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# CAR LINES

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## EUROPE

### 1. Commission Issues Guidance to Enforce Ban on Defeat Devices

On 26 January 2017 the European Commission published a guidance document on the evaluation of Auxiliary Emission Strategies (AES) and the detection of defeat devices. The guidance document aims at helping Member States evaluate if car manufacturers are using defeat devices or other strategies that lead to higher vehicle emissions outside of the test cycle and analyzes whether they are technically justified.

It contains examples of AES that, according to the Commission, need to be evaluated carefully according to the proposed methodology. Particular attention is recommended for:

- Strategies that lead to higher emissions when starting the engine in hot-start compared to cold-start.
- "Thermal windows" where emissions increase below or above certain ambient temperature ranges.
- Parameters such as a timer or the vehicle's speed that are used to modulate emission control systems.

A car manufacturer using emissions abatement strategies should be able to answer questions such as:

- Is the emissions increase kept at the lowest possible level?
- Is there no better technology or design on the market that would allow for improved emission control or safer operation of the engine?
- Can the risk of sudden and irreparable engine damage be appropriately demonstrated and documented?

In addition, the guidance also includes a detailed common methodology to help Member States identify possible defeat devices through targeted emission tests as part of their market surveillance obligations. It recommends ways to ensure a relevant selection of vehicles and which emissions tests to carry out in the laboratory and in real driving conditions to identify suspicious behavior. During lab or on-road testing, an emission test that falls above defined testing thresholds should be classified as a "suspicious" case. The Commission provides indicative testing thresholds for NO<sub>x</sub> emissions of 2 to 5 (different for diesel and gasoline).

### 2. Air Pollution in Europe: Current Status

France, Italy, the United Kingdom, Spain or Bosnia-Herzegovina.... All these countries, whether big or small, are being threatened with the same problem: air pollution. According to the World Health Organization, this is now the environmental factor causing the greatest concern for health. The European Environment Agency states that around 90% of the urban population in Europe is exposed to pollutants which are considered to be harmful.

"This hike in pollution is partly due to the increased emissions caused by more heating being used to combat cooler temperatures," explains weather forecaster Lionel Guiseppin. "Also, other contributing sources of pollution are traffic and manufacturing. These factors combine to create an accumulation of pollution. "

The European Union is trying to find solutions to this dangerous threat. A directive governing national emissions levels has been issued and the EU has also set limits, for the first time, on the ambient concentrations of fine particles.

On a national scale, each member state has taken emergency measures to limit the harmful effects.

Many European towns, especially in France, have reduced the speed limit in built up areas from 50 to 30 km per hour. The aim is to encourage the use of bicycles. The introduction of the ruling concerning alternate number plates, although quite efficient, has caused overcrowding problems for public transport.

The second solution offered by Public Authorities is to ban vehicles with a high level of pollution. In Germany, ignoring this directive can lead to a fine of up to 40 euros while in Sweden, drivers may have to pay 113 euros. In London, the fines are higher still and can reach approximately 1200 euros for heavy goods vehicles.

Whilst waiting for the benefits of these solutions to take effect, some citizens have already taken measures. Anti-pollution masks are slowly but surely infiltrating the large European towns.

### **3. London Breaches Annual Air Pollution Limit for 2017 in Just Five Days**



Air pollution and traffic on Putney High Street on 3 January 2017, one of London's worst pollution hotspots. Photograph: Elizabeth Dalziel/Greenpeace

London has breached its annual air pollution limits just five days into 2017, a “shameful reminder of the severity of London’s air pollution”, according to campaigners. By law, hourly levels of toxic nitrogen dioxide must not be more than 200 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) more than 18 times in a whole year, but late on January 5th this limit was broken on Brixton Road in Lambeth.

Many other sites across the capital will go on to break the annual limit and Putney High Street exceeded the hourly limit over 1,200 times in 2016. Oxford Street, Kings Road in Chelsea and the Strand are other known pollution hotspots.

NO<sub>2</sub> pollution is produced largely by diesel vehicles. Most air quality zones across the country break legal limits and the crisis was called a “public health emergency” by MPs in April. This week scientists said that one in 10 cases of Alzheimer’s in people living near busy roads could be linked to air pollution.

The mayor of London, Sadiq Khan, has pledged new measures and to double funding to £875m over five years to tackle the problem. But the UK government’s national plans have twice been ruled illegal in the past two years and it has been sent back to the drawing board to develop a third strategy.

A spokesman for the mayor said Khan would shortly be announcing 10 new low emission bus zones, including one for Brixton Road. “But this is not enough,” said the spokesman. “The government needs to match the Mayor’s commitment to improving air quality as quickly as possible.”

Over 60% of the 97 air pollution monitoring sites in London broke legal annual limits in 2016, according to preliminary data from Kings College London. Putney High Street, where high buildings trap pollution, was the worst. Its annual average for last year was 125 micrograms of NO<sub>2</sub> per cubic meter, over three times the limit of 40 $\mu\text{g}/\text{m}^3$ . Brixton Road recorded 117 $\mu\text{g}/\text{m}^3$  and Marylebone Road was more than double the limit.

The Kings College data also shows Putney High Street broke hourly limits 1,221 times in 2016, vastly exceeding the permitted 18 breaches. Brixton Road broke the hourly limit 502 times.

Across the UK, 169 local authorities - 40% - suffered illegally high NO<sub>2</sub> air pollution in 2015. This was down from 194 in 2013, but illegal levels of the toxic gas remain a serious issue, with the government estimating it causes 23,500 early deaths a year.

In November, data from the European Environment Agency revealed the UK is second only to Italy in Europe for the highest number of annual deaths from NO<sub>2</sub>. It also ranked London’s Marylebone High Street as the most polluted site in Europe.

The government must produce a new draft national plan by April and ClientEarth said this must include clean air zones in many areas to stop the dirtiest diesel cars entering pollution hotspots. ClientEarth also said the “perverse” financial incentives that encourage people to buy diesel cars rather than cleaner ones must be ended. Both a national network of clean air zones and tax changes were proposed within government as part of its last plan, but were rejected by the Treasury.

A government spokesperson said: “We are firmly committed to improving the UK’s air quality and cutting harmful emissions. We will update our air quality plans in the spring to further improve the

nation's air quality." He said the government had committed more than £2bn since 2011 to support ultra-low emissions vehicles and greener transport schemes.

#### **4. London's Mayor Issues His First 'Very High' Air Pollution Alert**

Sadiq Khan issued the first "very high" air pollution alert of his eight-month tenure as London mayor, advising citizens to reduce physical exertion and avoid running outside.

The current air pollution episode, worsened by cold and settled weather, has seen levels of dangerous PM-10 particulate pollution rise in parts of London to 101 micrograms per cubic meter, Khan's office said January 23<sup>rd</sup> in an e-mailed statement. That's more than double permitted hourly levels. Camden, the city of London and Westminster are the worst-affected areas, with a pollution rating of 10, the highest on a 10-point scale.

"Today the shameful state of London's toxic air has meant that I am forced to trigger the first 'very high' air pollution alert under my new comprehensive alert system," Khan said in the statement. "Everyone—from the most vulnerable to the physically fit—may need to take precautions to protect themselves from the filthy air."

The U.K. government is struggling to rein in toxic levels of air pollution that the Royal College of Physicians estimates kills about 40,000 people a year nationwide. Khan has made tackling the problem a priority of his tenure, promising to spend 875 million pounds (\$1.1 billion) through the 2021–2022 fiscal year to tackle poor air quality.

#### **5. UK Industrial Strategy Seeks To Drive Smart Energy, Transport**

The UK government has highlighted smart energy, nuclear power and low-carbon transport as urgent priorities for its industrial strategy. The government's business department BEIS launched a paper on the strategy, which is part of Prime Minister Theresa May's "new, active role" towards government, aimed at re-balancing the economy as Brexit approaches.

The strategy will mostly be based on sector-specific deals with a strong regional focus, tackling regulatory barriers to innovation and growth, using trade and investment deals to increase exports, and supporting the creation of new institutions.

On R&D and innovation, the strategy aims to improve UK competitiveness and skills in the nuclear power sector, and transition to low-emission vehicles. Smart energy technology, including demand-side response, energy storage and battery storage technology, are also mentioned as a key area for R&D.

BEIS has appointed government chief scientific adviser Sir Mark Walport to review the case for a new battery storage research center "to act as a focal point for work on battery technology, energy storage and grid technology", with a report expected early in 2017.

On energy costs and decarbonization, the paper foresees a long-term roadmap this year on minimizing business energy costs. This will be informed by a review of opportunities to cut the costs of decarbonizing the power and industrial sectors. The review will assess support for energy efficiency and the scope to use existing policies and incentives to drive further reductions in the cost of offshore wind once current commitments up to 2020 have been delivered.

On nuclear power, it stresses skills development and the importance of developing a domestic supply chain for the recently approved Hinkley Point C nuclear power plant.

The strategy comes as much of the UK's energy sector is still reeling from the Brexit vote and confirmation that the government also intends to pursue a 'hard Brexit'. The sector has warned of a risk to investment, notably in interconnectors that are important in managing energy security and intermittency from growing renewable generation.

## **6. Paris Vehicle Pollution Sticker Scheme Comes Into Force**

Drivers in Paris must display an anti-pollution sticker in their vehicles or face fines in the latest attempt by the French authorities to improve air quality. The sticker scheme, which just recently became mandatory, includes cars, lorries, motorcycles and scooters, and bans some vehicles from the city during weekdays.

It follows numerous spikes in pollution in which smog has descended over the French capital, forcing traffic reduction measures and the introduction of free public transport on the worst days.

The six different colored Crit'Air (air criteria) stickers indicate the age and cleanliness of a vehicle. Certain vehicles – including petrol and diesel cars registered before 1996; vans registered before 1997; pre-2000 scooters and motorbikes; and lorries, trucks and buses from before 2001 – are banned from the city between 8am and 8pm.

Level Five contains all diesel vehicles manufactured between 1997 and 2000, and these cars are now banned from driving on Paris streets. It's estimated that around 6 percent of the cars in Paris fall into Level Five.

Foreign-registered vehicles have been given until March to obtain their stickers, which cost €4.18 each, payable online.

The French government announced 1.4m Crit'Air stickers had been ordered through the official website, but a police check carried out across Paris recently found only one in 50 vehicles stopped had the sticker. About 600,000 vehicles are estimated to drive in and around the city every day. Those found without stickers can be fined €68 for cars and €138 for lorries.

Other cities in France have anti-pollution sticker schemes, but Paris has chosen to make it permanent. The authorities say that in the event of high pollution it will make it easier to ban less clean vehicles from the city, instead of banning half of all cars depending on the registration plate, as has been done up until now.

The mayor of Paris, Anne Hidalgo, has made it clear she will continue her campaign to reduce by half the number of cars in the city by making life increasingly difficult for motorists.

City hall plans include closing roads to traffic and pedestrianizing areas of the capital as well as an eventual ban on all diesel vehicles. "More cars means more pollution, fewer cars means less pollution. It seems obvious but in this post-truth age there are those who would argue that fewer cars means more pollution. We prefer to stick to the truth," Hidalgo told journalists.

Experts dispute the estimated number of premature deaths caused by air pollution in France, but Hidalgo said there were about 40,000 a year.

## **7. Oslo Lifts Temporary Ban on Diesel Vehicles**

Diesel vehicles can once again use all of the roads in the Norwegian capital. City officials lifted the temporary ban on operating diesel vehicles on municipal roads 12 hours after it was put into effect. The measure was put in place due to the danger of high exhaust pollution over large areas of the city.

The ban was to be in effect from 6am to 10pm every day until conditions improved but officials said that the weather forecast cleared the way to lift the temporary measure. "Throughout the day wind is expected at higher elevations, which will likely stir the air during the afternoon and evening," Oslo's environment department, Bymiljøetaten, said in a statement.

Oslo's thickly polluted winter air is due in large part to the combination of cold temperatures and very little wind.

The department said that it still expects elevated nitrogen dioxide (NO<sub>2</sub>) levels during rush hour traffic, especially in the morning. However, this will most likely be limited to the most heavily trafficked areas. While diesel cars emit less carbon dioxide (CO<sub>2</sub>) they emit more NO<sub>2</sub>.

The temporary ban on diesel vehicles marked the first time that Oslo officials implemented a strategy that has been under discussion since at least 2011. The city council -- made up of the Labour and Greens parties -- agreed in principle in February 2016 on the use of such a measure.

Under the ban, motorists risk a fine of 1,500 kroner for driving diesel vehicles on affected roads.

The measure has angered some motorists, who were encouraged in 2006 by Norwegian authorities to opt for diesel vehicles, which at the time were considered a better environmental choice than petrol-fueled cars.

## **8. Dieselgate Developments in Europe**

### **Inquiries Widen To Renault and Fiat Chrysler**

European automakers have been drawn into a widening probe of diesel emissions testing, with French prosecutors examining Renault and British authorities seeking answers from Fiat Chrysler Automobiles. The new French investigation into Renault will be led by three judges, said the Paris prosecutor. The probe would look at "suspected cheating" that could result in "products dangerous to health", added the prosecutor.

Renault acknowledged the opening of the judicial investigation, but said all of its vehicles "are compliant with the applicable standards". It added: "Renault vehicles are not equipped with cheating software affecting anti-pollution systems."

In January last year, three Renault sites in France were raided by anti-fraud investigators, sparking fears that emissions irregularities were spreading from VW to other European carmakers. In November, the anti-fraud authority referred Renault to state prosecutors over abnormal emissions of NO<sub>x</sub> by some of its diesel cars.

Following the VW scandal, the French government, which owns 20 per cent of Renault, set up a national commission to scrutinize vehicles sold by various carmakers in France, to see if any models were capable of cheating emissions tests. The commission's report over the summer



found that NOx emissions for many Renault models went well beyond official limits during normal driving conditions, and by a factor of more than 10 in the case of some vehicles.

The French clampdown follows allegations by the U.S. Environmental Protection Agency (EPA) that Fiat Chrysler was potentially using illegal software to hide excess diesel emissions. (See story below.)

No manufacturer other than VW has been found to have installed software designed solely for the purpose of circumventing emissions tests, but regulators in Britain and Germany say that carmakers have made extensive use of a "thermal window" which allows manufacturers to turn down pollution-control systems for the sake of protecting an engine.

