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# CAR LINES

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## EUROPE

### 1. Inquiry Report Faults EU Authorities on Auto Emissions

On 19 December 2016 the draft report and draft recommendation of the European Parliament's Committee of Inquiry into Emissions Measurement in the Automotive Sector (EMIS), prepared by co-Rapporteurs MEP Gieseke (EPP, DE) and Gerbrandy (ALDE, NL), were published. The draft report presents the EMIS Committee's findings on the discrepancies between laboratory and on-road NO<sub>x</sub> emissions, defeat devices, the EU type-approval system and the enforcement of EU emissions legislation and makes several recommendations for improvement.

It found among other things that the EU authorities responsible for checking the compliance of cars with limits on nitrogen oxides emissions are guilty of maladministration for failing to prevent automakers from abusing the rules. In particular, the relevant authorities in EU countries, and the European Commission, the EU's executive arm, failed to act on known discrepancies between nitrogen oxide emission levels in laboratory tests and on-road emission levels for about a decade before the "dieselgate" scandal broke in the U.S. last September.

EU national authorities also were at fault for failing to consider that automakers could be using illegal defeat devices to achieve artificially low nitrogen oxide readings in tests, and for failing to prevent potential conflicts of interest arising from close relationships between test laboratories and automakers.

"Dieselgate would not have happened if our national governments and the European Commission had acted in line with their legal and administrative responsibilities," said Gerben-Jan Gerbrandy, a Dutch liberal lawmaker and a member of the European Parliament inquiry committee. "Our investigations point out that unnecessary delays in decision-making, negligence and maladministration contributed to making this fraud possible," Gerbrandy added.

The draft inquiry report said authorities attributed discrepancies to shortcomings in EU laboratory tests and "optimization strategies put in place by car manufacturers to pass the laboratory test," rather than to the use of defeat devices, and the process to revise testing procedures had been extremely slow.

The inquiry committee has no power to sanction companies or authorities over legal breaches or maladministration arising from dieselgate; its report is intended to apportion blame and apply pressure for further action.

The European Commission should tighten controls over how cars are approved for sale in Europe's national markets as new on-road tests will only reduce, not end, the future use of emissions 'cheat' devices that were at the center of the dieselgate scandal, the inquiry concluded.

The EMIS report added that only a "drastic strengthening" of car surveillance at EU level could ultimately prevent this happening again. The document did not explicitly support the creation of a new EU car approval agency – an approach that has been backed by France and environment MEPs – but instead proposed that the Commission be given EU-wide powers to retest approved vehicles and impose fines in cases of non-compliance.

Among the recommendations from the Committee on emissions measurement include a call for an increase in the human and technical resources dedicated to vehicles, vehicle systems and

emissions control technologies in the Commission, and for the Joint Research Centre (JRC) to further improve in-house technical expertise. Further; it calls on the Commission to continue its work on improving Portable Emission Measurement System (PEMS) measurements for particulate matter with a view to improving their accuracy and the technological ability to account for sub-23 nm particles.

Gieseke and Gerbrandy urged EU institutions to “quickly adopt” the third and fourth package of the new, on-road real-driving emissions (RDE) tests, which will apply to carmakers from September 2017. The co-rapporteurs said that the RDE procedure alone would “not completely eliminate” the risk of defeat device use but loopholes could be prevented if the tests were made more unpredictable for industry.

According to the report, the negotiation of RDE has been hindered by pressure from member states, in particular France, Italy and Spain, to delay or weaken the new testing procedure.

Recommendations in the co-rapporteurs report will be voted on by the EMIS committee on 28 February 2017 and will then be sent to the plenary for adoption in April.

## **2. EU Adds Particle Number and Cold Starts to RDE**

On 20 December 2016 Member States adopted in the Technical Committee - Motor Vehicles (TCMV) the third legislative package of Real-Driving Emissions (RDE) requirements for Euro 6 passenger cars and vans. The RDE package 3 includes a Commission Regulation and a set of three Annexes. The RDE package 3 was adopted by 23 Member States in favor, 3 against (Romania, Hungary, and Czech Republic) and abstention from Slovakia. The new standards expand testing to include ultrafine particles emitted from a new generation of gasoline direct-engine systems. A Particle Number (PN) Conformity Factor (CF) of  $1 + \text{'margin PN'}$  is set, with ‘margin PN’ = 0.5. ‘Margin PN’ takes into account the measurement uncertainties introduced by the PEMS PN equipment, which are subject to an annual review and shall be revised as a result of the improved quality of the PEMS PN procedure or technical progress. The PN CF applies to both the urban part and the complete RDE trip.

Although automakers had asked that they be delayed until 2019, the on-road rules for cars are to be in place by September 2017 for new models, and for all vehicles by September 2018.

“Car manufacturers should already start designing vehicles with lower particle emissions and introduce the necessary filters in (gasoline) cars that are already widely used for diesel,” Europe’s Industry Commissioner Elzbieta Bienkowska said in a statement after the measures were approved at a regulatory committee meeting.

The decision came soon after the European Parliament issued a draft report criticizing delays in adopting new tests on car engine emissions. (See above.)

One group supporting the new measure, Transport & Environment, said that automakers can use cheap technologies under the new rule such as gasoline particulate filters (GPF) that will reduce pollution from gasoline direct inject (GDI) engines, which are being criticized for emitting as much as 10 times more particles than previous generations of engines.

The new rules also regulate cold-engine starts as a way to reduce emissions from short city trips. During these starts, vehicles pollute much more than during other times during the trip.

Another part of the rule is that automakers are now being required to make emissions performance information available to the public via a free website that includes the Declared Maximum RDE values (for NOx and for PN) as they have to be reported on the Certificate of Conformity

Both the Parliament and the member states now have 3 months to veto the decision if they choose to. This seems very unlikely though as the Parliament is largely in favor and as noted earlier most member states have voted in favor in TCMV.

### **3. Emissions Collusion between VW and German Agency Runs Deep: Magazine**

While VW had hoped at first to have the issue largely wrapped up by now, the scandal first publicly revealed in September 2015 shows no signs of abating and has shone a harsh light on European emission regulations and associated fuel-economy standards, including the process by which they're tested.

European car buyers already suffered from real-world fuel economy an average of 40 percent lower than published ratings, according to calculations by the International Council on Clean Transportation (ICCT) for the 2015 model year.

Now, a report from Germany suggests long and deep collusion between VW Group's brands and the German agency that regulates the emission compliance of its vehicles. According to Transport Ministry documents leaked to "Stern" magazine, VW worked together with the ministry to defuse an impending CO2 emissions scandal in 2015, only months after the US Environmental Protection Agency found that VW was using special software to cheat NOx emissions tests.

In November 2015, VW CEO Matthias Müller admitted publicly that company employees had lowered CO2 emissions figures for 800,000 vehicles. But a month later, VW revised that figure following "thorough internal tests and measurement checks," and decided that only 36,000 cars showed discrepancies between lab tests and road reality.

In between, "Stern" reported, VW sent two lawyers to the Transport Ministry to inform the government that the car-maker was changing its position. VW would no longer blame its own employees, a leaked transcript from that November meeting recorded, but from now on the company would say "that up to now it could not be decided what reasons lay behind the too-high CO2 figures."

Not only that, VW told the ministry that it was backtracking on a previous internal pledge to measure emissions according to "tougher standards." According to the transcript, the ministry officials "took note of this consentingly." The ministry has not responded to requests for comment either to "Stern" or DW.

In essence, the magazine says that the leaked documents indicate the ministry encouraged German carmakers to take advantage of multiple loopholes in the regulations during third-party tests on dynamometers, also known as "rolling roads." Those included taping over body seams, removing door mirrors, inflating tires far beyond their rated pressures, and other techniques to reduce aerodynamic drag and fuel consumption.

The ministry also hid the results of carbon-dioxide emission tests, the article claims—results that have still not been released. While the environmental group Bund and several others have asked

that all CO2 emission-test results be released by the Federal Motor Transport Authority (KBA), those requests have always been refused on the grounds that tests are still underway.

Cars in many European countries are taxed based on the levels of carbon dioxide they emit, meaning that if manufacturers knowingly minimized those numbers, they could be depriving the government of revenue—as much as 2.2 billion euros, according to a calculation by German environmental group DUH.

Car owners, meanwhile, pay an extra 450 euros (\$480) in fuel costs per year owing to the lower real-world results versus the rated fuel economy.

Jens Hilgenberg, transport emissions specialist at environmental group BUND, wasn't surprised that the German government did not censure one of the country's biggest companies - "but we didn't know that they would do it so bluntly," he told DW. "That they would tell VW: 'you can just take back the measurements you've carried out yourself'."

Hilgenberg explained that it had long been clear that both VW and the government must have been aware of the CO2 levels once they'd measured NOx levels in response to the VW scandal. "If you measure NOx then you also automatically measure CO2," he said. "You can't not do it."

It has long been clear that there is a huge disparity between the amount of CO2 an average car releases in a lab test and on the road - but that gap is getting wider and wider. An International Council on Clean Transportation (ICCT) study released recently found that "in the EU, the gap between official and real-world CO2 emission values continues to grow - from 9 percent in 2001 to 42 percent in 2015."

Oversight and emissions testing are so poor that there is barely any need to resort to special software to cheat lab tests. "They put very narrow tires on the cars with no tread to create as little friction as possible. The tires have triple the air pressure in them," said Hilgenberg. "If you actually drove a car like the one they put on the test bed you'd crash into a tree after a hundred meters. A car like that wouldn't even be allowed on the road." It's only on road tests like those used in the US, in fact, when the cheat software becomes necessary, said Hilgenberg.

On top of that, there is hardly any capacity for independent emissions testing in Germany. "The KBA doesn't have a test bed - there are one or two in universities, but they work very closely together with the auto industry," said Hilgenberg.

"The manufacturers have always used every trick and gray area - legal or not - to manipulate the official CO2 value of their cars," said Hilgenberg. But even with this routine manipulation, the situation has changed so drastically in the past ten years that it is effectively impossible for most people to drive a car carefully enough to meet its official CO2 levels. In other words, consumers are being tricked by carmakers.

The problem, according to BUND, is not the levels themselves, but the fact that many manufacturers - especially German ones - have failed to keep up with new developments in fuel-saving hybrid technology. "Look at Toyota," said Hilgenberg. "They meet the standards easily."

#### **4. VW Gets Final Clearance for European Diesel Fixes**

Volkswagen Group said it has received all clearances from Germany's motor vehicle authority KBA to fix diesel cars fitted with manipulated emission-control software. The number of diesel

vehicles approved to date by the KBA for repair amounts to about 9 million models, a VW spokesman said.

Under EU type approval regulations, the fixes approved by the KBA are valid for manipulated diesels sold by VW and the Audi, Skoda and Seat brands throughout the 28-nation bloc. VW Group brands affected by the decision will be telling customers that they can take their cars to authorized dealerships to have the work done, the automaker said in a statement.

Customers will incur no costs for the implementation of the technical measures, VW said. The KBA has "confirmed that implementing the technical solutions for the affected models will not adversely affect fuel consumption, engine performance or noise emissions," the automaker said.

The fixes apply to 1.2-liter, 1.6-liter and 2.0-liter engines from the E189 diesel family that were among 11 million engines sold worldwide with software designed to cheat tests for harmful NOx emissions. The 1.2- and 2.0-liter engines will get a software upgrade that requires about 30 minutes of labor time. The 1.6-liter engine will require the installation of a piece of mesh to regulate air flow in addition to a software upgrade.

VW said German regulatory approval does not apply to cars in the United States and Canada.

VW has declined to pay compensation to European customers with rigged diesels despite heavy political pressure. VW argues that buyers have suffered no loss. Residual values for VW diesel used cars fitted with defeat software are holding up in Europe, undermining the case from consumer groups that customers should receive compensation as the automaker has agreed to do in the U.S.

## **5. ICCT Says VW Had Technology to Cut NOx Levels Before Dieselgate**

Volkswagen diesel cars could have met EU nitrogen oxide (NOx) standards before the dieselgate scandal if the carmaker had chosen to apply technologies available at the time, transport experts said. The findings were outlined in research published by the International Council on Clean Transportation (ICCT), which looked at levels of NOx, CO2 and particulates for six car models covered by the Euro 6 emission standard while they were being driven.

Portable Emissions Measurement System (PEMS) tests on two Volkswagen diesel models, conducted by Emission Analytics on behalf of the ICCT, showed that the cars stayed below or close to 2.1 and 1.5 conformity factors. This represents the difference allowed between real driving and laboratory emissions that EU diesel cars will need to comply with by 2017 and 2020, respectively.

However, all three other diesel cars tested by Emissions Analytics – a Vauxhall Astra, a Citroen C4 and a Mercedes-Benz C220 – breached NOx conformity factors, ICCT said. Although the Mercedes-Benz model stayed below the 2.1 limit for 2017 in one of the tests.

The figures show that Volkswagen's two diesel vehicles had a smaller gap between real and laboratory-based CO2 emissions (between 20% and 40%) than the other diesel models (between 40% and almost 70%).

ICCT told reporters that Volkswagen's lower NOx emissions could be attributed to the use of selective catalytic reduction (SCR) technology across its Euro 6-covered diesel cars. This

technology was available at the time of the dieselgate scandal, ICCT said, and could have been introduced by Volkswagen to keep NOx emission levels below EU regulatory limits.

All of the Volkswagen models involved in the dieselgate scandal were Euro 5 models and largely used lean NOx traps (LNT) which resulted in higher emissions than SCR, ICCT said.

ICCT expects NOx emissions to drop across all EU diesel vehicles when the new Real-Driving Emissions (RDE) test procedure is introduced in 2017.

However, the transport group added that actual progress might be “limited” due to shortcomings in the proposed regulation, including the choice of a 2.1 conformity factor, which ICCT believes is not stringent enough. The body would like to see tougher test procedures which include a 1.2 conformity factor suggested by the European Parliament’s Green/EFA group.

Commenting on future diesel CO2 levels, the ICCT said that the introduction of the laboratory test known as Worldwide harmonized Light vehicles Test Procedures should help reduce the gap between real driving and laboratory tests. However, it should be strengthened with on road CO2 tests similar to stricter test criteria for NOx expected in the RDE regulation, the ICCT added.

## **6. France Backs Creation of EU Car Approval Watchdog**

French environment minister Ségolène Royal has endorsed the creation of a new EU-wide vehicle market surveillance authority to prevent future cheating in emissions tests. An EU-wide authority could help investigate instances where carmakers switch from one national watchdog to another to avoid strict approval requirements, Royal explained in written comments sent to MEPs ahead of a parliamentary hearing. The existing EU legislation on car type approval gives neither the European Commission nor member states any powers to pursue these “unacceptable” practices, Royal said.

Such plans were not included in the Commission’s proposal in January to replace the current type approval directive with a regulation. Commission spokesperson Lucia Caudet told reporters that the idea was considered in the impact assessment but discarded given the time and budget that creating a new EU agency would consume.

However, the idea has been taken up by MEPs in the Parliament’s environment committee, which will vote on amendments to the Commission’s text going in that direction. But Caudet maintains that the Commission’s proposal will be enough to tackle the weaknesses of the current type approval system if “adopted at our level of ambition”.

During the hearing, Royal told MEPs that the French government is working with Germany on a joint proposal to ask the Commission to provide a clearer definition in the Euro 5 and 6 Regulation of defeat devices that Volkswagen used to cheat in emissions tests. The regulation sets air pollutant emissions limits for vehicles.

She was attending a sitting of the European Parliament’s EMIS committee, which scrutinizes emission measurements in the automotive sector. It was set up in the aftermath of the Dieselgate scandal in October 2015.

The minister faced questions from MEPs over France’s role in October 2015 in watering down the new emissions test for NOx emissions, which was aimed at aligning test results more closely with real driving conditions. Royal described that decision as “wrong” and insisted she had



intervened to “restore order” as the French experts – who reportedly supported the weakening of the rules – were not acting under her instructions. “I was in favor of sending it back to the European Parliament and thought the Parliament would take a different decision,” Royal said. In February 2016, the plenary voted narrowly against forcing member states to consider tougher test rules

## **7. ENVI MEPs Join Calls For EU-Wide Vehicle Approval Agency**

MEPs at the environment committee (ENVI) have voted in favor of creating an EU agency to monitor vehicle compliance with environmental and safety rules before and after they are placed on the market. The draft opinion from ENVI rapporteur Christofer Fjellner said: “To ensure homogenous market surveillance across the union, powers of control should be conferred to a centralized agency at union level to ensure that the new type-approval and market surveillance framework is fully implemented.” The committee adopted the opinion with 59 votes in favor and three against.

Manufacturers will fund the proposed EU-wide watchdog, dubbed the European Vehicles Surveillance Agency (EVSA) by ENVI MEPs. It will conduct compliance checks before vehicles are sold and again four years later.

ENVI MEPs said EVSA should have powers to refuse or withdraw market approval if it found any “irregularities” in the vehicles being examined, which includes the presence of defeat devices that were responsible for the Volkswagen emission scandal in 2015.

The internal market committee, which takes the lead on the Parliament position on the proposed new type-approval Regulation, will vote on the ENVI proposal for an EU agency on 26 January 2016.

## **8. Court Orders Swiss Prosecutors to Open VW Criminal Probe**

Swiss prosecutors say they have seized documents at a large Volkswagen dealer after a court ordered them to open a criminal investigation. Federal prosecutors said they have "secured evidence" at the AMAG Group, which is cooperating with the probe.

Some 2,000 criminal complaints were filed in Switzerland last year related to the Volkswagen emissions-rigging scandal. At the time, Swiss prosecutors decided to forward all complaints to their counterparts in Germany, where the alleged wrongdoing had taken place.

Almost 600 Swiss plaintiffs took the issue to the country’s top criminal court, which ordered prosecutors to open a probe in Switzerland as well.

## **9. Porsche Under Emissions Control Scandal Review**

German carmaker Porsche has been embroiled in the emissions scandal plaguing the other major players of the German auto industry including Volkswagen and Audi. Volkswagen, the parent company of Porsche, was the first to fall prey to the Dieselgate scandal in September 2015. In a report by the German business magazine WirtschaftsWoche, the Federal Ministry of Transport in Germany (the KBA) and the Federal Motor Transport Authority are scanning records and filings to find whether Porsche installed devices in its cars, which had a backdoor means of enabling self-sensing or intelligent sensing when tests for fuel consumption and carbon-dioxide emissions were being performed. This reportedly follows a tip-off from an insider.

In defense, a Porsche spokesman said that the company's cars complied with fuel consumption and emissions laws that were in place at the time the vehicles were registered, a possible confession that the carmaker may have made some mistakes, intended or otherwise. The Porsche scandal, if proved, will add further woes to Volkswagen AG after it was revealed that a VW Group reorganization between Porsche and Audi was facing problems due to Group CEO Matthias Müller's indecision.

Porsche and Audi account for less than 20% of the passenger vehicles sold by VW globally but generated 67% of its operating profit in 2015.

### **10. Infringements: Seven Countries Face Legal Action Over Dieselgate**

The UK, Germany, Spain, the Czech Republic, Greece, Lithuania and Luxembourg all failed to design or apply penalty systems to stop carmakers such as Volkswagen from breaching EU emissions laws that led to the dieselgate scandal, the European Commission has announced.

The actions by these seven countries constitute a violation of the 2007 Directive on type-approval and Euro 5 and 6 Regulation, the Commission said. It has sent all these member states a letter of formal notice that marks the start of a legal probe that could see countries referred to the EU Court of Justice (ECJ). Under both the directive and the regulation, member states are required to set up "effective, proportionate and dissuasive" penalty schemes to ensure carmakers are not using the cheat devices that were at the root of the Volkswagen dieselgate scandal.

But the Commission said that Czech Republic, Lithuania and Greece have yet to adopt these penalties systems, while the UK, Germany, Spain and Luxembourg have set them up but did not use them to prevent Volkswagen from using emission-cheating devices.

In addition, the Commission claims that the UK and Germany in particular refused to share the information they had each gathered as they investigated NOx emission breaches within their borders.

The legal investigation will take place as European Parliament and Council debate the Commission proposal to replace the current type-approval directive with a regulation. And EU internal market commissioner Elżbieta Biedroń called for a swift agreement on the proposal from the Council and Parliament.

### **11. On-Road Car CO2 Checks Must Complement Lab Tests, EC Warned**

New laboratory tests to measure CO2 from cars and vans will "reduce but not eliminate" the gap between real world and test condition emissions and will need to be updated and reinforced with on-road checks, scientific advisers have told the European Commission.

The Scientific Advice Mechanism group (SAM), set up by the Commission in 2015 to provide information for policy decisions, raised concerns about the increasing gap between the two types of emission results for light-duty vehicles such as cars and vans last week. Researchers say that the gap between the emission readings can be as much as 20% to 50% depending on the vehicle model.

In its opinion for the Commission, SAM said this disparity – caused by the current NEDC test, which underestimates CO2 production – is undermining EU pledges under the Paris Agreement and the bloc's transition to low-carbon transport.

Starting from September 2017, the Commission will replace NEDC with a new test known as Worldwide harmonized Light vehicles Test Procedures (WLTP). It will be used as the basis for the new CO<sub>2</sub> targets the Commission plans to set for light-duty vehicles for the post-2020 period.

According to SAM, the Commission should implement WLTP “without delay” to shrink the CO<sub>2</sub> emissions gap. But the group also said WLTP should be reviewed every five years and updated to reflect technological developments such as advances in hybrid vehicles.

SAM also said that laboratory-based WLTPs should be complemented with subsequent, on-road CO<sub>2</sub> checks. They noted that the on-road test known as Real Driving Emissions (RDE) will apply to air pollutants such as NO<sub>x</sub> from September 2017 onwards but not CO<sub>2</sub>. The Commission might incorporate CO<sub>2</sub> to the on-road scheme when it presents a fourth RDE package.

Fuel consumption could become a “reliable indicator” of tank-to-wheel CO<sub>2</sub> emissions across EU cars and vans, SAM added. Figures on fuel use should be displayed to drivers and could be monitored by regulators on a yearly basis.

SAM urged the Commission to set up an “independent and effective” vehicle conformity-testing scheme in line with the powers of the Environmental Protection Agency in the US.

The SAM opinion on the strength of EU CO<sub>2</sub> tests comes as campaigners insisted that the new CO<sub>2</sub> targets to be set by the Commission for 2025 and 2030 will be “essential” to drive roll-out of fuel-efficient vehicles.

## **12. Research Promotes Car CO<sub>2</sub> Target of 70g/Km For 2025**

A mix of combustion engine technologies and hybrid electric cars would allow the EU to meet the target “with few or possibly no electric vehicle sales”, the study by the International Council on Clean Transportation (ICCT) found. This would cost €1,000 to €2,150 per car, with annual fuel savings rising to €450, it added.

