clean cars. The federal EPA and NHTSA are expected to publish a final rule next year after reviewing thousands of public comments. At least 18 states, as well as localities and environmental groups are expected to immediately challenge any final rule that sticks to the administration's preferred option, making it difficult for automakers to plan how to build vehicles.

If the federal rules are implemented, but California's special authority remains, the industry could face the prospect of engineering vehicles for two markets -- 40 percent of the nation that follows California's standards and the rest that falls under federal standards -- or not selling certain models in many states.

24. EPA Planning New Truck Pollution Rules

The Trump administration's Environmental Protection Agency is proposing to rewrite rules that limit pollution from heavy trucks. Acting EPA Administrator Andrew Wheeler argues that new technology can help improve air quality, noting that the regulation of harmful nitrogen oxide emissions hasn't been revamped since 2000.

"We are doing it because it's good for the environment," said Wheeler, who notes that the EPA is under no requirement to redo the regulation. "Our goal is to update our standards so that we can get these new technologies in use across the country."

The proposed "Cleaner Trucks Initiative" is drawing expressions of hope but some skepticism from some environmental groups, especially because the EPA under President Donald Trump already has proposed relaxing emissions requirements for light passenger cars and trucks by freezing them at 2020 levels.

Paul Billings of the American Lung Association said he thinks the idea is encouraging but depends on exactly what the proposal looks like. "The devil's always in the details," Billings said. "If they were not to tighten the (nitrogen oxide) standards, it'd be a bait-and-switch."

Nitrogen oxides can worsen existing lung disease, contribute to the development of asthma and increase susceptibility to respiratory infections. It also contributes to the formation of ozone, one of the most difficult air pollution challenges. California has argued that it will be impossible for the state to achieve its ozone air quality target without tighter NOx control on trucks.

Since the emissions regulations were last updated in 2000, regulatory requirements have been added piecemeal, resulting in what Wheeler calls "overly complex and costly" requirements that don't benefit the environment. The goal of the regulatory change would be to root out inefficiencies and perhaps use onboard diagnostic computers to ensure compliance over the life of trucks, Wheeler said.

The share of overall pollution contributed by heavy trucks has grown over the years, especially in urban areas and port cities with significant truck traffic, said Bill Wehrum, assistant administrator of the EPA's Office of Air and Radiation.

Wehrum said the EPA doesn't have a proposed target for setting new nitrogen oxide standards because it's at the beginning of a rule-making process. He said vehicles are now tested for emissions on a treadmill-like dynamometer, which might not capture all high-emissions phases of engine operation. The new standards could cut emissions during high-pollution phases, he said.

California already is working on more stringent heavy truck emissions standards, and new federal standards could conflict with them. Wehrum said the EPA isn't drawing up its own standards to set up a confrontation with California, and it will work with the state on the new regulation. California has targeted an approximately 90% NOx reduction from current levels.

25. Trump Car Standards Rollback Criticized for Faulty Analysis

Flaws in Trump administration modeling inflate the benefits of freezing federal fuel economy standards by hundreds of billions of dollars, some automakers, economists, former EPA staff, and environmental groups say.

The Environmental Protection Agency and the National Highway Traffic Safety Administration said their August 24 proposal to halt federal fuel economy limits at 2020 levels would offer around \$200 billion in net benefits and reduce highway fatalities by 12,700 over the lifetime of vehicles built through 2029, compared to the Obama-era standards.

Critical to the agencies' justification for freezing the standards is the idea that stricter fuel-economy standards raise prices of new vehicles, decreasing sales and increasing the use of older cars, which are inherently less safe. But critics say the agencies' methods for crunching the numbers are problematic.

"This entire analysis is based on a house of cards that is going to collapse in front of them," according to Jeff Alson, a former senior engineer in the EPA's Ann Arbor, Mich., vehicles lab.

Correcting the administration's model would practically close the gap between the increased costs the Trump administration projects from Obama-era standards and the benefits it asserts from weaker limits. Several groups, including American Honda Motor Co. Inc., found that the Obama-era standards are safer and cheaper when they adjusted the models.

Honda found the administration's model improperly boosted the benefits of freezing the standards by \$390 billion. Turning off the flawed portion of the model yields \$100 billion in net costs for the Trump agencies' proposal, tipping the scales in favor of the current limits, Honda said in a supplemental analysis filed with its comments.

"[W]e find the use of this previously untested model to be premature and ill-advised," Honda wrote in October 26 comments on the agencies' proposal.

Some economists and technical experts say the models will have to be changed in order to hold up to any future court challenge. "It's going to take some time to redo," said Alson, a four-decade veteran of the EPA who worked for much of his career on the fuel economy standards before retiring in April.

The agencies are eyeing March 2019 to finish up the standards, according to the administration's recent regulatory agenda. But the proposal has already drawn threats of lawsuits from states and environmental groups.

The errors in the analysis stem from a new piece added to NHTSA's model, the so-called "scrappage module," said economists, engineers, and academics who reviewed it. The module was developed to analyze how changes in new car prices and sales due to the fuel economy standards affect the number of used cars on the road—and ultimately how many used cars are scrapped.

Economists and others say the agencies left out a critical part of the equation—consumer behavior—leading to a conclusion that people will drive substantially more under the Obama administration's limits than the weaker Trump proposed standards. Those additional miles translate into a higher number of fatalities and increase the societal cost of stricter limits.

The agencies don't explain why the difference would be so significant, according to critics. And their model overlooks the choices people make when purchasing or driving cars, which are often individualistic.

"The calculations of the cost are at odds with basic economic theory and are likely to be severely overestimated," Antonio M. Bento, an economics professor at the University of Southern California with expertise in energy and environmental economics, told the press. "There's no economic reason to justify the rollback." Bento, in the days after the agencies released their proposal, convened a team to dig into the modeling. Their findings are set to be released in *Science* magazine in the coming weeks.

To some automakers, what is strange is that these additional miles, according to the model, are separate from any impact fuel economy standards have on the cost of driving, they said in comments. Fuel economy standards make driving more attractive to consumers because they save money on fuel, so they drive more. This effect, known as the "rebound effect," should account for the bulk of any increase in miles traveled from stricter limits or decrease in miles traveled from weaker standards, the Association of Global Automakers, a Washington-based industry group, wrote in October 26 comments. The group represents foreign-based manufacturers including Honda, Hyundai Motor Co., Toyota Motor Corp., and Subaru Corp.

But the agencies' analysis includes a separate, unexplained decrease in miles traveled under the frozen standards. "We do not understand why this would be, since vehicle scrappage should not have any impact on the total number of miles Americans drive," Global Automakers wrote, suggesting it is a quirk in the model "one would not expect to see in the real world."

But that quirk is also the primary driver of the safety benefits the Trump administration claims from holding the fuel economy limits flat, the auto group added.

Nearly all automakers object to a wholesale freeze of the standards. They are urging the Trump administration for limits that increase year over year, but at a slower pace and with more flexibility than the Obama-era limits.

Not all automakers, though, criticized the agencies' modeling. The Alliance of Automobile Manufacturers—which represents a dozen major U.S. automakers including Ford Motor Co., General Motors Co., and Fiat Chrysler Automobiles NV—paid for an analysis by NERA Economic Consulting and Trinity Consultants Inc. The automaker industry group said the study

independently verifies the Trump proposal offers positive net benefits. In October 26 comments, the Alliance of Automobile Manufacturers recommended the agencies review the analysis “for adoption or to refine their own models.”

But even the analysis it contracted for finds lower net benefits from the Trump proposal than the agencies do. While the Trump proposal claims around \$200 billion in net benefits through 2029 from freezing the standards, the analysis produced for the automaker group finds \$98.2 billion.

The agencies say their proposal would increase greenhouse gas emissions compared to the Obama regulation. But their estimate is low, Joshua Linn, an associate professor in the Department of Agricultural and Resource Economics at the University of Maryland and a senior fellow at Resources for the Future, told reporters. By understating the number of miles people are driving, the agencies are also directly underestimating the fuel consumption and greenhouse gas emissions from their proposal, he said. Their proposal would also cause more fatalities than the agencies are projecting, diluting the safety benefits they claim from the weaker limits, Linn added.

Linn and others say the agencies will have to change their model in order to justify any relaxation of the standards.

“I believe that they are going to have to change the model substantially,” Kenneth Gillingham, an associate professor of economics at Yale University, told the press. “There are such clear problems with the model that to do an analysis that holds up, they’re going to need to make some very large changes.”

And for the EPA, the challenge is even trickier: The agency’s career staff, in interagency comments on the proposal, raised concerns with the NHTSA modeling, but EPA political appointees ultimately signed on to the proposal unchanged.

“I don’t see how a judge would ever say that EPA could not listen to its own staff or model and rubber stamp a model from another agency that’s been roundly criticized by academics, states, and automakers,” Alson, the former EPA engineer, said. “How could that possibly be a legal basis for a major rollback of EPA standards?”

26. Court Won’t Yet Drop Challenge to EPA Basis for Revising Car Rules

A California-led coalition will get to counter in court the EPA’s determination that federal fuel economy standards should be relaxed, an appeals court said. The U.S. Court of Appeals for the District of Columbia Circuit in a November 21 order rejected requests from the Trump administration and auto industry trade groups to drop a lawsuit challenging the Environmental Protection Agency’s fuel economy determination without considering the merits.