German investigators said they had found that some carmakers defined the "thermal window" in such a way that exhaust treatment systems were switched off most of the time. Switching off or throttling back emissions treatment systems in cold weather reduces the risk of condensation building up in catalytic converters, which may otherwise cause rust and reduce exhaust-filtering effectiveness in the long run. It also improves engine performance and stretches the intervals between refilling vehicles with urea, an expensive substance needed to extract NOx from exhaust fumes.

Regulators across the globe are now seeking to determine when a "thermal window" engine management system becomes an illegal "defeat device." Under U.S. law, there is an obligation for manufacturers to declare their emission control strategy. This has been the basis for EPA action against Volkswagen and now against Fiat Chrysler.

The European Commission said it had been informed about the "worrying" EPA allegations and would look at what implications they might have for the European Union. "We will now work with the EPA, national member state authorities and of course Fiat in order to establish potential implications for vehicles sold in the EU," it said.

The European Commission has limited powers to force polluting cars off European roads, since vehicle licensing in the EU is still conducted on a national level.

Britain said it was urgently seeking information from the EPA over its allegation that Fiat Chrysler used hidden software to allow excess diesel emissions to go undetected. "We are urgently seeking further information from the U.S. Environmental Protection Agency... and will also be seeking information from the manufacturer regarding vehicles in the UK market," a spokesman at the Department for Transport said.

Fiat Chrysler CEO Sergio Marchionne angrily rejected the allegations, saying there was no wrongdoing and Fiat never attempted to cheat emissions rules with software detecting a vehicle was in test mode.

But carmakers continue to face scrutiny in Europe. Earlier the European Commission called on Italy to cooperate with a German probe investigating allegations that the Fiat 500X, Fiat Doblo and Jeep Renegade models were equipped with illegal cheating software. Fiat rejects the allegations. Germany's motor vehicle authority KBA began testing the vehicles of several foreign manufacturers as part of a blanket probe of vehicle emissions after the Volkswagen scandal first came to light. And the country's transport ministry asked the European Commission to investigate Fiat Chrysler's emissions after being stonewalled by Italian authorities.

## **VW Faces First Legal Test Case Over Emissions in Germany**

German consumer rights champion myRight filed the first legal test case against Volkswagen in Germany recently, raising pressure on the carmaker to compensate customers in Europe over the emissions scandal. Europe's largest automaker has pledged billions to compensate U.S. owners of Volkswagen (VW) diesel-powered cars, but has so far rejected any compensation for the 8.5 million affected vehicles in Europe where different legal rules weaken the chances of affected customers winning a payout.

Instead, VW is in the process of removing the illicit software that cheated emissions tests and insists the technical fixes will inflict no loss of value on car owners in Europe. It hopes to have completed repairs to all affected vehicles by the end of the year.

MyRight, which has gathered more than 100,000 VW owners through its web site, has accused VW of breaching European Union law by selling cars with software that was banned under EU rules, according to the 93-page legal document.

Rather than seeking compensation for a decline in value, the lawsuit aims to force VW to repurchase the vehicles at the original price, myRight founder Jan-Eike Andresen said. The purpose of the proceedings by myRight is to act as a model - resolving generic or common issues for other related cases. However, unlike in a U.S. class action, it does not have the legal effect of resolving all individual claims.

## **VW Will Appeal Court Order to Buy Back Customer's Diesel Car**

Volkswagen says it will appeal a court ruling that it must buy back a German customer's diesel car rigged to cheat on emissions tests. A VW spokesman, said that the company expects the verdict by the court in Hildesheim in northern Germany to be overturned. Volkswagen noted that other courts had reached opposite decisions in previous cases.

In its verdict, the regional court ruled that the plaintiff was entitled to receive the full purchase price of 26,499 euros (\$28,312) he paid for a Skoda Yeti 2.0 TDI in 2013. A buyback is a much more expensive solution than the fixes proposed by Volkswagen, given the number of cars involved.

The judges said the automaker had acted "indecently," and compared Volkswagen's deceit to past cases of wine makers mixing antifreeze in wine or companies putting horse meat in lasagna.

Volkswagen agreed to buy back up to 500,000 cars in the U.S. under a \$15 billion settlement agreed with U.S. authorities and car owners in federal court in San Francisco. When it comes to the case of the Skoda sold in Germany, Volkswagen argues that the cars equipped with the software are still roadworthy under European emissions standards and have not lost resale value. It has said it plans to fix the cars — a far cheaper solution than buying them back.

The Hildesheim court said a fix wasn't good enough and did not cover the risk of future costs from higher maintenance costs and premature motor damage. It criticized what it said was Volkswagen's failure to say how and by whom the decision was made to install the software, saying that "one can hardly assume that it was made by a developer at the lower end of the chain of authority."

## **Former VW CEO Winterkorn Denies Early Knowledge of Cheating**

Former Volkswagen chairman Martin Winterkorn has denied early knowledge of the dieselgate emissions manipulation scandal in a parliamentary enquiry into his role in the dieselgate scandal. Speaking before a parliament committee consisting of members from all of Germany's major political parties, Winterkorn made a long-awaited statement on Volkswagen's decision to manipulate emission tests of various diesel models.

In an opening declaration, Winterkorn took accountability for the scandal, saying, "As CEO, I bear responsibility for what has happened."

However, the 69-year-old German denied any direct involvement in the decision-making processes that led to Volkswagen employing specially developed software used to detect when diesel models were running on test rigs and programmed to subsequently alter their engine performance to reduce both CO<sub>2</sub> and NO<sub>x</sub> emissions well below that of real world driving levels.

"Everyone who knows me knows my love for detail, the perfect workmanship, we have invested countless hours in the search for the best solution," said Winterkorn, who referred to his decision to resign as CEO of Volkswagen on 23 September 2015, as "the hardest of my life."

In another round of questions posed by various German politicians, Winterkorn strenuously rebuffed suggestions he had early knowledge of Volkswagen's efforts to manipulate emission results and pending legal action by the US's Environmental Protection Agency (EPA), saying, "This was not the case".

The denial of early knowledge of legal action by the EPA is crucial as it could exonerate Winterkorn on claims he used the dieselgate scandal to manipulate Volkswagen's share price by not disclosing the facts to relevant authorities or the German parliament.

When asked to confirm exactly when he was made aware of the emission manipulation activities being run by Volkswagen, Winterkorn refused to provide a direct answer, saying details of his knowledge of the matter cannot be disclosed due to a pending investigation by the public prosecutor of Braunschweig in Germany. With the specter of the Braunschweig public prosecutor investigation hanging over him, Winterkorn also declined to nominate the signals he overlooked, suggesting Volkswagen was running illegal software in its diesel models.

The former Volkswagen chairman did, however, single out Volkswagen's strategy committee as one weak link in a process that led to diesel emission manipulation to reduce both CO<sub>2</sub> and NO<sub>x</sub> levels. "Our strategy committee should have reported it impossible. That did not happen."

Clearly well prepared for the two hour parliament hearing, most notably from members of Germany's Green Party, Winterkorn was very specific on questions relating to his communication with German politicians over the matter, saying he "did not speak to politicians about NO<sub>x</sub>", but informed German Chancellor Angela Merkel of "problems in the USA" on September 21, 2015.

Asked how many Volkswagen employees were involved in the emission manipulation fraud, Winterkorn said: "I do not think there were two or three, there were more, but how many, I do not know."

## **Former VW CEO Winterkorn Investigated For Fraud by German Prosecutors**

German prosecutors said they are investigating Winterkorn on suspicion of fraud as they expand a probe into the automaker's emissions test-cheating scandal. Winterkorn may have known about the manipulation sooner than he has so far said publicly, prosecutors in Brunswick, near VW's Wolfsburg base, said on January 27<sup>th</sup>.

"Sufficient indications have resulted from the investigation, particularly the questioning of witnesses and suspects as well as the analysis of seized data, that the accused [Winterkorn] may have known about the manipulating software and its effects sooner than he has said publicly," they said in a statement.

Prosecutors also said that 28 homes and offices were searched recently in connection with the investigation. They said they had increased the number of people accused to 37 from 21, including Winterkorn.

Winterkorn and VW brand chief Herbert Diess have already been subject of an investigation by Brunswick prosecutors over suspicions of possible market manipulation

VW has said its management board did not learn of the software violations until late August 2015 and formally reported the cheating to U.S. authorities in early September that year.

The widening of the investigation will add to the carmaker's legal headaches and may help investors seeking 8.8 billion euros (\$9.41 billion) in damage claims for the collapse of VW's share price after the scandal broke.

### **Dieselgate Leak: EU Described Own Policy as 'Complete Failure'**

Three months before the VW scandal broke out in 2015, a senior EU civil servant called the bloc's diesel-vehicle emissions policy "an almost complete failure" and urged the commission to "mitigate" car industry concerns over a new on-road test.

The five-page internal note, dated 16 June 2015, was written by Daniel Calleja, who was at the time the director-general at the commission's internal market and industry department. It was addressed to Tomasz Husak, the head of cabinet of industry commissioner Elzbieta Bienkowska.

Referring to EU efforts to curb emissions of nitrogen oxides [NOx] he said: "Absolute NOx emissions of diesel vehicles under real driving conditions have hardly changed" despite "various" EU "steps". "For the particular aspect of NOx emissions of diesel vehicles the European emission legislation therefore must be considered as an almost complete failure until now," he said, while noting that EU standards had been successful for other pollutants.

"On the road, a Euro 5 vehicle emits almost the same amount of NOx per km as a Euro 3 vehicle," Calleja said. Calleja said that carmakers "have been strongly focused" on passing the narrowly defined emissions tests in the laboratory, rather than making diesel cars that are clean on the road during normal driving conditions.

Calleja also gave Husak an update of the development of a new on-road emissions test, the so-called real driving emissions (RDE) method. He said that car lobby group ACEA had expressed concern carmakers would not have time to adapt to the new test. As a way to "mitigate" ACEA's concern, Calleja said the RDE test would be introduced in two steps, in what he frankly described as a "weakening the intentions of the initial Cars 2020 Communication", a commission strategy paper that came out in 2012.

Calleja said that strict enforcement of the RDE test would only take place during the second phase, which would start around 2020. He also said that the two-step solution, which was adopted by national governments four months later, still lacked a legal basis.

“For the moment this should be understood as a political intention,” he wrote.

“An appropriate legal justification still needs to be developed, because Euro 6 co-decision legislation in principle applies the respective emission limits without exception and does not allow for such "transitional" measures driven by technology concerns.”

The paper contained remarks on the legality of carmakers' efforts to pass the test only, which contradict public statements made by commissioner Bienkowska. “With today's legislation manufacturers can legally ignore the calibration of NOx emission of diesel vehicles to real driving conditions, which leads to the described problems of NOx emissions,” Calleja wrote.

Bienkowska, in a speech that she gave a year later, criticized carmakers who switched off or turned down the emissions filter under certain conditions, with the excuse that they need to protect the engine. “What you do is you make the exception the general rule,” said Bienkowska. “That is not acceptable to society. And it is not acceptable to me.”

### **Minister Argues that British VW Drivers Should Be Compensated Over Scandal**

More than a million Volkswagen drivers have been "taken for a ride" by the manufacturer over the diesel emissions scandal and must be compensated, according to a British minister. The treatment of drivers in the US is in stark contrast to those in the UK, where VW is so far yet to offer any of the 1.2m drivers compensation.

John Hayes, the transport minister, is in discussions with Volkswagen and told reporters that he "is determined to do right by the British motorist". He disclosed that he has recently secured an agreement that Volkswagen will cover the £1.1m cost of vehicle emissions tests on other manufacturers conducted by the Government earlier this year. The tests found that all of Britain's most popular diesel cars exceed the legal limit for safe levels of pollution, with toxic emissions up to 14 times higher than claimed by manufacturers.

Mr. Hayes said that the Government is prepared to take legal action against Volkswagen to secure compensation. "The exact nature of the package is something that will have to be negotiated and discussed. People who have been taken for a ride should be recognized in the form of further action. The fact that they have paid this money is indicative that we are beginning to score runs."

Mr. Hayes will next month meet Alexander Dobrindt, his German counterpart, to discuss how to secure compensation for drivers who have been affected by the scandal. The company has agreed a compensation deal with American owners as part of a buy-back plan, but UK drivers who bought the same cars have not been offered the deal.

### **EU Calls on Italy to Refute German Claims Against Fiat Chrysler**

The European Commission called on Italy to provide proof against Germany's allegation that Fiat Chrysler used illegal exhaust emissions defeat devices, stepping up pressure on the group amid accusations of emissions manipulation against it in the U.S. (See story below.)

Germany has asked the EU executive to mediate its dispute with Italy, which rejected its allegations of hidden software on the Fiat 500X, Fiat Doblo and Jeep Renegade models that allowed excess diesel emissions.

Germany's motor vehicle authority KBA began testing the vehicles of several manufacturers, including Fiat Chrysler, after Volkswagen Group's admission of cheating on emissions tests. The German KBA motor vehicle authority said it found a device that throttles back the models' exhaust purification system after 22 minutes -- just longer than official regulatory tests.

An EU source said that testing carried out on one Fiat 500X vehicle at the EU's own vehicle testing laboratory north of Milan showed suspicious emissions behavior.

Fiat Chrysler said at the time that its cars conform to current emissions rules and do not contain defeat devices.

In a sign of mounting frustration in Brussels over what EU officials see as governments colluding with the powerful car industry, the Commission said it was now up to Italian authorities to prove no wrongdoing. "The German authorities have expressed serious concerns," Commission spokeswoman Lucia Caudet told the press. "We have repeatedly asked Italian authorities to come forward with convincing answers as soon as possible."

The Commission expects to conclude the Italian, German talks on Fiat Chrysler's compliance in coming weeks but it has little power to enforce a settlement. In a system the Commission is now seeking to overhaul, national watchdogs approve new cars and alone have the power to police manufacturers -- though once approved in one country, vehicles can be sold across the bloc.

As part of a widening clampdown on health-threatening nitrogen oxide (NOx) pollution levels in the wake of the VW diesel scandal, the Commission in December began legal action against Germany, Britain and five other EU member states for failing to police emissions test cheating.

Separately, the UK government said it was urgently seeking information from the EPA following the agency's accusation of emissions manipulation against Fiat Chrysler. "We are urgently seeking further information from the US Environmental Protection Agency... and will also be seeking information from the manufacturer regarding vehicles in the UK market," a transport spokesman said on Friday. Fiat Chrysler CEO Sergio Marchionne angrily rejected the allegations, saying there was no wrongdoing and the company never attempted to create software to cheat emissions rules by detecting when the vehicle was in test mode.