If manufacturers switched to electric vehicles earlier and aimed to reach a market penetration level of around 15%, the cost of complying with the 2025 target would fall by €200 to €500 per car, the ICCT said.

For 2030, a target as low as 40g CO<sub>2</sub>/km would be possible for passenger cars, but only if electric vehicle sales pick up, the ICCT said. This would come with a price tag of €1,600 to €3,000 per car.

The research comes as the European Commission is considering new post-2020 CO<sub>2</sub> performance targets for cars and vans. Its consultation on the two relevant EU regulations closed at the end of October and legislative proposals are expected next year.

Car manufacturers are currently required to meet a target of 95g CO<sub>2</sub>/km by 2021. Provisional Commission data indicates that the average CO<sub>2</sub> emissions of a new car sold in 2014 were 123.4g/km, well below the 2015 target of 130g/km.

MEPs have called on the Commission to study a range of 68–78g CO<sub>2</sub>/km for 2025. Targeting the lower end of the range would make it possible to reduce annual CO<sub>2</sub> transport emissions by

22% by 2030, but it would still not be enough to deliver the 30% cut needed for the sector to reach the EU's overall 40% greenhouse gas reduction target, the report said.

In the case of vans, 2025 standards as low as 90–100g CO<sub>2</sub>/km are achievable without electric vehicles – with per-vehicle costs somewhere between €1,000 and €4,000, according to the research group.

### **13. Study Finds EU Could Save 180 Million Tons of CO<sub>2</sub> with HDV -Efficiency Standards**

The EU could slash its annual CO<sub>2</sub> emissions by 180 million tons by 2035 if it introduced fuel efficiency standards for heavy-duty vehicles such as tractor-trailers and rigid trucks, researchers have said. A report from the group the Global Fuel Economy Initiative (GFEI) said that the EU could have a huge impact on reducing global emissions if it adopted measures such as an accelerated rollout of technologies like engine brake thermal efficiency.

GFEI, which is a partnership including the UN, the International Energy Agency and the International Council on Clean Transportation (ICCT), said a global deployment of such technologies would cause fuel consumption to drop by 8.7 million barrels of oil per day around the world by 2035 against a 2015 baseline. This is equivalent to almost two billion tons in annual CO<sub>2</sub> savings.

The report calculated that the EU would account for 9% of the projected global fuel and climate savings. This would equal savings of around 800,000 barrels of oil per day across the bloc by 2035.

In spite of the potential gains for the EU, the GFEI study noted that the EU remains the largest HDV market without fuel efficiency standards. The bloc lags behind other countries which have adopted varying requirements (China, the US, Japan and Canada), while the US has recently updated its rules.

The EU adopted standards for passenger cars and vans in 2011 but still lacks similar rules for HDVs, despite forecasts that CO<sub>2</sub> emissions from this vehicle class will grow by 10% across the bloc between 2010 and 2030.

According to GFEI, given the EU's market size and influence on HDV manufacturers from other regions, the creation of fuel efficiency standards within the bloc could have a far-reaching impact and facilitate the adoption of global requirements.

In the Strategy for Low-Emission Mobility unveiled this summer, the European Commission promised action saying, Europe “cannot lag behind” other world markets. The Commission revealed plans for a consultation to assess the options for setting standards for “engines only or the whole vehicle”, but it is expected that these would not be introduced until at least 2020.

### **14. EU Transport Policy Needs ‘Systemic Change’ To Be Green**

EU transport needs to embrace “systemic change” to meet long-term decarbonization goals, according to the European Environment Agency (EEA). This would mean a major shift to vehicles and railways powered by alternatives fuels, such as electricity rather than fossil fuels, as well as efforts to reduce demand for transport, the agency said in a new report.

The report found that current transport policies would not deliver goals outlined in the European Commission's 2011 Transport White Paper, which suggests cutting greenhouse gases (GHG) from the sector by 20% by 2030 and by at least 60% by 2050.

The EEA identified various barriers to making transport more sustainable across the bloc. These include the slow decision-making process of EU institutions, industry interests and subsidies that support environmental harm, such as lower taxation for diesel fuels.

The EEA also found that relying on reducing CO<sub>2</sub> and air pollutant emissions from road transport alone would fail to achieve decarbonization goals in this area. And progress to date is questionable, the report said, given the growing gap between real-world driving and laboratory tests.

Instead, the EEA report said that a "much larger transition" to alternative fuel technologies including electric cars would be needed to decarbonize road transport. Meanwhile, the longer lifespan of planes, ships and trains means any shift to alternative fuels in these areas would be slower even when infrastructure is up and running.

The report also proposed moving passengers from road to rail, estimating that this could cut related GHG emissions by between 2% and 14%. High speed trains would be "very competitive" for certain long-distance connections, EEA said, but their expansion should be approached with caution given the potential environmental and financial impacts.

A switch to rail travel would also be positive for freight transport, particularly for long-distance journeys, although it is currently restricted by infrastructure and operational "bottlenecks" such as borders between EU member states.

The report also recommended that policymakers should look at ways to reduce demand for transport. Demand is forecast to grow by 40% for passengers and 58% for freight between 2010 and 2050.

According to the EEA, the option to avoid unnecessary journeys, by adopting practices such as remote working and higher taxes for environmentally damaging modes of transport, has been overlooked historically even though it could tackle air quality and noise concerns in a cost-effective manner.

## **15. Electric Vehicles getting Big Push from German Car Industry**

German firms are investing heavily in electric cars, once shunned for their high cost and limited operating range but now benefiting from recent advances in battery technology and a backlash against diesel fumes. The infrastructure in Germany and throughout much of Europe supports electric cars already and this move could mean smaller car manufacturers such as Tesla might face stiff competition in the future.

Technological advances to increase the reach of an electric car by up to 50 percent are now spurring major investments by Volkswagen, Daimler and suppliers such as Bosch and Continental.

"By 2025 we want to develop 10 electric cars based on the same architecture," Thomas Weber, Daimler's research and development head, told Stuttgart's *Zeitung*'s Saturday edition. "For this push we want to invest up to 10 billion euros," he said, adding three of the models will be Smart

branded cars and that thanks to larger batteries they will be able to increase their cruising range up to 700 kilometers. It has been reported that the car maker plans to roll out at least six electric car models as part of its push to compete with Tesla and Volkswagen's Audi.

Separately, Daimler said that it will continue to sell diesel-powered vehicles in the United States, in contrast to German rival Volkswagen. "There is currently no decision nor are there considerations to withdraw diesel from the U.S.", a company spokesman said, denying a report from weekly magazine Der Spiegel, which had said the carmaker was considering stopping its sales of such cars in the U.S. next year.

Diesel-powered cars account for less than one percent of the Mercedes brand's car sales in the U.S. this year, he added. That compares to a diesel car share of about 5 percent several years ago.

Daimler is conducting an internal investigation of its certification process for diesel exhaust emissions in the United States at the request of the Justice Department, after the U.S. Environmental Protection Agency said it would review all light-duty diesel vehicles.

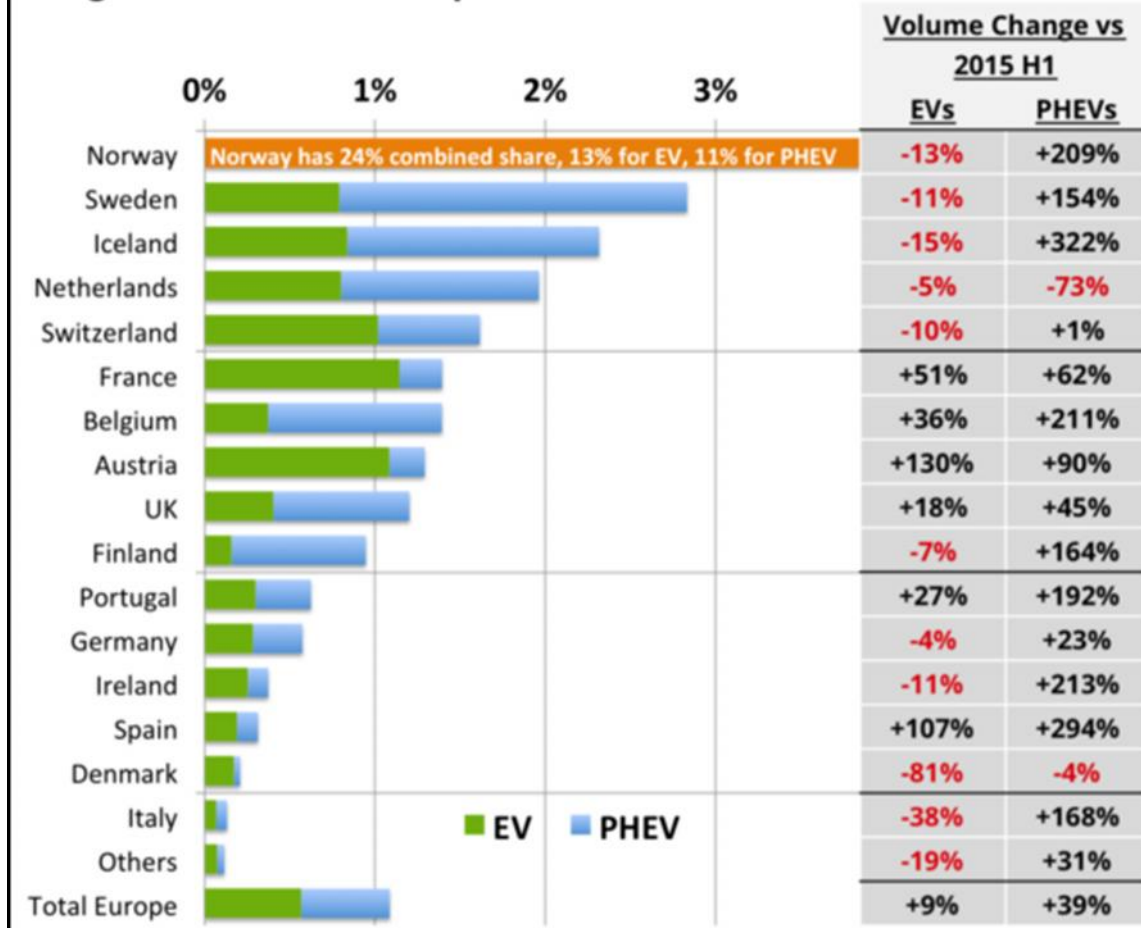
According to Der Spiegel, the potential pullback of diesel cars from the U.S. market is not related to this probe.

#### **16. Norway Now Has More Than 100,000 Electric Cars on It's Roads**

There are now more than 100,000 electric vehicles on the roads of Norway, according to the Norwegian EV Association. At an event celebrating the milestone, held on December 12th at the Munch Museum in Oslo, Norwegian EV Association Secretary General Christina Bu stated: "We reached 100,000 battery electric vehicles (BEV) way earlier than most people expected. By 2020 our aim is 400,000."

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Note that Norway's bar above should be approximately 6 times longer.

The Secretary General continued: "Today we are celebrating 100,000 emission free battery electric cars on Norwegian roads. The present fleet cuts approximately 200,000 tons of CO2 emissions annually. Even though BEVs only account for 3% of the total passenger car fleet, we have achieved a substantial reduction. But there is more to come."

The "more to come" part refers partly to the fact that the government of Norway is currently aiming for 100% of new vehicle sales to be zero emissions models by 2025. "Norwegian politicians need to sit tight and continue the proven recipe for success. This means offering substantial benefits to zero emissions car buyers," continued Bu.

The Secretary General also noted that, despite being a small country, Norway was having some impact on the global adoption of zero emissions vehicles. "Norway inspires other countries to implement similar measures, and we show the international automotive industry how to create consumer demand for electric cars. We get ever more proof supporting this notion," Bu stated.

"If we are to reach the ambitious climate goals set by the Parliament, we need to approach a population of 400,000 BEVs by 2020. That requires continuation of today's policy, and even strengthening in certain areas." "In particular there is uncertainty about electric car benefits at the local level, regarding exemption from tolls (road and ferries) and parking fees. This responsibility

has been delegated to municipal politicians, and they must be absolutely clear that they wish zero emissions a warm welcome. This means continuing the electric car benefits for another period, until they are fully competitive.”

Considering that there are well under 10 million people in Norway, the fact that there have been 100,000 zero emissions vehicles sold there over just the last few years is rather impressive. Most of the reason for the fast rate of adoption has been the generous incentives on offer in the country, something possibly of interest to governments elsewhere.

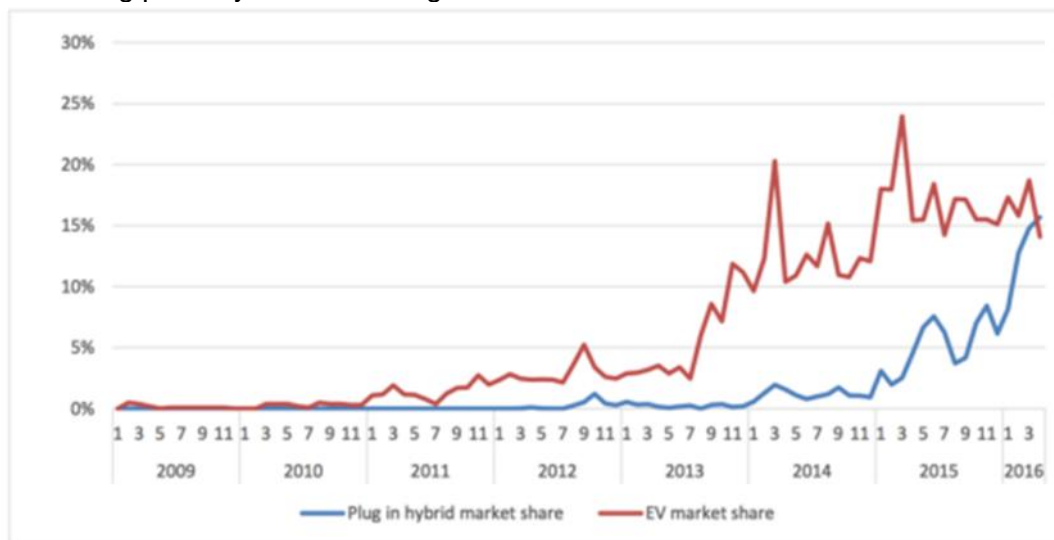


Figure 1.1 New vehicle market share BEVs and PHEVs, Norway 2009-2016. Source: OFVAS 2016. Norwegian PEV consumer survey, TØI 2016.

## 17. The EU Is Developing New Laws To Set Stricter Limits For Pollutant Emissions.

On 8 December 2016 the Council adopted a new directive to reduce air pollution. The new rules set stricter national limits for the emission of some of the most dangerous air pollutants: sulfur dioxide, nitrogen oxides, non-methane volatile organic compounds, ammonia and fine particulate matter.

The aim is to reduce the health risks and environmental impact of air pollution. With this directive, the number of premature deaths due to air pollution in the EU is estimated to be cut by about 50% in 2030 (compared to 2005).

The directive also aligns EU law with international commitments (following the revision of the Gothenburg Protocol in 2012).

The directive sets ceilings for each country of the maximum emissions allowed per year. The limits for each pollutant that will apply each year from 2020 to 2029 are identical to those to which the member states are already committed in the revised Gothenburg protocol. New stricter reductions have been agreed from 2030.

Indicative emission levels for 2025 will be identified for each member state. They will be determined on the basis of a linear trajectory towards the emission limits that will apply from 2030.



However, member states will have the possibility to follow a non-linear trajectory if this is more efficient.

If member states deviate from the trajectory planned, they will need to give the reasons and explain the actions they intend to take in order to get back on track.

Some flexibility to comply with the limits is foreseen, under certain circumstances. For instance, if one year a member state cannot fulfil its commitment due to an exceptionally cold winter or dry summer, this country will have the possibility to average out annual emissions with those of the preceding and subsequent year.

The Commission presented its proposal as part of the 'Air quality package' in December 2013. This file follows the ordinary legislative procedure. The Council and the European Parliament reached a deal on a compromise text in June 2016.

After the vote at the European Parliament at first reading in November 2016, on 8 December the Council agreed and the signature by both institutions are the final steps of the process. The directive, should enter into force on 31 December 2016.

### **18. Call for Sulfur Emission Control Area in Mediterranean Sea**

A new environmental movement has been started by BirdLife Malta, NABU (BirdLife Germany) and several other international partners with the goal of declaring the Mediterranean Sea as a Sulfur Emission Control Area.

Air pollution measurements were undertaken in Valletta and Birgu, Malta, which the organizations say showed high concentrations of ultrafine particles in the ambient air when ships transited Grand Harbor. Measurements revealed concentrations 80 times higher than clean air levels, says BirdLife Malta.

Passenger vessels are a particular concern for the partners. Cruise ship movements in Malta have increased by almost 16 percent over the past six years with 280 cruise ships in 2010 and 324 in 2015 berthing at Valletta Cruise Port. In 2014, cruise ship passengers stood at 471,554 for the year, a rise of 9.3 percent in comparison to 2013.

In 2012, the World Health Organization (WHO) identified that 95 percent of Europeans living in urban environments are exposed to levels of air pollution considered dangerous to human health with about 420,000 premature deaths in the E.U. because of poor air quality.

Partners in the initiative, Together against Air Pollution from Ships, include the Hellenic Ornithological Society (Ornithologiki), Cittadini per l'Aria (Italy), France Nature Environnement (France) and Ecologistas en Acción (Spain). Through an established Clean Cruise Ship Action Network, the project partners will regularly exchange information through conferences which will discuss air pollution from ships.

Currently, emission control areas established under MARPOL Annex VI for Sulfur oxides are: the Baltic Sea area; the North Sea area; the North American area (covering designated coastal areas off the United States and Canada) and the United States Caribbean Sea area (around Puerto Rico and the United States Virgin Islands).

Outside the emission control areas, the current limit for sulfur content of fuel oil is 3.5 percent, falling to 0.5 percent in 2020.

### **19. EEA Reports That Air Quality Goals For 2020 Will Not Likely Be Met**

The European Union's progress toward a series of environmental goals it committed to achieve by 2020 is patchy, with some objectives unlikely to be achieved, the European Environment Agency (EEA) said in a report published on December 9. Of 29 environmental policy aims, which are accompanied by some form of commitment for 2020, nine are likely to be achieved, nine could be achieved and 11 are unlikely to be achieved, according to the EEA "Environmental Indicator Report 2016."

EEA Executive Director Hans Bruyninckx said EU environmental policies have generated benefits, such as cleaner air and water in the bloc and higher recycling rates, but "it is becoming clear that we will need more integrated policies and knowledge to achieve our aim of living well within the limits of our planet."

The report tracks progress against goals set out in the EU seventh environmental action program (7EAP), an overarching framework agreed in 2013 that guides the bloc's environmental policy. Some goals are specific and binding, such as a reduction in greenhouse gas emissions by 2020 of 20 percent compared to 1990, while others are framed more broadly and are nonbinding, such as a goal to halt destruction of ecosystems "and restore them in so far as feasible."

The 2016 progress report on the objectives showed that the EU was "more successful on reducing pressures on the environment, improving efficiency and meeting 2020 climate and energy targets than on reducing overall impacts on people's health and well-being or on ensuring the resilience of natural systems," the EEA said.

The Seventh Environment Action Programme (7th EAP) includes the objective of ensuring that outdoor air quality in the EU has significantly improved by 2020, moving closer to World Health Organization (WHO) guidelines. Observing the existing EU air quality legislation standards is a chief milestone in this respect. Despite some improvements, due to the implementation of EU legislation on emissions of air pollutants and air quality, key EU air quality standards for the protection of human health — concentrations of particulate matter (PM), ozone (O3) and nitrogen dioxide (NO2) — are currently not being met in various air quality monitoring stations in the EU. This is particularly true for urban areas, where more than 70 % of the EU population lives. This can be mainly attributed to the high level of emissions from road traffic and residential combustion in urban areas and unfavorable conditions for the dispersion of emissions due to topography and meteorological issues. Based on current trends and because of their high and widespread exceedances in urban areas, it is unlikely that the air quality standards for these pollutants will be met by 2020, while achieving air quality in line with the WHO guidelines is much further away. Further action will be needed, in particular in relation to road traffic and residential combustion in urban areas.

Air pollution is the number one environmental cause of death in the EU, responsible for more than 400 000 premature deaths per year. Health-related external costs range from EUR 330 billion to EUR 940 billion per year, depending on the valuation methodology, with evidence on the impacts of chronic ozone exposure adding around 5 % to this total.

Around one sixth of Europeans currently living in urban areas are exposed to air pollutant levels exceeding some EU air quality standards. Moreover, up to 96 % are exposed to levels of some air pollutants deemed damaging to health by the WHO's more stringent guidelines.

### **Particulate matter (PM)**

Between 2006 and 2014, 8 – 17 % of the EU's urban population is estimated to have been exposed to concentrations of fine particulate matter (PM<sub>2.5</sub>) in excess of the EU target value and a much larger proportion of the urban population (85 – 97 %) was exposed to concentrations above the WHO threshold.

A significant proportion of the EU urban population (16 – 42 %) was exposed to concentrations of coarse dust particles (PM<sub>10</sub>) in excess of the EU daily limit value set for the protection of human health during the 2000–2014 period with a slightly decreasing tendency observed throughout the whole period.

For the more stringent WHO guideline value, a higher proportion of the urban population (50 – 92 %) was exposed to concentrations above this threshold, again with a decreasing tendency.

### **Ozone (O<sub>3</sub>)**

Although reductions in European emissions of O<sub>3</sub> precursors have led to lower peak concentrations of O<sub>3</sub>, the current target value is frequently exceeded on more than 25 days a year. In the 2000–2014 period, between 8 % (in 2014) and 55 % (in 2003) of the urban population was exposed to concentrations above the target value. In the last 7 years, the proportion of the urban population exposed has not exceeded 20 %, with no significant change over time.

In relation to the more stringent WHO guideline, the proportion of the population exposed to concentrations above the guideline value is as high as 94 – 99 %, with no discernible change over time.

### **Nitrogen dioxide (NO<sub>2</sub>)**

Between 2000 and 2014, the fraction of the urban population exposed to concentrations in excess of the EU limit value and the identical WHO guideline value gradually decreased to around 10 %, with a minimum of 7 % in 2014. The highest exposure of the urban population to NO<sub>2</sub>, 31 %, occurred in 2003.

Enforcement of current legislation has resulted in a reduction in NO<sub>x</sub> emissions in all sectors. Nevertheless, emissions from transport keep NO<sub>2</sub> concentrations high close to main roads. This is because real-world driving emissions in the road transport sector — especially for diesel passenger vehicles and vans — are, on average, four or five times higher than the European emission standards by vehicle type that all vehicles must meet in a laboratory testing procedure. The transport sector presently contributes 46 % of total EU NO<sub>x</sub> emissions.