At issue is the EPA’s April 2 determination that fuel economy standards for model year 2022-2025 passenger cars must be revised. That determination underpinned the Trump administration’s August 24 proposal to freeze the limits at 2020 levels, a sharp diversion from Obama-era standards that would increase through 2025.

The Trump administration, along with two major auto industry trade groups, argued any challenge to the EPA’s determination is premature because the government is still working on altering the fuel economy standards.

The D.C. Circuit hasn't yet taken a position on the determination, but judges will allow consideration of the arguments against it instead of dismissing the lawsuit as the administration urged.

A group of states led by California, several environmental groups, and a coalition of electric utilities and advanced vehicle companies, including Tesla Inc., challenged the EPA's determination. They claim it relies heavily on automaker comments and ignores a technical assessment conducted by the EPA, the National Highway Traffic Safety Administration, and California regulators in 2016.

"The Clean Car Standards are one of our nation's biggest environmental success stories, and the Trump EPA's justification for undermining them—the Final Determination—lacks any basis in sound economic, science or health data," Martha Roberts, a senior attorney with the Environmental Defense Fund, said in a statement. "The Trump EPA's deeply flawed reasoning for the proposed rollback deserves thorough court review."

27. White House, California Talks Spur Guarded Optimism On Vehicle GHG Deal

Recent negotiations between the White House and California on light-duty vehicle greenhouse gas and fuel economy standards are boosting optimism -- albeit slightly -- that the two sides can reach some kind of deal to avert a legal collision over the Trump administration's pending plan to freeze standards after model year 2020.

A deal is "certainly a whole lot more likely than it was five months ago," says one knowledgeable source. "Both sides are talking seriously." Even so, the source adds: "There is still a long way to go."

The appraisals come in the wake of a November 13 meeting between Trump administration and California officials, with sources suggesting this most recent meeting delved much more into the substance of regulatory changes compared with prior meetings, which California officials publicly derided as little more than surface-level interactions. "The previous meetings never got into substance. They were very, very superficial," adds the knowledgeable source.

Until now, prospects for a deal have been limited, as the two sides have blamed the other for a breakdown in talks and California has insisted it would resume negotiations once the EPA proposal had been withdrawn.

But acting EPA Administrator Andrew Wheeler told reporters at a November 13 press conference that the agency received a long-awaited "counterproposal" from California to its controversial plan to freeze fuel economy and GHG standards and scrap California's special Clean Air Act authority to regulate vehicle GHGs.

Wheeler did not elaborate, and several sources tracking the issue doubt that California went so far as to put a highly detailed written plan on the table.

The Golden State's hand might have been strengthened by the November 6 midterms that flipped the House to Democratic control starting in January. That makes a legislative attack on the state's vehicle rules, already fraught with challenges, even less likely.

In addition, Democrats' plan for aggressive oversight hearings of Trump administration climate rollbacks -- with the vehicle proposal being described as a "classic example" of a topic that will

receive close Hill scrutiny -- likely will amplify any concerns about the plan's legal and technical foundation.

Both sides have an incentive to explore a deal, given that litigation inherently carries some legal risks for all involved. Such risks for the Trump administration were underscored November 21, when the U.S. Court of Appeals for the District of Columbia Circuit agreed to hear arguments from states and environmentalists challenging EPA's threshold finding that it must weaken Obama-era vehicle GHG rules. If successful, the litigation could create a major hurdle for the Trump administration's broader rollback proposal, given that it could force EPA officials to re-do their determination before proceeding with any rulemaking to alter its standards from MY21-26.

At a minimum, the ongoing D.C. Circuit litigation could also act as a judicial counterpart to future House oversight hearings, potentially unearthing and putting a spotlight on any inconvenient aspects of the plan.

It remains unclear how officials can bridge a yawning gap between the White House's position to freeze standards and California and a growing number of allied states' commitment to retain the Obama-era rules.

Observers have long said -- based on the current rules' structure and prior statements by California's ARB Chair Nichols -- that any deal could be based on several elements that do not necessarily require modification of top-line GHG goals. Those elements include: more compliance flexibility mechanisms -- including retaining "multiplier credits" for electric vehicles and an assumption of zero upstream emissions for such cars; potentially delaying compliance deadlines; and coupling any timing delays with post-2025 standards.

Whether California's counteroffer contains some or all of provisions has not been made public.

28. Auto Sector Revs Up Pressure for Emissions Deal

Automakers and parts manufacturers have called nearly unanimously for a compromise among federal agencies—the Environmental Protection Agency and the National Highway Traffic Safety Administration—and California regulators on a single set of fuel economy and greenhouse gas limits for passenger cars. Industry is urging the Trump administration to steer away from its proposal to freeze the limits at 2020 levels and settle on a level that increases year over year at a rate less stringent than the Obama-era standards.

Auto industry representatives said at a Motor & Equipment Manufacturers Association event November 27 in Washington that they're concerned that on the other side of the talks, California isn't ready to budge. California has already adopted the Obama-era standards through 2025 and is in talks with the auto industry about future limits.

Containing greenhouse gas emissions from the transportation sector is critical to the Golden State's ability to meet its climate goals. Any changes to the federal standards could complicate California's ability to work with the auto industry to set new standards and move toward cleaner cars. All sides have said they want to avoid having two separate fuel economy and greenhouse gas programs in the U.S.

"The pressure's not there for California to really acquiesce," Gregory T. Garr, director of market creation at Umicore Autocat USA Inc., said. "How do you put pressure on them? I'm not sure."

California air regulators presented a plan countering the Trump administration's proposal to EPA officials earlier this month which industry representatives reportedly haven't seen. And even though the EPA and California regulators are involved in ongoing discussions, NHTSA doesn't appear to be at the table, Garr said.

Freezing the standards could cost the U.S. 67,000 auto industry jobs by 2025, affecting vehicle manufacturers, parts suppliers, and dealerships, the Motor & Equipment Manufacturers Association said in an analysis. Auto parts suppliers further argue that a standards freeze could lead to millions of dollars in stranded investments.

Several major automakers, including Ford Motor Co., General Motors Co., and American Honda Motor Co. Inc., publicly criticized Trump plans to freeze federal fuel economy limits. They are urging the administration to work with California and pull back on efforts to challenge its ability to set state-level limits.

A few automakers, though, including Fiat Chrysler Automobiles NV and Toyota Motor Corp., said in comments to the proposal that they would support an attack on California's authority if the agencies were unable to reach a deal with the state's regulators.

They point to an expansion of programs within the fuel economy standards that allow automakers to earn credits toward compliance for using technologies that aren't specifically covered in the standards, such as using climate-friendly refrigerants in mobile air-conditioning systems. "That's one area where the auto industry is united," Laurie Holmes, senior director of environmental policy for the Motor & Equipment Manufacturers Association, said. She added that California regulators have expressed an interest in exploring how to expand those credits.

It is unclear, however, whether California would publicly make a commitment to move away from the Obama-era levels.

"The politics of this are just awful," Matt Meenan, senior director of public affairs for the Aluminum Association, said at the event. California and the Trump administration have staked out opposite sides on climate change, and that makes it politically hard to compromise.

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Observers have long said -- based on the current rules' structure and prior statements by California's ARB Chair Nichols -- that any deal could be based on several elements that do not necessarily require modification of top-line GHG goals. Those elements include: more compliance flexibility mechanisms -- including retaining “multiplier credits” for electric vehicles and an assumption of zero upstream emissions for such cars; potentially delaying compliance deadlines; and coupling any timing delays with post-2025 standards.

Whether California's counteroffer contains some or all of provisions has not been made public.

30. GM To Slash Jobs And Production In U.S. And Canada; The End of the Chevy Volt

Amid global restructuring, General Motors announced Monday it would reduce its North American production and salaried and executive workforce. The Detroit-based automaker said it would not be allocating any production to Oshawa Assembly in Ontario, Lordstown Assembly in Ohio and

Detroit-Hamtramck Assembly in Michigan after December 2019. It will also stop allocating production at propulsion plants in White Marsh, Md., and Warren, Mich., after December 2019.

These changes are part of GM's efforts to focus its resources on self-driving and electric vehicles, as well as more efficient trucks, crossovers and SUVs, the company said in a statement.

The company also said it will cut 15 percent of its salaried workforce, laying off 25 percent of its executives to "streamline decision-making." GM also said it will close two plants outside North America by the end of 2019. Those locations have yet to be announced.

"The actions we are taking today continue our transformation to be highly agile, resilient and profitable, while giving us the flexibility to invest in the future," chief executive Mary Barra said in a statement. "We recognize the need to stay in front of changing market conditions and customer preferences to position our company for long-term success."

GM confirmed that it plans to cease production of the Chevrolet Volt in March. The Volt was the first production plug-in car sold in the U.S. when it went on sale in 2010 but has struggled with slow sales and high incentives recently as consumers have been inspired by pure electric models such as the Chevy Bolt EV and cars from Tesla.

Early next year, the Volt and Bolt EV are expected to face reduced federal tax credits as the automaker will reach its limit of 200,000 of the full \$7,500 credits. Most of those have gone to buyers of the Volt, and the lack of credits is expected to have a negative effect on sales.

The Volt has the longest electric range of any plug-in electric car sold in the U.S., EPA rated at 53 miles all-electric.

GM began production of the second-generation Volt in 2015, and the car was due for an update for 2020. A crossover/SUV based on the Volt's underpinnings had been expected to arrive by 2020, so it's unclear how it might affect that timeline or whether that vehicle remains on the product map.