### **ICCT Says RDE Not Strict Enough To Stop Illegal Car Emissions**

The incoming Real Driving Emissions (RDE) test will fail to keep all car emissions of nitrogen oxide (NOx) within legal limits, despite being stricter than previous tests, experts have warned. A study from the International Council on Clean Transportation (ICCT) said that in its current form, the RDE test will not completely stop carmakers using defeat devices and will allow cars to emit around 320 mg/km NOx emissions by 2022. This is four times the 80 mg/km limit permitted under the Euro 5 and 6 Regulation.

ICCT said that while the RDE, which will come into force in the EU in September 2017, was a "great step forward" from the New European Driving Cycle (NEDC) test it is replacing, it still needs to be tougher and more transparent to work.

Analysts found that tightening the RDE procedure further could bring car NO<sub>x</sub> emissions down to around 94 mg/km, only 1.2 times above the 80 mg/km limit. This would help cars stay below the conformity factors of 2.1 and 1.5 – the difference allowed between on-road emissions and legal limits – set under EU law for 2017 and 2020, respectively.

ICCT said EU policymakers would need to draw up a step-by-step roadmap of changes. They could start by accelerating the inclusion of 'cold-start' emissions in the RDE test – a move already approved by member states last December – as quickly as possible, the study found. This could be followed by tightening current conformity factors from 2.1 and 1.5 to 1.5 and 1.2, respectively and introducing random RDE spot checks.

“In the current RDE version, vehicle manufacturers can decide which vehicle to test and carry out the testing themselves and thereby optimize the results,” said Peter Mock, managing director of ICCT Europe. Mock also said the RDE proposal could let carmakers pre-select “special prototype cars” for the tests. Instead he advocated using ordinary mass-production vehicles obtained from customers who have been driving them, as “much better”.

However, ICCT said they expected industry stakeholders to oppose the proposals. The issue is likely to be the focus of the fourth RDE package, with a meeting between the Commission, member states, industry and NGOs.

Once these changes have been adopted, the ICCT believes the next step would be to make the RDE test more realistic by including emissions generated at unconventional speeds, temperatures and altitude conditions. EU policymakers could then make RDEs more transparent by making the results available to the public and giving a “certified clean” label to emission-compliant cars, the report said.

The recommendations by ICCT come the week after the organization warned that EU vehicle emissions policy was allowing cars to emit more than twice the pollution of trucks, lorries and buses.

ICCT carried out on-road tests with 24 diesel-powered trucks, tractors and buses and found that on average they produced nitrogen oxide (NO<sub>x</sub>) emissions of 210 mg/km. This shows that the heavy-duty vehicles tested were below the conformity factor of 1.5. This is the limit between on-road emissions and legal limits that vehicles must remain below under EU law. But the equivalent emissions figure for cars was 480-560 mg/km, which is more-than-double the figure for trucks, ICCT said. This range is based on average NO<sub>x</sub> emissions from 30 diesel cars tested by the German transport agency KBA. It also means that the cars tested were six to seven times over the 80 mg/km cap EU legislation allows.

ICCT researcher Rachel Muncrief said that the performance of heavy-duty vehicles improved even more once analysts had factored in the heavier load carried by these vehicles. This showed that they could be as much as 10 times more efficient than light-duty vehicles in terms of NO<sub>x</sub> emissions.

The experts attributed this gap in emissions to differences between the rules applied to light-duty vehicles under Euro 6 Regulation and those for heavy-duty vehicles under Euro VI Regulation.

Mock noted how the portable devices for on-road emission testing known as PEMS have been mandatory for heavy-duty vehicles since 2013. While light-duty vehicles undergo the laboratory test known as NEDC, which is notorious for underestimating emissions.

The ICCT report said that in addition to PEMS, the current proposals for light-duty vehicles would incorporate other elements already in force for heavy-duty vehicles, such as measuring emissions generated by the car outside test cycles or when its engine is being started up, also known as 'transient'. These changes could help light-duty vehicles reduce their NOx emissions from 2019 onwards but in their current form, "will still not be as stringent" as the rules already in place for heavy-duty vehicles, the experts warned.

### **Commission Mulls MEPs' Call for Post-Dieselgate Shakeup**

The European Commission is considering stripping DG Grow, its internal market unit, of the power to police car emissions after the Dieselgate scandal that erupted in September 2015. MEPs in a committee investigating the response to the scandal recommended transferring policing powers for car emissions testing to DG Envi, the Commission's environment department

A report from the MEPs blamed disorganization within the executive for it taking too long to catch car manufacturers' cheating on emissions tests. "The responsibilities between the European level and the national level has not been right and therefore it's extremely important we change the current system," Dutch Liberal MEP Gerben-Jan Gerbrandy said in a committee meeting on 12 January.

But one EU source close to the car emissions legislation told EurActiv.com that it is unlikely the Commission will shuffle those tasks between the DGs.

"Responsibility for air quality and vehicle emissions must be under one single portfolio and not split between two DGs in the Commission who often are in a situation of pursuing contradictory goals," UK Labour MEP Seb Dance said. "It's appropriate that all legislative responsibilities in the area of vehicle emissions currently held by DG Grow be transferred to DG Envi," Dance added, referring to the executive's department dealing with environment legislation.

EU Internal Market Commissioner Elżbieta Biedroń is in charge of the executive's legislation on car emissions testing and vehicle types, and was in the hot seat after Volkswagen's use of manipulating software was exposed in Europe.

A director from DG Grow told MEPs that their report on Dieselgate touches on "a number of institutional issues that concern the Commission as a whole". The executive will "reflect" on the recommendations and respond to MEPs, she said in the meeting. A Commission official will respond to the report when it's voted on in April's Parliament plenary session.

Stripping DG Grow of its authority on vehicle emissions would signal a reversal of the prevailing trend in the Commission to highlight the business case on green legislation, for example by putting DG Grow in the lead on those files.

### **9. Free Warsaw Bus Rides Not Enough to Fix Air Pollution Rivaling China's**

On January 9<sup>th</sup>, the Polish capital offered free public transport to encourage residents to leave their cars at home and stop contributing to one of the world's worst smogs. Warsaw readings for a pollutant known as small particulate matter exceeded Polish environmental norms fivefold on January 8<sup>th</sup> forcing local government to inform the city's nearly 2 million residents to stay indoors if possible. According to monitoring site AirVisual, Warsaw was the most polluted major city in the world on January 9<sup>th</sup>.



Poland's systemic smog problem intensifies during cold spells, when in addition to its coal-based power industry, millions of households are heated by furnaces that are all too often fed by burning the cheapest available materials, including garbage. Prime Minister Beata Szydlo, herself a coal miner's daughter, supports the use of the dirty fossil fuel because it ensures energy security and provides jobs. The government is working on ways to reduce the smog, Szydlo said on her Twitter account January 9, without giving details.

AirVisual lists Warsaw's air quality index at 231, meaning worse smog than in Calcutta, India, (224), Dhaka, Bangladesh, (220) and Beijing (197). Poland is the European Union's biggest per-capita polluter, with more than 80 percent of its electricity generation coming from coal. The country imports most of its gas from Russia.

Private household heating, which often uses low-quality fuel, as well as car exhausts are the main reasons behind the smog, according to Krystyna Baranska of the Environmental Protection Inspectorate in Warsaw. The pollution is responsible for about 45,000 premature deaths per year in Poland, the European Environment Agency said in 2016.

The EU took Poland to court in 2015 over the household-driven air pollution, which pushed the government to prepare a law that will force people to get more efficient furnaces. According to the World Health Organization, Poland is home to 33 of 50 EU's most polluted cities.

#### **10. Sunderland Firm Appointed To Lead £9m Project to Encourage Electric Cars**

A Sunderland firm, Zero Carbon Futures, has been appointed to a key Government project that aims to encourage more people to use electric cars and make Milton Keynes Council one of the most sustainable communities in Europe.

Having delivered a number of successful projects to develop electric vehicle charge point networks in the North East, the company has been appointed to work on the Go Ultra Low City scheme to show what can be done to encourage more people to try electric cars.

Zero Carbon Future will manage the development of an electric vehicle experience center in the heart of Milton Keynes' main shopping center, manage and develop the roll-out of its charging point network and oversee work on the town's roads to support the program.

Zero Carbon Futures has been involved in a number of high profile electric vehicle projects such as the Rapid Charge Network, Plugged in Places and My Electric Avenue and has overseen the development of charge point networks across the UK including at motorway service stations.

The company also works closely with the North East Combined Authority and played a role in its successful £1.5m bid to the Go Ultra Low City Scheme, which will be used to help take forward plans for new electric filling stations on the Science Central development in Newcastle and on the A19 on the outskirts of Sunderland.

#### **11. Chief Medical Officer: Diesel Cars Should Be Phased Out To Stop Pollution Deaths**

Diesel cars should be phased out to cut the tens of thousands of deaths caused each year from air pollution, the government's chief medical officer Dame Sally Davies said. Dame Sally, who

was guest editing Radio 4's Today program, was asked by BBC presenter Mishal Husain if diesels should be banned to save lives.

"I think we do need to steadily phase them out, there is good evidence of that pollution," said Dame Sally. "But you can't do things overnight. I am pleased to say when we replaced our car a few years ago we did buy petrol.

"But all of these things are open to both regulation and individual behavior. The big issue for us is how do we change behaviors, not just the public's but our own."

Air pollution plays a contributing factor in at least 25,000 deaths in England each year, triggering heart attacks and exacerbating respiratory conditions.

But road usage in Britain is at record levels, with an estimated 320 billion vehicle miles travelled in the year ending September 2016, contributing to about a third of air pollution in urban sites.

The government is facing huge pressure to phase out diesel cars, or tax their owners, after missing European emissions targets for cutting pollution. Limits for nitrogen dioxide (NO<sub>2</sub>) were introduced by EU law in 1999, and were to be achieved by 2010 but the Government has consistently missed targets and is facing millions in fines. In November the High Court ordered the Department for the Environment to come up with a new strategy for cutting fumes by the summer.

Motoring groups believe that diesel car and truck owners will be incentivized to scrap their vehicles or face heavy taxes, because they emit the largest amount of nitrogen dioxide and particulates.

But the RAC said 'demonizing' diesel was the wrong approach to tackling pollution. RAC roads policy spokesman Nick Lyes said: "The chief medical officer's comment about needing to steadily phase out diesel cars is not helpful in that it is very much a 'sledgehammer to crack a nut' approach to tackling poor air quality caused by harmful nitrogen dioxide and particulate emissions.

"Some of the newest diesel vehicles on the road are also some of the cleanest, and diesels will also play a role in helping to reduce CO<sub>2</sub> emissions, which contribute to man-made climate change."

## **12. Outlook 2017: European Union Seeks Environmental Progress in Difficult Times**

The European Union in 2017 will seek to put in place the legislative architecture that will guide its decarbonization efforts through 2030, in a context of increasing political uncertainty caused by the Trump presidency in the U.S. and other potentially disruptive political changes.

The decarbonization effort will include measures on emission reductions for all sectors of the economy, as well as measures on renewable energy and energy efficiency, which together should add up to a 40 percent reduction in greenhouse gases by 2030 compared to 1990. A 40 percent reduction is the commitment the EU has made under the 2015 Paris Agreement, under which global warming should be limited to no more than 2 degrees Celsius (3.6 degrees Fahrenheit) above pre-industrial levels, and preferably should be kept below 1.5 degrees Celsius.

The Paris Agreement could be undermined by incoming U.S. President Donald Trump, however, who has said he will take the U.S. out of the United Nations-negotiated agreement, although he has an “open mind” about the agreement.

The EU's environmental agenda in 2017 also could be disrupted by the start of talks about the U.K.'s exit from the EU and by presidential elections in France that will conclude in May. In France, Marine Le Pen, leader of the right-wing nationalist party Front National, is a possible victor. The Front National party opposes the EU in its current form and believes environmental policies should be decided at the national level and should not result in high costs for industry.

Of the main elements of climate and energy policy to be moved forward by the EU in 2017, talks on the bloc's emissions trading system (ETS) have advanced the most. The European Parliament should adopt in February its position on a revision of the ETS through 2030. A proposed reform of the system was published by the European Commission, the EU's executive body, in July 2015. Under the commission's proposal, participants in the ETS, including heavy industry and power companies, would be required to cut their emissions by 43 percent on average by 2030, compared to 2005, in order to contribute to the overall EU emissions cut of 40 percent. This would mean the ETS emissions cap should reduce by 2.2 percent a year after 2020, compared to 1.74 percent at the close of 2016.

Ian Duncan, a British center-right lawmaker who is the European Parliament's lead negotiator on the ETS reform, suggested that the annual emissions cap reduction could be increased after 2023, when a review of the Paris Agreement will take place and an assessment will be made of whether the world is on track to reduce emissions sufficiently to combat dangerous global warming.

Other lawmakers have proposed amendments that would increase the annual reduction to as much as 4.2 percent. EU countries are likely to resist a cut beyond 2.2 percent a year, however, on the grounds that the emissions reduction should be predictable for companies. An official from the Council of the EU, which represents the governments of member countries, speaking on condition of anonymity, said because of this, “I wouldn't expect the 2.2 percent to be changed.”

The main ETS issues that lawmakers will decide will be the extent to which EU companies covered by the ETS should be compensated to ensure that they are not disadvantaged when compared to non-EU competitors that do not face carbon cuts, in addition to what should be done with surplus carbon permits that have been placed in a reserve.

After the European Parliament decides its position on the ETS revision, it must start negotiations with the Council of the EU to reach an agreement acceptable to both institutions. It is unclear if this will be completed in 2017. A final agreement on the ETS could be held up while the Parliament and EU countries discuss the other elements of the EU's 2030 climate and energy strategy, including emissions cuts for parts of the economy not covered by the ETS and a revision of the 2009 EU Renewable Energy Directive (2009/28/EC).

The commission proposed cuts for non-ETS sectors in July 2016 and the update to the renewables law in November, meaning that substantive discussions on the dossiers in the European Parliament and council will start in 2017, but are unlikely to be completed.

The proposals on non-ETS emissions, such as those from agriculture, construction and waste, would impose requirements on countries to reduce their emissions from these sectors by as much as 40 percent by 2030, depending on the wealth of each country and its capacity for making cuts.