Based on the current trends it is unlikely that air quality standards for these pollutants will be met by 2020, while achieving air quality in line with the WHO guidelines is much further away.

### **Outlook beyond 2020**

In 2013, the European Commission proposed a Clean Air Policy Package for Europe, which aims to achieve full compliance with existing air quality legislation by 2020, and to further improve Europe's air quality by 2030 and beyond. As a result of this package, it has recently been agreed to revise the 2001 National Emission Ceilings Directive. The proposed new directive establishes new national emission reduction commitments applicable from 2020 and stricter commitments from 2030 for sulfur dioxide, nitrogen oxides, non-methane volatile organic compounds, ammonia and PM2.5. In addition, and as part of the package, a new directive, the Medium Combustion Plant Directive, was approved in November 2015 (EU, 2015). This directive regulates sulfur dioxide, nitrogen oxides and dust emissions from the combustion of fuels in medium-sized combustion plants (with a rated thermal input of 1 and up to 50 megawatt).

These new commitments, together with the on-going implementation of air quality improvement measures at national, regional and local levels, are expected to improve air quality in Europe. However, the changes in meteorological conditions due to climate change are expected to increase O<sub>3</sub> concentrations as a result of expected increased emissions of both specific O<sub>3</sub> precursors and emissions from wildfires; these can increase under periods of extensive drought.

Finally, it is expected that the age group composition of the EU population will continue to shift towards higher numbers of the elderly because of continuing increases in life expectancy. The overall potential air pollution-related health impact of this change remains uncertain.

## **20. London's Air Pollution Ruled Illegal by U.K.'s Top Court**

The U.K. government broke the law by failing to adequately deal with air pollution, a London judge said, ruling that ministers should revise current plans to rein in toxic emissions to comply with European Union standards. Environment Secretary Andrea Leadsom must "aim to achieve compliance by the soonest date possible," High Court Judge Neil Garnham said November 2. "She must choose a route to that objective which reduces exposure as quickly as possible" and take steps to ensure meeting EU standards is "not just possible, but likely."

The ruling marks the second time ClientEarth, a nonprofit environmental law firm, has successfully challenged the government over air quality. The verdict means ministers will now have to revise future plans to ensure they cut toxic levels of nitrogen dioxide, a pollutant that comes from diesel engines, sooner, among other sources. Leadsom's office said in a statement that its plans "have always followed the best available evidence," and that it is "ready to update them if necessary."

The Department for Environment, Food and Rural Affairs said, "Whilst our huge investment in green transport initiatives and plans to introduce clean air zones around the country will help tackle this problem, we accept the court's judgment. We will now carefully consider this ruling, and our next steps, in detail."

The government published air quality plans in December 2015 that, while improving on previous measures, still projected London to remain in breach of EU guidelines until 2025. It is those plans the environment department will now have to revise.

The U.K. has been in breach of the EU regulations since 2010, and London breached annual limits just eight days into 2016. London Mayor Sadiq Khan's office estimates that illnesses from long-term exposure to airborne pollutants cause 9,400 deaths annually in the capital, while ClientEarth estimates the figure is about 23,500 nationwide.

“This must now act as a real wake-up call to government to finally get to grips with this national health emergency,” Khan said in a statement. “I am calling for the government’s revised package of measures to include funding a national diesel scrappage scheme to take the most polluting vehicles off our roads and an overhaul of vehicle excise duty to incentivize the buying of the cleanest vehicles, as well as powers to tackle non-road sources of NO<sub>2</sub>, including from construction.”

The humiliating legal defeat is the second in 18 months and ends years of inadequate action and delays to tackle the problem. Ministers are now bound to implement new measures to cut toxic air quickly and the Prime Minister, Theresa May, indicated the government would this time respond positively: “There is more to do and we will do it.”

The most likely measure is using charges to deter polluting diesel vehicles from “clean air zones” in urban centers, which could be in place next year in London and in 2018 in Birmingham and other cities. Nitrogen dioxide, the pollutant at the heart of the legal case, has been at illegal levels in 90% of the country’s air quality zones since 2010 and largely stems from diesel vehicles.

EU law requires the government to cut the illegal pollution in the “shortest possible time” but legal NGO ClientEarth, which brought the cases, argued the government’s plans ignored many measures that could help achieve this.

At prime minister’s questions, May said: “We now recognize that Defra [the Department for Environment, Food and Rural Affairs] has to look at the judgment made by the courts and we now have to look again at the proposals we will bring forward. Nobody in this house doubts the importance of the issue of air quality.”

The government’s own estimates show air pollution causes at least £27.5bn a year and in April MPs called the issue a “public health emergency”.

ClientEarth lawyers said they looked forward to working with Defra ministers to make a genuine attempt to rapidly cut pollution to legal limits throughout the UK, including a national network of clean air zones by 2018. “The government will have to be tougher on diesel,” said James Thornton, CEO of ClientEarth. “If you put in clean air zones, it works overnight.”

Documents revealed during the high court case showed the Treasury had blocked initial government plans to charge polluting diesel vehicles for entering towns and cities blighted by air pollution, due to concern about the political impact of angering motorists. Both the environment and transport departments recommended changes to vehicle excise duty rates to encourage the purchase of low-pollution vehicles. But the Treasury also rejected that idea, along with a scrappage scheme for older diesels, which ClientEarth supports.

The government’s draft plan had envisaged 16 clean air zones, but in the final plan the number was cut, on the grounds of costs to business, to just five outside London: Birmingham, Leeds, Nottingham, Derby and Southampton. The further cities and towns that now need to introduce clean air zones will be determined by the more realistic pollution modelling ordered by the court.

## **21. Doctors Against Diesel Calls For Ban On Polluting Cars from London**

A group of healthcare professionals campaigning as the group Doctors Against Diesel, have called for diesel engines to be outlawed in London. The organization says Mayor of London, Sadiq Khan, should commit the capital to a growing list of cities to ban the engines.

The campaign group says that 9,400 deaths in London are caused every year by toxic fumes from diesel engines. Authorities in Paris, Madrid, Mexico City and Athens have all said they will ban vehicles with diesel engines by 2025. Though Khan has said he wants to ban diesel buses by 2018, campaigners want him to go even further.

"Air pollution levels in London exceed legal limits and affect people's health at every stage of life. If we want to be serious about air pollution we need to be serious about diesel."

The call by Doctors Against Diesel follows health warnings issued by the Mayor of London's office, earlier this month. The warning, which was issued on 1st December as a result of high pollution levels which could not be dispersed as normal due to high air pressure and low winds.

Environmental group Friends of the Earth said, however, that it was not acceptable to advise vulnerable people to stay at home rather than deal with the cause of the pollution. It called for restrictions to "traffic not people".

Proposals aimed at improving air quality in the capital are currently subject to a public consultation.

Estimates suggest poor air quality in London is responsible for some 9,400 deaths every year.

## **22. Parisians Grapple with Worst Winter Pollution in a Decade**

Large red stains showing the pollution cloud have covered daily maps produced by Airparif recently. The monitoring agency says a high-pressure weather system and a low-altitude blanket of warmer air over the city are acting like a saucepan lid, forcing Paris to breathe its own trapped emissions. "An anti-cyclone with very little wind that prevents the dispersion of pollutants," Airparif spokeswoman Amelie Fritz explained.

The problematic pollutant this time is particulate matter — "very fine dust," mostly from vehicle emissions and wood-burning heating, Fritz said. Able to penetrate the lungs and bloodstream, the tiny PM10 particles can cause heart disease, lung cancer, asthma and acute respiratory infections, according to the World Health Organization.

The response from Paris authorities involves both carrot and stick. To encourage car users to switch to public transport, the Metro, suburban trains and buses have been free for several days, at a cost, Paris region authorities say, of about 4 million euros (\$4.3 million) per day. Paris' Velib bicycle-sharing service and Autolib electric cars are offering special deals.

On the punitive side, the Paris police chief has reduced speed limits, banned outdoor and indoor fires and even required homeowners to restrict their heating to no more than 18 C (64 F).

The headline measure, an alternating ban on cars, depending on whether they have odd or even-numbered plates, has been put into effect on several days. Drivers face fines of between 22 (\$23) and 75 euros (\$80) for ignoring the rule. A similar scheme was implemented in the city of Lyon, as pollution hits various regions, including the Rhone valley.

But the Paris ban doesn't apply to small trucks, trucks delivering food and other essentials, to cars carrying at least three people and to certain professions. Undertakers and journalists, for example, aren't affected. The boulevards still hum with vehicles.

"We've noticed that the measures haven't been followed that much," said Fritz at Airparif. "We've noticed only 5 to 10 percent less traffic."

With more asthmatic children needing hospital treatment in Paris, France's government put medics on alert and warned residents to limit outdoor activity. The Paris public hospital authority reported that it had 2,045 emergency visits by asthmatic children during the first week of December, compared with 1,516 in the same period last year. The hospital authority remained cautious in a statement about singling out a cause, but noted the health threats from the kind of particulate matter pollution blanketing Paris.

Health Minister Marisol Touraine said that hospitals were on alert for emergency respiratory problems across the Paris region and in southeastern France.

### **23. Ozone Leads French Air Pollution Breaches In 2015**

A number of French cities and their surrounding areas breached EU air quality standards in 2015 despite official data recording the lowest levels of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM) for a decade.

The latest national air quality statistics, published by the French Environment Ministry, found EU air quality standards had been breached for seven out of 12 pollutants in the country in 2015. Almost all non-compliance incidents were recorded in eastern France – particularly around the regions of Provence, Rhône-Alpes and Alsace – and the greater Paris area.

In its report, the government identified ozone as the most prevalent pollutant, with concentrations of the gas rising to almost 20% between 2000 and 2015. In comparison, concentrations of other pollutants, such as NO<sub>2</sub> and PM<sub>10</sub>, had decreased.

The maximum, daily 120 µg/m<sup>3</sup> limit allowed for ozone under EU law was breached in 34 French agglomerations throughout 2015, up from 26 last year. The French government attributed this in part to a period between 30 June and 7 July last year when weak winds and uncommonly high temperatures created conditions that led to a rise in ozone levels.

NO<sub>2</sub> levels across France were almost 30% lower in 2015 compared to 2000 but the pollutant still accounted for the second highest number of EU air quality standard breaches after ozone. According to the French government, NO<sub>2</sub> limits set under the EU Ambient Air Quality Directive (AAQD) were breached across 16 agglomerations last year.

PM<sub>10</sub> was the third most common reason for agglomerations to breach EU air rules, with eight instances in 2015. However, average levels of the pollutant dropped by close to 30% across the country last year compared to 2000. Breaches were driven by a buildup of emissions in March 2015 when there was a lack of wind to clear them, the government added.

### **24. Barcelona to Ban Polluting Vehicles From 2020**

Barcelona city council intends to ban the "most polluting" vehicles from entering a new low-emission zone in the city center by 2020. And circulation could be prohibited as early as next winter during nitrogen dioxide (NO<sub>2</sub>) episodes, which are declared in Barcelona once the concentration of the pollutant reaches 200 µg/m<sup>3</sup>.

The measure was announced by Barcelona's deputy mayor for mobility Janet Sanz, who highlighted the need to tackle the city's "structural" pollution problem. The city council will start by setting up a low-emission zone corresponding to the oval within Barcelona's B-10 and B-20 ring roads.

The city council has yet to explain which vehicles will be covered by the ban.

The announcement is one of the 58 measures tackling air pollution to be rolled out in Barcelona between 2017 and 2020. According to Sanz, the changes will be introduced together with metropolitan and regional authorities and will include a boost to underground, tram and bus networks.

In addition, the city will triple the number of cycling lanes and provide easier access to public transport alternatives to citizens who give up polluting cars.

The long-term plans against polluting cars in Barcelona emerge as Madrid considers implementing similar measures. Earlier this month, the Spanish capital's local authorities unveiled a plan with 30 proposals, including restricting access of private vehicles into the city center and prioritizing sustainable modes of transport.

Madrid and Barcelona are among the 12 Spanish cities to have pledged to halve transport emissions by 2030.

## **25. EU Emissions Up Slightly, But 22 Percent Below 1990 Level**

The European Union's greenhouse gas emissions increased slightly in 2015 compared to the previous year, but were still down 22 percent relative to 1990, according to preliminary figures issued by the European Environment Agency (EEA) on November 8<sup>th</sup>.

EU emissions went up 0.7 percent in 2015, but the 28-country bloc nevertheless remains "well on course" to meet a binding goal to reduce its greenhouse gas emissions by 20 percent by 2020 compared to 1990, the EEA said.

The 2015 increase was caused by rising emissions in parts of the economy not covered by the EU emissions trading system (ETS), in particular transportation, the EEA said. The ETS covers heavy industry, power generation and some aviation, while EU countries are required to take action at the national level to reduce emissions from other sectors, such as agriculture, construction and transportation.

The EEA said that by 2020, most EU countries are expected to beat their national emission reduction targets for the non-ETS parts of their economies, but Austria, Belgium, Denmark, Ireland and Luxembourg would have to "implement additional measures to reach their targets."

The EU's top climate official, Climate Action and Energy Commissioner Miguel Arias Cañete, said the EEA data showed the EU was "doing its homework" after it pledged to cut its emissions by 40 percent by 2030 ahead of the 2015 United Nations climate conference where the Paris Agreement was adopted. "Once again we have shown that protecting the climate can go hand in hand with economic growth," Cañete said.

The EEA said that confirmed EU emissions figures for 2015 would be reported to the United Nations Framework Convention on Climate Change in 2017.



## NORTH AMERICA

### 26. Trump's Picks EPA Opponent To Head Agency

Trump's nomination of Oklahoma attorney general Scott Pruitt to lead the Environmental Protection Agency (EPA) is particularly worrisome. The EPA regulates pollution and chemicals at home, and it must play a powerful part in the United States' efforts to reduce greenhouse-gas emissions, which affect the entire planet. Yet Pruitt has opposed such policies over and over.

Pruitt claims that the EPA has an activist agenda that threatens jobs and economic development. As attorney general, he challenged a federal rule intended to expand protections for waterways and wetlands. He fought a regulation that was designed to reduce the amount of mercury and other pollutants emitted by power-plant smokestacks. He was also among the state leaders who filed lawsuits against President Barack Obama's power-plant regulations. He disputed the landmark EPA judgment that climate change poses a danger to public health and welfare.

In at least one case documented by The New York Times last year, he used his office to help Devon Energy, an oil and gas company based in Oklahoma, challenge the EPA's estimates of methane emissions from natural-gas wells. Devon penned a letter in 2011, and Pruitt signed it and sent it to the agency. In a response to the Times, Pruitt acknowledged as much, but said it was the content of the letter, not the source, that mattered. "The oil and gas industry has been targeted unfairly by this administration," Pruitt wrote. "The AG's office has particular interest in weighing in whenever any federal agency oversteps its authority to implement devastating policies."

In 2012, he accused EPA officials of possible deception over measurements of methane emissions, and complained of a "wayward federal agency arbitrarily using unsubstantiated, inaccurate and flawed data to achieve a specific policy objective". Pruitt has taken a similar attitude to climate science, which he has described as contested and uncertain.

An ally of the energy industry, Pruitt, along with Alabama Attorney General Luther Strange, came to the defense of ExxonMobil when it fell under investigation by attorneys general from other states seeking information about whether the oil giant failed to disclose material information about climate change. "We do not doubt the sincerity of the beliefs of our fellow attorneys general about climate change and the role human activity plays in it," they wrote in National Review. "But we call upon them to press those beliefs through debate, not through governmental intimidation of those who disagree with them."

In an interview with The Washington Post in September, as a D.C. federal appeals court was preparing to hear arguments over the Clean Power Plan, Pruitt detailed why he has remained a leading opponent of the EPA's efforts to curb carbon emissions by regulating power plants. "What concerns the states is the process, the procedures, the authority that the EPA is exerting that we think is entirely inconsistent with its constitutional and statutory authority," he said at the time. Agencies such as the EPA, he said, should not be trying to "pinch hit" for Congress.

"This is a unique approach by EPA, whether they want to acknowledge it or not," he said of the provisions of the Clean Air Act that the agency had relied upon to write new regulations. "The overreach is the statutes do not permit [EPA officials] to act in the way they are. They tend to have this approach that the end justifies the means. . . They tend to justify it by saying this big issue, this is an important issue."

But he added that's where Congress should have authority, not EPA. "This is something from a constitutional and statutory perspective that causes great concern."

"For too long, the Environmental Protection Agency has spent taxpayer dollars on an out-of-control anti-energy agenda that has destroyed millions of jobs, while also undermining our incredible farmers and many other businesses and industries at every turn," Trump said in a statement released by his transition team. "As my EPA Administrator, Scott Pruitt ... will reverse this trend and restore the EPA's essential mission of keeping our air and our water clean and safe."

### **27. Will NASA's Climate Program Survive?**

The incoming administration will scrap NASA's climate change research and crack down on "politicized science", Bob Walker, Donald Trump's senior adviser on issues related to the space agency, said. The agency will focus on deep space exploration, following Trump's campaign promise to explore the entire solar system before the end of the century. NASA's earth science division will have its budget cut, which will reduce its world-renowned research into temperature, ice, clouds and other climate phenomena. It was set to have its budget increased to \$2bn in 2017, while space exploration was set to be \$2.8bn. Walker said earth-centric science was better for other agencies and that NASA should step away from what he previously called "politically correct environmental monitoring".

### **28. Trump Open-Minded on Paris Climate Deal?**

On November 22<sup>nd</sup>, Donald Trump softened his opposition to the international climate agreement, even as he has continued to staff his transition team with opponents of regulating greenhouse gases. Environmentalists were modestly encouraged by Trump's Paris statement. Many remained skeptical of his broader climate change approach; however, some saw glimmers of hope.

Trump told New York Times reporters November 22 that he has an open mind toward keeping the U.S. in the Paris climate agreement. "I'm looking at it very closely," Trump said, according to the Times. "I have an open mind to it."

Trump also in the interview told reporters he is considering how much climate change is impacting businesses and American competitiveness.

The statement would be a stark change in position from Trump's repeated promises on the campaign trail to withdraw the U.S. from the international agreement.

Trump had previously reversed during the general election debate his campaign rhetoric—where he called climate change a Chinese hoax intended to make the U.S. less competitive—stating that human actions contribute to climate change, but it isn't clear by how much.

As Trump seemingly shifted his policy approach from a clear exit from the Paris climate agreement to a neutral "we shall see" approach, his recent energy and environment appointments seemed to move in the other direction.

### **29. Auto Alliance Seeks Regulatory Relief from Trump**

On November 10<sup>th</sup>, Mitch Bainwol, President and CEO of the Alliance of Automobile Manufacturers sent a letter to: President-elect Donald J. Trump's Transition Team requesting relief from the fuel efficiency rules. Its first recommendation is to harmonize and adjust fuel economy and GHG emission standards:

The Corporate Average Fuel Economy (CAFE) and Greenhouse Gas (GHG) Emission Standards that were adopted in 2012 by the EPA, NHTSA, and the California Air Resources Board (CARB) via a Joint Final Rule pose a substantial challenge to the auto sector due to the steeper compliance requirements for Model Years (MY) 2017-2025. As part of the Mid-Term Review process that kicked off this summer with release of the Draft Technical Assessment Report (TAR), the EPA, NHTSA, CARB and the auto sector are in the process of re-evaluating the assumptions that shaped those original standards. Automakers have outlined concerns that call into question the viability of the modeling used in the draft TAR. In short, we believe the TAR over-projects technology efficiencies and inadequately accounts for consumer acceptance and marketplace realities.

These market factors are absolutely critical since automakers are ultimately judged by what consumers take out of showrooms across America, rather than what automakers put into those showrooms. The combination of low gas prices and the existing fuel efficiency gains from the early years of the program is undercutting consumer willingness to buy the vehicles with more expensive alternative powertrains that are necessary for the sector to comply with the more stringent standards in out-years.

When the EPA, NHTSA and CARB established the 2012 Joint Final Rule creating "One National Program," one primary aspect was to "harmonize" the three sets of fuel economy regulations at the federal and state level as fully as possible to provide greater consistency and certainty for automakers as they develop their products for sale across the U.S. The Administration's 2012 Regulatory Announcement highlighted the value of harmonization: "Continuing the National Program ensures that auto manufacturers can build a single fleet of U.S. vehicles that satisfy requirements of both federal programs as well as California's program."

But significant inconsistencies continue to exist.

Since 2012, it has become increasingly clear that many automakers may be in compliance with the EPA program, yet subject to fines in the NHTSA program. This regulatory friction is already occurring, driving up vehicle costs, and will become even more counterproductive as the regulatory requirements become more stringent in future Model Years. Potentially billions of dollars in fines under the NHTSA CAFE program are anticipated.

We recommend that the White House lead efforts with EPA, NHTSA, CARB and the automakers on finding a pathway forward regarding the standards for 2022 MY and beyond prior to publishing the NPRM and preliminary determination.

We also recommend that the Trump Administration support the administrative and legislative reforms necessary to achieve harmonization. This includes approving the petition that the Auto Alliance filed with EPA and NHTSA on June 20, 2016 regarding certain harmonization gaps that exist that can be addressed administratively.

Its second recommendation is to Include Zero Emission Vehicle (ZEV) mandate cost in the mid-term review:

Under a waiver granted by EPA, California's ZEV requirement (followed by nine other states), forces GHG-reducing solutions (heavy electrification) into the market rather than allowing the "technology-agnostic" approach that EPA and NHTSA relied upon in the One National Program. This additive ZEV requirement grows to over 15% of vehicle sales by 2025 in the ten states that together account for roughly one-third of all light-duty vehicle sales in the United States. The benefits of the ZEV program are factored into the Draft Technical Assessment Report, but the costs of the ZEV program are ignored.

And while EPA argues that substantial electrification is not required for compliance with the federal program, that point is academic if it is separately required for the ten relevant states. We recommend that the cost of the ZEV mandate be factored into the Mid-Term Review due to the much more expensive compliance pathway that will increase costs for consumers nationally.

In addition, the 9 states that have adopted the California ZEV requirements have not provided comparable and needed incentives for consumers to be willing to purchase the highly electrified vehicles in their markets. This is leading to dramatically different consumer acceptance of electrified products in the Northeast states compared to California. The Administration should engage as appropriate to help address these ZEV issues – especially to help avoid the creation of a patchwork of requirements that will frustrate the overall intent of the "One National Program".

Finally it calls for Regulatory and Organizational Reforms.