The company also sold versions of the Volt in China, as the Buick Velite, and Europe as the Opel Ampera. The company sold its Opel operations to the French PSA Group (which makes Peugeot and Citroën brands) in 2017. It also announced it would end production of the plug-in hybrid version of the Cadillac CT6 outside China in March.

At the Beijing auto show in April, GM showed a crossover version of the Volt, called the Buick Velite 6, that it plans to sell in China. There is no word on whether that car may come to the U.S.

Based on other models slated to end production in GM's announcement, the company is targeting conventional sedans, which have been selling slowly in recent years. Ford announced in April that it would end all sedan production for 2019.

GM also announced that it would close its Baltimore, Maryland, factory that produces electric motors and other components for rear-wheel-drive electric cars.

31. CARB Adopts REAL To Track GHG And NOx Emissions In Use

The California Air Resources Board adopted a new emissions tracking program that will help regulators identify vehicles with excess smog-related and greenhouse gas emissions.

Real Emissions Assessment Logging (REAL) is part of the amendments to the OBD (On-board Diagnostic) Regulations approved by the Board at a recent hearing. OBD systems mainly consist of software designed into a vehicle's on-board computer to detect emission control system malfunctions as they occur by monitoring virtually every component that can cause increased emissions.

When the OBD system detects a malfunction, it alerts the driver by illuminating an indicator light on the instrument panel, and stores information that helps identify the faulty equipment, enabling technicians to fix the problem.

While the OBD system currently notifies drivers when emissions components are malfunctioning, the REAL program would require the OBD system to do more than that. It would require OBD systems to collect and store emissions data from NOx on medium- and heavy-duty diesel vehicles in-use starting in the 2022 model year. It would also require OBD systems to collect and store fuel consumption data that would be used to characterize CO2 emissions on all heavy-duty vehicles in-use.

Storage of similar data for greenhouse gas emissions is already required on light-duty and medium-duty vehicles starting in model year 2019. The REAL data will be retrieved from the vehicle by plugging a scan tool or data reader into the vehicle.

Currently, to get a snapshot of how vehicles are performing in terms of emissions, CARB either brings them to laboratories for testing or equips a handful of vehicles with Portable Emissions Measurement Systems (PEMS) equipment to find high emitters on the road.

REAL will provide the ability to monitor all vehicles for emissions performance and allow CARB to spot trouble faster. The REAL program is yet another way to utilize the OBD system and help ensure that engines and vehicles maintain low emissions throughout their full lives.

The REAL program will require no new technology since it will take advantage of existing sensors to track the necessary data. Older vehicles will not be part of the REAL program and will not require any new equipment.

CARB staff estimates the new OBD elements will add \$42 per engine, for an industry-wide cost of an additional \$21.2 million.

It is just a matter of time (perhaps up to 5-10 years in many cases) before these OBM (On-Board Measurement) systems are in all vehicles. NOx sensors are very common also on passenger cars nowadays.

32. Canada Could Be On An Emissions Collision Course With The U.S.

Canada could find itself drawn into the tussle over U.S. GHG emissions standards if a review of current regulation leads to their relaxation.

Canadian and U.S. emissions standards have been aligned since 2011, presenting a potential challenge if Washington decides to relax implementation and Ottawa doesn't follow suit. Canada also relies on the EPA's certification process rather than conducting its own tests except for auditing purposes. If standards diverge, would Canada conduct its own testing?

Further complicating things more than a dozen states led by California want to retain a federal waiver allowing them to set their own standards.

Before standards were harmonized, automakers faced extra costs producing and certifying different versions for California (and allied states) and the rest of the United States.

Canada has committed to reduce total greenhouse gas by 40 percent from 2005 levels by 2030. Transportation accounts for about 25 percent of Canadian greenhouse-gas emissions, according to Environment and Climate Change Canada. Light-duty vehicles, such as cars and pickups, emit an estimated 12 percent of the total.

In August, Canada launched its review into the country's joint vehicle-emissions standards with the United States. "This review will help us enact regulations that will protect the environment and grow the economy," Environment Minister Catherine McKenna said in a news release. Throughout the process, the government will "pay close attention" to what is being done in the United States, particularly the California standard.

Automakers support the reviews, but don't relish a return to checkerboard standards. "We're all concerned," said Mark Nantais, president of the Canadian Vehicle Manufacturers Association. He said the industry will push to preserve a single standard that includes Canada, he said. "That's what provides the most benefit to Canadians and provides the most environmental benefit," said Nantais.

The two countries seem headed in opposite directions, said Global Automakers of Canada President David Adams. "If things change in the states, then things will change here as well unless there's some proactivity by the government in Canada to do something different," Adams said.

"It's time for Canada to start drafting the divorce papers and establish our own, Canada-specific regulations to maintain the current schedule of emissions targets," an opinion piece published by the Pembina Institute argued following the EPA's announcement. "It's critical that we not lose any momentum on reducing transportation emissions," Lindsay Wiginton, managing director of transportation and urban solutions at the environmental think tank, said in an interview.

Canada should ally itself with California and the other dissident states, she said. Together they represent 40 percent of the North American car and light truck market. Wiginton noted studies show the cost of complying with the 2022-25 standard is likely to drop below original projections.

It's not clear how long the reviews will take, but product-development timelines suggest they need to wrap up by 2020

33. British Columbia Joins Governments Planning To Ban Gas And Diesel Cars

The Canadian province of British Columbia plans to ban sales of new gas and diesel cars by 2040, phasing in targets for electric car sales starting in 2025.

The province would join nine countries and more than a dozen cities around the world in setting a deadline to end internal-combustion sales in coming decades, including Britain, France, Norway, Israel, and China, along with California, Madrid, Athens, Mexico City, and others.

Most of the deadlines range from 2025 for some cities to 2040 for larger countries. China has still not set a date but has announced that it plans to do so.

Premier John Horgan said BC will phase in sales targets starting with 10 percent in 2025, 30 percent by 2030 and 100 percent by 2040, according to a Reuters report. The bans apply to new-car sales, not to used-car sales or vehicles already out in use.

To provide a carrot to consumers alongside the stick of a ban, the BC government plans to invest more money in expanding the province's fast charging network and continue to offer incentives to electric car buyers. The province has invested more than \$3 million in building electric car fast chargers.

British Columbia offers up to \$5,000 toward the purchase of an electric car, depending on the battery size, and up to \$6,000 for a fuel-cell model. Earlier, in 2014, the province allowed electric-car purchase subsidies to expire and saw sales drop by about half, depending on the model, only to rise again a year later after subsidies were reinstated.

Since incentives have expired in Ontario, BC has become the top market for electric cars in Canada.

34. Federal Judge Halts Keystone XL Construction For Further NEPA Review

A federal district court judge in Montana vacated a Mar. 23, 2017, US Department of State Record of Decision authorizing construction of the Keystone XL crude oil pipeline and ordered further environmental reviews of the project.

Judge Brian Morris's Nov. 8 ruling enjoined TransCanada Corp., the project's sponsor, and federal defendants in a lawsuit brought by two environmental organizations "from engaging in any activity in furtherance of the construction or operation of Keystone" until DOS completes a supplement to the 2014 final supplemental environmental impact statement that complies with National Environmental Policy Act and Administrative Procedures Act requirements.

Morris partly granted and partly denied plaintiffs' motions and cross-motions for summary judgment in his order.

Zachary Rogers, a refining and oil markets research analyst at Wood Mackenzie in Houston, said that while Morris' decision was a setback in timing for the proposed 1,184-mile pipeline, it's not likely to be the final nail in the project's coffin.

"This is the world's longest tug of war, with Western Canadian oil prices as the rope," Rogers said. "Exact legal recourse options are unclear, but the most likely result is either an escalation through the courts or an additional [DOS] review and President [Donald Trump] reapproving the line."

Rogers added, "In the meantime, this is a negative for future market access for Canadian oil sands producers, who are currently experiencing the painful consequences of lagging midstream development."

If built, the 36-in. Keystone XL line would transport crude from Hardisty, Alta., to Steele City, Neb., to expand the capacity of TransCanada's larger Keystone system.

35. Mexico Unlikely to Meet Diesel Fuel Sulfur Limits

Mexico's fuel laws require it to fully transition to ultra-low sulfur diesel by the end of 2018, but the country is expected to fall short.

Mexico currently has two different sulfur content rules for automotive diesel fuels: In large cities, along the Mexico-U.S. border, and in certain highway corridors it restricts sulfur content to 15 parts per million in diesel fuel. In the rest of the country, the standard is 500 parts per million of sulfur content. But that distinction ends after December 31, when the entire country is supposed to have completed the transition to the 15 parts per million limit.

"Clearly that is not going to happen," Kent Williamson, director of Latin American refining and marketing for IHS, an international energy consulting firm, told reporters. "We don't know if they are just going to leave it on the books and fudge it or move it back to sometime in the future."

Sulfur from burning diesel fuel contributes to air pollutants that can cause heart and lung disease and a range of other health effects. It can also damage plants, animals, crops, and water resources, according to the U.S. Environmental Protection Agency. Higher sulfur levels can also impair the performance of advanced pollution control equipment.

For years, Mexico has not met its own fuel-emission standards designed to improve air quality, because its own refineries were not capable of producing enough of the needed ultra-low sulfur diesel. Recent changes liberalizing Mexico's fuel market started allowing imports in 2017, which now account for most of what is available in the market.