## NORTH AMERICA

### 13. U.S. Expected to Curb Environmental Protections Under Trump

Environmental advocates in the U.S. will wage rearguard actions through the courts and regulatory process in the coming year to preserve the greenhouse gas regulations established by the Obama administration from President-elect Donald Trump, who once called climate change a Chinese hoax. Trump, who took office January 20, has repeatedly vowed to undo the Clean Power Plan, the Obama administration's carbon dioxide limits on power plants, and his calls to remove impediments to fossil fuel development could jeopardize the first suite of methane limits on new oil and gas wells.

Environmental advocates are gearing up to preserve the gains of the Obama era through lawsuits and petitions to the Environmental Protection Agency to spur additional rulemaking or defend the regulations already in place.

Even the most ardent supporters of the 2015 Paris climate accord—reached after more than 20 years of talks aimed at committing developed and developing nations alike to address greenhouse gas emissions—expect a monumental change under Trump.

In the end, Trump could reverse his campaign pledge to “cancel” U.S. participation in the Paris Agreement and steer clear of an even more drastic move: complete U.S. withdrawal of the world's No. 2 emitter from climate talks under the United Nations Framework Convention on Climate Change, the parent treaty to the Paris accord. But right now, those actions remain on the table.

Environmental advocates say the election of Trump puts them on similar footing to the last Republican president. Advocates for addressing climate change repeatedly had to petition and sue the Bush administration to prod it toward action, resulting in a landmark U.S. Supreme Court case that affirmed the EPA's ability to regulate greenhouse gases as an air pollutant under the Clean Air Act.

Despite the experience, the Trump administration may present a new array of challenges for environmental advocates. Obama-era regulations on ground-level ozone and utility sector emissions are potential targets for a rollback under Trump, but environmental advocacy organizations are planning a vigorous defense of those regulations in the courts and in the U.S. Senate.

At the same time, the transition of power inserts uncertainty into the status of ongoing Clean Air Act litigation and rulemaking at the EPA, though the agency will still face several looming deadlines to take action on implementing the 2015 ozone standards, reviewing national air toxics standards and making decisions on state pollution plans.

Outside of the regulatory sphere, 2017 also will see continued implementation of the \$14.7 billion Volkswagen diesel settlement, with planned activities including continued buyback of non-compliant cars, the first round of funding under a mitigation account intended to reduce nitrogen oxides emissions and VW working on a plan to invest in zero emissions vehicle infrastructure and market development.

Trump can reverse executive orders, back out of court fights over regulations, start rewriting energy and environmental regulations and—possibly the most substantial move—work with

Congress to amend laws. House Republicans reportedly will act quickly to introduce legislation under the Congressional Review Act to repeal rules finalized by the Obama administration since May.

Trump also has stressed the need for infrastructure investments and has mentioned the proposed Keystone XL pipeline as something he would approve and the Dakota Access pipeline as something that should be allowed to go ahead. That leaves a host of other possibilities—other oil pipelines, electric transmission lines, liquefied natural gas export facilities, coal export facilities and more.

#### **14. Trump Team Prepares Dramatic Budget Cuts**

Staffers for the Trump transition team have been meeting with career staff at the White House to outline their plans for shrinking the federal bureaucracy. The changes they propose are dramatic. Overall, the blueprint being used by Trump's team would reduce federal spending by \$10.5 trillion over 10 years.

Many of the specific cuts were included in the 2017 budget adopted by the conservative Republican Study Committee (RSC), a caucus that represents a majority of House Republicans. Rep. Mick Mulvaney (R-S.C.), Trump's choice to head the Office of Management and Budget, voted for the RSC budget offered as a more conservative alternative to the main House Republican budget in 2015. The House did not vote on the RSC budget for fiscal year 2017.

The plan reportedly suggests saving \$3.682 billion by eliminating nine EPA climate programs, including regulation of various mobile and stationary sources. The plan reportedly also calls for cutting \$421 million from the agency's budget by eliminating six "redundant" programs, including EPA's vehicle and fuel standards program.

Trump's Cabinet picks have yet to be apprised of the reforms, which would reduce resources within their agencies. The budget offices of the various departments will have the chance to review the proposals, offer feedback and appeal for changes before the president's budget goes to Congress.

The presidential budget is important in setting policy and laying out the administration's agenda, though Congress would be responsible for approving a federal budget and appropriating funds. Moving Trump's budget through Congress could be difficult. In 2015, with the GOP in control of the House, the RSC budget failed by a vote of 132 to 294.

Moderate Republicans and Democrats on the Appropriations Committee are likely to push back at some of the cuts being considered by Trump. But they seem likely to have the support of Mulvaney, a conservative budget hawk who backed the RSC budget.

At the Department of Justice, the blueprint calls for reducing funding for its Environment and Natural Resources divisions. At the Department of Energy, it would eliminate the Office of Energy Efficiency and Renewable Energy and scrap the Office of Fossil Energy, which focuses on technologies to reduce carbon dioxide emissions. Under the State Department's jurisdiction, funding for the Paris Climate Change Agreement and the United Nations' Intergovernmental Panel on Climate Change are candidates for elimination.

## **15. Trump's EPA Pick Casts Doubt on California's Power to Regulate Auto Emissions**

Donald Trump's pick to head the Environmental Protection Agency cast doubt on whether California should continue to have power to impose its own emission rules for cars and trucks, an authority the state has enjoyed for decades that is also the cornerstone of its efforts to fight global warming. Oklahoma Atty. Gen. Scott Pruitt said at a contentious confirmation hearing that he cannot commit to keeping in place the current version of a decades-old federal waiver that allows California to set emissions standards stricter than elsewhere in the United States.

In recent years, California regulators have used the waiver to force automakers to build more efficient vehicles, which has helped the state cut its greenhouse gas emissions from cars and trucks by nearly a third since 2009.

More than a dozen other states have adopted the California standard as part of their own efforts both to clean their air and fight global warming.

Pruitt held out the possibility that he might take that power away during a hearing in which he also battled Democrats over his skepticism about aspects of climate science, his financial relationship with oil and gas companies, and his plans to substantially curb the EPA's role in fighting pollution.

Although Pruitt said he accepts that human activity is affecting the climate, he expressed doubt over the mainstream scientific consensus that the warming is happening at a catastrophic pace that must be confronted with aggressive actions. "The ability to measure with precision the extent of [human] impact and what to do about it are subject to continued debate and dialogue," Pruitt said.

Pressed by Sen. Kamala D. Harris (D-Calif.) about whether he intends to leave California's authority in place, Pruitt would only say, "I don't know without going through the process to determine that. One would not want to presume the outcome." His comments were met with strong protests by Democratic lawmakers in Washington and Sacramento. They charged that Pruitt, a self-styled crusader for states' rights, is less committed to the principle when states pursue policies that reduce the profits of big corporations.

If the Trump administration did succeed in eliminating California's waiver authority, the loss would be a major setback for the state's environmental policies.

The waiver was initially granted decades ago as the state grappled with an air quality crisis triggered by the traffic-induced smog that settled over Los Angeles and other cities. The state expanded its use of that power in 2009, when, after years of fighting with federal regulators and car manufacturers, California officials and the then-new Obama administration agreed to expand the waiver to incorporate California's landmark effort to fight climate change. Reduction of greenhouse gas emissions has been a key function of the waiver since that agreement was struck.

Pruitt's hedging on the issue comes as California regulators have expressed confidence that the new administration would not interfere with homegrown efforts to shift the state economy away from fossil fuels. But their confidence has been based on the assumption that certain federal environmental policies, like the waiver and tax credits for wind and solar energy, would endure.

"When you say 'review', I hear 'undo' the rights of the states," Sen. Ed Markey of Massachusetts, which has adopted many of California's standards, told Pruitt. "It's troublesome because obviously

what we've heard all day is how much you support states' rights when it comes to these issues. But, now when it comes to the right of California or Massachusetts or other states' right to be able to reduce carbon pollution, you say you are going to review that."

"We are fearful what review would actually result in," Markey said. "I think it is going to lead to you undoing that right of states to be able to provide that protection."

Pruitt would say only that he could make no promise that California and other states will keep their waiver.

As Pruitt sparred with committee Democrats, California's chief regulator of air quality and greenhouse gas emissions, Mary Nichols, was testifying in Sacramento about the importance of the waiver to her agency, the California Air Resources Board.

Pruitt is among the more controversial of Trump's Cabinet picks, a longtime ally of the oil and gas industry who has built his career around fighting the agency he now seeks to run. He has sued the EPA 14 times since becoming his state's attorney general — often alongside oil and gas companies. He argues the agency has acted inappropriately in its robust enforcement of clean air and clean water rules that he says should be left to state discretion.

As head of the EPA, he would be empowered to undermine the signature Obama administration effort to combat global warming — a policy he has crusaded against. "Regulators are supposed to make things regular," Pruitt said at his hearing, "to fairly and equitably enforce the rules and not pick winners and losers." He charged that the issue of climate change had been overtaken by emotion and incivility. "We should not succumb to personalizing matters," he said.

The hearing follows a weeks-long assault by environmental groups against Pruitt that began the day Trump named him to lead the agency. One of the groups, the Environmental Defense Fund, said it had never lobbied against an EPA selection until now.

Democrats on the Senate Environment and Public Works Committee took up the fight, accusing Pruitt of ignorance of climate science, a disregard for millions of Americans whose health is being harmed by air pollution and an inappropriately cozy relationship with big energy companies. Pruitt's close ties with energy companies were repeatedly brought up by Democrats as the hearing got underway. Sen. Jeff Merkley of Oregon presented a letter Pruitt sent to the EPA protesting its enforcement of methane rules.

The letter was written almost entirely by Devon Energy. Pruitt had changed just a few words. "A public office is about serving the public," Merkley said. "You used your office as a direct extension of an oil company rather than a direct extension of the public health of the people of Oklahoma." Pruitt said sending the letter written almost entirely by an oil firm was appropriate.

"The letter sent to the EPA was not sent on behalf of any one company; it was particular to an industry," he said. "There was concern expressed by many in the industry about the overestimating that occurred in relation to that methane rule."

## **16. Trump Scrubs White House Website Clean of Climate Mentions**

The Trump administration quickly scrubbed the White House website of all references to fighting climate change, one of President Barack Obama's priorities. Until noon on January 20, the whitehouse.gov site highlighted Obama's "climate and energy" accomplishments among five

broad subject areas that also included sections on health care and American leadership. All were removed within minutes of Trump becoming president.

Also deleted was a reference to climate change as a top issue, along with others such as civil rights and the economy, listed on the home page. As revamped by the Trump administration, the new White House site includes its own list of “top issues” which now include a new “America First Energy Plan” followed by policy areas ranging from “America First Foreign Policy” to “Trade Deals Working For All Americans.”

Trump’s America First Energy Plan, a page on the reconfigured White House site, puts two of Obama’s environmental initiatives in the crosshair—his climate action plan and a Clean Water Act rule that industry and many states see as jurisdictional creep over small streams and waterways. Rolling back the climate agenda and water rule together would boost wages by more than \$30 billion over the next seven years, it said.

Obama’s 2013 climate action plan—essentially his go-it-alone strategy given congressional inaction on climate issues—outlined policies from ending U.S. support to overseas coal-fired power plants to more stringent vehicle efficiency standards and Environmental Protection Agency power plant carbon pollution limits. The plan also pledged continued U.S. leadership to secure the global climate deal nearly 200 nations reached in Paris in 2015. That’s the agreement Trump has vowed to cancel.

## **17. US Chamber Chief Calls for Regulatory Reform to Fuel Economic Growth**

US Chamber of Commerce President Thomas J. Donahue called for federal regulatory relief and reforms as a primary component of a new American Growth Agenda. “There is no justification for the regulatory overkill we have seen over the last 8 years,” he said. “An unelected fourth branch of government—the regulatory branch—is holding our small businesses back while imposing unnecessary costs on larger companies too.”

Incoming US President Donald J. Trump could begin to eliminate economic burdens imposed by his predecessor’s executive orders starting January 20, Donahue said. “We urge him to act immediately and continually. Congress can also move quickly on some of the recently imposed regulations by using the Congressional Review Act,” he said in his 2017 State of American Business address.

The federal regulatory process itself must be reformed, Donahue said. “For several years, the Chamber has been leading the fight for the Regulatory Accountability Act, which would fundamentally transform how agencies implement major rules,” he said. “It also would begin to restore the balance of power between the executive and legislative branches. It would be the first major update to how federal agencies write rules in 70 years.”

Donahue said the 115th Congress, in its opening days, has made it clear that passing regulatory reform is a top priority. “We could not be more pleased that years of hard work may finally be paying off,” he said.

## **18. VW Scandal Enters Next Stage: Executives Facing Jail Time**

### **VW Reaches \$4.3 Billion U.S. Criminal Settlement**



Volkswagen Group has negotiated a criminal and civil settlement worth \$4.3 billion with the U.S. Justice Department. The settlement includes a guilty plea by the automaker regarding certain U.S. criminal law provisions and a statement of facts on the basis of which the fines have to be made, VW said.

At a press conference, Attorney General Loretta Lynch said "Volkswagen obfuscated, they denied and they ultimately lied."

The German company pleaded guilty to conspiracy, obstruction of justice and importing vehicles by using false statements in a plea deal. It also requires VW to cooperate in a continuing probe that could lead to the arrest of more employees.

In one case, one of the six engine development supervisors asked an assistant to search another supervisor's office for a computer hard drive that contained emails between them. Once the hard drive was found, another assistant was asked to throw it away.

According to the plea agreement, the supervisors and other employees agreed to deceive the Environmental Protection Agency and other regulators about diesel emissions starting in May 2006, when they realized the engines wouldn't meet emissions standards that were going into effect in 2007.

Under the direction of supervisors, VW employees designed engines with "defeat device" software that would reduce emissions only when the vehicle was undergoing a standard U.S. emissions test. They borrowed the idea from VW's luxury division, Audi, which was developing different engines with similar software.

In November 2006, some employees raised objections to the defeat device to the head of VW brand engine development. That official directed the employees to continue and warned them "not to get caught."

In 2014, VW employees learned about a West Virginia University study that identified emissions discrepancies in VWs. Three of the supervisors and other employees decided not to disclose the defeat device to U.S. regulators, despite increasing questions from the EPA and the California Air Resources Board.