It argues that in order to maximize affordability for all Americans, it makes sense to assess a range of ideas that can lead to even more thoughtful regulatory approaches, including:

- Comprehensive Regulatory Review. Undertake a comprehensive review of all regulations (final and proposed), interpretations of regulations, guidance, information disseminations, information collections, that were promulgated or issued since September 1, 2016 to ensure that these are consistent with the policy objectives of the new administration.
- Ensure that the EPA does not issue any Proposed Determination on whether the Model Year 2022-2025 Greenhouse Gas Light Duty Vehicle standards are appropriate under section 202(a) of the Clean Air Act.
- Establish a New OMB Requirement for "Whole Car Cost Analysis." To ensure that the overall health and vitality of the auto sector is not jeopardized by the cumulative costs of new vehicle regulations/policies, agency proposals for new car requirements should be accompanied by a Whole Car Cost Impact Statement that aggregates compliance expenses.
- Impose a "Shot Clock" for Agency Responses to Industry Submissions/Petitions. To encourage prompt responses to requests for regulatory actions, and prevent federal agencies and departments from sitting on such waivers and petitions that may help spur additional innovation, the timelines established in statute must be made meaningful and binding.
- Revise OMB Guidance for Federal Agencies and Departments. OMB ought to establish clear thresholds regarding the use of non-regulatory guidance to ensure that quasi-regulatory efforts do not circumvent the traditional rulemaking process.
- Establish a Presidential Advisory Committee to Coordinate Auto Sector Regulators. Such an advisory committee would help reduce regulatory friction and confusion among federal agencies and departments and could potentially result in recommendations for a new paradigm for vehicle regulation. The committee also could identify opportunities to streamline and improve the efficiency of multiple federal and state agencies by eliminating

duplication of effort and more efficiently allocating responsibilities by agency area of expertise.

### **30. EPA Proposes To Retain CO2 Standards for Cars and Light Trucks Through 2025**

Based on extensive technical analysis that shows automakers are well positioned to meet greenhouse gas (GHG) emissions standards for model years 2022-2025, U.S. Environmental Protection Agency (EPA) Administrator Gina McCarthy has proposed leaving the standards in place, so the program that was established in 2012 will stay on track to nearly double fuel economy, dramatically cut carbon pollution, maintain regulatory certainty for a global industry, and save American drivers billions of dollars at the pump.

“Given the auto industry’s importance to American jobs and communities and the industry’s need for certainty well into the future, EPA has reanalyzed these clean car standards and sought further input,” said EPA Administrator Gina McCarthy. “It’s clear from the extensive technical record that this program will remain affordable and effective. This proposed decision reconfirms our confidence in the auto industry’s capacity to drive innovation and strengthen the American economy while saving drivers money at the pump and safeguarding our health, climate and environment.”

EPA’s proposed determination is based on years of technical work, including an exhaustive technical report released earlier this year, and the agency’s thorough review and consideration of comments received on that report. This extensive body of analysis shows that manufacturers can meet the standards at similar or even a lower cost than what was anticipated in the 2012 rulemaking, and that the standards will deliver significant fuel savings for American consumers, as well as benefits to public health and welfare from reducing the pollution that contributes to climate change. Full implementation of the standards will cut about 6 billion metric tons of GHG emissions over the lifetimes of the vehicles sold in model years 2012-2025. Cars and light trucks are the largest source of GHG emissions in the U.S. transportation sector.

Although EPA’s technical analysis indicates that the standards could be strengthened for model years 2022-2025, proposing to leave the current standards in place provides greater certainty to the auto industry for product planning and engineering. This will enable long-term planning in the auto industry, while also benefiting consumers and the environment.

EPA’s announcement builds on years of success under EPA’s vehicle emission standards. Auto manufacturers are innovating and adopting fuel economy technologies at unprecedented rates. Car makers have developed more technologies to reduce GHG emissions, and these technologies are entering the fleet faster than expected. These technologies include gasoline direct injection, more sophisticated transmissions, and stop-start systems that reduce idling fuel consumption. At the end of 2015, all large automakers were in compliance with the standards. In fact, automakers on average out-performed the model year 2015 standards by seven grams per mile. These gains are happening at a time when the car industry is thriving, and domestic vehicle sales have increased for six consecutive years, while maintaining consumer choice across a full range of vehicle sizes and types.

As part of the rulemaking establishing the model year 2017-2025 light-duty vehicle GHG standards, EPA committed to conduct a Midterm Evaluation of standards for model years 2022-2025. The public comment period for this action will end on December 30, 2016. After the comment period has ended and consideration of the input, the Administrator will decide whether

she has enough information to make a final determination on the model year 2022-2025 standards.

### **31. Auto Trade Groups Ask EPA to Delay Auto Emissions Rule Decision**

Trade groups representing nearly all automakers in the U.S. market have now asked the EPA to refrain from finalizing a rule to slash tailpipe greenhouse gas emissions through 2025 until after President Barack Obama leaves office. Following a similar move by the Association of Global Automakers on December 7, the Alliance of Automobile Manufacturers, whose members include the Detroit 3, filed a petition asking the EPA to withdraw its November 30<sup>th</sup> proposal to keep the greenhouse gas rule unchanged from when it was made final in 2012.

The tailpipe rule is a key component in the Obama administration's 2011 deal with automakers to align rules governing fuel economy between the EPA, Transportation Department, which oversees Corporate Average Fuel Economy standards, and California's Air Resource Board. The rule aims to boost vehicle efficiency to a more than 50 mpg fleet average by 2025.

The EPA proposal to keep its standards intact came several months earlier than expected, prompting accusations that the agency unfairly stymied an ongoing review with automakers over the feasibility of the final four years of the rule, from 2022-2025 and separates the emissions rule from CAFE standards.

In the petition, Alliance CEO Mitch Bainwol called the EPA's move a "stunning change of course" and asked the agency to return to its previous timeline. "At a minimum, EPA's actions in this matter create the appearance of an agency that is uninterested in a full, open and fair consideration of all data...and that pre-determined the outcome of the Midterm Evaluation before allowing the process to play out as intended," Bainwol wrote.

The Alliance also asked for more time to comment on the proposal if the agency denies its petition

Earlier, the Alliance unsuccessfully tried to convince lawmakers to include language to block the EPA from issuing a final decision on the rule during the Obama administration in an upcoming short-term budget bill.

"Emissions standards going forward were to be based on a data-driven and objective review in which the EPA, the National Highway Traffic Administration (NHTSA) and the California Air Resources Board (CARB) are aligned every step of the way," Global Automakers CEO John Bozzella said in a statement. "The hasty decision to accelerate the EPA process, taken in the waning days of an Administration, raises serious concerns about the objectivity and factual foundation of their action."

After a 30-day comment period, EPA Administrator Gina McCarthy can make a final determination to leave the standards unchanged, well before an April 2018 statutory deadline.

### **32. Volkswagen to Recall 83,000 3.0 Liter Diesel Vehicles and Fund Mitigation Projects**

In a second partial settlement announced by the U.S. Environmental Protection Agency (EPA), the Department of Justice (DOJ), and the State of California, automakers Volkswagen AG, Audi AG, Porsche AG and related entities (collectively referred to as Volkswagen), have agreed to recall 83,000 model year 2009 through 2016 3.0 liter diesel vehicles sold or leased in the U.S.

that are alleged to be equipped with “defeat devices” to cheat emissions tests, in violation of the Clean Air Act and California law. For the older vehicles, Volkswagen is required to offer to buy back the vehicles or terminate leases, and must also offer an emissions modification to substantially reduce emissions if one is proposed by Volkswagen and approved by regulators. For the newer vehicles, if Volkswagen demonstrates it can make the vehicles compliant with the certified exhaust emission standards, it will have to fix the vehicles and will not be required to buy the vehicles back. Volkswagen is also required to spend \$225 million to fund projects that will reduce emissions of nitrogen oxide (NOx).

The latest partial settlement does not resolve any pending claims for civil penalties, nor does it address any potential criminal liability. The settlement also does not resolve any consumer claims, claims by the Federal Trade Commission, or claims by individual owners or lessees who may have asserted claims in the ongoing multidistrict litigation. The state of California has secured a separate resolution for the 3.0 liter violations that addresses issues specific to vehicles and consumers in California.

The affected older vehicles (referred to as “generation 1” vehicles) are the 2009 through 2012 Volkswagen Touareg and Audi Q7 diesel models. The affected newer vehicles (referred to as “generation 2” vehicles) are the 2013-2016 Volkswagen Touareg diesels, 2013 through 2015 Audi Q7 diesels, 2013 through 2016 Porsche Cayenne diesels, and 2014 through 2016 Audi A6 Quattro, A7 Quattro, A8, A8L and Q5 diesel models.

According to the civil complaint against Volkswagen filed by the Justice Department on behalf of EPA on January 4, 2016, and amended on October 7, 2016, Volkswagen allegedly equipped its 3.0 liter diesel vehicles with illegal software that detects when the car is being tested for compliance with EPA or California emissions standards and turns on required emissions controls only during that testing process. During normal driving conditions, the software renders these emissions control systems inoperative or reduces their effectiveness, resulting in increased emissions. This is known as a defeat device. By using a defeat device, these cars meet emissions standards in the laboratory, but emit up to nine times or more above the EPA-compliant levels for NOx during normal on-road driving conditions. The Clean Air Act requires manufacturers to certify to EPA that vehicles will meet federal emissions standards. Vehicles with defeat devices cannot be certified.

Because Volkswagen cannot modify the affected 2009 through 2012 Volkswagen Touareg and Audi Q7 generation 1 diesel vehicles to meet EPA-certified exhaust emissions standards, the settlement requires Volkswagen to offer owners of generation 1 vehicles the option to have the company buy back the car and to offer lessees a lease cancellation at no cost. If a plan is proposed by Volkswagen and approved by EPA and CARB to substantially reduce emissions from the generation 1 vehicles, Volkswagen will also have to offer that as an option for consumers.

For the generation 2 vehicles, Volkswagen will recall and fix these vehicles so they meet their certified exhaust emissions standards, after the technical solution is approved by regulators. If after extensive testing the solution does not perform as expected and is not approved, Volkswagen must offer to buy back the vehicles. In that case, the company can also seek approval of an emissions modification plan to substantially reduce emissions and, if approved, can offer that as an additional option for generation 2 vehicles.

Under the terms of the settlement, Volkswagen must achieve an overall recall rate of at least 85% for each of the generation 1 and generation 2 vehicles recall programs or pay additional sums into the mitigation trust fund. The buyback and lease termination program for generation 1

vehicles will begin within 30 days following court approval of the settlement. Vehicle modifications will become available to eligible owners and lessees once the modifications are approved by regulators.

The settlement requires Volkswagen to pay \$225 million to fund projects across the country that will reduce emissions of NOx where the 3.0 liter vehicles were, are or will be operated. This funding is intended to fully mitigate the past and future NOx emissions from the 3.0 liter vehicles. That money will be placed in the same mitigation trust to be established under the partial settlement for the 2L vehicles. This \$225 million is in addition to the \$2.7 billion that Volkswagen is required to pay into that trust under the prior settlement. The mitigation trust will be administered by an independent trustee. Beneficiaries, which may include states, Puerto Rico, the District of Columbia, and Indian tribes, may obtain funds for designated NOx reduction projects upon application to the trustee.

California said in a separate court filing that Volkswagen agreed to add by 2020 at least three additional electric vehicles, including an SUV, in California and must sell an average of 5,000 electric vehicles annually. Volkswagen also agreed to pay California's state air board \$25 million, the state said.

The provisions of the settlement are contained in a proposed consent decree filed in the U.S. District Court for the Northern District of California, as part of the ongoing multi-district litigation, and will be subject to public comment period of 30 days, which will be announced in the Federal Register soon.

U.S. District Judge Charles Breyer announced the settlement during a hearing in San Francisco. Breyer in October approved VW's earlier settlement worth about \$15 billion with regulators and the U.S. owners of 475,000 polluting diesel vehicles with smaller 2.0-liter engines, including an offer to buy back all of the cars.

Breyer also said German engineering company Robert Bosch GmbH, which produced the software for the VW diesels, has agreed in principle to settle civil allegations made by U.S. diesel vehicle owners. The company confirmed it had reached the agreement, but declined to discuss specifics.

Bosch acknowledged in a statement it supplied the electronic engine control units for VW's tainted diesel engines. "By joining the settlement process, Bosch neither acknowledges the facts as alleged by the plaintiffs nor does Bosch accept any liability," the statement said. "Upon careful consideration of all relevant aspects in this case, Bosch decided to enter the agreement in principle announced by the judge today.

"The agreement in principle concerns only private claims. As it has done since allegations were first made, Bosch will continue to cooperate comprehensively with the investigating authorities in Germany and in other countries."

### **33. Volkswagen Settles Emissions Scandal in Canada for \$1.6 Billion**

Volkswagen Group Canada Inc. agreed to a C\$2.1 billion (\$1.6 billion) settlement to resolve a class action lawsuit over Canada's emissions software scandal, one of the largest consumer settlements in the country's history. If approved by the courts, the class action settlement would provide restitution to the owners of about 105,000 vehicles with 2.0-liter diesel engines for which



the automaker made false or misleading fuel consumption claims, the company said December 19.

The settlement, which is subject to approval in March 2017 by the Ontario Superior Court of Justice and the Superior Court of Quebec, would offer affected consumers several choices: cash compensation; vehicle buyback; termination of a car lease without penalty; vehicle modification at no charge (if an emissions modification is approved by Canadian regulators); or “fair market value” of vehicle applied in trade-in to buy another Volkswagen or Audi.

Under that last scenario, the company would pay any difference between the vehicle’s wholesale value as of Sept. 18, 2015, and its fair market value at the time of trade-in.

The settlement amounts do not include legal costs that courts could impose on Volkswagen.

In a separate action, Canada’s Competition Bureau confirmed December 19<sup>th</sup> that Volkswagen Group Canada and Audi Canada Inc. agreed to pay C\$15 million (\$11 million) to resolve claims that the companies used false or misleading environmental marketing for vehicles with the 2.0-liter diesel engines.

The consent order, registered with the Competition Tribunal, does not resolve ongoing investigation of the companies’ claims for vehicles equipped with 3.0-liter diesel engines, it said. Proposed class actions on those vehicles are still underway.

#### **34. Volkswagen Chief: VW Is Done With Diesels in the US**

Diesel is dead - at least that’s the position of Volkswagen in the US as the fallout from the ‘dieselgate’ emissions scandal continues. Reuters reports the carmaker has made the call to end the program, meaning diesel-powered passenger cars will no longer be available from Volkswagen for customers in the US.

The call came from Volkswagen CEO Herbert Diess, and was backed by Volkswagen USA. This ends months of speculation from industry analysts as to whether Volkswagen would ‘relaunch’ its diesel program once the buzz surrounding dieselgate had dissipated. At one stage, diesels accounted for around a quarter of Volkswagen’s sales in the US.

And the decision is a recent one, with Volkswagen USA CEO Hinrich Woebcken saying he believed diesel would continue to form part of Volkswagen’s strategy in the US - albeit on a smaller scale - while speaking at the LA Auto Show.

With the diesel decision now looking final, Volkswagen may instead choose to concentrate on its electric vehicle program. Comments from Mr. Woebcken in LA appear to support this strategy.

While Volkswagen will abandon diesel passenger cars for the US, Audi is reportedly viewing a slightly different position. Audi may continue to offer diesels in the future for US buyers, but the Q7 SUV may end up being the only model with a diesel engine option.

#### **35. Dodge Truck Owners Accuse Chrysler of VW-Like Cheating**

Diesel pollution cheating allegations hit a U.S. carmaker as Dodge truck owners have sued Chrysler, claiming some engines were rigged to hide emissions as much as 14 times higher than the law permits.

The Michigan-based unit of Fiat Chrysler Automobiles NV is the first U.S. carmaker to be sued by consumers. Similar claims were made against German carmakers. Volkswagen AG admitted that it installed devices designed to fool emission testing in 11 million cars worldwide in a scandal that may cost it 18.2 billion euros (\$19.5 billion). Claims of rigging vehicles have also been made against Mercedes, which has denied the allegations.

Chrysler and its diesel technology partner Cummins Inc. hid from consumers that pollutants that were supposed to have been broken down inside the diesel engines instead had a tendency to escape, almost doubling the emissions and reducing the vehicle's fuel efficiency, according to the lawsuit. The companies are accused of fraud, false advertising and racketeering in the complaint, filed in Detroit federal court on behalf of the owners of almost 500,000 Dodge Ram trucks.

The carmaker said in a statement that it's reviewing the complaint and will vigorously contest it. The company said it doesn't believe the claims are meritorious.

Jon Mills, a spokesman for Cummins, said the lawsuit has no merit and contains false and exaggerated claims.

"Cummins is deeply disappointed in this effort to tarnish our image and we plan to vigorously defend ourselves," Mills said. "Cummins has a robust certification and compliance process and we prohibit the use of defeat devices in our products. We're transparent with all governing bodies in these processes, from the disclosure of the design and operation of the emission control systems, to test processes and results."

The U.S. Environmental Protection Agency and Justice Department haven't taken action against Chrysler in connection with the alleged emissions violations.

The lawsuit against Fiat Chrysler -- created in 2014 through the merger of Chrysler and Fiat -- further calls into question the credibility of clean-diesel technology. Excessive emissions from the vehicles exposed the general public to noxious levels of smog, according to the consumer complaint.

The claims involving Dodge Ram pickups from 2007 through 2012 predate the first known sales of emissions-cheating vehicles by Volkswagen in 2009.

The alleged fraud was prompted by a regulatory shift in 2001, according to the filing. Companies saw an opportunity for growth after the EPA announced stringent new emissions standards for heavy-duty diesel engines effective 2010. Chrysler and Cummins bet they could leapfrog the industry and produce a vehicle to meet those standards three years ahead of schedule, according to the complaint.

Cummins increased its research and development budget by 60 percent from 2002 to 2007 to \$321 million, about a quarter of which was dedicated to meeting the new standards. The outcome, though, was a flawed engine with limited capacity for trapping excess emissions, according to the complaint.

Rushing to the market to beat competitors was only part of the reason for the fraudulent design, according to the complaint. Cummins also sought to "bank emissions credits to spend on other, dirtier engines," according to the complaint.

### **36. U.S. Suppliers Needed to Meet Mexico's Ultra-Low-Sulfur Diesel Needs**

Mexico's commitment to supply ultralow-sulfur diesel fuel throughout the country in 2018 is expected to be met by U.S. suppliers, as its own national oil and gas company faces financial issues and distances itself from refining and gas sales.

Mexico's recent opening of its gasoline and diesel market to private retailers enables the expansion of ultra-low-sulfur diesel to the whole country. Currently, the lower-polluting diesel fuel is offered by the country's national oil and gas company, Petroleos Mexicanos (Pemex), to consumers in Mexico City, Guadalajara, Monterrey, and around the border.

Under the law, Pemex has technically been required since 2009 to provide all Mexicans with the cleaner fuel. But the company has failed to meet that standard because of financial reasons. The state owned petroleum company's nearly eight-decade monopoly on fuel sales ended in 2014 with passage of energy reform legislation.

"Until recently, Pemex had the full responsibility for supplying the domestic markets," said Ixchel Castro, senior analyst for oil and refining markets with Wood Mackenzie in Houston, in an interview. "Now that the Ministry of Energy has allowed private companies to import gasoline and diesel, it means that Pemex does not have to do it all itself. We should see an increase of prices that will give private importers the incentive to increase the fuel provided to the regions where it has been in short supply," he said.

The new requirement to expand the supply of ultra-low-sulfur diesel by July 1, 2018, was included in a six-month fuel quality standard issued by Mexico's Energy Regulatory Commission, which was published in October 2015. A permanent standard is expected to replace the six-month standard

The increased supply of ultra-low-sulfur diesel—which will have a maximum threshold of 15 parts per million of sulfur—will in turn make tighter emissions standards easier to enforce, especially for heavy-duty trucks, according to Gabriela Niño, environmental analyst with the Mexican Center for Environmental Law.

Tougher emissions standards for diesel truck engines enacted a decade ago haven't been enforced because the fuel sold in much of the country remains too dirty, with up to 500 parts per million of sulfur.

Implementing the standard would result in a 90 percent decrease in particulate matter and nitrogen oxide emissions from diesel engines, according to the Environmental Ministry. The supply of cleaner diesel will also be key in helping Mexico meet its ambitious Paris Agreement climate change goals of a 50 percent reduction in black carbon emissions by 2030, Niño said.

"Access to this fuel is a critical step for many other environmental issues, such as reducing air pollution," Niño said.

Pemex has historically controlled the country's supply of gasoline and diesel fuel, but it has delayed making the needed multibillion-dollar investments into its refineries needed to produce the higher-quality fuel. Pemex, facing low oil prices in the last two years and the resulting budget cuts, announced in September that it plans to move away from refining and expects the supply to be met by private retailers.

Last year, Mexico imported 143,000 barrels of diesel and 307,000 barrels of gasoline daily, according to the U.S. Energy Information Administration. These same refiners are capable of meeting the increased demand for ultra-low-sulfur fuel but will have to consider alternative ways of moving it to market than using Pemex infrastructure.

“The downside at this point, in the really short term, we don’t have enough pipelines unless we use the ones from Pemex,” Castro said. “Private participants will have to use rail or road to compete with Pemex until they have private infrastructure or access to Pemex infrastructure so that they are able to compete on prices as well.”

### 37. EPA Finalizes Increase in Renewable Fuel Volumes

The U.S. Environmental Protection Agency (EPA) has finalized increases in renewable fuel volume requirements across all categories of biofuels under the Renewable Fuel Standard (RFS) program. In a required annual rulemaking, EPA’s action finalizes the volume requirements and associated percentage standards for cellulosic biofuel, advanced biofuel, and total renewable fuel for 2017, and for biomass-based diesel for 2018.

Some key elements of the action:

- Non-advanced or “conventional” renewable fuel increases in 2017, meeting the 15 billion-gallon congressional target for conventional fuels.
- The standard for biomass-based biodiesel – which must achieve at least 50 percent lifecycle greenhouse gas emission reductions compared to petroleum-based diesel – grows by 100 million gallons. The required volume of biomass-based diesel for 2017 is twice that of the minimum congressional target.
- Cellulosic biofuel – which must achieve at least 60 percent lifecycle greenhouse gas emissions reductions – grows 35 percent over the 2016 standard.
- The advanced biofuel standard – comprised of biomass-based diesel, cellulosic biofuel, and other biofuel that achieves at least 50 percent lifecycle greenhouse gas emissions reductions – increases 19 percent over the 2016 standard.
- Total renewable fuel volumes grow 1.2 billion gallons from 2016 to 2017, a 6 percent increase.

#### Renewable Fuel Volume Requirements for 2014-2018

	2014	2015	2016	2017	2018
<b>Cellulosic biofuel (million gallons)</b>	33	123	230	311	N/A
<b>Biomass-based diesel (billion gallons)</b>	1.63	1.73	1.9	2.0	2.1
<b>Advanced biofuel (billion gallons)</b>	2.67	2.88	3.61	4.28	N/A
<b>Renewable fuel (billion gallons)</b>	16.28	16.93	18.11	19.28	N/A

The Clean Air Act requires EPA to set annual RFS volume requirements for four categories of biofuels. By displacing fossil fuels, biofuels are part of the nation’s overall strategy to enhance energy security and address climate change. EPA is using the tools provided by Congress to adjust the standards below the statutory targets, but the steadily increasing volumes in the final rule continue to support Congress’s intent to grow the volumes. EPA implements the RFS program in consultation with the U.S. Department of Agriculture and the U.S. Department of Energy.