Mexico currently produces about 150,000 barrels per day of high-sulfur diesel, down from its peak production of 250,000 barrels per day in 2013. It also produces about 50,000 barrels per day of ultra-low sulfur diesel (maximum of 15 PPM sulfur), a rate of production that has remained constant during the past five years.

The gap between the country's demand of 400,000 barrels per day and production is being met with imports, which now make up 73 percent of the country's ultra-low sulfur diesel, up from 37 percent in 2013.

The price for these imports is climbing, following U.S. ultra-low sulfur diesel prices, which rose to \$3.40 per gallon in the U.S. in November 2018, up from \$2 at the beginning of 2016.

One of the big problems for Mexico in producing its own ultra-low sulfur diesel is that the type of oil produced domestically—Mayan crude—is a heavy oil, meaning it has high-sulfur content. The country's refineries were designed to process oil with a much lower sulfur content, known as light crude, and do not have the needed systems to turn the heavier crude into ultra-low sulfur diesel to keep up with demand.

Under President Enrique Peña Nieto, Mexico's oil and gas company, Petroleos Mexicanos, had a strategy to increase ultra-low sulfur diesel production through \$2.8 billion in upgrades to meet the fuel standard requirements.

It was at one point moving forward on it, with commitments such as the 2015 \$552 million dollar contract at the Salamanca refinery in Guanajuato to expand its diesel hydrogen treating systems. But when the price of oil fell in mid-2014 to 2015 from \$100 per barrel to less than \$40, Mexico's budget contracted and upgrades needed to produce ultra-low sulfur diesel were abandoned.

New international maritime rules that will go into effect in a little over a year will further tighten the ultra-low sulfur diesel market.

While incoming president Andres Manuel Lopez Obrador—who takes office December 1—has promised that Mexico will start producing more of its own fuel, doing so with its own Mayan crude would only push the country further away from meeting its fuel regulations and air pollution laws.

It will become less and less economic: The new maritime rules also will reduce demand for the dirtier diesel that Mexico's refineries make, making them less profitable.

ASIA PACIFIC REGION

36. China To Set Up Recall System For Polluting Cars

China's market regulator will set up a system to recall vehicles that violate the country's pollution and emissions standards, it said recently, with cars now the biggest source of smog in major cities. China's air quality is going to come under even further pressure, with another 100 million vehicles set to ply its roads in the coming five years, the State Administration for Market Regulation said in comments posted on its website.

The nation's newly revised air pollution law includes provisions to recall vehicles that fail to meet state emissions standards, it said, and it has already studied similar product recall systems in the United States, Europe and Japan.

The regulator is currently studying key issues like the identification of equipment defects and the quality of key components used in reducing engine emissions, but it will work with the environment ministry to draw up new legislation and aims to implement the new system as soon as possible.

Though China has been cracking down on factory emissions and curbing the consumption of coal, vehicle pollution remains a growing problem in many major cities.

China's total vehicle fleet reached 310 million last year, and these vehicles were responsible for about 45 percent of particulate air pollution in the capital, Beijing, and nearly 30 percent in Shanghai, according to figures from the Ministry of Ecology and Environment earlier this year.

China eliminated more than 20 million old and substandard vehicles from its roads last year to cut pollution, and it has also banned the sale of low-grade, high-emissions diesel fuel. Its "China VI" fuel standards, which are tougher than those used in the European Union, have already been introduced in the Beijing-Tianjin-Hebei region - known for its heavy smog - and will be made mandatory nationwide at the beginning of next year.

Top refiner Sinopec is upgrading its refineries to produce fuel to comply with the new standards.

But enforcing the standards has been a challenge, with fraudulent practices believed to be widespread. Some garages have been found selling equipment to cheat fuel quality detectors, and the environment ministry said in July it had shut as many as 639 substandard vehicle testing stations last year.

The ministry also fined two truck makers late last year for manufacturing and selling vehicles that failed to meet environmental standards.

37. North China Regions Fight Air Pollution

Several northern Chinese regions have stepped up the fight against air pollution, with measures including closing polluting firms and coal boilers and limiting car use. Authorities in Ningxia Hui Autonomous Region have unveiled a clean air action plan (2018-2020), seeking to shut down, relocate or renovate over 1,900 polluting firms in the next three years. Of all, 1,089 firms should be shut down or relocated and 816 should suspend operations to improve pollutant treatment facilities, according to the plan.

The move aims to cut outdated and excess industrial capacity to reduce energy consumption and pollutant emissions as the region is seeking quality growth, said Zhao Xuhui, director of the regional department of industry and information technology.

To improve air quality, authorities in the coal-rich Shanxi Province ordered to shut down low-efficient coal boilers and others that do not have sufficient pollutant treatment facilities by the end of the year.

In Zhengzhou, capital of Henan Province, the city government has ordered about half of the vehicles off roads in its urban areas from Wednesday to the end of the year.

Vehicles with odd-numbered license plates will be allowed to drive around on odd-numbered days and those with even-numbered plates will drive on even-numbered days, the city government said. The ban does not apply to military and police cars, fire engines, ambulances, taxis, school buses and new energy vehicles, it said.

Vehicle emissions contribute to 25.5 percent of the PM2.5 concentration in Zhengzhou. By the end of 2017, the city had 3.78 million vehicles, ranking the seventh among cities nationwide.

38. Surprise Checks Target Air Pollution Sources

China's environmental protection chief carried out surprise inspections in an emergency response as the greater Beijing area was enveloped by a heavy haze combined with dense fog. Li Ganjie, minister of ecology and environment, visited Baoding, Hebei province, and checked at least two enterprises, including a cement factory, until almost midnight.

Under an emergency response system for heavy air pollution, enterprises are subject to compulsory responses that may include restriction or suspension of production for smokestack industries, depending on the alert level.

Li said air pollution control work "faces a grim situation" at present, given the unfavorable conditions for air pollutant dispersal.

Warning of the increase of pollutants as burning fuel for heating starts in northern China, Li asked inspection officers to bear hardships and fatigue to ensure fully implemented emergency responses, according to his ministry's release. "All environmental law enforcement officers should stay at their posts and carry out inspections around the clock to root out any neglected zones for supervision," he said.

Li made the surprise visits as the Beijing-Tianjin-Hebei city cluster was engulfed by heavy smog that triggered a yellow alert in Beijing and Tianjin, the first one this season in the two municipalities, and an orange alert in Hebei province. Under a four-tier warning system, the blue

alert is the least severe, followed by yellow, orange and red, though there is no blue alert in the capital.

The smog started to accumulate in the Beijing-Tianjin-Hebei cluster due to high humidity, calm winds and a temperature inversion, which impedes normal circulation of the air. The pollution is expected to clear thanks to the arrival of cold air.

Liu Fang, who works for an engineering company in Beijing's Xicheng district, said she felt that air quality this season has been better than the last one. The improvement, however, is far below her expectations.

The National Meteorological Center renewed its yellow alert for fog when dense fog enveloped the cluster, reducing visibility to less than 50 meters in some areas. The weak winds from the south not only transport pollutants but also carry a large amount of moisture from the ocean to the cluster, resulting in fog, said Zhang Xiaoye, a researcher with the Chinese Academy of Meteorological Sciences.

Zhang Bihui, a senior meteorologist with the China Meteorological Administration, said that after absorbing moisture, particles in the haze grow into droplets, which reduces the penetration of sunlight and reduces visibility.

Wang Zifa, a researcher with Institute of Atmospheric Physics, Chinese Academy of Sciences, said the high humidity makes gaseous pollutants prone to help create more particulate matter, worsening the pollution.

39. Volkswagen Says It Is Compliant With Indian Emissions Standard

The Volkswagen Group in India has officially responded to the National Green Tribunal (NGT) Green Court's ruling with regards to the Dieselgate emissions scandal. The German automaker has been asked to deposit an amount of Rs 100 crore with the Central Pollution Control Board (CPCB) with regards to the use of cheat devices that allowed vehicles to pass emissions tests. Responding to the ruling, a Volkswagen Group spokesperson said, "The Volkswagen Group is compliant with emission norms defined in India. The Group is yet to receive a copy of the order from the NGT. The Volkswagen Group in India will review the order and subsequently challenge the same."

The Volkswagen Group will challenge the order by the NGT as according to an Automotive Research Association of India (ARAI) Report dated October 30, 2015, Volkswagen in India met all emissions regulations set by the Indian Government and its regulatory bodies. Incidentally, the NGT has also asked the ARAI, CPCB and the Ministry of Heavy Industries to form a committee to validate the charge and to calculate the actual quantum of environmental loss.

If Volkswagen India is found to meet emissions standards, since India only has bench testing of vehicles and not actual on-road usage testing for new cars, the German automaker will get the deposited money back. The NGT or the green court has directed the Volkswagen Group to deposit the money within a month of the order being directed.

The Volkswagen Group across the world has been directed to pay billions of dollars in damages to owners of certain Volkswagen, Audi and even Porsche diesel cars that did not meet the emissions regulations set by the respective regulatory bodies of the areas they were sold in. In India, the pleas were filed by a school teacher Saloni Ailawadi and a few others seeking a ban on

sale of Volkswagen vehicles for alleged violation of emission norms. Both the automaker and the complainant have been asked to appear before the NGT panel with their respective contentions.

40. Delhi Pollution: Vehicles, Not Stubble Burning, Main Cause, Says Teri Study

Starting at the end of October, or the beginning of November smog usually covers the entire region. A study, conducted by The Energy and Resources Institute (Teri), throws some light on the reasons behind the pollution in Delhi.