On Aug. 19, 2015, a VW employee ignored instructions from supervisors and told U.S. regulators about the defeat devices. A supervisor confirmed the devices the following month.

VW will plead guilty to three felonies and be on probation for three years.

As part of the settlement, VW agreed to sweeping reforms, new audits and oversight by an independent monitor for three years. The German automaker also agreed to change the way it operates in the United States and other countries. VW will separate the jobs of product development and certification and testing and monitoring into different organizations.

The independent monitor will have access to Volkswagen documents and assess the efforts of VW's board of management and senior management to comply with environmental laws.

The monitor will file at least two follow-up reports with the Justice Department and conduct onsite interviews in Germany, the United States and potentially elsewhere with VW employees.

In addition to oversight by an independent monitor, the company will also face separate annual environmental management systems audits over the next three years.

VW said in a statement that its emission tests are now evaluated externally and independently.

Over the next three years, VW must test all of its US vehicles using portable emissions measurement system testing - a method designed to capture real world emissions and deter cheating. It must also provide new protections for whistleblowers.

The company's Porsche unit will face separate audits and vehicle testing requirements.

VW must within three months create a group steering committee for monitoring and complying with US vehicle emissions laws and add new environmental protection provisions to its employee code of conduct.

VW faces fines of up to \$50,000 a day if it fails to comply with some requirements - and up to a \$1 million penalty if they make false statements to regulators.

### **Executives Charged**

If there was any argument that Volkswagen's diesel scandal was carried out by a small group of low-level employees, charges filed by the Department of Justice sharply undermine it. The executives charged worked across multiple Volkswagen divisions, painting a portrait of an organized deception carried out over several years. Prosecutors allege that they collectively directed engineers to fit the company's cars with "defeat devices," which changed vehicle settings so they spewed fewer pollutants during tests by regulators than they did on the road.

So far, six men have been formally charged, accused of defrauding the United States and Volkswagen customers there, of violating the Clean Air Act and of committing wire fraud. A seventh has pleaded guilty to conspiring to defraud regulators and car owners.

Here are the people who have been charged so far:

#### **Heinz-Jakob Neusser, 56, executive showman**

By far the most prominent person indicted so far, Mr. Neusser was one of the select few executives who presented new models at car shows. Before his resignation in 2015, he oversaw 10,000 people at Volkswagen's vast development complex in Wolfsburg, Germany, which has its own test track. Mr. Neusser was known inside Volkswagen for his loyalty to Martin Winterkorn, Volkswagen's chief executive until he resigned when the scandal broke.

Mr. Neusser took over responsibility for developing new engines for Volkswagen brand cars in 2011, after the illegal software had already been deployed in millions of cars around the world. But, according to prosecutors, he played a major role in refining the software and concealing its existence from regulators.

After engineers complained that the software was causing engine malfunctions, Mr. Neusser ordered changes that reduced pollution controls even further and told employees to destroy evidence, according to the indictment against him.

#### **Jens Hadler, 50, engines expert**

When Volkswagen decided to build a new diesel engine as part of an all-out drive to recapture past glory in the United States, the company tapped Mr. Hadler, who has a doctorate in engineering, to oversee the project known as “U.S. ’07.”

The pressure was intense. The United States was central to a grand plan by Volkswagen to become the largest carmaker in the world. But sometime in 2007, Mr. Hadler and others realized that the company lacked the technology needed to meet tougher American emissions standards, according to the indictment. That is when Volkswagen resorted to the use of a “defeat device,” making engines seem cleaner than they actually were.

Unlike several other suspects, Mr. Hadler is not accused of participating in a cover-up. He left Volkswagen in 2011 and was replaced by Mr. Neusser.

### **Richard Dorenkamp, 68, emissions specialist**

Mr. Dorenkamp, who specialized in emissions systems, was crucial to the development of the new diesel engine for the American market. Like several other suspects, he was well-known in industry circles, speaking at universities and conferences, and writing articles in technical journals. Mr. Dorenkamp’s name is on numerous patents related to engine technology.

When it became clear that the new diesel engine couldn’t meet emissions standards legally, Mr. Dorenkamp played a key role in the conspiracy to develop illegal software, according to prosecutors. He retired in 2013.

### **Bernd Gottweis, 69, troubleshooter**

Mr. Gottweis was a quality-control executive known as “the fireman” for his troubleshooting skills. When a defect turned up in Volkswagen vehicles somewhere in the world — a common occurrence in the industry — he was often one of the first on the scene.

A memo he wrote in May 2014 has become a key piece of evidence in the case, suggesting that top levels of management learned of illegal software much sooner than Volkswagen has admitted. The memo, a one-page document that was included in federal court filings, warned that a study by a handful of researchers at West Virginia University had revealed strange behavior by Volkswagen diesel cars in the United States. Regulators might investigate whether Volkswagen was using a defeat device, and there was nothing Volkswagen could do to make the cars legal, the memo said.

The warning was put in a stack of weekend reading for Mr. Winterkorn. Volkswagen has said it is not certain that the chief executive read it, but it would have been unusual for Mr. Winterkorn to ignore a memo from someone of Mr. Gottweis’s stature.

### **Oliver Schmidt, 48, regulatory go-between**

Mr. Schmidt was Volkswagen’s point person in dealing with American clean-air regulators, overseeing Volkswagen’s emissions compliance office in Michigan from 2012 until 2015. United States investigators accuse Mr. Schmidt of being in the middle of a campaign to deflect suspicion about Volkswagen cars by supplying reams of false or misleading data to clean-air enforcement agencies.

Even after returning to Volkswagen headquarters in early 2015 — where he worked for Mr. Neusser — Mr. Schmidt continued to try to keep United States regulators from discovering the defeat device, according to court documents.

Exposure of the defeat device in September 2015 did not initially appear to hurt Mr. Schmidt's career, but he appears to have underestimated how much trouble he was in. Although he had already been questioned by United States investigators in Europe — an indication he was a target — Mr. Schmidt left the safety of Germany and traveled to Florida. F.B.I. agents took him into custody at Miami International Airport on January 7 shortly before he was scheduled to board a plane back home. Judged a flight risk, he was being held without bail.

### **Jürgen Peter, 59, quality control**

Mr. Peter, a longtime employee of a unit responsible for vehicle quality and safety, was less prominent than the other suspects. But, according to the indictment, he worked behind the scenes in Wolfsburg to concoct excuses for why Volkswagen vehicles polluted so much more on the road than in lab tests.

He is perhaps most famous as the source of a widely quoted expression of panic within Volkswagen as it became increasingly difficult to figure out ways to placate regulators. As California officials were intensifying tests of Volkswagen vehicles in mid-2015 and it appeared increasingly likely that the company would be exposed, Mr. Peter, it was said, wrote in an email to colleagues, "Come up with the story please."

### **James Robert Liang, 62, software engineer**

Mr. Liang is the only person so far to plead guilty in connection with the Volkswagen scandal, and has agreed to cooperate with prosecutors. He appears to have had a front-row seat to all that was happening inside the company as the scandal unfolded, making him a particularly valuable informant.

Having worked at Volkswagen since 1983, Mr. Liang was involved in designing the new diesel engine starting in 2006 and has admitted to being among the group of people who developed and refined the defeat device.

As Volkswagen began shipping cars with the new engine to the United States in 2008, according to Mr. Liang's plea agreement, he moved to the country, where his duties included working with clean-air officials to get approval for the cars to go on sale. That meant lying about how Volkswagen was cheating on emissions tests.

Mr. Liang's lawyer has described him as "very remorseful for what took place."

Liang was scheduled to be sentenced on February 1<sup>st</sup>, but U.S. District Judge Sean Cox in Detroit issued an order delaying the sentencing until May 3 "to allow more time for defendant's cooperation in the investigation." Liang is "cooperating with the government in the investigation and the potential prosecution of others," the court filing said.

More charges could be in the offing.

### **How the Scheme and Cover Up Reportedly Worked**

The U.S. Department of Justice announced an indictment of six top Volkswagen employees in connection with the diesel emissions-cheating matter and also painted a partial picture of how company engineers allegedly came up with a software solution designed to allow vehicles to pass emissions tests.

"VW engineers working under (Richard) Dorenkamp and (Jens) Hadler designed and implemented a software to recognize whether a vehicle was undergoing standard U.S. emissions testing on a dynamometer or it was being driven on the road under normal driving conditions," the DOJ said in a statement. "The software accomplished this by recognizing the standard published drive cycles. Based on these inputs, if the vehicle's software detected that it was being tested, the vehicle performed in one mode, which satisfied U.S. NOx emissions standards. If the software detected that the vehicle was not being tested, it operated in a different mode, in which the vehicle's emissions control systems were reduced substantially, causing the vehicle to emit NOx up to 40 times higher than U.S. standards."

The prosecutors also described how engine development chiefs Dorenkamp and Hadler made the decision to use the software, with Hadler giving the go-ahead for its introduction into 2009 model-year vehicles sold in the U.S.

The DOJ claims the engineers obtained the permission of former engine development chief Heinz-Jakob Neusser and quality management chief Bernd Gottweis to alter the operation of the software, allowing the cars to start in "street mode" and then switch to "dyno mode," which fully activated the proper emissions equipment. The DOJ asserts that prior to this change, hardware failures occurred due to cars running in dyno mode for too long and that the change was made through software updates at dealerships.

Following West Virginia University's Center for Alternative Fuels' discovery of emissions discrepancies, VW employees cooperated with the EPA in tracking down the cause of the discrepancies, but according to the DOJ, they misled the EPA in the process.

"In implementing their strategy of disclosing as little as possible, Neusser, Gottweis, Schmidt, Peter and their co-conspirators provided EPA and CARB with testing results, data, presentations and statements in an attempt to make it appear that there were innocent mechanical and technological problems to blame, while secretly knowing that the primary reason for the discrepancy was their cheating software that was installed in every VW diesel vehicle sold in the United States," the DOJ states. "The co-conspirators continued this back and forth with the EPA and CARB for over 18 months, obstructing the regulators' attempts to uncover the truth."

The answers VW gave to the EPA also reportedly included a script for engineers to use when questioned about the matter. The effort largely worked until one employee admitted to the EPA that cars were designed to behave differently when they detected they were being tested for emissions.

Following this admission, VW employees reportedly began to destroy documents and hard drives related to the emissions-cheating effort.

The timeline that the DOJ published in announcing the indictments shed light on some of the decision-making that took place at VW in relation to the emissions-cheating software, ultimately citing marketing goals and unrealized engineering targets as the motivation for the creation of the software. The DOJ timeline also expounded on the various levels of involvement of the six indicted VW executives and engineers.

## **VW Must Still Face U.S. Investor Lawsuit**

Volkswagen AG and former Chief Executive Officer Martin Winterkorn must defend an investor lawsuit in California over the company's diesel emissions cheating scandal, a U.S. judge has ruled. The plaintiffs, mostly U.S. municipal pension funds, have accused VW of not having informed the market in a timely fashion about the issue as well as understating possible financial liabilities, according to the 41-court document.

The pension funds include those representing Arkansas State Highway Employees and Miami Police. The lawsuits said VW's market capitalization fell by \$63 billion after the diesel cheating scandal became public in September 2015. The plaintiffs had invested in VW through American Depositary Receipts (ADR), a form of equity ownership in a non-U.S. company that represents the foreign shares of the company held on deposit by a bank in the company's home country.

"Volkswagen is convinced that the accusations raised by buyers of the corporate securities (so-called American Depositary Receipts) lack any foundation," a spokesman at VW's German headquarters said. "It's our intention to make this clear in the further course of proceedings," he added.

U.S. District Judge Charles Breyer rejected a request by VW brand chief Herbert Diess to have the proposed securities fraud lawsuits tossed out of a California court. Other defendants include VW's U.S. unit and its Audi of America unit and the former head of its U.S. unit, Michael Horn.

Volkswagen argued that German courts were the proper place for investor lawsuits.

Breyer said in his ruling that "because the United States has an interest in protecting domestic investors against securities fraud" the lawsuits should go forward in a U.S. court.

## **19. EPA Notifies Fiat Chrysler of Clean Air Act Violations**

The U.S. Environmental Protection Agency (EPA) has issued a notice of violation to Fiat Chrysler Automobiles N.V. and FCA US LLC (collectively FCA) for alleged violations of the Clean Air Act for installing and failing to disclose engine management software in light-duty model year 2014, 2015 and 2016 Jeep Grand Cherokees and Dodge Ram 1500 trucks with 3.0 liter diesel engines sold in the United States. The undisclosed software results in increased emissions of nitrogen oxides (NOx) from the vehicles. The allegations cover roughly 104,000 vehicles. EPA is working in coordination with the California Air Resources Board (CARB), which has also issued a notice of violation to FCA. EPA and CARB have both initiated investigations based on FCA's alleged actions.

"Failing to disclose software that affects emissions in a vehicle's engine is a serious violation of the law, which can result in harmful pollution in the air we breathe," said Cynthia Giles, Assistant Administrator for EPA's Office of Enforcement and Compliance Assurance. "We continue to investigate the nature and impact of these devices. All automakers must play by the same rules, and we will continue to hold companies accountable that gain an unfair and illegal competitive advantage."

"Once again, a major automaker made the business decision to skirt the rules and got caught," said CARB Chair Mary D. Nichols. "CARB and U.S. EPA made a commitment to enhanced testing as the Volkswagen case developed, and this is a result of that collaboration."

The Clean Air Act requires vehicle manufacturers to demonstrate to EPA through a certification process that their products meet applicable federal emission standards to control air pollution. As part of the certification process, automakers are required to disclose and explain any software, known as auxiliary emission control devices that can alter how a vehicle emits air pollution. FCA did not disclose the existence of certain auxiliary emission control devices to EPA in its applications for certificates of conformity for model year 2014, 2015 and 2016 Jeep Grand Cherokees and Dodge Ram 1500 trucks, despite being aware that such a disclosure was mandatory. By failing to disclose this software and then selling vehicles that contained it, FCA violated important provisions of the Clean Air Act.

FCA may be liable for civil penalties and injunctive relief for the violations alleged in the NOV. EPA is also investigating whether the auxiliary emission control devices constitute “defeat devices,” which are illegal.

In September 2015, EPA instituted an expanded testing program to screen for defeat devices on light duty vehicles. This testing revealed that the FCA vehicle models in question produce increased NOx emissions under conditions that would be encountered in normal operation and use. As part of the investigation, EPA has found at least eight undisclosed pieces of software that can alter how a vehicle emits air pollution.