### **38. Truck Diesel Emissions at Port Of Oakland Down 98 Percent in Past Decade**

Diesel emissions from trucks serving the Port of Oakland declined 98 percent between 2005 and 2015. In that same timeframe, ship emissions dropped 75 percent. Those were the key findings of an emissions inventory the Port released recently. The results indicate the Port is advancing its 2008 commitment to reduce seaport-related diesel health risk by 85 percent by the year 2020.

The Port said that an analysis of the 2015 Emissions Inventory shows a 76 percent decrease in total diesel emissions at the Oakland Seaport. According to the Port's study, truck Diesel Particulate Matter (DPM) emissions have decreased from 16 tons in 2005 to 0.4 tons in 2015. Overall DPM emissions decreased from 261 tons to 63 tons. DPM exposure has been linked to increasing health risk for lung cancer.

The Port listed a number of contributing factors to its emissions improvements:

- a \$38 million grant program to upgrade and replace the oldest trucks operating at the Port;
- a ban on trucks that aren't compliant with statewide emissions requirements;
- shipping lines switching to cleaner burning, low sulfur fuel; and
- a \$60 million project to construct a power grid that ships can plug into at berth rather than relying on auxiliary diesel engines.

The Port and environmental consultant Ramboll Environ compiled and calculated emissions data for 2015 from ships, harbor craft, cargo handling equipment, trucks, and locomotives.

Here's the breakdown of Diesel Particulate Matter emissions improvement:

Trucks	- DPM down 98%
Locomotives	- DPM down 89%
Cargo handling equipment	- DPM down 82%
Ocean going vessels	- DPM down 75%
Harbor Craft	- DPM down 53%

The Port said its 2009 Maritime Air Quality Improvement Plan has been the biggest factor in curbing diesel emissions. The plan was adopted to reduce the health risk from diesel emissions. It was developed in conjunction with nearby residents, the US Environmental Protection Agency, California Air Resources Board, Bay Area Air Quality Management District, trucking companies, marine terminal operators, railroads and ocean carriers.

### **39. Big Blue Bus Receives Nearly \$900,000 for Clean Fuel Engine Improvements**

Big Blue Bus (BBB) has announced it will receive \$870,000 from the Mobile Source Air Pollution Reduction Review Committee's (MSRC) Near Zero Engine Incentive Program. The funds will be used to upgrade the agency's compressed natural gas (CNG) engines, which will further reduce emissions and extend the lifespan of its vehicles.

Big Blue Bus will use the grant approved by the MSRC to partially fund the purchase of fifty-eight new Cummins-Westport 8.9L ISL G Near-Zero 0.02 NOx engines; the first mid-range engine in North America to receive emission certifications from both the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB), that meet the 0.02 g/bhp-hr optional

Near Zero NOx Emissions standards. The new engines will be installed over a period of 3 to 4 years, at a rate of 12 to 18 buses per year.

In June 2015, Big Blue Bus was awarded \$5.9 million from the Federal Transit Administration, to purchase nine new CNG buses. The recent procurement of both CNG buses and engines will help the agency reduce its current nitrogen oxides (NOx) emissions by over 90% in 2018.

“The funding provided by the FTA will strengthen BBB’s vigorous pursuit of sustainable and environmentally responsible practices, in virtually every facet of our operations,” said Ed King, Director of Transit Services for Big Blue Bus. “It will also enable us to make long-term investments in new technologies that ensure the efficiency of service to our customers and the future scalability of the agency.”

“Big Blue Bus’ steady procurement of low-emitting, alternatively-fueled vehicles is very much indicative of an ongoing, citywide commitment to sustainability, while providing a strong, affordable, reliable regional transit system. Their efforts continue to play a significant role in reducing the City’s carbon footprint, including its greenhouse gas emissions, while mitigating the adverse effects of climate change in our region,” said Santa Monica Mayor Tony Vazquez.

Big Blue Bus operates a fleet of almost 200 vehicles transporting more than 61,000 passengers daily across a 51-square mile service area. Nationally recognized for its long-standing commitment to a cleaner environment, the entire fleet operates on alternative fuels, including renewable natural gas (RNG) a form of liquefied and compressed natural gas (LNG/CNG), which reduces emissions by over 90 percent. Serving Santa Monica and the Los Angeles area since 1928, Big Blue Bus has won numerous awards for its marketing and outreach, customer service, safety and efficiency.

#### **40. Canada to Phase Out Bulk HFC Use, Differing From U.S. Plan**

Canada is taking a different path than the U.S. for eliminating hydrofluorocarbons, a potent greenhouse gas, by planning to phase out bulk uses. In addition, the government said it will regulate the use of HFCs in specific products such as refrigeration and air conditioning equipment, foams and aerosols.

The U.S., meanwhile, has adopted product-specific controls but has not yet proposed a phase-down of bulk uses. Canada’s proposed regulation of individual products also differs from the U.S. approach.

Proposed amendments to Canada’s Ozone-Depleting Substances and Halocarbon Alternatives Regulations would give current importers of hydrofluorocarbons the right to continue importing them based on their share of total Canadian consumption in 2014 and 2015, the government said on November 26<sup>th</sup>.

The import allowances would be based on a share of baseline consumption levels in 2011–2013, and would then be cut 10 percent from baseline levels by 2019, 35 percent by 2024, 70 percent by 2030 and 85 percent by 2036, it said. At the same time, the use of HFCs in specific products would be regulated, it said.

“Both the regulatory controls on HFC-containing products and the reduced supply of HFCs would encourage manufacturers to choose HFC alternatives with lower global warming potentials,” it said.

The bulk phase-out would not apply to hydrofluorocarbons in imported, precharged equipment such as vehicles, air conditioning systems, refrigeration systems or domestic appliances, which instead would be subject to product-specific controls. The amendments would prohibit import or manufacture of products or equipment containing HFCs with a global warming potential above a designated limit.

That approach differs from the U.S. use of the Significant New Alternatives Policy Program to prohibit the use of specific HFCs in certain end-use equipment and products. Canada proposes not prescribing specific substances prohibited or allowed alternatives, instead using global warming potential limits to allow industry to choose how best to comply, the government said.

The timing of Canadian controls on specific products would either be aligned with U.S. timing or shortly after, it said. The differences between the Canadian and U.S. approaches are based on consultation with industry on availability of alternatives and challenges of implementing the controls, it said.

Some stakeholders argued, during consultations in 2015 and 2016, for full alignment with U.S. regulations to avoid potential market disruption and trade restrictions, but the government said that would not give industry the flexibility to eliminate HFCs on the most cost-effective basis.

Canada plans to provide exceptions to the proposed product-specific controls for technical products, such as cleaning products for electronics, and medical aerosols such as metered-dose inhalers, for which alternatives do not exist.

The amendments also would empower the government to approve applications for individual exceptions for products that are considered necessary for health and safety or critical to the public good. This would include situations where technically and economically feasible alternatives are not available.

The regulatory changes are expected to offset a projected increase in hydrofluorocarbons emissions to 22 million metric tons of carbon dioxide equivalent in 2030 from the 6 million metric tons in 2013. That increase resulted from the use of HFCs to replace hydrochlorofluorocarbons, which are being phased out under the Montreal Protocol on Substances that Deplete the Ozone Layer, the government said.

The changes are expected to cut Canada's 2018–2040 greenhouse gas emissions by about 176 million metric tons of carbon dioxide equivalent, creating benefits totaling about C\$6.2 billion (\$4.6 billion) during that period, it said. Projected compliance costs for industry totaling C\$700 million (\$518 million) would be largely offset by savings of almost C\$600 million (\$444 million), it said.

The amendments would allow Canada to meet its commitment to phase out HFC under the Montreal Protocol, as well as implement a March agreement with the U.S. to cooperate on commitments under the Paris Agreement on climate change, it said.

The proposed changes are open to comment through Feb. 9, 2017.

#### **41. Nations to Quickly Follow U.S. on 2050 Low-Carbon Plans**

The Obama administration's November 16<sup>th</sup> release of a plan showing how it can cut its greenhouse gas emissions 80 percent by 2050 will be met with similar low-carbon plans from

European nations and even a few developing nations, all in the hope of pushing global investment dollars into clean energy.

The U.S. was joined by Canada and Mexico in releasing their so-called mid-century low-carbon strategies with just days to go at UN climate talks in Morocco. The U.K., Norway, the European Union and several EU member nations including France, Italy, Sweden and Germany also have plans under way, according to environmental ministers and groups watching the Marrakech talks.

Ultimately, the ministers said, they will be joined by several developing nations that also are mulling their own pathways for mid-century low-carbon development, including Costa Rica and Peru.

The U.S. plan shows various options for its 80 percent emissions cut—from 2005 levels—but all of those paths would require a dramatic shift in policies and research that embrace solar, wind and other renewable energy well beyond the reach of current U.S. energy policies.

The November 7-18 UN summit in Morocco was largely focused on taking the first steps to implement the Paris pact, which entered into force just days before the Marrakech summit opened. Nations were called to—but not required to—develop the 2050 decarbonization plans under the 2015 Paris Agreement, and the Obama administration has sought to position itself a leader in producing a detailed plan. The 111-page plan, the United States Mid-Century Strategy for Deep Decarbonization, is long in detail and chocked full of analysis for future action. It also credits the Obama administration for cutting carbon pollution from energy 9 percent since 2008; the U.S. also is on track, the report says, to meet its pledge to cut greenhouse gas emissions 17 percent by 2020 from 2005 levels.

But the actual U.S. commitment to fighting global climate change, and to the Paris Agreement itself, has been thrown into doubt by the election of President-elect Donald Trump, who vowed during the campaign to “cancel” U.S. participation in the Paris deal. The report, the bulk of which was written before Trump’s surprising Election Day win over Democrat Hillary Clinton, is, as expected, silent on what Trump’s pledge to eliminate climate funding and U.S. climate regulations would do to efforts to meet the 80 percent U.S. emissions reduction goal outlined in the document. Instead the report assumes future presidents will build on Obama’s climate agenda. “Future administrations have authority under existing statutes to continue using similar tools with increasing ambition which, along with expanded action at the local, state and regional level, could build a pathway to 80 percent emissions reductions or more,” it says.

Outgoing Obama administration officials, including Secretary of State John Kerry, who arrived to the 22nd Conference of the Parties summit in Marrakech November 16, are prodding Trump to maintain engagement in domestic and international climate efforts, even as he shows no signs of doing so. Kerry, in his final speech to UN climate negotiators after more than two decades of effort to push for climate action, said he is confident the U.S. drive toward more clean energy won’t suffer a setback.

The last eight years have seen rapid development of U.S. wind and solar generation “and the reason... that will continue is that the marketplace will dictate that—not the government,” Kerry said November 16. The U.S. is on track, Kerry said, for meeting its targets, including its 2025 pledge to cut emissions up to 28 percent from 2005 levels—“because of the market decisions that are being made,” he said. “I do not believe that can or will be reversed” in the next administration, the secretary said. But if the world fails to ramp up its actions in the coming decades, the consequences will be dire, he said.



A November 16 statement, issued by a total of 365 businesses and investors—including more than a dozen Fortune 500 companies—called for continued engagement on the issue. “Implementing the Paris Climate Agreement will enable and encourage businesses and investors to turn the billions of dollars in existing low-carbon investments into the trillions of dollars the world needs” to expand clean energy, according to the statement from companies including DuPont, Hewlett Packard Enterprise, the Kellogg Co. and Unilever. “Failure to build a low-carbon economy puts American prosperity at risk,” it said.

#### **42. Germany, California Partner to Cut Carbon Emissions**

On November 18<sup>th</sup>, Germany announced a partnership with California to cut carbon emissions. In a bilateral accord, Germany and the U.S. state vowed to coordinate “decisive” policy to ease global warming, the German Environment Ministry said. The move was sealed in Marrakech, Morocco, where policy makers met to discuss ways to implement pledges made in the Paris climate agreement reached last year at United Nations talks.

California’s partnership with Germany has “grown into a coalition that’s setting worldwide benchmarks” in combating carbon pollution, the state’s Secretary for Environment Protection Matt Rodriquez said, according to the German Ministry.

California, the sixth-largest economy globally in World Bank rankings, wants a third of its power to come from wind and solar by 2020 and a full half by 2030. Germany, the fourth-largest economy, seeks a 45 percent share for renewable energy in its power mix by 2025.

#### **43. Western Governors Announce Network Of Electric Vehicle Charging Stations**

The governors of Colorado, Utah and Nevada are putting some juice into driving an electrical vehicle across their parts of the West. Charging stations are in the public works along major highways across the three states. Gov. John Hickenlooper, Utah Gov. Gary R. Herbert and Nevada Gov. Brian Sandoval said they would develop a plan over the next year to put up stations to give electric vehicles a network of more than 2,000 miles of highway.

A press release from Hickenlooper’s office notes Colorado offers a \$5,000 tax credit to buy an electric vehicle, “one of the best incentives in the country.”

Colorado started the Charge Ahead Colorado program in 2012 to help electric vehicles take advantage of state and federal tax breaks. The governor’s office said there were less than 100 electric vehicles in Colorado in 2011, and today there are about 8,000. In total, Colorado has about 1.6 million registered vehicles, according to the Department of Revenue.

The legislature simplified the tax-break system last spring. The charging program, called the Southwest Energy Efficiency Project, or SWEEP, was roundly endorsed by environmental conservationists.

Hickenlooper’s press release doesn’t say how the charging stations might be paid for with public or private money, but Conservation Colorado and other environmental groups have their eyes on money the state is set to receive from the \$14.7 billion settlement in the Volkswagen and Audi federal emissions-cheating case.

About \$61.3 million is earmarked for reducing vehicle emissions in Colorado, and the federal settlement language allows each state to spend up to 15 percent of its windfall on a zero-emissions vehicle charging network, about \$9.2 million for Colorado.

While that's well and good for electric vehicle owners and the environment, it's bad for maintaining Colorado's roads. Fuel taxes pay for the lion's share of highway maintenance and construction. The state's 22-cent tax hasn't been raised since 1991, and as drivers buy less gas, the pool of money to fund roads evaporates.

#### **44. Wisconsin DNR Board to Adopt Air Pollution Rules After 4-Year Delay**

After four years and a lawsuit, the Wisconsin Department of Natural Resources is finally ready to adopt federal air pollution standards.

The U.S. Environmental Protection Agency published new limits on fine particulate matter in January 2013. Wisconsin law requires the DNR to adopt rules matching EPA standards to ensure state permits meet federal requirements but the Republican-controlled agency didn't do it. Environmental groups Clean Wisconsin and the Midwest Environmental Defense Center sued in 2014 to force the agency to comply.

The groups and the DNR quietly settled the lawsuit last year with an agreement calling for the DNR to get rules reflecting the federal standards into state code by March 31, 2017. Agency officials have now drafted the regulations and the DNR board is expected to adopt them at a December 14 meeting and forward them to Gov. Scott Walker. If he signs off and no lawmakers object, the rules would likely go into effect in late March.

"We're glad to see DNR finally adding these health-based air quality protections to help address the many respiratory illnesses like asthma, bronchitis and emphysema that many Wisconsin residents face," said Amber Meyer-Smith, Clean Wisconsin's government relations director. "It's unfortunate that the DNR needs to be compelled to add these protections, but we're glad they're complying with the settlement timelines."

DNR officials said at the time the lawsuit was filed that they were working on drafting the rules but it was slow-going because the rule-making process requires the DNR to analyze the standards' economic impact. Agency spokesman Andrew Savagian said this week that Walker authorized the DNR to begin work on the rule in June 2015. He had no immediate comment on why work didn't start until the settlement was reached.

The 2015 settlement also required the DNR to adopt tighter restrictions the EPA set in 2010 for sulfur dioxide and nitrogen oxide. The DNR sent those rules to the Legislature in April 2015, shortly before the settlement was approved. They went into effect this August.

### **ASIA-PACIFIC**

#### **45. German Minister Backs China Electric Car Plan**

Germany's environment minister is throwing her support behind an aggressive Chinese plan to boost sales of electric and hybrid vehicles, putting her at odds with her country's automobile industry and some within the German government.

China is considering legislation that would require automakers to sell a specific quota of zero- and low-emissions vehicles. The figure would start at 8 percent of overall deliveries in 2018 and rise in successive years.

“With this proposal, the Chinese are showing investors what they can expect,” German Environment Minister Barbara Hendricks said in an interview. “That’s exactly what economic actors need: a clear orientation of what’s expected of them.”

Her comments fly in the face of opposition to the plan from within the German auto industry, which said such short-term targets are unrealistic and give an unfair advantage to Chinese producers. German Economy Minister Sigmar Gabriel also voiced his concerns about the matter with Chinese Industry Minister Miao Wei during a trip to the country this week.

The draft from Miao’s ministry, released in September, requires automakers that produce or import more than 50,000 vehicles a year to ensure that at least 8 percent of sales are new-energy vehicles by 2018. The proportion would rise to 10 percent in 2019 and 12 percent in 2020. Those that fail to meet the target would either have to buy credits from other automakers exceeding the goal, pay penalties or reduce their own output to meet the percentage total. German automakers said the proposal favors smaller, domestic producers.

“The central prerequisite for this is market neutrality,” Matthias Wissmann, head of the German automobile manufacturers association, said of efforts to lower vehicle emissions. “We insist that China creates reliable competition rules and fair market access also for non-Chinese companies—as well as regulations that are not discriminatory.”

Along with the proposed quotas, China has taken measures—including capping the number of new cars allowed in major cities, restricting the use of vehicles on selected days and relocating heavy industry to remote areas—to reduce industrial emissions in pollution-filled urban areas.

Hendricks, who caused waves earlier this year when she said Germany should work toward selling only zero-emissions vehicles by 2030, sees the latest actions by China as helping to accelerate the move away from cars with traditional combustion engines. Automakers have no choice but to follow the country’s directives because China is the world’s largest auto market, with 21.1 million passenger cars sold in the country past year. That compares with 3.2 million vehicles in Germany.

Meeting the new targets would be very tough. BMW AG sold 1,796 plug-in hybrid and i3 electric city cars in China in the first nine months of the year—a tiny fraction of 379,176 it delivered in the country during that time. China is Volkswagen AG’s largest market. The automaker sold 2.85 million vehicles in China and Hong Kong through September—with less than 1,000 being electrics.

“If the German auto industry doesn’t want to miss out on where the Chinese market is headed, it would serve the industry well to expand its model offerings as quickly as possible to align itself with such criteria,” Hendricks, a Social Democrat, said of the proposal.

VW Chief Executive Officer Matthias Mueller said November 1 at an event in Shanghai that the automaker will introduce 15 locally produced new-energy vehicles in China in the coming three to four years. The automaker plans to bring to market 30 new electric vehicles globally by 2025.

Gabriel, who heads the Social Democrats, told German media after meeting Miao that he expressed the view to his counterpart that the 2018 targets were not attainable and Miao assured him that any proposal would be implemented fairly for all involved.

"I certainly have serious doubts that such draconian steps are correct," Olaf Lies, economy minister from VW's home state of Lower Saxony and a member of the automaker's supervisory board, told newspaper Sueddeutsche Zeitung regarding the quotas.

#### **46. VW Leans Heavily On China in Wake of Emissions Scandal**

As Volkswagen battles to win back drivers around the world after word spread that it had cheated on emissions tests, the German automaker is relying ever more heavily on the Chinese market.

In September, VW and Anhui Jianghuai Automobile, also known as JAC, announced plans to jointly develop electric cars in China. VW CEO Matthias Mueller said the deal was "of great value to our customers, a sound environment and Chinese society in general."

But the heavy focus on China hints at the difficulty VW is having in the rest of the world, particularly in the U.S., where the emissions scandal came to light last year.

This is VW's third tie-up with a Chinese automaker, despite rules restricting foreign automakers to no more than two partnerships in China. It already has joint ventures with Shanghai-based SAIC Motor and FAW Group. Working with Chinese carmakers has helped it gain the largest slice of car sales in the country. In October, it sold more than 360,000 cars.

But the German automaker has even greater ambitions. The new tie-up with JAC focuses on the electric car business, which is not subject to the two-partner rule.

Jochem Heizmann, who heads VW's operations in China, recently told Chinese media the companies hope to launch a low-priced electric car brand. The remarks may have been aimed at regulators in Beijing, who are expected to impose rules in 2018 requiring a certain portion of cars sold in China to be electric or plug-in hybrid vehicles, known collectively as "new-energy vehicles."

VW has built a strong brand and sales network in China since it first entered the country in the 1980s. But rather than enjoying its position as top dog, it is pushing ahead more feverishly.

China accounts for nearly 40% of the company's global unit sales. Exports of cars and components from Europe to China are also crucial to the automaker's bottom line. The diesel emissions scandal has not hurt its business much in China, where diesel cars are not popular.

#### **47. China to Require Pollution 'License' For Power Plants, Companies**

China is putting a greater onus on power plants and big industries to track and limit their environmental damage, requiring them for the first time to get government permission—in the form of licenses—to pollute the air and water. In addition to setting a licensed limit for certain pollutants, the program will allow the government to impose fees or other sanctions when a company surpasses its limit.

China will link the system with a total emissions control and environmental impact assessment system for corporations, China's State Council announced November 21.

The system will start with licenses being granted to coal-fired power plants and paper-making industries. But the program will eventually—the goal is by 2020—apply to all “critical industries,” as listed in the country’s Air Pollution Action Plan (2013) and Water Pollution Action Plan (2015).

“After these reforms, licenses for every corporation that emits pollutants will be like an identity card, theirs only, a unique license allowing them to emit pollutants, and a fundamental basis for them to follow law, and for law enforcement to execute and supervise,” Chen Jining, head of the Ministry of Environmental Protection (MEP), said November 22 in a statement.

The license-based plan will replace a pollution quota system that had been linked to a geographic region—rather than a particular company. That process, monitored by local governments, has been seen as ineffective, as officials have been inclined to forgive pollution fees for companies that help the local economy.

“The licenses will not just be a piece of paper to put on the wall, but a package of legal documents that include detailed information on the kinds of pollutants, their intensity, where the emissions are going, and what kinds of treatment facilities the company is operating,” said Song Guojun, a professor from Renmin University’s School of the Environment in Beijing. Guojun has been tasked by the Ministry of Environmental Protection (MEP) to advise on the system, according to statements on the ministry website November 21.

Some pilot work has already been conducted at industrial parks and petrochemical parks, and with coal-fired power and paper-making companies.