According to Teri's Dr. Sumit Sharma, who works on environment and pollution issues, 36 per cent of the pollution has its source in Delhi itself, 34 per cent in National Capital Region while 30 per cent comes from across international borders.

Teri's study shows that vehicle pollution is the cause of 28 per cent of PM2.5 emissions. Vehicular pollution can be broken up into: trucks and tractors generate 9 per cent, 7 per cent from two-wheelers, 5 per cent from three-wheelers, 3 per cent each from cars and buses, and 1 per cent from light commercial vehicles.

The report says that implementing the BSVI norms by 2020 would be a big step in dealing with pollution. As would be the phasing out of old cars.

The Teri report says dust pollution contributes close to 18 per cent of PM2.5 levels. Dust rising from roads contribute 3 per cent, construction dust 1 per cent and 13 per cent are other reasons.

Industries contribute 30 per cent to PM2.5 levels -- power plants generate 6 per cent, brick kilns 8 per cent, stone crushers 2 per cent and 14 per cent from small industries. While, Delhi's residential areas contribute 10 per cent to the pollution.

Stubble burning by farmers in Haryana, Punjab and western Uttar Pradesh, which has been receiving all the limelight in the debate on pollution, contributes only 4 per cent to pollution levels during the winter season.

According to Dr. Sharma, stubble burning is episodic. It only takes place for 15-20 days. However, pollution levels spike during stubble burning. During the days when agricultural stubble is burnt, it is the cause of 30 per cent of Delhi's pollution.

When it comes to PM10 levels industries are the biggest culprits. Twenty-seven per cent of the pollution comes from industries, 25 per cent is related to dust, vehicular pollution 24 per cent, households contribute 9 per cent and stubble burning 4 per cent.

Apart from Delhi, Teri also carried out research on the cause of pollution in cities neighboring Delhi. The report says that 40 per cent of the pollution in Noida is because of Delhi, industries are the biggest polluter in Ghaziabad, vehicular pollution is the main cause in Gurgaon while stubble burning is the primary source of pollution in Panipat.

Teri conducted the study during the winter months in 2016 and the report was released in August this year. The report suggests that rather than external problems, Delhi needs to find solutions to deal with pollution of its own.

41. SC-Appointed Pollution Watchdog Wants Diesel Taxis Taken Off Delhi Roads

The Supreme Court- appointed pollution watchdog came down heavily on diesel cabs operating illegally in the national capital and asked the Delhi government to submit a fuel-wise categorization of cars registered with them. Diesel emissions are a major contributor to concentration of particulate matter (PM) 2.5, the most prominent pollutant in Delhi-NCR.

The Environment Pollution (Prevention and Control) Authority (EPCA) also asked the online taxi aggregators to rapidly submit a list of diesel cabs they have engaged in the city. The SC-panel said it will also write to the National Association of Software and Services Companies (NASSCOM), asking it to ensure all call centers and private firms do not use diesel cabs to ferry their staff.

The move has come in a bid to implement the apex court's May 2016 order that allowed diesel cabs running on all India tourist permit (AITPs) to operate in the national capital region (NCR) only till the expiry of their permits. The SC order banned new registration of such taxis that provide pick-up and drop facilities in the capital. It directed authorities to register only those new city taxis that operate on petrol or CNG.

The court had said new AITP permits will be registered as "AITP-N" and will not be allowed to provide point-to-point services in the NCR. Existing AITPs will be called "AITP-O" for point-to-point services, such as the cabs used by BPO firms.

"No diesel taxis running on AITP will be allowed to have alighting or boarding points (point-to-point) services within Delhi-NCR. In case such taxis are still found plying, enforcement agencies must cancel their licenses on the spot," said EPCA chairperson Bhure Lal.

The court order applies to the NCR region including the satellite towns of Noida, Ghaziabad, Gurugram and Faridabad.

However, even as the panel said that it is informed that 70,000 such diesel taxis are still plying in NCR, taxi aggregators told the EPCA that most of their fleets have converted to CNG.

"The number of AITP-O cabs has fairly reduced since the SC order, it is the new diesel taxis that need to be monitored strictly from offering point-to-point services, which is a major cause of vehicular emissions," said Sunita Narain, EPCA member.

Meanwhile, tourist-taxi associations said that the ban on diesel must be extended to private vehicles as well. "There are only 15,000 - 20,000 diesel taxis in the city while around 30 lakh² private diesel-run vehicles ply in the city. They must ban the supply of diesel altogether rather than just hitting one section of society," said Sanjay Samrat, president, Delhi Taxi-Tourist Transporters Association.

42. Future Of Electric Vehicles In India Seen To Be Two-Wheelers And Public Transport

Transportation accounts for about 11 per cent of India's carbon emissions and is a major source of air pollution in several cities nationwide. As many as 14 of the world's top 20 most-polluted cities are in India, according to a 2018 World Health Organization (WHO) report.

² 100,000

During winters, the condition only worsens. According to an IIT-Kanpur study, done for 2013-14, vehicles are the second largest and the "most consistent" contributing source of pollutants PM10 and PM2.5 during winters.

In terms of percentage, vehicular pollution contributes about 20-25 per cent of overall air pollution during winters in Delhi. Action needs to be taken to minimize the use of private vehicles, which contribute nearly 40 per cent to air pollution in Delhi, a green body said on November 5, 2018, as the air quality of the national capital nosedived to severe category.

According to a survey done by IndiaSpend, about 87 per cent of Indian drivers and vehicle owners would buy an electric vehicle (EV), if that helped reduce air pollution.

In 2017, India sold about 900,000 EVs, 4 per cent of the volume of diesel and petrol vehicles sold. The government of India had a plan of converting the entire fleet of vehicles to fully electric by 2030 but that appears to have been scrapped.

Prime Minister Narendra Modi was expected to launch a policy on 'Faster Adoption and Manufacturing of Hybrid and Electric vehicles' (FAME-II), a much-anticipated policy for the Indian EV industry, the first phase of which (FAME-I) was released in 2015. The launch, however, was postponed to rework the policy after the prime minister "indicated" a major change in the thrust of the policy, which will focus on reducing the price of batteries in vehicles, deviating from its earlier focus on reducing the price of the entire vehicle by providing subsidies.

EV manufacturers and sellers were waiting for a single policy that laid out a roadmap for creating an EV ecosystem, including charging stations and manufacturing and buying incentives.

With the world quickly adapting to electric vehicles, automotive manufacturers devoting a large chunk of their resources towards R&D of EVs, it would not be wrong to say that internal combustion vehicles could be outdated in the near future.

Vehicular pollution is considered to be a major source of air pollution in Delhi. However, a decrease has been witnessed in recent years with the implementation of several control measures. Delhi's registered vehicular population has increased to 7.6 million from 2.2 million in 1994, registering a growth rate of 14 per cent per annum. About two-thirds of the motor vehicles are two-wheelers, states the Delhi government website.

If India manages to transform its entire fleet to fully electric vehicles, it would be one of the largest markets for EVs in the world. In the grand scheme of events, India needs to involve private players and also needs to develop a suitable charging infrastructure.

However, the economic aspect can make things difficult for the electric vehicle industry to bloom in India. Going by the average cost of a car, people in the US and UK spend around \$35,000 on a new one. The number is \$15,000 for China, whereas, people in India spend less than \$10,000 on a car on an average. So, people would likely opt to buy an electric vehicle only when the prices fall in that range.

Therefore, India needs to implement significant subsidy schemes and put up mandates which will encourage car buyers to pick an electric vehicle instead of internal combustion, which would come in the form of 'Faster Adoption and Manufacturing of Hybrid and Electric vehicles' (FAME-II).

But there is a catch. India sold about 25 million internal combustion engines in 2017. Of these, more than 80 per cent (about 20 million) were two-wheelers. The two-wheeler segment is expected to lead the EV market in India, not cars or buses.

A report by Bloomberg New Energy Finance (BNEF) says that India will have better progress on electric two-wheelers, rickshaws and electric buses over the next 10 years. The report indicates that by 2040, EVs will constitute only 40 per cent of the total passenger vehicle fleet in India

The BNEF study says that the annual sales of EVs will reach 30,000 units in 2022 as opposed to 2,000 units in 2017. And if the sale of EVs grows as the study has predicted, they will constitute about 6.6 per cent of annual vehicle sales by 2030 and go up to 27 per cent by 2040. Also, by 2040, about 13 per cent of the passenger vehicles plying on Indian roads will be electric by 2040

Back in September 2018, Niti Ayog³ CEO Amitabh Kant pointed out that two-wheelers account for 76 per cent of vehicles in the country and they consume 64 per cent of the fuel sold in India. He also indicated that the government will be more comfortable to offer incentives for two-wheelers, apart from three-wheelers and public transport.

The power ministry would soon bring an electric vehicle (EV) charging infrastructure policy, which will also allow individuals to set up charging station for commercial use to boost e-mobility, said Power and New & Renewable Energy Minister R K Singh recently. "We have circulated the EV Charging Policy for comments (among other department/ministries). The second line of the policy says that everybody is free to set up an EV charging station," Singh told reporters at International Symposium to Promote Innovation & Research in Energy Efficiency (Inspire).

When asked whether individuals would be able to use the facility on a commercial basis, he replied, "Absolutely. You don't need a license".

Singh also informed that his ministry is working to coordinate with oil ministry to set up EV charging stations at petrol pumps.