FCA US LLC is a wholly owned subsidiary of Fiat Chrysler Automobiles N.V., a multinational corporation.

Janet McCabe, head of EPA’s Office of Air and Radiation, said “no immediate actions are necessary” for owners of the vehicles targeted under Thursday’s action, and assured owners that those vehicles “continue to be safe and legal to drive.”

Fiat Chrysler officials denied those claims in a statement. Every automaker must use “various strategies” to reduce tailpipe emissions without compromising the durability and performance of its engines, FCA said, adding its emission control system complies with necessary requirements.

The company also said it has offered to make extensive changes to its software to address EPA concerns.

“FCA U.S. intends to work with the incoming administration to present its case and resolve this matter fairly and equitably and to assure the EPA and FCA U.S. customers that the company’s diesel-powered vehicles meet all applicable regulatory requirements,” the company said in a statement.

The news caused Fiat Chrysler’s stock price to drop more than 13 percent in trading on the morning of the announcement.

Advocacy groups were quick to praise the announcement as yet another sign of regulators holding corporations accountable.

“As polluter lobbyists mass at the gates of Congress and the White House, this case underscores the critical importance of keeping the environmental cop on the beat,” said Frank O’Donnell, president of the advocacy group Clean Air Watch. “Otherwise, the breathing public could be harmed, and consumers scammed.”

## **20. U.S. Senator Seeks Probe of Fiat Chrysler Diesel Marketing**

A top U.S. senator on Friday called for wider federal scrutiny into Fiat Chrysler Automobiles NV's marketing of diesel-powered SUVs, as British regulators sought answers from the Italian-American automaker in the aftermath of Volkswagen AG's emissions scandal.

Shares of Fiat Chrysler slid 2.2 percent after Senator Bill Nelson, a Florida Democrat, urged the U.S. Federal Trade Commission to probe whether Fiat Chrysler had deceptively marketed its diesel-powered SUVs.

EPA recently accused Fiat Chrysler of violating the law by using hidden software to allow excess diesel emissions to go undetected in about 104,000 vehicles. (See story above.) The EPA said they were "illegally sold" because the software was not disclosed to regulators.

UK regulators said they were urgently seeking information from the EPA over its allegation.

Fiat Chrysler has marketed the SUVs as "ecodiesels" which are "clean by nature" and exceed emissions requirements. The 2014-2016 diesel Ram 1500 and Jeep Grand Cherokee pickups under investigation won several green car awards.

The FTC and a Fiat Chrysler spokesman declined to provide immediate comment.

The EPA allegation stemmed from a review of all diesel vehicles after the agency had launched a probe into German carmaker Volkswagen in September 2015.

The FTC, which had also scrutinized Volkswagen marketing, helped win buyback offers for about 500,000 VW diesel owners and significant additional compensation of \$5,000 to \$10,000 each.

Fiat Chrysler Chief Executive Sergio Marchionne angrily rejected the allegations, saying there was no wrongdoing and the company had never attempted to create software to cheat emissions rules by detecting when the vehicle was in test mode.

## **21. State Legislature Passes Zero-Emission Vehicle Bill**

Massachusetts Sen. Jamie Eldridge, D-Acton, has announced that the State Legislature passed S.2505, An Act Promoting Zero Emission Vehicle Adoption, on January 3, 2016, the last day of the 2015-16 legislative session. "Increasing the use of zero-emissions vehicles would reduce our carbon footprint, and I'm very pleased to have worked with my Senate and House colleagues to get this important legislation passed before the end of session," says Eldridge. "I have spoken with many Massachusetts residents who support reducing our dependence on fossil fuels and who would buy zero-emission vehicles if there were financial and practical incentives to do so."

Specifically, the legislation permits cities and towns to establish designated parking opportunities for zero-emission vehicles, sets guidelines for fair electric vehicle charging terms at public charging stations, and commissions a study on the electrification of the state fleet.

The bill now goes to Gov. Charlie Baker's desk for consideration.

## **22. Light Duty Vehicles Carbon Pollution Standards to Remain Unchanged Through 2025**



On January 13, EPA Administrator Gina McCarthy finalized her decision to maintain the current greenhouse gas (GHG) emissions standards for model years 2022-2025 cars and light trucks. The final determination finds that a wide variety of effective technologies are available to reduce GHG emissions from cars and light trucks, and that automakers are well positioned to meet the standards through model year 2025 at lower costs than predicted.

“My decision today rests on the technical record created by over eight years of research, hundreds of published reports including an independent review by the National Academy of Sciences, hundreds of stakeholder meetings, and multiple opportunities for the public and the industry to provide input,” said EPA Administrator Gina McCarthy. “At every step in the process the analysis has shown that the greenhouse gas emissions standards for cars and light trucks remain affordable and effective through 2025, and will save American drivers billions of dollars at the pump while protecting our health and the environment.”

The standards are projected to result in average fleet-wide consumer fuel economy sticker values of 36 miles per gallon (mpg) by model year 2025, 10 mpg higher than the current fleet average. Since the first year of the GHG standards, manufacturers have been developing and adopting fuel economy technologies at unprecedented rates. At the same time, the American car industry has been thriving. Since 2010, the industry has had seven consecutive years of sales growth, with 2016 setting a record high for vehicle sales. The Administrator is retaining the current standards to provide regulatory certainty for the auto industry despite a technical record that suggests the standards could be made more stringent.

The Midterm Evaluation process was established as a part of the 2012 final greenhouse gas emissions standards for model years 2017-2025. This decision follows the Proposed Determination issued by the EPA Administrator in November 2016, and the Draft Technical Assessment Report, issued jointly by the EPA, the National Highway Traffic Safety Administration (NHTSA), and the California Air Resources Board (CARB) in July 2016. The Administrator considered the extensive public input on both these documents in reaching her final determination.

The standards will save consumers tens of billions of dollars at the pump, will help ensure that domestic automakers continue to be at the forefront of global advances in auto technology, and are essential to keeping the United States on course to meet its climate goals.

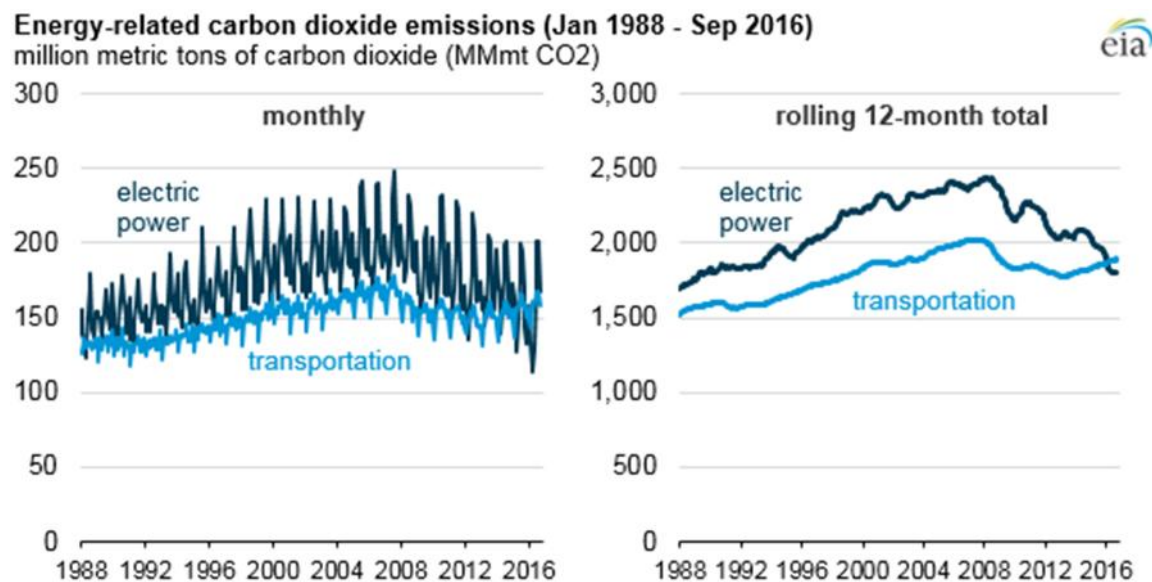
For many years, automakers had emphasized the critical importance of adequate lead time for achieving substantial increases in fuel economy and reductions in greenhouse gas emissions. At the same time, they voiced concern that standards set well in advance might overshoot the levels that would seem appropriate as the model years approached. Yet vehicle efficiency technology advances are now in fact outpacing the agencies' earlier projections, and EPA's action should allow the highly successful program of vehicle standards to proceed as planned.

The industry says EPA is ramming through the determination before President Obama steps down. The rules are part of the president's climate change agenda and a key part of meeting U.S. obligations under the 2015 Paris climate change agreement. The auto industry says it doesn't agree with EPA and vows to work with the incoming Trump administration to scrap the finding and develop standards that match the type of cars that customers are purchasing. Consumers have been buying more SUVs and trucks due to low gasoline prices, which makes it increasingly difficult for the industry to meet the strict emission and fuel economy standards.

"We look forward to working with the federal agencies and California to see whether we can find a prudent compromise path forward that avoids an unnecessary and counterproductive regulatory collision," said Gloria Bergquist, spokeswoman for the Alliance of Automobile Manufacturers. "Our fundamental priority remains striking the right balance to continue fuel economy gains and carbon reduction without compromising consumer affordability and vital auto-sector jobs," said Bergquist. "The EPA decision is disappointing."

She said maintaining this "crucial balance requires a midterm review that proceeds on the original EPA and [Department of Transportation] timetable, culminating not now but by April 2018."

### 23. Transportation Becomes Largest Carbon Dioxide Emissions Source

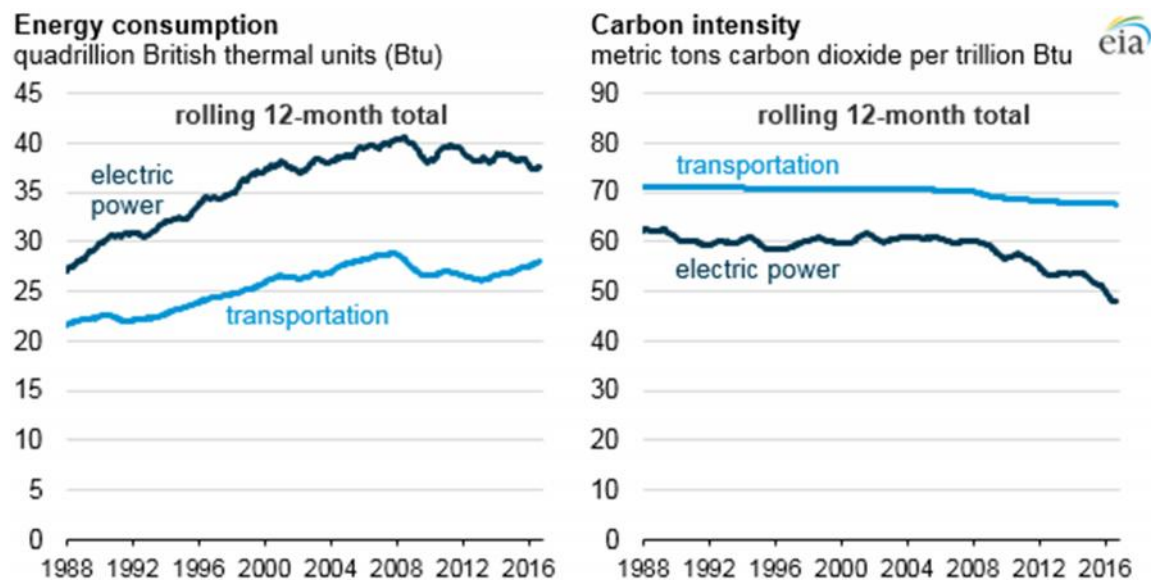


Source: U.S. Energy Information Administration, [Monthly Energy Review](#)

U.S. carbon dioxide (CO<sub>2</sub>) emissions from the transportation sector reached 1,893 million metric tons (MMmt) from October 2015 through September 2016, exceeding electric power sector CO<sub>2</sub> emissions of 1,803 MMmt over the same time period. On a 12-month rolling total basis, electric power sector CO<sub>2</sub> emissions are now regularly below transportation sector CO<sub>2</sub> emissions for the first time since the late 1970s. CO<sub>2</sub> emissions from electric power have been trending lower since 2007.

Comparing emissions over a 12-month period reduces the effects of seasonal fluctuations. Both sectors tend to have higher consumption and emissions in the summer months when electricity demand and vehicle travel are relatively high. Emissions levels through September 2016 represent the latest available data in EIA's [Monthly Energy Review](#).

The electric power sector makes up a larger share of total U.S. energy consumption than the transportation sector. However, CO<sub>2</sub> emissions from the electric power sector are now lower than those from transportation because the carbon intensity of the power sector has fallen much faster than the carbon intensity of the transportation sector.



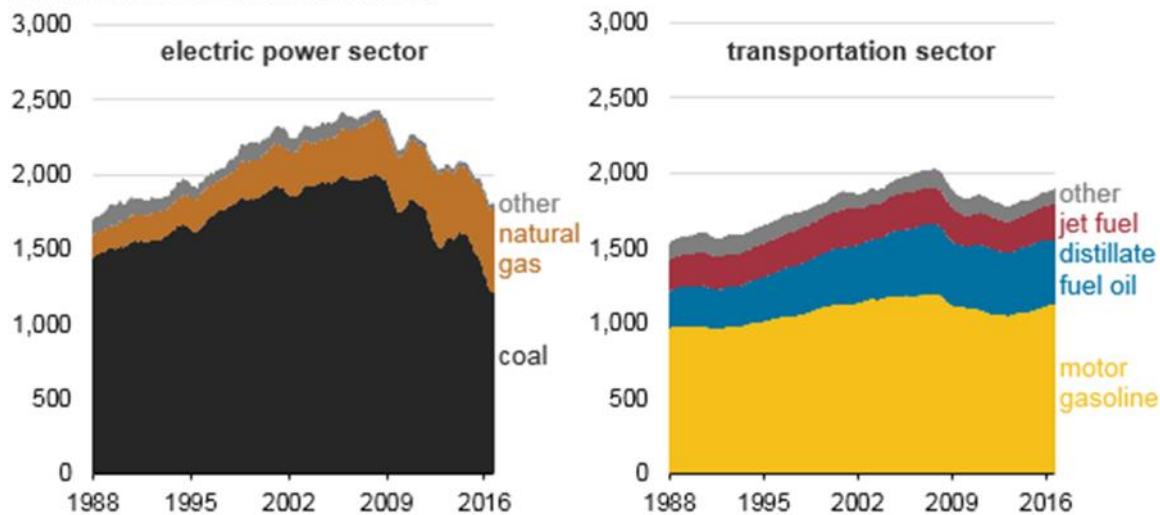
Emissions from the electric power sector are primarily from coal-fired and natural gas-fired electric generators. On average, emissions associated with combusting coal are higher than those associated with combusting natural gas. The average rate of CO<sub>2</sub> emitted from combusting coal ranges from 206 to 229 pounds per million British thermal units (lbs. CO<sub>2</sub>/MMBtu), depending on the type of coal consumed. The combustion of natural gas emits on average 117 lbs. CO<sub>2</sub>/MMBtu. Natural gas electric generators also tend to be more efficient than coal generators, because they require less fuel to generate electricity.