Several provinces have also already rolled out their own local implementation guidelines ahead of the national guideline, including Gansu, Hainan, Liaoning, Shaanxi, Zhejiang, Hunan, Hubei, Qinghai, Hebei, Fujian, and in Shanghai municipality and the Xinjiang-Uighur autonomous region over the past year.

Trading in allowances for air and water pollution—such as for emissions of sulfur dioxide, nitrogen oxide, chemical oxygen demand levels and ammonia nitrogen levels—could follow, according to government statements.

A national carbon trading system is separately being established by the National Development and Reform Commission, and is expected to start trial operations next year.

#### **48. China Sends Environmental Inspection Teams To Seven Regions**

China has dispatched another seven environmental inspection teams to check how its anti-pollution rules are being implemented throughout the regions, the Ministry of Environmental Protection said recently. The teams will visit the capital, Beijing, the financial hub of Shanghai and the manufacturing center of Guangdong, the ministry said. The huge southwestern municipality of Chongqing and the provinces of Shaanxi, Gansu and Hubei are also on the list.

China’s environment ministry was given authority earlier this year to investigate regions and enterprises without prior warning, and it was also empowered to summon any local government or company official to account for their actions.

A previous round of investigations into eight Chinese regions led to more than 3,000 officials being disciplined and 198 million yuan in fines being handed out for environmental violations. The results of the investigations, recently published by the ministry, revealed that improvements had

been made in the treatment of air pollution across the country, but water quality in some regions had become significantly worse.

The investigation also accused companies of expanding steel capacity in violation of the country's strict overcapacity rules, and of encroaching upon nature reserves and other vulnerable ecological zones declared off-limits for development.

Several cities in north China were criticized recently for lazy environmental protection efforts in response to severe air pollution. The city of Linfen in Shanxi did not issue a red alert when the city was shrouded in smog earlier this month, and only issued a yellow alert in the first place and an orange alert after being urged by the inspection team, the ministry said in a statement. Six of 25 coal companies in Linfen did not complete emission management upgrading to meet environmental protection standards by the end of October, said the ministry.

China has a four-tier warning system for severe weather, with red being the most serious, followed by orange, yellow and blue.

Some industrial companies in the city of Tangshan in Hebei did not obey the government rules of production halt in a certain period of time, a move aiming at reducing pollution, noted the statement.

The new round of inspections is expected to be completed before the end of the year, the ministry said.

#### **49. Beijing Issues Red Smog Alert as Toxic Air Pollution Smothers Northern China**

Environmental protection officials called on the government to issue red smog alerts for 23 cities in northern China after Beijing issued a red alert for air pollution. In what state media said was likely the worst smog since autumn, officials in Beijing had already issued a red alert for the capital after warnings of a build-up of toxic air pollution during cold weather that could last until December 21.



An additional nine cities have been advised to issue the lowest-level orange alert, the state-run English-language China Daily reported.

Environmental group Greenpeace said progress on air pollution is stalling in the wake of an economic stimulus package aimed at shoring up a flagging economy. "Beijing is preparing for a five-day smog siege," it said in a statement on its website,

adding that pollution levels were worse in October and November than in 2015. "The culprit is coal-burning heavy industry in Beijing's surrounding provinces," the group said.

It said the smog had built up in steel producing areas south of Beijing during the past week.

"When the wind direction changed on Friday, the smog began slowly rolling north, with air passing directly through steel clusters in some of Hebei's most heavily polluted areas, before settling over Beijing," Greenpeace said.

It blamed a short-term economic stimulus package aimed at propping up the economy that boosted steel production in the Beijing, Tianjin and Hebei region of northern China. "With the increase of steel prices came an expansion of coal-fired production in steel producing areas, and with it, a halt in air quality improvement," it said.

Nearly 200 flights in and out of Beijing International Airport were canceled on December 20 because of the haze and certain sections of highways closed according to the Ministry of Environmental Protection. About 200 million people across six northeastern provinces saw the worst, hazardous levels, with some areas of Hebei province surrounding Beijing reaching 24 hour averages on the Air Quality Index above the 500 scale, the highest level on the official index.

Under red alerts, certain heavily polluting facilities are required to reduce or halt operations. On December 20, the Ministry of Environmental Protection issued a statement identifying those companies that had failed to comply with the emergency measures. Red alerts are triggered if an area is forecast to have index readings over 200 for more than four days, 300 for more than two days, and over 500 during a 24-hour period.

The Environmental Protection Plan recently released by the Ministry of Environmental Protection outlines specific coal consumption reduction targets of cutting consumption by around 10 percent by 2020, compared to 2015, for the northern key air pollution control area around Beijing and the southern one around the Pearl River Delta in Guangdong province, with a 5 percent target for the third key air pollution control region around Shanghai.

## **50. China Carbon Intensity Trimmed**

China is on track to see a 6 percent annual decline of carbon intensity per unit of gross domestic production by the end of 2016, a pace that would be well beyond a 3.9 percent annual goal previously set, according to a December 18 statement released by the National Development and Reform Commission. The decline would put China around a third of the way toward reaching its 2020 goal of an 18 percent reduction compared to 2015 levels in just the first year of the 13th Five Year Plan (2016-2020).

The decline can primarily be attributed "both to an economic downturn and reduction in industrial overcapacity" such as in the steel, iron, cement and other heavy industries, Simon Chen, China carbon market analyst at ICIS, a global petrochemical market information provider, told the press.

While the government has announced the decline, detailed figures about actual emissions have not been released, leading some to wonder if it is too early to say there has been that much progress. Sabrina Zhang, head of CDP China, which works with companies on environmental data disclosure globally, said that the carbon intensity reduction target "is in line with the [carbon] emissions cap [for major Chinese companies], but to my understanding there is no clear [emissions] data disclosed to the public yet, so I don't think the reduction target can be quantifiable."

China has set a goal for peaking its carbon dioxide emissions by 2030 or earlier, by using a variety of measures such as adoption of renewable energy, restrictions on new coal-fired power plants, and the launch of a national carbon emissions trading system, to be piloted from 2017 and fully operating around 2020.

Goals for capping energy consumption at 5 billion metric tons of standard coal equivalent and coal consumption at 4.2 billion metric tons by 2020 have also become national policy in an attempt to reach the peak.

In further efforts to reduce carbon emissions and air pollution, the NRDC released December 19 its 13th Five-Year Plan for Renewable Energy Development, which outlines policies of working toward a goal of having 15 percent of the primary energy mix composed of renewable energy sources by 2020, up from 12 percent at the end of 2015.

More focused plans on solar energy development, hydropower and wind energy development over the 13th Five-Year Plan period were released earlier.

### **51. Mongolia Vows to Fight Air Pollution Even as Funds Diverted**

Mongolia will continue to battle its severe air pollution even as funds to clean up Ulaanbaatar's toxic atmosphere have been diverted to fill a widening budget gap, according to the country's environmental chief. "Every year 30 billion tugrik (\$12 million) is collected from car owners, coal users and others who contribute to air pollution," Oyunkhorol Dulamsuren, minister for environment and tourism, said November 28 in Ulaanbaatar. "This money should be used to combat air pollution but it is being used to fill the budget deficit. It should be spent only for air pollution but it's not like that."

Air pollution in the world's coldest capital can reach extreme levels in winter when residents in "ger" districts, or unplanned neighborhoods unconnected to central heating, burn through large stores of raw coal to stave off subzero temperatures. Coal-burning power plants and vehicles idling in long traffic jams also contribute to the noxious air. The coal smoke has led to an increase in miscarriages, respiratory ailments and cancer.

The budgeted amount of spending from the Clean Air Fund has been lowered to a more realistic amount of 5 billion tugrik for 2017, said Oyunkhorol.

The more conservative spending comes as Mongolia enters a period of austerity following years of overblown budgets. The deficit has more than doubled this year to \$1 billion while the economy contracted 1.6 percent in the first nine months. The government is seeking economic lifelines from foreign lenders, including the International Monetary Fund and China.

Despite tightened budgets, Oyunkhorol continues to seek measures to decrease the burning of raw coal.

Small businesses will be given tax incentives to produce fuel-efficient stoves. Government subsidies are planned to lower the cost of processed coal briquettes, which emit lower amounts of harmful particulates compared to raw coal. The nighttime tariff on using electricity also has been slashed by 50 percent to encourage families to heat their homes with electric heaters.



Roughly half of Ulaanbaatar's 1.3 million people live in a ger district, said Oyunkhorol, adding that her government will continue with long-held plans to modernize the ger areas with piped infrastructure and low-cost apartment blocks.

The city burns 5.9 million tons of coal annually, with around 90 percent consumed by power stations and the remaining 10 percent burned in the ger districts, said Oyunkhorol. Despite the relatively small use of coal by private individuals, ger districts are the source of 80 percent of the air pollution.

The particulate matter most dangerous to humans, known as PM-2.5, can reach more than 1,000 in the densely packed ger districts on the north side of Ulaanbaatar. Safe levels are 50 or under. A 2013 study conducted by Simon Fraser University attributed 10 percent of deaths in Ulaanbaatar to poor air quality.

"We should improve public transportation and biking, we need some PR to get people to embrace a healthier lifestyle, to get them out of their cars," Oyunkhorol said.

Mongolia has a vested interest in lowering its carbon emissions and encouraging big emitters such as China and the U.S. to do the same.

Climate change caused by carbon emissions has played a role in altering Mongolia's eastern steppe ecosystem, where 120 of 200 rivers have dried out, according to Oyunkhorol.

## **52. Most Polluted City Ranking Drives India to Champion Natural Gas Cars**

Smothered by increasingly toxic air, India is moving to the forefront of a global push to use more of cleaner natural gas in vehicles. The country's state-run gas companies are charting ambitious plans to extend the use of natural gas to trucks and scooters, and build infrastructure for long-haul travel on the fuel. Their optimism is reflected in forecasts from the International Energy Agency, which said in its latest outlook that India is on course to be the biggest contributor to growth in the use of natural gas in vehicles after the U.S. and China through 2040.

One of the top automobile markets, where about 70 percent of vehicles run on diesel, India is seeking to cut emissions and its import bill by more than doubling natural gas use in its energy mix by 2021. Adding urgency to the move is the dubious distinction its capital gained earlier this month of being the world's most-polluted city. Still, progress toward widening the use of natural gas will be slow given declining domestic production, a patchy pipeline network and limited regasification capacity for imports.

"The scope of gas in India's transport is huge," said E.S. Ranganathan, managing director of Indraprastha Gas Ltd., which has launched gas-fueled scooters in New Delhi using engine-conversion kits developed by an Iranian firm. "We just need the right policies to boost investment in its infrastructure such as laying more pipelines, setting up of re-fueling stations along the highways and using liquefied natural gas to fuel vehicles."

If the government pushes natural gas as a primary fuel for transportation, India's vehicular gas consumption could jump eight times to over 62 million cubic meters a day by 2030, according to Virginia-based energy consultancy ICF International Inc.

The government has already prioritized city-based gas distribution, including the use of compressed natural gas for transport, and said that local production should first be used to meet

demand in this sector. It also plans to more than double the country's pipeline network, which is more developed in western than in eastern India, to about 30,000 kilometers.

Though gas in India is priced too high to compete against cheaper coal for power generation, state-run gas companies see it winning the cost battle in transportation against more-expensive gasoline and diesel. Running a vehicle on natural gas is over 60 percent cheaper than gasoline and 32 percent less than diesel at current prices, according to a statement from Indraprastha Gas.

It's also cleaner, sharpening its appeal. Readings in New Delhi for deadly particulate matter, known as PM 2.5, soared above 900 micrograms per cubic meter in early November, according to pollution monitoring site Air Visual. The readings were well above the World Health Organization's annual exposure guideline of 10 micrograms.

A key hurdle is supply. Natural gas demand in India is expected to increase by four-fold to 190 billion cubic meters in 2040, though domestic production may rise to only 90 bcm, according to the IEA. Imports will need to fill the 100-bcm gap, according to the agency.

"The challenge in the long run is the availability of gas from domestic sources," Mahanagar Gas Ltd. Managing Director Rajeev Kumar Mathur said, adding that if production doesn't increase, India will need to import more. In the 12 months that ended on March 31, domestic natural gas production fell to a nine-year low. Of the country's total gas consumption, about 46 percent was met through imports.

"If suppose tomorrow we import more and the prices rise, then the attractiveness of this as opposed to alternate fuels may diminish," Mathur said.

That hasn't stopped India's oil ministry from working with other departments such as the federal road ministry and state governments to push the use of liquefied natural gas in transportation. "If we are able to convert heavy, long-haul vehicles to run on LNG, it will help cut pollution and also lower costs," Oil Minister Dharmendra Pradhan said on November 10.

Petronet LNG Ltd., India's biggest importer of the chilled fuel, along with Indian Oil Corp., the country's top fuel retailer, have a trial program in the southern state of Kerala to run long-haul buses on LNG. Petronet has also said it is also in talks with automakers such as Ashok Leyland Ltd. to conduct trials on trucks that run on LNG.

Mahanagar Gas Ltd., the nation's third-largest city gas distributor, is building gas retailing stations along highways in the western state of Maharashtra to promote the use of compressed natural gas for long-distance transport. It is also working on a kit that can make a diesel engine run on gas and will soon commence trials of gas-fueled scooters in Mumbai.

"We consume about 70 million tons of diesel annually," said Prabhat Singh, chief executive officer of Petronet, which is targeting large and small trucks. "Even if we're able to replace half of it that will be a big success."

### **53. New Delhi's Toxic Smog May Hurt the Economy**

The toxic smog that has enveloped New Delhi, turning it into the most polluted city on the planet, may soon take its toll on the Indian capital's economy. Recently, Delhi's government announced unprecedented steps, closing schools for three days and putting a five-day ban on construction

and demolition in the sprawling capital. The government also wants to temporarily shut down a nearby coal-fired power plant.

On November 7, the Associated Chambers of Commerce and Industry of India, or Assocham, released a survey suggesting 5 percent to 10 percent of the national capital's workforce had called in sick due to respiratory problems.

With public concern at an all-time high — and air purifiers and air-filtering face masks flying off shelves in the capital — there is a chance governments could enact harsher measures to deal with the hazardous pollution levels, which soared after millions of Indians set off firecrackers for the Hindu festival of Diwali.

As the capital of about 17 million people remained shrouded in a thick smog, analysts said the automobile, construction and real estate sectors could be the most at risk if the various levels of government are unable to overcome a lack of political coordination and act on air pollution. The World Bank said in 2013 that air pollution and other environmental degradation costs India \$80 billion per year, about 5.7 percent of the country's GDP.

“One has to see if the school closures morph into something else,” said Tirthankar Patnaik, Mumbai-based India strategist for Mizuho Bank Ltd., noting his brother decided to relocate his family from the capital because of air pollution. “Unless things improve over the next week or so, we might see harsher measures. “

Delhi Chief Minister Arvind Kejriwal said his government may also consider resuming the odd-even vehicle rationing program, which has been implemented on an experimental basis twice and keeps about half of all vehicles parked based on their license plate numbers. The program has proved ineffectual when other sources of pollution are not addressed, though citizens have largely welcomed the resulting de-congestion of roads.

Using a similar logic, the Supreme Court of India in August lifted an eight-month ban on registration of private cars and sports utility vehicles with larger than 2000 cc engine capacity, on the condition that 1 percent of the vehicles' price be deposited with the Central Pollution Control Board as an environmental levy.

India's Assocham said air pollution is preventing workers from doing their jobs efficiently, and could impact tourism. “Air pollution related issues might hurt brand India,” said Assocham director general D.S. Rawat, noting that sick days would take their toll on companies.

There are multiple causes for the soaring pollution levels in Delhi. The rising number of vehicles, dust from construction sites and roads and farmers burning crop stubble in neighboring states — fires so widespread they can be seen from space — all contribute to Delhi's deadly haze. The colder winter temperatures in north India also keep pollution low to the ground.

On November 7, the U.S. Embassy pollution monitor, which tracks the deadly particulate matter, known as PM 2.5, showed readings of 748 micrograms per cubic meter, many times higher than the World Health Organization (WHO) annual exposure guidelines of 10 micrograms.

Readings this past week have soared above 900, according to pollution monitoring site Air Visual, which on November 7 showed New Delhi was — again — the worst city in the world for pollution, with more than three times the pollution of second-place Ulaanbaatar, the capital of Mongolia.

Rising discontent over air pollution could result in renewed attempts at banning diesel cars, said Mizuho's Patnaik, which would hit car-makers in Asia's third-biggest auto market. Worsening pollution, he added, could also drag on an already "quiet" local real estate market.

#### **54. India States Told to Shutter Some Businesses During Air Pollution Emergencies**

The National Green Tribunal said on November 10<sup>th</sup> that the emergency restrictions will kick in when coarse particulate matter concentrations top 431 micro grams per cubic meter, or fine particulates exceed 251 micro grams per cubic meter. "The state owes a constitutional duty to protect public health and to provide at least clean air for its citizens to breathe," said the bench, headed by Justice Swatanter Kumar

It directed the states of Delhi, Rajasthan, Punjab, Haryana and Uttar Pradesh to halt the burning of agricultural residue on farms during times of increased air pollution. When an air pollution emergency is declared, the states will be required to shut down construction activity, transportation of construction materials and stone crushing. They also must take measures such as sprinkling water by helicopter until air quality improves to acceptable levels.

The National Green Tribunal directed the five states to form a committee headed by the secretary of the Ministry of Environment, Forests and Climate Change, and including top representatives of the Central Pollution Control Board and State Pollution Control Boards, as well as the top administrative official from each state.

This committee met November 17 in Delhi and will meet thereafter every two months in other states to supervise implementation of all anti-pollution orders of the National Green Tribunal and the Supreme Court. States will form their own committees for this purpose as well, with the first meeting held November 24.

#### **55. Urban Air Pollution in Bangladesh Seen to be Worsening**

The latest official statistics give the capital city's dwellers enough reasons to be gravely concerned about its alarming state of air pollution. The air of Dhaka metropolis was found, according to the data released by the Department of Environment (DoE), to be 'extremely unhealthy'. This poses a severe health threat to the city-dwellers. The Air Quality Index (AQI), as figured out by the DoE and reported in this paper last Saturday, was 309 in the capital's air on November 22 against the moderate AQI range of 51-100. This shows that the air the city-dwellers are currently breathing in is extremely unhealthy. Experts have attributed it to unchecked discharge of dust from construction sites, release of pollutants from vehicles on roads and brick kilns on the city's outskirts.

Not long ago, Bangladesh was ranked fourth among 91 countries with worst urban air quality in the air pollution monitoring report of the World Health Organization (WHO). Moreover, three Bangladeshi cities were put among the top 25 cities having the poorest level of air quality. In its city-wise assessment, Narayanganj was marked as the 17th city with worst air quality whereas Gazipur and Dhaka were ranked 21st and 23rd respectively. Among the gaseous pollutants which the DoE measured are carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>) and ozone (O<sub>3</sub>), methane and non-methane pollutants. All these floating micro particles in the air, called particulate matters (PM), harm people more than any other pollutants. Someone with chronic exposure to such particles stands the risks of developing cardiovascular and respiratory diseases and even cancer in the lung and the urinary tract or bladder, according to the WHO.

Unfortunately, all attempts to prohibit plying of old vehicles emitting poisonous gases on city roads or to modernize brick kilns failed either for political reasons or in the face of resistance by transport owners and their employees or brick-field owners.

## **56. South Korea Raises Electric Vehicle Incentives to Stimulate Market**

South Korea is stepping up its incentives for the adoption of electric vehicles through subsidies and improved battery charging infrastructure nationwide. The government announced December 12<sup>th</sup> a special discount for charging electric vehicles, from January 2017 to 2020. The three-year plan exempts the monthly basic operating cost—a follow-up to a 50 percent cut in August—and gives a 50 percent discount on the charging fee, applicable for drivers using household chargers at night.

A driver who operates an electric vehicle 15,000 kilometers per year, for example, would see charging costs drop from 400,000 Korean won (\$343) to 135,000 (\$116) won, the government said.

“Thanks to the new policy, charging EVs will only cost 100,000 won a year while gasoline-powered cars would be paying 2 million won for gas a year for the same use, as EVs cost much less to operate than gas-fueled vehicles,” a Ministry of Trade, Industry and Energy official said.

GM Korea said the subsidies would apply to its Spark EV and Bolt EV from next year but exclude the Volt, which is categorized separately as an extended-range electric vehicle.

The government came under fire earlier this year for slashing some electric vehicle purchasing and charger installation subsidies. Public quick chargers, which were once free to use, also now come at a cost. The latest actions appear to reintroduce some benefits to warm up the market.

South Korea saw a 64 percent on-year increase in electric vehicle distribution of 4,622 units from January 1 to December 8, with over 2,400 additional units ready to be launched, according to the Ministry of Environment. That’s compared to 2,821 in 2015, the first year the number broke 2,000.

The government hopes to circulate 14,000 electric vehicles in 2017, with an eventual goal to distribute 2.2 million electric, hybrid and plug-in hybrid cars, or 10 percent of registered motor vehicles, by 2020. The southern resort island Jeju in particular aims to go fully electric vehicle by 2030. Over 10,000 electric vehicles have been distributed in the country since 2011, according to government data.

The charging subsidy is one of a slew of promotions to increase the distribution of electric vehicles in the country by eliminating obstacles such as low mileage, lack of infrastructure and little incentive to adopt green cars.

Earlier this year, the government:

- increased the electric vehicle purchasing subsidy to 14 million won (\$12,000) from 12 million won (\$10,260);
- developed special insurance plans; and
- required public organizations and institutions to buy electric vehicles to make up at least 40 percent of state-owned vehicles.

Local governments have also offered annual subsidies of 5 million won (\$4,260) on average, kicking up the total subsidies to 19 million won (\$16,180) per vehicle.

On top of the subsidies, the government's existing array of related tax incentives, which amount to 4 million won (\$3,400) in cuts, will continue until 2018.

"Korea's EV distribution conditions including the EV charging infrastructure will be significantly improved and reach that of advanced countries," said Lee Hyung-sup, head of the Ministry of Environment's clean air planning team. "With more long-range EVs to be introduced next year, along with highway toll reduction policies and other benefits, we will easily achieve our target EV distribution level."

Meanwhile, the government announced a pilot project December 12 to test fuel-cell hydrogen taxis from this week until at least the first half of next year with up to 130 vehicles and 10 hydrogen-fueling stations.

### **57. Emissions at 'Turning Point' as Australia Joins Climate Pact**

Prime Minister Malcolm Turnbull said Australia's ratification of the Paris Agreement on November 10<sup>th</sup> is "a turning point" in the country's shift to a low-emissions future. Several associations representing Australian businesses and climate advocacy groups agreed, saying ratification of the global climate change pact demonstrates Australia's "clear commitment to reduce greenhouse gas emissions over time" in a joint statement issued November 10 under the auspices of the Australian Climate Roundtable. "We look forward to working with government and opposition to implement the policies to achieve any short-term and long-term commitments under the Paris Agreement," it added.