The EV charging infrastructure is required to boost EVs in the country. India intends to have a sizeable share of EVs in the vehicle strength by 2030, which is in line with its commitment to reduce emission intensity by one third from the level of 2005.

SOUTH AMERICA

43. Brazil Reneges On Hosting UN Climate Talks Under Bolsonaro Presidency

Brazil has abandoned plans to host crucial UN climate talks in 2019 amid growing signs of the anti-internationalism of the new government being formed by president-elect Jair Bolsonaro. The foreign ministry announced the reversal in a message to Patricia Espinosa, executive secretary of the UN Convention on Climate Change, according to the O Globo news website. Two months after winning the bid to host the COP25 conference in 2019, the note said Brazil would withdraw its offer to stage the event due to the transition in government and budget restrictions, the paper said.

The decision is a blow to global efforts to prevent dangerous levels of global warming. Brazil, which is home to the world's biggest rainforest, the Amazon, has been an important player in

³ National Institution for Transforming India

international climate talks. Its sudden weakening of support comes just days before the opening of this year's climate talks in Katowice, Poland.

The Climate Observatory NGO said Brazil had abdicated its role in one of the areas where it was most needed by the world and its own people. "By ignoring the climate agenda, the federal government also fails to protect the population, hit by a growing number of extreme weather events. These, unfortunately, do not cease to occur just because some doubt their causes," the group said in a statement.

"It is not the first and certainly will not be the last bad news of Jair Bolsonaro for that area."

The broken promise is in line with the anti-globalist rhetoric of the far-right former army captain, who was elected president in October and will take power in January. He threatened to quit the Paris climate agreement, then subsequently backtracked, but has made no secret of his desire to open up the Amazon to mining, farming and dam building.

He has also aligned himself closely to Donald Trump. Earlier this month he chose a new foreign minister who claims, "climate alarmism" is part of a cultural Marxist plot and who said the United Nations has no language for "love, faith and patriotism".

The shift has been abrupt. Just two months ago – shortly before the election – the foreign ministry said Brazil's offer to host the COP25 talks "confirms the country's leadership role in sustainable development issues" and "reflects the consensus of Brazilian society on the importance and the urgency of actions that contribute to the fight against climate change", according to the O Globo news website.

AFRICA

44. Rwanda Turns To E-Bikes To Reduce Air Pollution

As part of efforts to shift towards low-carbon mobility, the Global Green Growth Institute (GGGI) has backed the availability of e-Bicycles during the Africa Green Growth Summit as an alternative to motorized transport, Sunday Times has learned.

Rwanda will host the first ever Africa Green Growth Forum, bringing together more than 1,000 investors, policy makers and financial specialists from across the continent to examine the opportunities that come with green growth as well as some of the challenges impeding its uptake across the continent.

The weeklong forum takes place from 26 to 30 November 2018 at the Kigali Convention Centre and at sites around the country. Themed 'For A Green and Climate Resilient Africa', the forum will shine a light on the importance of sustainable economic transformation and signal green growth as a priority for Africa.

The Forum will encourage private sector investment in green growth, improve the understanding and use of finance as a tool for climate resilience, build partnerships between stakeholders working in Africa's green growth sector and provide a platform for partners to engage and build relationships that accelerate the green growth agenda.

In bid to push for green growth, healthy living and climate resilient development around the continent, "delegates will have the opportunity to test ride new e-bicycles that have recently

become available in Kigali since October 2018. “The bicycles will be available for test rides during the forum,” the summit program reads in part.

Michelle DeFreese, Project Manager at GGGI Rwanda told reporters that the project started in January 2018 and looks at ways to incorporate low-carbon, sustainable mobility options into the transport sector. “In this case, we specifically assessed the option of having public bicycle sharing in Musanze and Rubavu. For 2019, we hope to do similar work in Kigali,” DeFreese said.

She noted that about 30 bicycles will be available for each day of the forum and at least six of those will be electric. “It’s a small number. But we’re hoping we can test the idea this year and perhaps expand the concept at the next forum. We are also organizing two tours on the final day of the forum so that delegates can have the option of taking guided bicycle tour of areas inside and outside the City of Kigali,” DeFreese added.

“E-bicycles are part of the green mobility services that will help a country like Rwanda with some steep road network that affects non-electric bicycle riders having easy access.”

Defreese added that as e-motorcycles and e-cars all set to be available in Rwanda in 2019, “It’s definitely exciting to see how this will change the transport sector and address the issue of rising air pollution in urban centers in Rwanda. In addition, the prospect of introducing e-bicycles in Kigali makes cycling as a regular mode of transport more feasible for casual cyclists given the topography of the city,” She noted.

As Rwanda’s hospitality sector continues to shoot higher each year, given the number of meetings and conferences held in the country, Defreese believes it is high time local authorities raised awareness about transport options during such conferences. In so doing, e-mobility solutions such as e-bicycles would greatly contribute to minimizing carbon footprint in Kigali.

GENERAL

45. 2018 Emissions Gap Report Report Highlights “Historic” Emissions Levels

Global emissions are on the rise as national commitments to combat climate change come up short. But surging momentum from the private sector and untapped potential from innovation and green-financing offer pathways to bridge the emissions gap. Those findings along with a sweeping review of climate action and the latest measurements of global emissions were presented by authors of the 2018 Emissions Gap Report during a launch event here.

The flagship report from UN Environment annually presents a definitive assessment of the so-called 'emissions gap' – the gap between anticipated emission levels in 2030, compared to levels consistent with a 2°C / 1.5°C target.

The findings offer the latest accounting of national mitigation efforts and the ambitions countries have presented in their Nationally Determined Contributions, which form the foundation of the Paris Agreement.

Evidence outlined here, just days before the start of the 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) show global emissions have reached historic levels at 53.5 GtCO₂e, with no signs of peaking – the point when emissions switch from increasing to decreasing. Authors assessed that only 57 countries (representing 60 percent of global emissions) are on track to do so by 2030.

That analysis and a review of progress against national commitments under the Paris Agreement makes clear that the current pace of national action is insufficient to meet the Paris targets. Increased emissions and lagging action mean the gap number in this year's report is larger than ever. Translated into climate action, the authors conclude nations must raise their ambition by 3x to meet the 2°C and 5x to meet 1.5°C.

"If the IPCC report represented a global fire alarm, this report is the arson investigation," said UN Environment Deputy Executive Director Joyce Msuya. "The science is clear; for all the ambitious climate action we've seen – governments need to move faster and with greater urgency. We're feeding this fire while the means to extinguish it are within reach."

A continuation of current trends will likely result in global warming of around 3°C by the end of the century, with continued temperature rises after that, according to the report findings.

While the authors highlight that there is still a possibility for bridging the emissions gap and keeping global warming below 2°C, the assessment issues a clear warning: The kind of drastic, large-scale action we urgently need has yet to be seen.

To fill this void, the 2018 Emissions Gap Report offers new insight into what meaningful climate action will look like. Through new analysis of global emissions in the context of fiscal policy, the current pace of innovation and an exhaustive review of climate action from the private sector and sub-national level, authors gathered here offered a roadmap for implementing the type of transformative action required to maximize potential in each of these sectors.

Ranging from city, state and regional governments to companies, investors, higher education institutions and civil society organizations, non-state actors are increasingly committing to bold climate action. These institutions are increasingly recognized as a key element in achieving the global emissions goals. Although estimates on the emission reduction potential vary widely, some mention 19 gigatons of carbon dioxide equivalent (GtCO₂e) by 2030. This is enough to close the 2°C gap.

Complimented by carefully designed fiscal policy, the potential is even greater. "When governments embrace fiscal policy measures to subsidize low-emission alternatives and tax fossil fuels, they can stimulate the right investments in the energy sector and significantly reduce carbon emissions." said Jian Liu, UN Environment's Chief Scientist. "Thankfully, the potential of using fiscal policy as an incentive is increasingly recognized, with 51 carbon pricing initiatives now in place or scheduled, covering roughly 15 percent of global emissions. If all fossil fuel subsidies were phased out, global carbon emissions could be reduced by up to 10 percent by 2030. Setting the right carbon price is also essential. At US \$70 per ton of CO₂, emission reductions of up to 40 percent are possible in some countries."

These established pathways are further enhanced when policy makers embrace innovative solutions. Authors here outlined five key principles that should be considered to accelerate low-carbon innovation. Including risk-acceptance commercial scalability, holistic economic alignment, mission-oriented approaches and a long term-horizon to increase financial uptake.

The ninth Emissions Gap Report has been prepared by an international team of leading scientists, assessing all available information, including that published in the context of the IPCC Special Report, as well as in other recent scientific studies.

46. IEA: WEO 2018 Finds That Energy Destiny Lies With Government

Major transformations are under way for the global energy business and with more than 70% of energy investments projected to be driven by government, the world's energy destiny lies with government decisions, according to the International Energy Agency's World Energy Outlook 2018.

Geopolitical factors are exerting new and complex influences on energy markets, IEA said. While the geography of energy consumption continues its historic shift to Asia, WEO 2018 finds mixed signals on the pace and direction of change. Oil markets are entering a period of renewed uncertainty and volatility, including a possible supply gap in the early 2020s. Demand for natural gas is on the rise, erasing talk of a glut as China emerges as a giant consumer. Solar PV is charging ahead, but other low-carbon technologies and especially efficiency policies still require a big push, IEA said.