In the 12 months from October 2015 through September 2016, coal and natural gas had nearly equal shares of electric power generation in the United States: 31% and 34%, respectively. However, their shares of electric power sector emissions were 61% and 31%, respectively, as coal is much more carbon-intensive. Overall electric power carbon intensity has also decreased as generation share of non-carbon-emitting fuels such as nuclear, hydropower, wind, and solar has grown.

Emissions from the transportation sector are primarily from motor gasoline, distillate fuel oil, and jet fuel, which have carbon intensities lower than coal but higher than natural gas. For example, gasoline emits an average of 157 lbs. of CO<sub>2</sub>/MMBtu. In the 12 months from October 2015 through September 2016, motor gasoline represented 60% of the total emissions from the transportation sector, while 23% was from distillate fuel oil and 12% was from jet fuel.

Very little electricity is used in the transportation sector. Attributing transportation's share of electric power sector emissions to the transportation sector would only add 4 MMmt CO<sub>2</sub> to the transportation sector's total of 1,893 from October 2015 through September 2016.

**Carbon dioxide emissions by sector and fuel, rolling 12-month total**  
million metric tons of carbon dioxide



Source: U.S. Energy Information Administration, [Monthly Energy Review](#)

## 24. Ports Turn To Natural Gas to Meet Low Sulfur Limits

The UN's International Maritime Organization last year cut limits on sulfur in marine fuels to 0.5% from 3.5%, starting in 2020. Now ports in Vancouver, Los Angeles and Tacoma are all studying whether they can profit from supplying LNG, which emits virtually no sulfur, as a cleaner alternative fuel that's almost as cheap. While the use of more expensive fuel oil can help existing ships slip under the limit, LNG is the fuel of the future for new vessels, according to DNV GL.

High concentration of sulfur contributes to so-called acid rain, haze and air particulate pollution.

About 97 ships worldwide are now powered by LNG with an additional 91 on order. By 2020, the number may rise to around 250, excluding LNG carriers and inland waterway vessels. Most LNG-fueled ships now in use travel shorter routes, such as in the Baltics or between Florida and Puerto Rico. In most of these cases, LNG is delivered onto vessels by truck, slowing refueling and limiting its use to smaller vessels.

Heftier infrastructure that ports will need to supply LNG to deep-sea ships is just starting to emerge. In 2014, Rotterdam became the first port where ship-to-ship LNG fueling was allowed. The first onshore fueling station with LNG opened in 2015 at Norway's Stavanger port, equipped with a loading arm designed for the fuel.

## 25. US Refiners Export Record Amounts Of Gasoline, Diesel

The U.S. exported a record 8 million barrels of gasoline and nearly 10 million barrels of distillates, or diesel, according to weekly government data released recently. U.S. refined product exports have been growing as refineries run at high levels and the U.S. has been oversupplied with gasoline and crude oil. Analysts said a big chunk of the exported fuel probably went to Mexico and destinations in South and Central America.

"We have never exported more gasoline and distillates than we did last week. ...The total amount of exports is huge. There's no doubt about it that it's a record," said Tom Kloza, head of global energy analysis at Oil Price Information Service.

The 1.1 million barrels of gasoline exported per day, rose from 795,000 barrels a day the week earlier and 472,000 barrels a day at the same time last year, according to weekly data from the Energy Information Administration.

Kloza said Mexico has increasingly become a destination for U.S. gasoline exports, as refineries there are far less efficient and run at about 50 percent capacity compared to closer to 90 percent in the U.S.

Mexico exports its heavier crude to the Gulf Coast for refining. In September, just over 500,000 barrels a day of Mexican crude was sent to the U.S.

He said the U.S. is not adding any more refining capacity next year. "Every previous year we've been adding several hundred thousand barrels of capacity. The fact is there's about 1.9 million barrels a day of global capacity being added, most of which is in the Middle East and Southeast Asia. It's not in the Western Hemisphere."

The refining industry has been concerned about a proposed border adjusted tax that could tax imports, such as crude, but not exports of U.S. product. The tax is currently included in the proposed House corporate tax overhaul plan, but it is far from clear whether there would be exemptions or that it will even make it into the final plan.

"It may be that the Saudis and other parts of the Middle East become a supplier for Latin American destinations. For now, it's a brisk export market. How will the macro economic decisions of Donald Trump impact South America? That could have a great impact on refiners here," said Kloza.

## **26. Ohio EPA Seeks Input on Uses of Volkswagen Settlement Money**

The State of Ohio is expected to receive \$71.4 million over 10 years as part of a multistate settlement worth \$570 million with Volkswagen over the use of emissions control defeat devices in diesel passenger vehicles. Ohio EPA has requested input from the public on how best to spend this money. The settlement money will be used to fund grants and other initiatives to improve air quality throughout the state. Ohio EPA must prepare a plan to submit to the court appointed trustee to demonstrate how it intends to use its share of the funds. The plan must address a number of factors, including for example, the expected emission benefits and how the beneficiary will seek and consider public comment. Beneficiaries are specifically required to provide an estimate of the amount of NOx that their mitigation actions will reduce when submitting funding requests.

Eligible mitigation actions are focused on reducing NOx emissions from mobile sources such as motor vehicles and vessels. Actions eligible under the Diesel Emission Reduction Act (DERA) include truck stop electrification (electrified parking spaces to eliminate long duration idling), fuel efficiency and idle reduction equipment (single-wide tires, fuel-operated heaters, auxiliary power units, etc.), construction and agricultural equipment, smaller marine vessels, and diesel generators, among others.

Beneficiaries may use funds to purchase new all-electric vehicles such as government-owned school, transit or shuttle buses to replace existing diesel, government-owned school, transit or

shuttle buses. In addition, states may use trust funds to pay for up to 75 percent of the cost of a new all electric replacement vehicles for nongovernment-owned fleets, and 100 percent of the cost of new, all electric school bus replacements in private fleets contracted with public school districts. The charging infrastructure associated with these electric vehicles can also be purchased with trust funds. To ensure that such replacements achieve the intended emission reductions, the replaced equipment must be scrapped.

Ohio EPA has indicated that the first priority for funding will be for projects in the Cincinnati, Columbus and Cleveland areas because of existing air quality problems. Ohio EPA is accepting early stakeholder comments through December 31, 2016. Ohio EPA will then draft a state mitigation plan, which will be circulated during a formal comment period in spring of 2017.

## **ASIA-PACIFIC**

### **27. Recent Developments in China**

#### **China Introduces China 6 New Vehicle Emission Standards For 2020**

China will require all light vehicles to adhere to tougher new "China 6" emission standards by the middle of 2020, according to a notice published by environment regulators. The Ministry of Environmental Protection (MEP) said all sales and registrations of light vehicles will have to comply with the new standards - which are based on ones used in Europe and the United States - by July 1, 2020.

While China had been the world's biggest car producer since 2009, its technology remained lower than advanced international levels, and adopting tougher standards would also help domestic producers raise their competitiveness, Liu Bingjiang, head of the MEP's Department of Atmospheric Environmental Management noted. Cars will have to improve the catalytic converters, fuel injection and the structure of the engine's combustion chamber in order to meet the new standards, the ministry said.

In remarks published on the MEP's website, Liu said China's car ownership reached 170 million units by the end of 2015, including around 150 million light vehicles, with total emission volumes estimated at 45.3 million tons.

All new vehicles on China's roads are obliged to meet the previous China 5 emission standard by next year.

The MEP said the implementation of progressively stronger vehicle and fuel standards since 2001 had reduced pollutants per vehicle unit by more than 90 percent.

#### **China Tightens Eligibility Rules for Electric Vehicle Subsidies**

China will impose stricter standards for new-energy vehicle manufacturers and cut the subsidies for pure electric cars in a move aimed at weeding out companies that lack the ability to provide quality products.

The government raised the technology threshold for makers of new-energy vehicles—comprising electric vehicles, plug-in hybrids and fuel-cell cars—by setting standards on energy consumption and driving distance on a single charge, according to a statement posted by the Ministry of Finance on its website December 30<sup>th</sup>. Subsidies on pure electric and hybrid plug-in passenger

cars will decline by 20 percent from January 1<sup>st</sup>. and a cap has been placed on the subsidies at local-government levels, the ministry said.

The steps will likely lead to a shakeout in China's electric-vehicle industry with 200-plus companies, as many may not be able to meet the more stringent guidelines. Generous subsidies helped cultivate a gold-rush mentality, prompting concerns the industry is plagued by too many manufacturers lacking the technical know-how to produce electric or hybrid cars that measure up to those from Tesla Motors Inc. or General Motors Co.

Subsidies at local-government levels have been capped at 50 percent of that offered by the central government, according to the ministry's statement. The subsidies from the central government to EVs will be limited to 44,000 yuan (\$6,333) for those with a driving range of 250 kilometers (155 miles) and above.

The central government has limited subsidies to electric buses at 300,000 yuan compared with the maximum 500,000 yuan offered earlier, according to the ministry.

After a nine-month investigation, the finance ministry identified in September five manufacturers of electric vehicles for scamming the government of about \$150 million in subsidies, citing them as "classic cases" unearthed in a probe into 90 major new-energy vehicle makers covering 401,000 vehicles.

The rules in China are being tightened as the world's biggest auto industry grapples with overcapacity and high inventories. Automakers are seeing pressure on their profit margins with the spread of cheap models, while stringent fuel-economy and emissions targets are set to raise costs.

China surpassed the U.S. in 2015 to become the world's biggest market for new-energy vehicles. Domestic automakers sold 331,092 units in 2015, according to the China Association of Automobile Manufacturers. The government has set a goal of 3 million units a year by 2025—a 10-fold increase.

### **China Approves First List of Green Car Models for Subsidies This Year**

China released this year's first list of "recommended" green energy vehicles, paving the way for 185 car models to receive government subsidies.

The list issued by the Ministry of Industry and Information Technology (MIIT) included vehicles from BAIC Motor Corp Ltd, Geely Automobile Holdings Ltd, BYD Co Ltd, Chongqing Changan Automobile Co Ltd, and Chery Automobile Co Ltd [CHERY.UL].

Beijing is expected to approve more car models later this year. The government published five lists last year, giving the green light to 2,193 car models.

The ministry also approved several vehicles that use "ternary" lithium-ion batteries, which employ the chemical elements of nickel, cobalt and manganese (NCM). NCM batteries, which Korean firms LG Chem and Samsung Electronics primarily make, were ineligible for subsidies under last year's rules. Beijing lifted those restrictions this year after requiring companies to conduct more rigorous safety testing.

## **China Light-Vehicle Sales Jump 15% in 2016 Behind Tax Cuts on Small Vehicles**

Light-vehicle deliveries in China advanced 15 percent to approach 24.4 million in 2016 behind a 50 percent reduction in the sales tax on small vehicles. Sales of vehicles with engine sizes of up to 1.6 liters, which were eligible for the tax break, surged 21 percent to exceed 17.6 million vehicles in 2016, according to the China Association of Automobile Manufacturers.

During the year, sales of crossovers and SUVs soared 45 percent to top 9 million vehicles while deliveries of multi-purpose vehicles jumped 18 percent to nearly 2.5 million vehicles. Sedan sales also rose 3.4 percent to exceed 12.1 million vehicles. But microvan deliveries plunged 38 percent to approximately 683,500 vehicles as increasingly affluent Chinese consumers abandoned microvans for bigger vehicles.

The growth in light-vehicle sales in China is expected to slow in 2017 after the Chinese government raised the purchase tax for small vehicles to 7.5 percent, up from 5 percent last year.

## **VW Expects China Approval for Electric-Car Venture**

Volkswagen AG expects to get final approval from China's government for a partnership with Anhui Jianghuai Automobile Co. in the first half of this year as the German automaker looks to widen its offering of electric vehicles in the world's biggest auto market.

The automaker expects to produce the first car with Jianghuai in 2018, Jochem Heizmann, Volkswagen's China chief, said at a January 19<sup>th</sup> briefing in Beijing. Volkswagen has made progress on its electric vehicle joint venture and seeks to obtain approvals both from the Chinese government and its own supervisory board, he said.

Volkswagen, which has passenger-vehicle ventures with SAIC Motor Corp. and China FAW Group, is looking to expand its footprint in a market that surpassed the U.S. in 2015 to become the world's biggest for so-called new-energy vehicles. It will be competing with other traditional automakers and a bevy of startups as China targets to boosting yearly sales of plug-in hybrids and fully electric cars 10-fold in the next decade.

The automaker plans to have new-energy vehicles ranging from small to big cars across various price segments, Heizmann said. Volkswagen, which signed a memorandum of understanding with Jianghuai in September 2016, plans to sell 1.5 million such vehicles by 2025 in China, he said.

Boosting electric-vehicles sales in China would help Volkswagen meet stringent emissions and fuel-economy standards, as well as sell a minimum quota of eco-friendly cars in a market where sales of oil-guzzling sport utility vehicles are rising rapidly. The German automaker said last November that it will target to sell as many as 400,000 new-energy vehicles by 2020.

Volkswagen and its Chinese ventures plan to keep investment steady at 4 billion euros (\$4.2 billion) this year, said Heizmann. The auto giant, which also sells Audi cars in China, expects industrywide auto sales to grow at a slower 5 percent pace this year. Volkswagen's deliveries in China and Hong Kong climbed 12 percent to 3.98 million vehicles last year.