Roundtable members include the Business Council of Australia, which represents the country's largest businesses; Australian Industry Group; Australian Aluminum Council; Australian Energy Council; Australian Conservation Foundation and the Australian Council of Trade Unions.

But the timing of the announcement, just hours after it became clear that Donald Trump was the U.S. president-elect, was lost on no one.

"It was an outstanding move, with great timing, and deserving of respect," John Connor, chief executive officer of the Climate Institute, an advocacy group that is also a roundtable member, said in a November 11 e-mail he sent from United Nations climate talks in Marrakech, Morocco.

"The seemingly bolshie move of the government to ratify the Paris Agreement, with the looming prospect of Trump's renunciation, makes good sense," he added.

The ratification also recognizes that Australia's other trading partners are committed to the Paris Agreement, even if the U.S. is not, and demonstrates an awareness that clean technologies are becoming increasingly affordable, he said.

The country committed to reducing emissions by 26 percent to 28 percent below 2005 levels by 2030 to help keep global temperature rise "well below" 2 degrees Celsius (3.6 degrees Fahrenheit) this century compared to pre-industrial levels.

With ratification now out of the way, the focus in Australia will shift to a forthcoming government review that is widely expected to strengthen the country's domestic climate policies, according to Connor. The review will take place next year.

Also on November 10, Australia ratified the Doha Amendment to the Kyoto Protocol, which dates from 2012 and commits Australia to reducing emissions from 2013 to 2020 to 99.5 percent of 1990 levels.

Both ratifications came less than a week after the Australian Parliament's Joint Standing Committee on Treaties unanimously recommended the government proceed with the moves.

### **58. Australia Considering Cleaner and More Efficient Cars, Cleaner Fuels**

New vehicles in Australia would have to be cleaner and more fuel efficient following a number of proposals being considered by the Federal Government. Fuel efficiency standards would be tightened, bringing Australia in line with European standards, in a move that the Environment Minister says will save up to 65 million tons of greenhouse gas emissions by 2030. The move could save motorists more than \$500 in fuel costs a year by 2025, but a peak motoring group has warned the tougher standards could also drive up the cost of purchasing new cars and trucks, questioning the testing regime used to determine vehicle emissions.

Three draft proposals have been released by the Federal Government, with consultations to close in March 2017.

In a joint statement, Environment Minister Josh Frydenberg and Urban Infrastructure Minister Paul Fletcher said it would go towards meeting Australia's obligations under the Paris climate change agreement. "By requiring global automotive manufacturers to supply vehicles in Australia with more fuel efficient engines — as they are now doing in many other countries — these new standards could cut consumer fuel spending by up to \$28 billion by 2040," the statement read.

"The draft proposals are designed to keep Australia in line with international vehicle markets — and keep us enjoying some of the cleanest air in the world."

New fuel quality standards are also being considered, as well as an upgrade of air pollution standards, as part of a number of discussion papers quietly announced by the Federal Government.

An impact statement by the Department of Environment found that it would cost up to \$16 billion by 2040 to implement the new standards, but that there would be \$30 billion in savings because of decreased fuel usage and the benefit of reduced emissions. It estimated passenger vehicles that travelled 16,000 kilometres a year in 2025 would save \$519 a year in fuel costs, while light commercial vehicles would save \$666.

But the Australian Automobile Association (AAA) said the push to adopt Euro 6 standards would require adequate transition times for the industry.

Chief executive Michael Bradley has also questioned whether the savings in carbon emissions would be realised, because the Government would rely on laboratory testing, not real-world conditions, to determine how many tonnes of greenhouse gases had been abated.

"Proponents of this will argue that costs of cars will go up but you'll recoup it through fuel savings and we're saying, at the moment, you're only going to recoup those savings if you're driving in a laboratory," he said. "The AAA is very supportive of moves to reduce emissions and drive-down costs associated with motoring. "But we've got major concerns about the quality of the data being used to assess both the costs and the benefits of this work at the moment."

He argued it would be better to clarify whether to improve the quality of fuels in Australia before tackling fuel efficiency in vehicles.

Upgrading the quality of Australia's fuel, and mandating a reduction in the amount of sulfur in it, is potentially problematic for Australia's four remaining refineries because it could force them to upgrade ageing infrastructure and pass the cost on to consumers. The draft impact statement notes that the Australian Institute of Petroleum has warned higher quality could "threaten the economic viability of Australian refineries".

However, the ministers noted current fuel standards expire in 2019 and "we need to be ready with new standards to ensure Australians can have access to the right fuel for the latest vehicle technology".

The Federal Opposition has accused the Government of delaying action, after the Climate Change Authority handed down a report on the issue in June 2014. In a joint statement, shadow ministers Mark Butler and Anthony Albanese said the Government had been "paralysed" on the matter. "During this time, car companies have been able to sell vehicles in Australia that are too dirty to legally sell in US, Canada, UK, Europe, Japan and elsewhere," the statement said.

## **MIDDLE EAST**

### **59. Tehran Shuts Schools As Thick Smog Is Linked To Hundreds of Deaths**

At this time of the year, citizens of Tehran are accustomed to a thick curtain of fog that falls across the city, veiling everything from the 435 meter-tall Milad tower to the nearby Alborz Mountains. Recently, however, the blanket of smog smothering the Iranian capital has been blamed for a string of deaths and prompted unprecedented emergency measures by the city's authorities.

Habib Kashani, a member of Tehran's municipal council, said that pollution in Tehran had led to the death of 412 citizens in the past 23 days, according to the state news agency, Irna.

City authorities announced that all schools would be closed for at least one day.

The concentration of ultra-fine airborne particles (known as PM2.5) reached more than 150 this week, setting a new record. These particles of less than 2.5 micrometers in diameter can penetrate the lungs and pass into the bloodstream and have been linked to increased rates of chronic bronchitis, lung cancer and heart disease.

Irna reported that on four of the past six days, air quality reached dangerous levels for people suffering from respiratory diseases, and on two days it was dangerous for everyone.

PM2.5 levels are seen as the best measure of the impact of air pollution on health. The new World Health Organization database of worldwide air pollution measures, released in May, put the Iranian city of Zabol, on the eastern border with Afghanistan, as the world's most polluted city, based on PM2.5.



Pollution is a perennial problem in Tehran, which is surrounded by mountains and has little wind to disperse the smog. Millions of cars throng the city's congested streets, and locally refined petrol has also been blamed as a key polluting factor.

The issue dominated newspaper front pages in Tehran. Ebtekar daily published a large picture of a smog-cloaked Tehran, carrying the headline "My city has been lost", and called for a reduction in the number of cars.

"Every day 3m inner city commutes by the metro and 4m such journeys by taxi have not resolved the capital's air pollution crisis," it said. According to Ebtekar, at least 1.25m obsolete cars were still in use in Tehran and 60% of cars in the city normally carry just one person.

The reformist daily Etemaad published a black column on its front page saying that "We are all to blame". It said Tehran was suffocating because "we [the media] are not able to hold the authorities accountable", "you are not switching off your cars" and "they [officials] are only capable of closing schools".

The celebrated film-maker Dariush Mehrjui told Isna news agency that he had moved out of Tehran because of its pollution. "I can't breathe in Tehran, simple as that. Everyone is fleeing Tehran ... everyone is choking, look at cancer rates. Who can live [in Tehran] under these circumstances?"

## **AFRICA**

### **60. 5 African Nations Push For Cleaner Diesel Fuel from European Suppliers**

African nations have a very specific problem when it comes to dealing with emissions from diesel vehicles. Because of lax emissions standards, traders import fuel to these countries that is too dirty for sale elsewhere. But now a handful of African nations are taking a stand against this.

Recently, five African countries—Ghana, Ivory Coast, Togo, Nigeria, and Benin—announced they would reject shipments of high sulfur diesel fuel from Europe, according to the United Nations Environment Programme (UNEP). These countries are introducing stricter standards requiring low-sulfur fuels, and demanding that they receive the same quality of fuel offered to European nations.

Nigeria, for one, is cutting the legally-acceptable amount of sulfur in fuels from 3,000 parts per million to 50 parts per million.

The move comes after a report published earlier this year by Swiss advocacy Public Eye exposed how Swiss trading firms take advantage of lax regulations to dump the dirtiest fuels on African nations.

The report was based on three years of research into the African fuel trade that included sampling fuel directly from pumps in eight countries. Researchers found that samples contained up to 378 times the sulfur permitted under European regulations.

Swiss trading firms often produce dirtier grades of fuel—known as "African Quality"—themselves, and then distribute it through fuel stations they control, according to the report.

While these fuels are intended for sale in Africa, they are produced in the "ARA (Amsterdam-Rotterdam-Antwerp) Zone" in Europe, where many of the trading firms have refineries.

This means West African nations that export high-quality crude oil often receive low-quality fuels with high levels of pollutants in return. The stricter standards proposed by the five West African nations now taking a stand against high-sulfur diesel are meant to prevent this.

The U.S.-based Diesel Technology Forum advocacy group applauded the move, noting that the U.S. diesel industry still thrives under the strict standards currently in place here.

"The five African nations that recognize the opportunity for bringing in cleaner technology and the need for ultra-low sulfur diesel fuel, will move forward," said Allen Schaeffer, executive director of the Diesel Technology Forum.

But actually implementing the ban on high-sulfur diesel fuel could prove difficult. "It's not clear their populations can afford the cleaner diesel, or that is there enough cleaner diesel [produced in Europe] to meet that demand," a source in the oil and gas industry with experience in Africa said. African nations may also lack the infrastructure to enforce a ban, as many cannot locally test fuels for compliance.

## GENERAL

### **61. UN Agrees Roadmap to Address Shipping CO2 By 2023**

More than 170 governments meeting under the auspices of the International Maritime Organization (IMO) have agreed a strategy to address greenhouse gas emissions from shipping by 2023. An initial GHG strategy will be delivered in 2018, according to the roadmap adopted at the meeting of the IMO's marine environment protection committee recently.

To inform further measures to cut emissions and to enhance energy efficiency, the UN maritime agency agreed to start collecting data on individual ships' fuel use from January 2019. The new requirements apply to ships of 5,000 gross tonnage and above, which account for around 85% of CO2 emissions from international shipping.

The European Commission welcomed the adoption of the mandatory data collection system, stressing that it prefers global action to cut emissions from the sector due to its global nature. The EU adopted monitoring rules for shipping emissions in 2014 as a first step to tackling shipping emissions while waiting for a global deal.

But environmental groups criticized the IMO for delaying action on tackling the sector's climate impact by seven years and for deciding to leave the review of ship efficiency targets until 2018.

The deal is a "mixed bag", according to John Maggs, president of the Clean Shipping Coalition. While environmental campaigners were disappointed with the timings of the roadmap and the fact that there is no mention of the need for a target for the sector, the agreement leaves room to continue to pursue measures sooner than 2023, he said.

"The IMO has moved an enormous distance in a very short time," Maggs said. He added that the EU should still continue to pursue its own measures in the sector to put pressure on the IMO to move faster.

“Since the IMO will not be considering, let alone proposing any emissions reduction measures for many years to come, our duty is to make sure that Europe takes action,” agreed Green MEP Bas Eickhout. He added that international shipping is the only transport sector that does not contribute to Europe’s climate goals.

A cross-party group of MEPs has been calling for shipping emissions to be included in the EU’s emissions trading system (ETS) from 2021. The EU has already included aviation in the ETS, but it had to confine the implementation to flights within the European Economic Area following an international outcry.

Shipping currently accounts for close to 3% of global CO2 emissions, but its contribution could rise to 17% by 2050 if not addressed, a study found last year. Pressure on the sector to tackle its climate impact is increasing after the International Civil Aviation Organization adopted a global market-based measure to offset airlines’ emissions from 2021.

## **62. China and UK Lead Record Falls in Global Carbon Intensity**

Global carbon intensity fell by a record 2.8% in 2015 on the back of reduced coal use in some emerging economies, with China first and the UK second in PwC’s ranking of the G20 countries’ carbon intensity.

China attained first place with falling coal use and rapid growth in less carbon-intensive services achieving an annual 6.4% carbon intensity reduction. The country consumes half of global coal output, so its reduction in carbon intensity makes a sizeable contribution to the global decarbonization rate, which more than doubled compared to the business as usual average in 2015, the report noted.

The UK came second with a 6% cut in carbon intensity, largely due to the impact of the EU’s Large Combustion Plant Directive and a national policy to close all coal-fired power plants by 2025, according to the report. Its coal consumption fell by more than 20% for the second year running.

PwC expects the UK’s decarbonization trend to continue with the adoption of the country’s fifth carbon budget and the approval of the Hinkley Point C nuclear power project. However, it warned, there is uncertainty about how the country’s Brexit negotiations will affect UK action on climate change as well as its participation in the EU emissions trading scheme.

The UK was followed in the rankings by the US, while South Africa, Mexico, Canada and India all exceeded the targets they had set themselves under last year’s Paris Agreement on climate action.

The record global fall in carbon intensity compares to an average annual reduction of just 1.3% over the past 15 years. But this falls far short of the 6.5% cut in carbon intensity that is needed every year until 2100 to keep global warming below 2°C, PwC warned.

Jonathan Grant, PwC’s climate change director, noted that if countries continue to reduce carbon intensity in line with current trends they will use up the global 2°C carbon budget by 2036. “But our index shows that national targets set in the Paris Agreement only buy another four years,” he added.

Governments will have to “raise the ambition of their targets immediately and do much more to accelerate low carbon investment”, he said.

### 63. Almost One in Seven Children Breathing Heavily Toxic Air – UNICEF Report

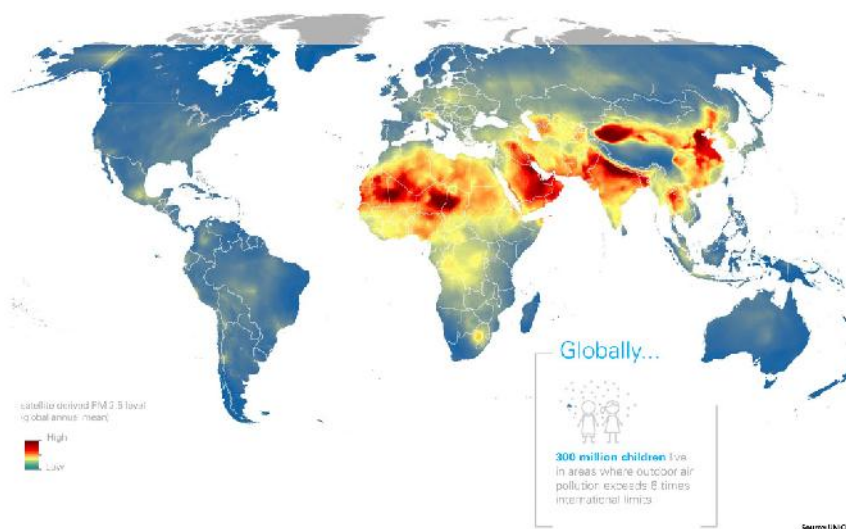
About 300 million children in the world are living in areas with outdoor air so toxic – six or more times higher than international pollution guidelines – that it can cause serious health damage, including harming their developing brains, a new United Nations Children’s Fund (UNICEF) report has revealed.

“Pollutants don’t only harm children’s developing lungs – they can actually cross the blood-brain barrier and permanently damage their developing brains – and, thus, their futures,” said UNICEF’s Executive Director Anthony Lake in a news release announcing the agency’s new report, ‘Clear the air for children.’

“Air pollution is a major contributing factor in the deaths of around 600,000 children under five every year – and it threatens the lives and futures of millions more every day,” he added. “No society can afford to ignore air pollution.”

These findings come a week ahead of the 22nd Conference of the Parties (COP 22) to the UN Framework Convention on Climate Change (UNFCCC) in Marrakesh, Morocco, where UNICEF is calling on world leaders to take urgent action to cut air pollution in their countries.

Using satellite imagery, the report further shows that around two billion children live in areas where outdoor air pollution, caused by factors such as vehicle emissions, heavy use of fossil fuels, dust and burning of waste, exceeds minimum air quality guidelines set by the World Health Organization (WHO).



South Asia has the largest number of children living in these areas, at 620 million, with Africa following with 520 million children, and the East Asia and Pacific region with 450 million children living in areas that exceed guideline limits.

In the news release, UNICEF further stressed that children are more susceptible than adults to both indoor and outdoor air pollution as their lungs, brains and immune systems are still developing and their respiratory tracks are more permeable.

brains and immune systems are still developing and their respiratory tracks are more permeable.

It added that young children also breathe faster than adults, and take in more air relative to their body weight.

In particular, the most disadvantaged, who already tend to have poorer health and inadequate access to health services, are the most vulnerable to the illnesses caused by polluted air.

The UNICEF report also examines the impact of indoor pollution, commonly caused by the use of fuels like coal and wood for cooking and heating, which mostly affects children in low-income, rural areas.

“Together, outdoor and indoor air pollution are directly linked to pneumonia and other respiratory diseases that account for almost one in 10 under-five deaths, making air pollution one of the leading dangers to children’s health,” noted the news release.

UNICEF further added that it is asking world leaders attending COP 22 to take four urgent steps in their countries to protect children from air pollution, these include: reducing pollution to meet WHO global air quality guidelines; increasing children’s access to healthcare; minimizing children’s exposure to sources of pollution such as by locating sources of pollution such as factories away from schools and playgrounds as well as by use of cleaner cookstoves; and monitoring air pollution.

Underscoring that children are protected when the quality of the air that everyone breathes is protected, UNICEF’s Executive Director Lake added: “Both are central to our future.”

#### **64. Competitive Bidding Pushes Down Offshore Wind Cost – BNEF**

The cost of offshore wind power fell by 22% in the second half of 2016 supported by auctioning programs in the Netherlands and Denmark, according to Bloomberg New Energy Finance (BNEF). The analysts estimated that the levelized cost of electricity (LCOE) for offshore wind globally was on average \$126 per megawatt-hour (MWh). Different energy technologies can be compared using this measure because it accounts for all costs over the lifetime of the power-generating asset, from capital and fuel costs to operating costs.

Tom Harries, offshore wind analyst at BNEF, attributed the improvement to the use of much bigger turbines, enhanced expertise in managing the construction of arrays in the North Sea and the impact of auction programs in Europe. “The latter have simplified development by providing transmission and a permitted site, and have led to fierce competition between bidders,” he added.

The EU’s 2014 state aid guidelines for energy established competitive bidding as the default process for granting renewable energy subsidies from 2017. Countries including Denmark and the Netherlands have already implemented auctions where companies bid for projects at the lowest electricity price they can offer.

At the lower-price end of the projects, BNEF noted that Vattenfall won a contract for two offshore wind projects in Danish waters totaling 350 MW with a record-breaking bid of €60 per MWh. And Dong Energy was awarded a project to develop a 700MW Dutch offshore array at €72.70 per MWh.

After Dong Energy’s successful bid, the Dutch economy minister Henk Kamp said that it was a global first for an offshore wind farm to be built at such a low cost. The Dutch system pits companies against each other to bid for projects while the government sets the location and offers permits and grid connections as well as subsidies.

Other renewable technologies also benefitted from a significantly improved LCOE this year, BNEF noted. “Looking ahead to 2017, solar may be particularly interesting because excess capacity in

global PV module making could lead to further rapid price deflation as manufacturers fight for customers,” said Luke Mills, senior analyst at BNEF.

## **65. Greenhouse Gas Mitigation Scenarios for Major Emitting Countries Released**

A new report<sup>1</sup> by NewClimate Institute, PBL Netherlands Environmental Assessment Agency and the International Institute for Applied Systems Analysis (IIASA) provides an overview of projected greenhouse gas emissions in 25 major emitting countries/regions up to 2030, taking into account the emission trajectories based on current policies and the implementation of intended nationally determined contributions (INDCs) and nationally determined contributions (NDCs).

The degree to which countries/regions are likely to achieve their 2030 targets under current policies was found to vary:

- Brazil, Chile, China, India, the Russian Federation, Turkey and Ukraine are likely to – or are roughly on track to – (over) achieve their self-chosen (unconditional) 2030 targets with currently implemented policies.
- Argentina, Australia, Canada, Colombia, Democratic Republic of the Congo, Ethiopia, the EU, Indonesia, Japan, Kazakhstan, Mexico, Morocco, Republic of Korea, Saudi Arabia, South Africa, Thailand, the Philippines and the United States require additional measures to achieve their 2025/2030 targets.
- Currently implemented policies are projected to influence GHG emissions but do not stop emissions from increasing until 2030 (above 2010 levels) in Argentina, Australia, Chile, China, India, Indonesia, Kazakhstan, Mexico, Morocco, the Philippines, Saudi Arabia, South Africa, Thailand and Turkey, mainly due to their projected high economic growth.
- GHG emissions in Brazil, Canada, South Korea, the Russian Federation, Ukraine and the United States would remain stable at approximately current levels with the currently implemented policies. In Colombia, Japan and the EU, GHG emissions are projected to decrease further under current policies.

This report, supported by the European Commission, Directorate General Climate Action (DG CLIMA), builds upon earlier studies which provided an overview of projected greenhouse gas emissions of 13 major emitting countries out to 2030.

## **66. Electric Vehicles, Renewables, Efficiency and Natural Gas Transforming Energy Mix**

Almost one in 10 cars could be electric by 2040, paring demand for fuel and boosting energy security in the nations that use them, the International Energy Agency said. Oil demand for passenger vehicles will drop in the next quarter century even as the number of cars on the road doubles, according to the Paris-based organization. More efficient internal-combustion engines and plug-in cars, as well as automobiles running on biofuels and natural gas, will drive the change, the IEA said.

“The one that tips the balance is the steadily rising contribution from electric cars,” said Tim Gould, one of the IEA researchers who helped compile the organization’s annual outlook for world energy markets published on November 15<sup>th</sup>. “We’re expecting the electric car fleet to grow by a factor of 100 to reach 150 million vehicles by 2040.”