Under current and planned policies, modeled in the New Policies Scenario, energy demand is set to increase by more than 25% to 2040, requiring more than \$2 trillion/year of investment in new energy supply.

"Crafting the right policies and proper incentives will be critical to meeting our common goals of securing energy supplies, reducing carbon emissions, improving air quality in urban centers, and expanding basic access to energy in Africa and elsewhere," said IEA Executive Director Fatih Birol.

The analysis shows oil consumption rising in the coming decades, due to rising petrochemicals, trucking, and aviation demand, but meeting the growth means that approvals of conventional oil projects need to double from current levels. Without the investment, US shale production would have to add more than 10 million b/d from today to 2025, the equivalent of adding another Russia to global supply in 7 years, IEA said.

With falling costs and supportive government policies, renewables have become the technology of choice in the power markets, comprising almost two thirds of global capacity additions to 2040. The share of renewables in generation is rising to more than 40% by 2040 from 25% today even though coal remains the largest source and gas remains the second-largest.

This expansion brings environmental benefits but also new challenges for policymakers. The issue is of growing urgency as countries are ramping up their share of solar PV and wind, and will require market reforms, grid investments, as well as improving demand-response technologies, such as smart meters and battery storage technologies.

As part of research into the electricity sector, WEO 2018 examined the impact of higher electrification in transportation, buildings, and industry, finding that higher electrification would lead to a peak in oil demand by 2030, and reduce harmful local air pollutant, but it would have a negligible impact on carbon emissions without stronger efforts to increase the share of renewables and low-carbon sources of power.

In the IEA's Sustainable Development Scenario, global energy-related carbon dioxide emissions peak around 2020 and then enter a steep and sustained decline, fully in line with the trajectory required to achieve the objectives of the Paris Agreement on Climate Change.

But most emissions linked to energy infrastructure are essentially locked in. Coal-fired power plants, which account for a third of energy-related CO₂ emissions today, represent more than a third of cumulative locked-in emissions to 2040. The majority of these are related to projects in Asia, where average coal plants are 11 years old, on average, compared with those in the US and Europe, which are 40 years old, on average.

“We have reviewed all current and under-construction energy infrastructure around the world—such as power plants, refineries, cars and trucks, industrial boilers, and home heaters—and find they will account for some 95% of all emissions permitted under international climate targets in coming decades,” Birol said.

If the world is serious about meeting its climate targets, Birol said, there needs to be a systematic preference for investment in sustainable energy technologies starting today. We also need to be “much smarter about the way that we use our existing energy system,” he said. “We can create some room for maneuver by expanding the use of carbon capture utilization and storage, hydrogen, improving energy efficiency, and in some cases, retiring capital stock early. To be successful, this will need an unprecedented global political and economic effort.”

47. Electric Car Revolution Could Stall on Cobalt Shortage

BMW Group, General Motors Co., Nissan Motor Co., Ltd., and other car companies could hit a roadblock in their efforts to put more electric vehicles on the market: a cobalt shortage. The silvery metal, a byproduct of copper mining, is in high demand as a component of lithium-ion batteries used in electric vehicles. But there might not be enough cobalt to go around, forcing car companies to look for alternatives, potentially delaying the transition to electric motoring.

Even in a scenario in which battery technology is improved to minimize the need for cobalt, the metal will be in short supply from 2025 on, according to projections published this month by the Joint Research Centre, the in-house science service of the European Commission, the European Union’s executive arm.

This could be a problem, particularly in the European Union, where governments have started to set electric vehicle targets as part of their efforts to reduce greenhouse gas emissions and combat climate change.

Denmark, for example, seeks to ban the sale of fossil-fueled cars after 2030, while the U.K. has said it will only permit vehicles with zero emissions starting in 2040. The EU as a whole is moving ahead with various measures to cut carbon dioxide emissions from cars, trucks, and buses, which in effect translates to electric vehicles.

For now, car companies are aware of the issue but aren’t too concerned that a cobalt supply crunch will have an immediate impact on their plans.

BMW, which makes the i3 electric car, is “currently in negotiations with several cobalt suppliers in order to buy cobalt directly from mines,” and so far, “does not see the risk of a bottleneck in its cobalt supply chain,” spokesman Kai Zoebelin told reporters.

GM has plans for 20 all-electric models by 2023 and is confident it can deliver “based on future forecasting discussions with our suppliers,” according to Katie Minter, spokeswoman for GM division Chevrolet.

But current estimates of the speed at which electric vehicles will take to the roads could be too cautious, meaning any shortage in cobalt supply could become a problem sooner than expected, Bo Normark, leader of smart grids and energy storage for InnoEnergy SE, stated. InnoEnergy is a company set up with EU backing to invest in sustainable energy projects.

“We are approaching a time when electric cars become very competitive,” especially in the EU, which has higher gasoline prices than the U.S., Normark said. This could mean “volume expansion is underestimated,” and the potential shortage of cobalt could start to bite in the early 2020s, he said.

According to the EU Joint Research Centre report, the number of electric cars worldwide will jump from 3.2 million in 2017 to 130 million in 2030. To put that in context, there were some 1.8 billion registered vehicles in the world in 2013, according to World Health Organization data.

Mining companies that produce cobalt, most of which—about 63 percent—comes from the Democratic Republic of Congo and comes with its own environmental and human rights concerns, are feeling the effects of the electric car rollout.

The price of the commodity jumped sharply in 2017 and early 2018 and remains more than double its price at the end of 2016. Bloomberg NEF estimates that by 2030, global demand for cobalt could be 47 times more than it was last year.

“There’s a paradigm shift in the market” in connection with technology-related applications for cobalt, which was seen as a “very specialized and perhaps curiosity metal for quite some years,” according to David Weight, president of the Cobalt Institute. The institute represents cobalt producers and users including Freeport Cobalt and Glencore International AG.

According to Cobalt Institute data, the world refined cobalt supply in 2017 was 116,937 metric tons. About half of the world’s cobalt is refined in China, Weight said.

Glencore’s 2017 annual report said an additional 314,000 tons of cobalt will need to be found by 2030. The company plans to increase its cobalt production by 133 percent in three years, according to the report.

To tackle the potential cobalt shortage, car companies and their battery suppliers could reduce the amount of the metal they use, eliminate cobalt from batteries altogether, or find new sources, including from the recycling of used batteries.

Work to reduce the cobalt content of batteries is “progressing quite well,” but “for sure cobalt will be with us for a very long time,” Normark said.

Car companies could switch to alternatives if they become available. GM “continues to evaluate a wide variety of battery chemistries for performance, cost and safety,” Minter said.

Nissan, which produces the LEAF electric car, is “exploring a range of technologies that will move us towards a more sustainable transportation landscape,” spokeswoman Sara Jenkins told the press. The expected rising demand for electric vehicles “opens the doors for us to explore alternatives” to batteries containing cobalt, she said.

Recycling will be vital because, although “there will not be a problem with cobalt supply in the first wave of electrification, there will certainly be problems of supply after that,” according to Marjolein

Scheers, spokeswoman for metal refiners and recyclers Umicore NV. Umicore has built a pilot plant for recycling electric car batteries, which will be “a must for environmental and resources reasons,” Scheers said.

But ultimately, new sources of cobalt will be needed, especially in the late 2020s, when national and EU plans to switch to electric vehicles will start to have widespread effect.

The Joint Research Centre report said the EU should act to promote production within the bloc and work closely with countries such as Australia and Canada, “whose importance as cobalt producers is expected to increase.”

Normark agreed the EU should mine more of its own cobalt in addition to recycling. Finland is the only EU country where cobalt is mined, though Spain, Sweden, and some other EU countries also have reserves, according to the report.

Mining in the EU would be more expensive than importing from the Democratic Republic of Congo but, in the context of improving battery technology to minimize cobalt, “the battery industry can live with a higher cobalt price,” Normark said.

48. Fully Electric Cars Seen Leaping Over Plug-In Hybrids

About 18 months ago, BMW started selling a plug-in hybrid version of its mid-sized sedan for the first time. The 530e is a more expensive, bulkier version of the German automaker’s sports sedan. It goes about 30 miles on a charge and tops out at an Autobahn-friendly 146 miles per hour. It’s the kind of hybrid that hyper-milers could have only imagined back when Toyota unveiled the original Prius two decades ago.

The BMW 530e is more opulent than a Tesla and arguably more pleasant to drive, but customers don’t seem to care. Tesla’s all-electric Model 3 started trickling to buyers in late 2017 and, in the past year, has outsold the BMW by about 15-to-1.