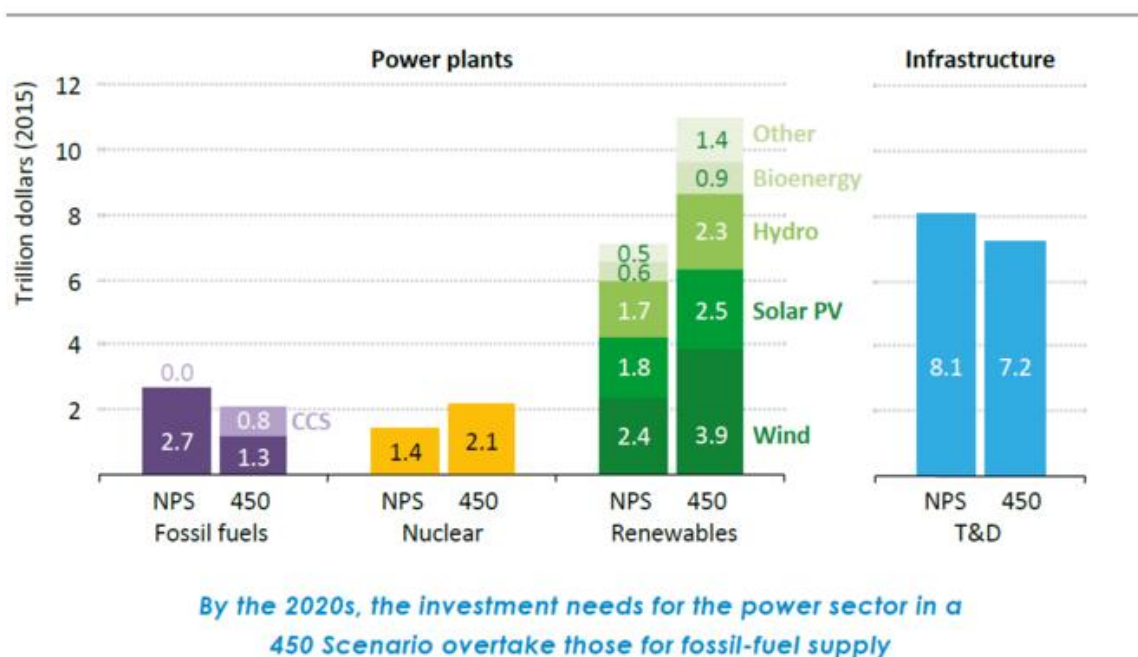
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<sup>1</sup> “Greenhouse gas mitigation scenarios for major emitting countries: Analysis of current climate policies and mitigation pledges”

The IEA is projecting a sharp uptake of renewables in the decades ahead, making up nearly 60 percent of new power installations. Last year, clean-energy capacity surpassed coal for the first time globally. Heat and transportation innovations are the next frontier after inroads made into the electricity sector.

“Going forward it’s very clear that the next match for renewables is going to be played in the field of heat and transport,” said Laura Cozzi, deputy head of energy economics at the IEA. “Either direct use of renewables or the electricity route, think about electric vehicles being powered by renewables.”

**Figure 2.13** ▶ Cumulative global power sector investment in the New Policies and 450 Scenarios, 2016-2040



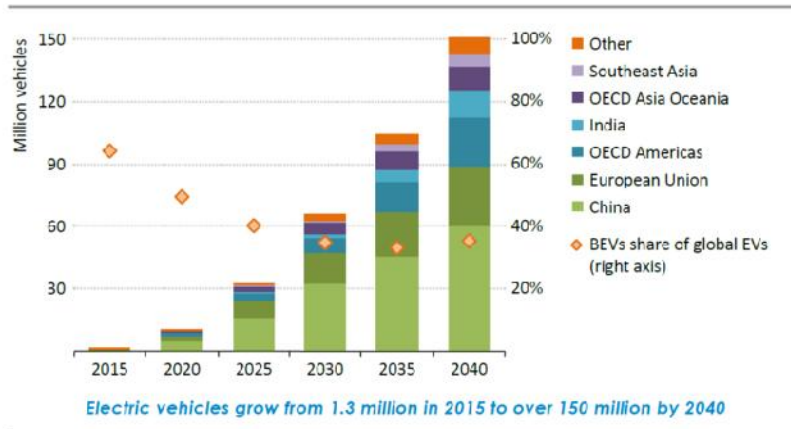
Notes: NPS = New Policies Scenario; 450 = 450 Scenario; T&D = transmission and distribution; Other includes geothermal, concentrating solar power and marine.

Source: International Energy Agency

Only about 16 percent of electric vehicles run on clean energy today, although about a quarter of the electricity sector is made up of green sources, she said. The IEA’s outlook for electric cars is more cautious than that of Bloomberg New Energy Finance. The research arm of Bloomberg LP expects as many as 35 percent of new vehicle sales could be for electric cars by 2040, displacing 13 million barrels of oil a day.

The U.S. currently imports about 6 million barrels of oil a day but will become nearly energy independent by 2040, importing just 1 million barrels a day, the IEA said.

**Figure 3.3** ▶ Electric vehicles in circulation in the New Policies Scenario



Source: International Energy Agency

U.S. fossil fuel production will have an impact, but the “real contributor to this change is a big push of energy efficiency in cars and trucks and the switch to electric vehicles and natural gas,” Cozzi said.

“The oil demand growth is not coming from cars, it’s from trucks, aviation and the petrochemical industry and we don’t have major

alternatives to oil products there,” International Energy Agency Executive Director Fatih Birol said at the Energy for Tomorrow conference November 3 in Paris. “I don’t buy the argument that electric cars alone will cause a peak in oil demand at least in short and medium term.”

The IEA chief’s comments added moderation to recent forecasts and warnings on the potentially disruptive effects that electric vehicles will have on the oil industry. Bloomberg New Energy Finance estimated that plug-in cars will displace 13 million barrels of oil a day by 2040. Fitch Ratings reported Oct. 18 that battery technologies that electric cars use could trigger a “death spiral” for investors with securities linked to fossil fuels.

The number of electric vehicles on the roads has risen six fold since 2014 with 550,000 new plug-in cars sold last year, according to the IEA. Electric automobiles made up less than 1 percent of all new cars sold in 2015.

Royal Dutch Shell Plc, the world’s second-biggest energy company by market value, said during a November 1 conference call that oil demand could peak in as little as five years as renewable energy and disruptive technologies gain traction. “We’ve long been of the opinion that demand will peak before supply,” Chief Financial Officer Simon Henry said. “And that peak may be somewhere between 5 and 15 years hence, and it will be driven by efficiency and substitution, more than offsetting the new demand for transport.”

“Solar will be a main backbone of the energy system in the second half of the century,” said Shell Chief Executive Officer Ben van Beurden, who spoke after Birol at the November 3 conference in Paris. “It depends a little bit on how the world will play out and what kind of business models there are,” Beurden said. “Growth of renewables has been remarkable, but capacity of industry to make money in that segment has been remarkably absent.”

### Renewables and Natural Gas Transforming Global Energy Mix

As a result of major transformations in the global energy system that take place over the next decades, renewables and natural gas are the big winners in the race to meet energy demand growth until 2040, according to the World Energy Outlook.



Government policies, as well as cost reductions across the energy sector, enable a doubling of both renewables and of improvements in energy efficiency over the next 25 years. Natural gas continues to expand its role while the shares of coal and oil fall back.

"We see clear winners for the next 25 years – natural gas but especially wind and solar – replacing the champion of the previous 25 years, coal," said Dr Fatih Birol, the IEA's executive director. "But there is no single story about the future of global energy: in practice, government policies will determine where we go from here."

Global oil demand continues to grow until 2040, mostly because of the lack of easy alternatives to oil in road freight, aviation and petrochemicals, according to WEO-2016. However, oil demand from passenger cars declines even as the number of vehicles doubles in the next quarter century, thanks mainly to improvements in efficiency, but also biofuels and rising ownership of electric cars.

Coal consumption barely grows in the next 25 years, as demand in China starts to fall back thanks to efforts to fight air pollution and diversify the fuel mix. The gas market is also changing, with the share of LNG overtaking pipelines and growing to more than half of the global long-distance gas trade, up from a quarter in 2000. In an already well-supplied market, new LNG from Australia, the United States and elsewhere triggers a shift to more competitive markets and changes in contractual terms and pricing.

## **67. Oil Firms And Carmakers Diverge In Debate Over Electric Drive Technology**

Many carmakers are predicting a significant shift to electric vehicles in the next decade. Advances in battery technology and the growth of autonomous driving and ride sharing - suited to electric vehicles - will power this expansion, they reason.

But some oil executives take a different view, predicting electricity will play only a bit part in transport out to 2040 at least. If they are on the wrong side of the argument, it could come at a cost to an industry where new projects often cost billions of dollars to build and need decades of at least moderate crude prices to pay off.

Over half of all crude oil pumped is used for transport. An overly pessimistic outlook for electric cars may lead oil companies to adopt an overly optimistic outlook for oil consumption and price growth, analysts say.

ENI SpA Chief Executive Claudio Descalzi is among those who believe the threat posed to the oil industry by electric vehicles is not significant. "Electric cars, they can grow, but I don't think that is a problem (for us)," Descalzi told Reuters on the sidelines of a conference in London last month.

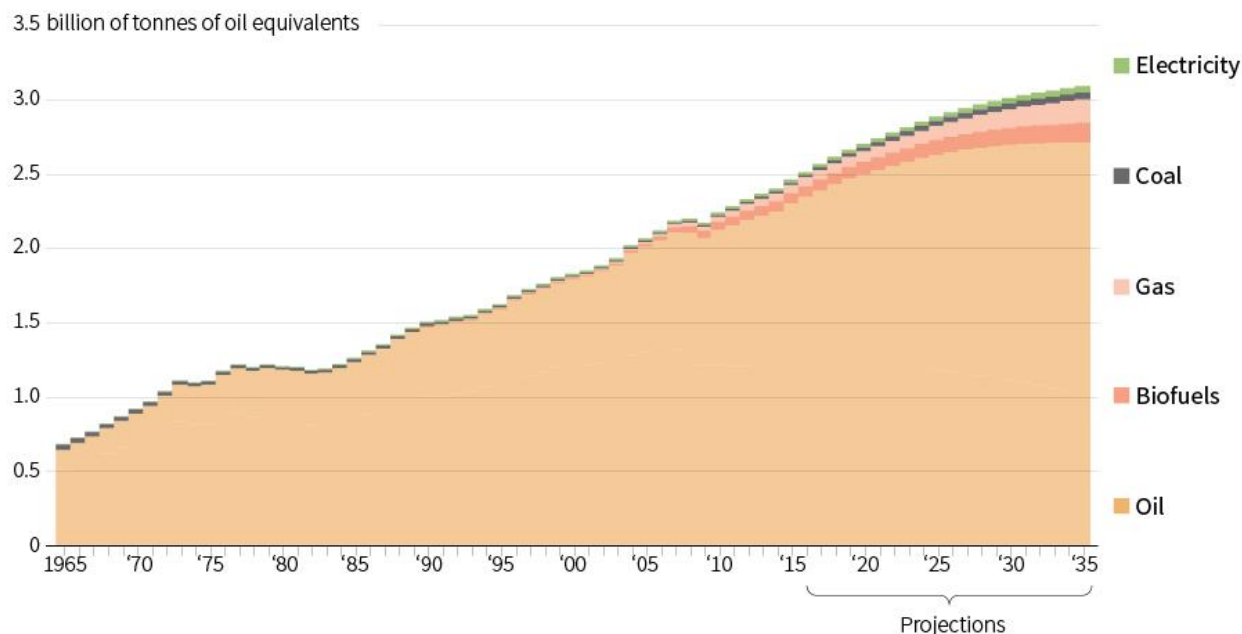
ExxonMobil Corp, the largest western oil producer by market value, and British rival BP Plc publish oil market outlooks to 2035 and 2040 respectively that guide their investment decisions. Both predict that in 2035, less than 10 percent of new cars will be electric vehicles (EVs) or plug-in hybrids – cars with a backup combustion engine for when the battery runs flat.

"Our central view in the outlook is the penetration of electric vehicles and electricity more generally is likely to be pretty limited over the next 20 years," Spencer Dale, BP's Chief Economist, said in February.

## Gas guzzlers

Oil industry forecasters, who have seen false dawns for electric vehicles before, are still predicting electricity will have little role in powering vehicles out to 2040 or beyond.

### TRANSPORT DEMAND BY FUEL



Source: BP.

G. Cabrera, 30/11/2016

REUTERS

The carmakers don't produce comparable long-term outlooks for vehicle production but their nearer term predictions for vehicle roll-outs envisage a much faster take up of EVs.

Dieter Zetsche, CEO of Mercedes Benz manufacturer Daimler AG, said in September his goal was to have EVs make up between 15 and 25 percent of group global sales by 2025. BMW AG has said it could do the same. Ford CEO Mark Fields said in April that by 2020, 40 percent of models would be electrified.

"For over 100 years the internal combustion engine has been a basic design assumption for our business, for our industry," Hau Thai-Tang, Ford vice President for Purchasing told analysts at an investor day in September. "This shift to electrification is game changing," he added.

For the oil companies, a lot is riding on the accuracy of their demand forecasts, said Alex Griffiths, Group Credit Officer for corporates at credit rating agency Fitch, who produced a report about electric vehicles. "Without that (oil) demand increase, you potentially find that the market gets out of kilter... which is not a good place for the oil industry to be in," he said.

To be sure, some in the oil industry are predicting a rapid expansion of EVs and some carmakers are conservative on EV prospects, but they are in a minority.

Norway's Statoil, for instance, says electric motors could roll out widely in the next two decades. And Fiat Chrysler Automobiles NV (CEO Sergio Marchionne has expressed caution about the uptake of electric cars.

Where there is a variance in outlook between the oil and auto industries, it is usually down to different expectations around technological developments and what happens in emerging markets. Carmakers expect batteries to become cheaper and be able to support greater vehicle range than some oil companies have predicted.

Oil companies have said regulated caps on vehicle emissions can be most efficiently achieved by improvements in combustion engine efficiency.

But carmakers say it is becoming increasingly expensive to hit emissions targets with combustion technology. BMW Chairman Harald Krueger told investors last year that electric motors were the only way to meet CO2 emissions regulations coming into force in Europe and elsewhere.

But an even bigger reason why many in the auto industry believe the future for cars is electric is because of developments in car ride sharing and autonomous vehicles. Thanks largely to the involvement of Silicon Valley companies like Google owner Alphabet Inc., driverless cars have gone in a few years from the stuff of science fiction to a reality.

Many of the big carmakers are developing models and predicting large-scale roll-outs in the 2020s. Indeed, they predict the technology could change their business model from selling vehicles to providing transport as a service.

That would be a big boost for electric engines. Electric cars are expected to remain more expensive than combustion engine vehicles for the foreseeable future but their operating costs are much lower than gasoline.

That extra cost can be quickly recouped if the vehicle is part of an autonomous fleet with a high utilization rate – as ride hailers like Uber Technologies envisage emerging in the next decade.

Also, with fewer moving parts, electric cars are cheaper to maintain – another incentive for fleet owners. And perhaps most crucially, driverless technology integrates better with an electric engine than a combustion engine because such technology needs electricity to operate, auto experts say. "All those sensors and that computer platform, the beauty is on board we've got a lot of capability to power all those systems," Pam Fletcher, General Motors Chief Engineer said at a conference in September.

There is no evidence oil companies have factored this change into their calculations. Neither BP nor Exxon's outlooks mentioned autonomous vehicles, although a policy document issued by BP said driverless cars would be considered in its next outlook due out in early 2017.

Nor were autonomous vehicles mentioned in the transcripts of 44 analyst presentations given in the past year by the seven biggest Western oil companies – Exxon, BP, ENI, Royal Dutch Shell Plc, Chevron, ConocoPhillips and France's Total SA - reviewed by Reuters.

The companies said they had not modeled the impact of autonomous vehicles, or they declined to comment.

A spokesman for the International Energy Agency, which advises developed nations and their oil companies on energy policies, said it had not yet studied the potential impact of driverless cars on oil demand.

Oil executives' outlook for oil is also supported by an expectation that increased car ownership in emerging markets can more than make up for any increase in EV penetration.

"When we talk of electric cars, we are talking about the OECD," ENI's Descalzi said, referring to the group of 35 largely rich industrialized nations. "More than 1.3 billion (people) have no electricity," he added.

But Simon Redmond, Director, Oil & Gas Corporate Ratings at credit rating agency Standard & Poor's said there was a risk that developing countries' adoption of the automobile echoed their experience with telecoms. In that case, consumers largely skipped use of the established technology - fixed land lines - and went straight to the latest technology – mobile phones.

Indeed, some in the auto industry think emerging markets could well outpace some rich countries in adopting EVs.

"We believe that China is going to lead in the penetration of electric vehicles into the market," Mary Barra, General Motors CEO, said in October.

Exxon predicts that by 2040, car ownership in China will triple to about 30 vehicles per 1,000 people. BP predicts such growth, and an increase in miles driven per vehicle over the next 20 years, will help China overtake the United States to become the world's largest liquids consumer in 2032.

Yet, China is already the largest market for electric vehicles in the world, helped by government subsidies worth up to \$10,000 per car and exemptions from traffic restrictions in cities such as Beijing and Shanghai. Between January-October, sales of all-electric and plug-in hybrid models totaled 337,000 and the country is targeting 5 million such vehicles on its roads by 2020. The government also offers incentives to manufacture electric vehicles in China, including more relaxed restrictions on foreign ownership of carmakers, and plans to set quotas that would require a certain proportion of cars built in China to be zero-emission vehicles.

Analysts say the risk for oil companies is that, with growth in crude demand baked into market analysts' forecasts, anything which suggests the shift to electric vehicles will be quicker than expected can impact oil prices years before the shift occurs. "The key risk for the industry is the rate of change," said Redmond. "It does bring into question some of the economics of the different type of projects that the (oil) majors may want to look at," he added.

## **68. Major Countries Commit to Increase Share of Electric Vehicles in Government Fleets**

Recognizing the importance of reducing carbon emission in the transportation sector, eight major nations – Canada, China, France, Japan, Norway, Sweden, the United Kingdom and the United States of America – signed a Government Fleet Declaration, pledging to increase the share of electric vehicles in their government fleets and calling for other governments to join them.

The Declaration was announced at the Marrakech Climate Change Conference (COP22) and was developed under the aegis of the Clean Energy Ministerial's Electric Vehicles Initiative (CEM-EVI).

The Declaration emphasizes the renewal of government fleets and showcases specific and voluntary commitments of these countries to accelerate the introduction of low-emission vehicles in their vehicle fleets. Through this Declaration, the eight signatory governments are taking a leadership role in this movement and sending a strong signal for the need to speed up the transition to a low-carbon transport.

Greenhouse gas emissions from the transport sector today account for nearly a quarter of total emissions. The share will increase significantly in the coming decades unless high-impact actions are taken. Changing the trajectory of emission in road transportation involves a global shift towards low-emission vehicles, along with the adoption of broader sustainable transportation principles.

The voluntary commitments taken by these countries will reduce fleets' greenhouse gas emissions and help accelerate the transition to low-emission vehicles, in line with the goals of the Paris Agreement.

The members of the Clean Energy Ministerial's Electric Vehicles Initiative cooperate to facilitate the global deployment of 20 million electric vehicles, including plug-in hybrid electric vehicles and fuel cell vehicles, by 2020. This Declaration is also in line with the Paris Declaration on Electro-Mobility and Climate Change and Call to Action released at COP21 during the Lima Paris Action Agenda (LPAA) Transport Focus, which specifies that at least 20 percent of all road transport vehicles (cars, 2 and 3-wheelers, trucks, buses and others) globally should be electrically powered by 2030 to respect a less-than 2-degree pathway.

This Declaration also aims at encouraging non-state actors, such as cities, regional and state governments, companies, sectorial federations and other organizations, to accelerate the energy transition with the introduction of clean vehicles in their fleets, including transit buses, taxi fleets, as well as municipal and corporate fleets.

### **69. Major Cities to Implement Ban on Diesel Vehicles by 2025**

Mayors of major cities like Madrid, Athens, Paris and Mexico City have jointly agreed to impose bans on diesel-powered cars and trucks in their respective cities by 2025. The mayors of these cities made the announcement at the C40 Mayors Summit which was held in Mexico City recently. As part of this drive to reduce emissions, the mayors said that they would be encouraging investment in alternative forms of transportation like bus, rail, and bicycles.

Air pollution is giving rise to as many as 6.5 million deaths every year across the world. Diesel exhaust is particularly toxic when it comes to lung damage as it comprises particulate matter and increases the percentage of ground-level ozone. The mayors of the four cities also said that they would work together to persuade automotive manufacturers to stop production of diesel engine vehicles within the next decade.

This is not the first such initiative made to reduce vehicular emissions. In the summer of 2016, Paris had imposed a ban on all vehicles that were made prior to 1997 – diesel or petrol – from entering the city limits. Paris has plans to reduce its greenhouse-gas emissions to 25 percent of

the current levels by 2050. It is projected that the move will impact about 500,000 vehicle owners in the French capital.

Mexico City also had recently imposed a one-time ban on about one million vehicles in March this year when the air quality was particularly bad after smog checks and other pollution-reducing initiatives were relaxed in 2015. About 20 per cent of the drivers of such vehicles ignored the ban and city authorities decided to extend bad-air warning to four days. Other major global cities which have enacted temporary bans on vehicles as part of their efforts to curb air pollution include Milan, Beijing, Rome, Bogota, and New Delhi.

## **70. Diesel Faces Global Crash As Electric Cars Advance**

Diesel will “almost disappear” from the global car market within 10 years as it faces a “perfect storm” of competition from cheaper electric cars and tougher stances by regulators, a report by UBS has forecast.

The falling costs of electric and hybrid vehicles will strip the fuel of its once-competitive price advantage, while tighter emissions regulation and soured public sentiment towards the fuel in the wake of the Volkswagen scandal will see its global share of car sales fall from 13.5 per cent to just 4 per cent by 2025, the bank predicts.

In Europe, diesel’s traditional heartland, sales will fall from 50 per cent to just 10 per cent, it forecasts. Sales in Europe have been falling slowly since 2012, but have accelerated in the past 12 months in the wake of the VW diesel scandal.

The decline forecast by UBS is sharper than many in the industry predict, and comes as major manufacturers grapple with the question of whether diesel cars will be viable in the future. All carmakers are pursuing some form of electrification in order to meet tightening CO2 targets.

Diesel, which emits around a fifth less CO2 than petrol equivalents, is no longer the easy option it once was due to tightening rules over Nitrogen Oxide emissions, which are emitted by diesel engines. As a result, almost all manufacturers plan to launch fully electric cars within five years.

Diesel cars are likely to be replaced by 48V mild-hybrid technology, which combines a small petrol engine with a large battery and offers similar fuel economy and performance to diesel while eliminating NOx emissions, the report predicts. UBS expects sales of 48V cars to overtake diesel sales globally in 2021, and to account for a quarter of all cars sold by 2025.

In Europe, where diesel sales peaked in 2012, the fuel is taxed around €0.15 less per liter than petrol, adding to its popularity. But states including France and Belgium have pledged to close this gap, while cities such as London, Madrid, Paris and Athens all have plans to ban the vehicles from their central areas.

“In the aftermath of the Volkswagen diesel issue, politicians and regulators have become highly sensitive and increasingly populist about diesel emissions,” said the report. “Even if some plans appear overly ambitious, the direction of travel is obvious and likely irreversible.”

It added that diesel would remain dominant in trucks and large SUVs.