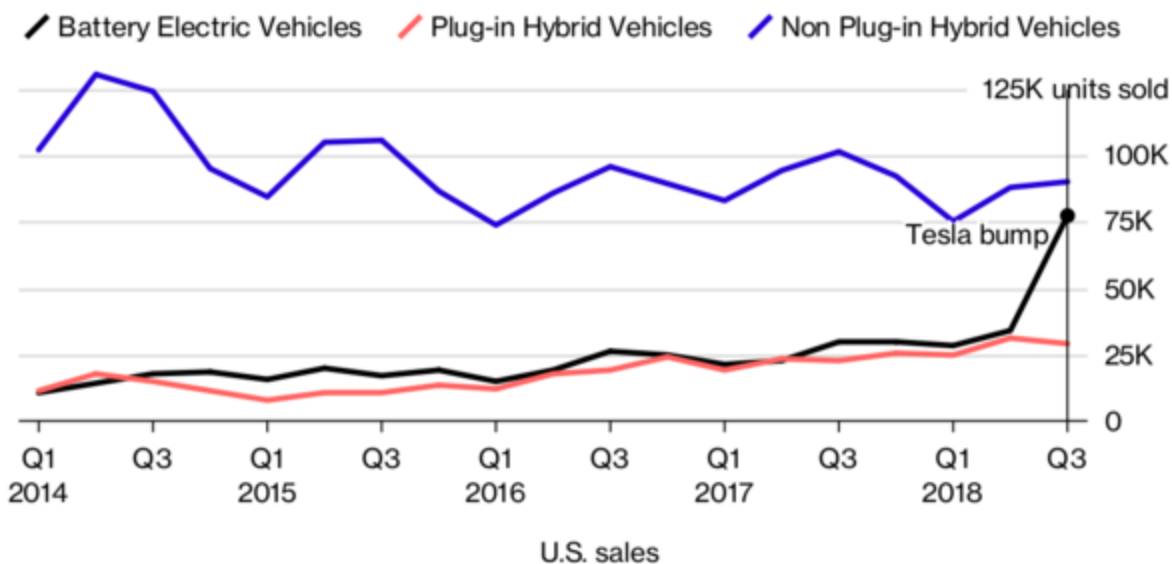
It’s becoming increasingly clear that plug-in hybrid vehicles, those green chimeras that have long promised to carry creaky-old car companies into an energy-efficient future, will never grow past their current position as an automotive also-ran. The battery-electric car now appears poised to turn these hybrids into a historical blip.

“A full electric is a much more elegant solution,” said Gil Tal, director of the Plug-in Hybrid and Electric Vehicle Research Center at the University of California, Davis. “It’s very simple to build and very low maintenance.” In retrospect, he contends, plug-in hybrids “are just the training wheels” in the industry’s preparation for electric cars.

In the U.S., sales of fully electric vehicles have surged ahead of plug-in hybrids, outpacing them by almost 3-to-1 in the third quarter, according to new data published by Bloomberg NEF. In the next few months, purely battery-powered machines will overtake hybrids that don’t plug in at all, a category that includes a wide range of vehicles including the Prius.

Unplugged

Fully electric vehicles are quickly pulling buyers away from hybrid cars and trucks.



Source: Bloomberg New Energy Finance

Bloomberg

Ironically, the market shift comes at a time when hybrids have finally become quite good, with a rash of new high-quality choices. On dozens of the world's most popular vehicles, an electric motor is now an option no different than a roof rack or a cold-weather package. American car buyers can get their hands on hybrid versions of the Honda Accord, Toyota RAV4, Nissan Rogue and the Chevrolet Malibu.

This year, however, U.S. consumers given that choice have bought the hybrid version only 5 percent of the time, according to analysis by Edmunds.com. The rest are either driving away in the old-fashioned, gasoline-burning vehicle or opting for fully battery-powered options such as a Tesla or Nissan Leaf. Some buyers who might have considered a plug-in hybrid in years past are likely biding their time for a parade of new all-electric vehicles to hit dealerships in the next few years.

"That's one of the big theses in the market right now," said Salim Morsy, an analyst at Bloomberg New Energy Finance. "If these vehicles were priced exactly the same, you would expect that people would buy them."

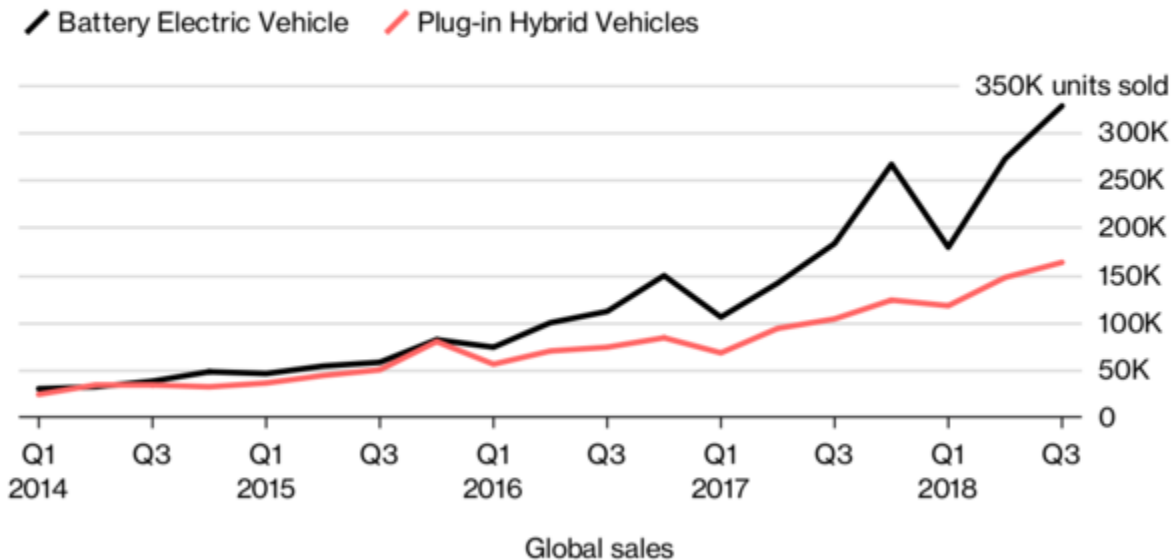
The auto executives who have spent two decades in pursuit of hybrid hype have tended to overestimate the rationality of car buyers, and it's not difficult to see why. Crunch enough data on household income and commutes, and a Detroit CEO will see the logic in offering a plug-in hybrid that can go electric for about 30 miles—that's how far an average American car drives on a typical day. The problem is many of those would-be buyers want a pickup truck, a zany convertible SUV or an electron-powered spaceship ready for a three-hour road-trip.

"When we ask people if they are interested in a hybrid, everybody says, 'Oh yes,'" explained Autotrader analyst Michelle Krebs. "But then you look at how they shop and what they buy and

you don't see that." As a share of all U.S. vehicle sales, hybrids have been swooning since 2013 when they briefly covered 3 percent of the market.

All In

As range anxiety vanishes, electric vehicle sales are fast pulling away from plug-in hybrids around the world.



Source: Bloomberg New Energy Finance

Bloomberg

Another challenge for automakers is that hybrids are relatively complicated, with widely varying ranges. Some can travel only on electrons, while others never do. Electric vehicles, meanwhile, can be measured on two simple metrics: miles per charge and price.

"It's just a much more simple story," said Tal at UC Davis. His team's research has shown that people are far more ignorant about plug-in hybrids than fully electric vehicles. In general, he said, shoppers don't spend much time deciding which car to buy—most effort goes into finding the best price for the model they've already set their mind on.

There's also some poor timing at play. Gas prices haven't been kind to those in the battery business this decade, and the incremental value of saving a few gallons has floundered. Charging infrastructure has proliferated, meanwhile, and the purchase of a full-fledged electric vehicle remains a social statement, a way for a driver to instantly self-identify as an early-adopter and a green citizen.

Morsy at BNEF calls it a "virtue-signal product," as in: Gaze upon my shiny, expensive good-doing; watch it get to 60 miles per hour in 5 seconds.

Porsche now sells two plug-in hybrids. Yet it is rushing to complete two all-electric Tesla alternatives with its forthcoming Taycan and Mission E. Audi is in a similar position, with a plug-enhanced version of its popular A3 sedan vehicle here now and 12 fully electric vehicles in the works, the first of which will hit dealerships in the spring.

Jaguar skipped the hybrid game altogether. Instead, it went straight for the fully electric with its I-Pace SUV, beating most of its luxury rivals to market.

The death of the hybrid, while seemingly inevitable, may be a long and slow. A spike in gas prices in the next few years may even draw it out. “I can see them having a role until 2040,” Tal said. “But the problem will always be [that] it’s a more expensive solution having two drivetrains.”



49. GM Creates A Global E-Bike, Looks For Branding Help With Contest

General Motors is already shaping up to be second only to Tesla in blasting past the 200,000-vehicle ceiling for the federal EV tax credit; and it has plans to produce 20 new fully electric vehicles by 2023. Part of that EV-savvy strategy, apparently—or a parallel one, perhaps—involves e-bikes intended for “consumers around the globe.” Friday, the company showed first pictures of two e-bikes it’s

developed—one folding and one compact—and that they’ll be available for sale in 2019.

“We blended electrification engineering know-how, design talents and automotive-grade testing with great minds from the bike industry to create our eBikes,” said Hannah Parish, GM’s director of Urban Mobility Solutions.

So far GM has very little information about the bike, and nothing on the specs, how many it might build, or who those bike industry partners are. But it promises “a proprietary drive system that is small and powerful,” and notes that the bikes were “born from the same design clay as cars, by the same award-winning designers.” It’s also suggested that the bikes might take advantage of GM’s OnStar connectivity—or at least OnStar’s telemetry expertise—as a “last mile” solution for trips that start in a personal car or with ride-hailing, for example.

The automaker points out that by 2030, 60 percent of the world’s population is anticipated to live in cities.



runner-up submissions get \$1,000.

GM folding e-bike

GM also hasn't disclosed how it's going to sell, or otherwise offer, the e-bikes. Will they be included as accessories with electric vehicles like the Bolt EV; sold as part of a standalone business; or offered through its Maven car-sharing and ride-hailing operation?

In the meantime, it's looking for help with branding the bikes. Challenge winners will receive \$10,000, and