## **China to Spend \$165 Billion in Energy-Efficiency Technologies**



China is set to spend more than \$165 billion on energy-saving technologies through 2020, according to figures on spending across 13 industries the National Development and Reform Commission released January 19<sup>th</sup>.

The latest catalog lists 296 types of technologies it will use to save energy and reduce carbon emissions across coal-fired power, electricity, steel, non-ferrous metal, petroleum, petrochemical, chemical, construction materials, machinery, light industry, textiles, transportation and communications industries.

Among the big-ticket items are:

- 150 billion yuan (\$21.8 billion) on hybrid vehicle and engine technologies
- 82.5 billion yuan (\$12 billion) for technology that improves gasification efficiency by using coal-powder from lower quality coals
- 80 billion yuan (\$11.6 billion) for technology that utilizes heat released from underground piped water
- 45 billion yuan (\$6.5 billion) for energy-efficient construction excavators
- 25.25 billion yuan (\$3.67 billion) for technologies used in producing olefins during petroleum refining
- 25 billion yuan (\$3.6 billion) for steam screw expander systems that use waste gas
- 24 billion yuan (\$3.5 billion) for more energy-efficient electrolytic aluminum technologies
- 23.4 billion (\$3.4 billion) for dynamic ice-storage technology for building air-conditioning systems
- 22.5 billion yuan (\$3.2 billion) for efficiencies in submerged arc furnaces for iron and steel production
- 21 billion yuan (\$3 billion) for energy-efficient burners for a variety of industries
- 20 billion yuan (\$2.9 billion) for automatic building temperature and humidity devices
- 20 billion yuan (\$2.9 billion) for copper-coated aluminum wire production

Combined with a catalog focusing specifically on low-carbon technologies released January 10<sup>th</sup> that detailed spending of around \$37 billion, the total amount of the two catalogs comes to around \$202 billion. China's National Energy Administration recently announced plans to spend around \$360 billion on renewable energy sources over the coming four years.

### **China to Track Second-Hand Vehicle Emissions**

China will track second-hand vehicle emissions to help improve air quality, said a statement from the Ministry of Environmental Protection (MEP). The statement said environment protection authorities should establish an archive for emissions data of second-hand vehicles to prevent the transfer of pollution sources.

It also called for an information network for emissions data and stricter supervision over vehicle emissions inspection stations.

### **China's Smog Is as Deadly as Smoking, New Research Claims**

Air pollution could be the cause of 1 in 3 deaths in China, new academic research suggests, making everyday life about as deadly as smoking cigarettes in some parts of the country. According to the South China Morning Post, a recent study of 74 cities analyzed some 3.03 million deaths recorded in 2013, and found that 31.8% of them could be linked to smog.

The study, carried out by researchers at China's Nanjing University, found that the air was most toxic in the cities of Baoding, Shijiazhuang and Handan, each reporting more than 30,000 deaths in 2013 that could be linked to pollution.

It does not appear that the situation has markedly improved in the years since. Recently, Beijing issued a "red alert" warning because of a blanket of thick smog shrouding the capital city and a large swath of northern China, affecting nearly half a billion people. With pollution levels reaching about 500 PM2.5 particles per cubic meter — the WHO ranks safe levels as under 25 — the so-called airpocalypse, has sent tens of thousands fleeing to southern parts of the country, where the air is cleaner.

Hospitals have been crowded with patients suffering respiratory problems, whole highways have been shut down, and hundreds of flights grounded. Classes were also cancelled — although in one case exams were not. Shocking images spread across the Internet showing schoolchildren seated outside wearing jackets and face masks, huddled over desks to take a test in gray, toxic gloom.

The Post reports that the new findings from Nanjing support previous research; the paper says that the International Energy Agency published a report in June claiming that air pollution has trimmed some 25% off life expectancy in China, while a study co-authored by researchers at three renowned universities determined that people in China's north could lose an average of 5.5 years of life due to smog.

### **China Approves Environmental Tax to Replace Pollution Fee System**

China's National People's Congress approved the country's first Environmental Tax Law, which will replace a system of pollutant emissions fees that have been levied on heavy industry since 1979, central government officials said at a press briefing in Beijing on December 25<sup>th</sup>.

The country's emissions fee system, which kicks in after allotted quotas are used up, had loopholes that local governments abused during a period of rapid development over the past three decades and lacked transparency over data shared by companies. The new environmental tax and a concurrent emissions licensing system will both restrict local government interference and require greater corporate disclosure of emissions data for listed companies.

"There have been problems with implementation [of the emissions fee system], with a lack of law enforcement and interference from local governments and departments," Wang Jifan, director of the tax policy department under the Ministry of Finance, said at the briefing.

In 2015, China collected 17.3 billion yuan (\$2.48 billion) in pollution emissions fees.

Research from the Central University of Finance and Economics published in August projected that more than 50 billion (\$7.19 billion) in annual revenue could come from the new environmental tax. Revenue will still go to local governments under the final version of the law.

Chen Jining, head of the Ministry of Environmental Protection, said in a statement appearing on China Environmental News that the overall goal isn't to "increase taxes, but to improve the system, and encourage companies to reduce emissions ... the more they emit the more they will pay, the less they emit the less they will pay."

While the law will go into force January 1, 2018, it will likely take some time to implement nationwide. “Because it is a new form of levying taxes and involves a wide range of charges and a whole system to be converted, there is still a lot of policy and preparatory management work to complete,” Wang said.

Taxes will cover certain amounts of pollutants that industry and public institutions emit directly into the environment, such as sulfur dioxide and nitrogen oxide [1.2 yuan per unit or \$.017 up to 12 yuan], key water pollution indicators like chemical oxygen demand and ammonia nitrogen [1.4 yuan per unit or \$0.20 up to 14 yuan], solid waste per metric ton [5 yuan or \$0.71 per ton of coal ash, 1,000 yuan or \$143 per ton of hazardous waste, for example], and noise pollution based on increasing decibel levels.

“The current pollution emission fees are the floor level for the environmental protection tax,” Wang said. “This will allow a stable transition. If companies can fulfill their responsibilities by cutting pollutants, they can reduce their tax burdens.”

Provincial governments will be allowed to raise rates above the general central government levels and could apply to lower rates if certain emissions are below national standards.

### **Shanghai Lowers Thresholds for Air Emergency Orders**

Shanghai municipality lowered the threshold for issuing emergency air pollution warnings, which could temporarily shut down businesses to curb industrial emissions, according to a notice its government issued on December 23<sup>rd</sup>.

The amended plans for Shanghai municipality, one of the most economically advanced and densely urbanized areas in China, are among the most stringent in the country. The lower threshold triggers follow the same color-coded warnings for the Air Quality Index, which is based on average hourly rates of small and large particulate matter, as well as six air pollutants.

A blue warning indicates the Air Quality Index registers higher than 201 for more than an hour, or the forecast for the following day is predicated to be above 151; yellow forecasts two days over 201; orange is issued if the next day is forecast over 301, or if the forecast is for three days above 201; and red alerts go out for any readings or forecasts higher than 400.

The Shanghai emergency measures, which go into effect immediately and run for a period of five-years, also include new rules that trigger actions regarding industrial pollution:

- If a blue or yellow warning is announced, petrochemical, iron and steel, chemical, cement, ship-building, painting and coating companies will be required to halt production until the warning is lifted.
- For orange warnings, in addition to those companies, ferrous metal, construction material, and furniture producing companies will be required to halt production until the orange warning is removed.
- For red warnings, companies involved in electronics production, casting, forging, electronic polishing and finishing, and others will be required to stop production until it is lifted.

### **Pollution-Choked China Swaps Energy Independence for Cleaner Air**

China is becoming more dependent on overseas natural gas as it seeks to wean itself off coal and avoid the toxic smog that suffocates the country every winter. The world's largest energy user will increase imports of liquefied natural gas about 30 percent this year as domestic production stagnates and the government pushes cleaner fuels in an effort to clear polluted skies. Imported gas, including both seaborne and pipeline supplies, could account for about 40 percent of the country's gas use by the end of this decade, up from roughly a third last year, they said.

China's possible rising reliance on imported natural gas, along with its plans to spend \$360 billion through the end of the decade on renewable energy generation, highlight the challenges facing government of President Xi Jinping as it seeks to throttle back poisonous air that blankets the northern part of the country during winter. Coal accounted for about two-thirds of the country's primary energy consumption in 2015.

LNG purchases by the world's third-largest buyer surged to a record in November to meet winter demand and avoid a repeat of last year's shortages, which forced offices in Beijing to cut heating.

The nation is aiming to raise the share of less-polluting natural gas to 10 percent of its energy mix by 2020 from 6 percent last year, the National Development and Reform Commission, the country's top economic planner, said last December. The portion of gas will rise to 6.8 percent this year and the nation will "aggressively" expand its use, Nur Bekri, chairman of the National Energy Administration, said at the national energy work conference, according to a posting on the administration's website.

City gas use accounts for about 40 percent of the nation's total demand for natural gas, while 30 percent is consumed as an industrial fuel and the rest used in the chemical and power generating sectors, China National Petroleum Corp. said in its annual research report in January 2016.

### **Beijing, Nearby Region to See More Restrictions on Coal Burning**

China will further restrict the use of low-quality coal in and around the capital of Beijing in an ongoing effort to fight air pollution, the government announced. New limits on the use of distributed coal, small bricks of often poor-quality coal used for cooking and heating that can lead to rapid increases in fine particulate matter air pollution, follow a spike in winter air pollution across several cities in the Beijing-Tianjin-Hebei region.

The region—known locally as Jing-Jin-Ji—achieved acceptable air quality standards only 56.8 percent of the time in 2016, primarily due to heavy air pollution emanating from Hebei province, which had six of the 10 worst cities for air quality in China last year, Ministry of Environmental Protection officials said.

Beijing will expand coal-restrictions into rural areas of the municipality, combat open burning on farmland and require heavy-duty diesel vehicles—which account for about half of nitrogen oxide emissions in the city—to install particle traps to reduce emissions, officials said.

Due to coal-use restrictions, relocation of industry and coal-fired power facilities, Beijing's annual coal consumption has fallen from 23 million metric tons to 10 million metric tons per year in less than five years, officials said. And the city hopes that can be reduced further to around 700,000 metric tons by the end of 2017.

The inner cities of Beijing and Tianjin together saw a 7.8 percent decrease in average concentrations of fine particulate matter, or PM-2.5, which are small airborne particles of 2.5 microns or less in width, last year compared to 2015.

### **Xi Urges Trump to Stay in 'Hard Won' Paris Climate Deal**

Chinese Premier Xi Jinping urged climate change skeptic Donald Trump to keep the U.S. in the "hard won" Paris agreement during a Davos speech that touted the world's largest polluter as a leader in the fight against global warming. Speaking at the World Economic Forum's annual meeting, Xi said "all signatories must stick to" the 2015 Paris deal to limit global temperature increases to well below 2 degrees Celsius. "Walking away" from the pact would endanger future generations, he said.

While Trump has threatened to reverse President Obama's policies on tackling climate change and pull the U.S. out of the 2015 Paris accord, China is strengthening its commitment to the issue. Earlier this month, it pledged to invest 2.5 trillion yuan (\$360 billion) in renewable energy through 2020 to reduce greenhouse gases that cause global warming.

Xi said China's green development investments were already "paying off" and urged other countries to support international cooperation to solve the world's most urgent challenges. "We should join hands and rise to the challenge," he said. "Let us boost confidence, take actions and work together for a bright future."

China's government has suspended 101 coal-power projects across 11 provinces as it moves toward cutting carbon dioxide emissions. The deferred investments are worth about 430 billion yuan (\$63 billion), China's financial daily Caixin reported January 17<sup>th</sup>.

China already leads in renewable energy investment, spending almost \$88 billion in 2016, one-third more than the U.S. according to Bloomberg New Energy Finance. China's investment has already created 3.5 million renewable energy jobs and that's expected to grow to 13 million by 2020, according to the International Renewable Energy Agency.

It's not just rising global temperatures and sea levels concerning China. The nation's increasingly wealthy middle class is worried about the quality of air it breathes and water it drinks and has become more vocal about complaints. With Beijing again cloaked in smog at the start of the year, Xi faces continued pressure to show he's doing what it takes to clean things up.

### **China's Smog Cancels Hundreds of Flights, Closes Highways**



Buildings are seen on a hazy day in Xiangyang, Hubei province, China, December 31, 2016.

Heavy smog in northern China recently caused hundreds of flights to be canceled and highways to shut, disrupting the first day of the New Year holiday.

Large parts of the north were hit by hazardous smog in mid-December, leading authorities to order hundreds of factories to close and to restrict motorists to cut emissions.

In Beijing, 24 flights were canceled at the city's main airport, and all buses from there to neighboring cities suspended, the airport said in a statement on its official microblog.

Average concentrations of PM2.5 were higher than 500 micrograms per cubic meter in Beijing — 50 times higher than World Health Organization recommendations.

In Tianjin, Beijing's next-door metropolis, the smog was not as serious, but visibility was much worse, with more than 200 flights canceled at Tianjin airport and conditions not expected to improve in the near term, the city government said.

Some bus routes and highways in Tianjin were also closed because of the smog, the government added. In Shijiazhuang, the provincial capital of Hebei province that surrounds most of the Beijing, about two dozen flights were canceled and eight flights diverted to other airports because of the smog, the People's Daily said on its website.

A total of 24 Chinese cities have issued red alerts for the current round of pollution, which mandate measures like limiting car usage and closing factories, while 21 have issued orange alerts, including Beijing and Tianjin.

A Chinese man is covered by incense smoke as he offers prayers on the first day of the New Year at



Beijing's Yonghegong Lama Temple as the Chinese capital is blanketed by heavy smog, January 1, 2017.

Pollution alerts are common in northern China, especially during winter when energy demand, much of it met by coal, soars. The country's northern provinces mostly rely on the burning of hundreds of millions of tons of coal each year for heating during northern China's bitterly cold winters.

The recent surge in smog is partially attributed to increased industrial production in the weeks leading up to the Chinese New Year, when factories must close so workers can return to rural villages to be with their families. Increased reliance on coal as a heating fuel in winter is also contributing to the problem.

### **China Issues National Red Alert Amid Heavy Smog**



China issued its first-ever national red alert for severe fog on January 4<sup>th</sup> after 24 of its cities had issued red alerts for air pollution problems.

Riders wearing masks wait during heavy traffic on a smoggy day in Beijing on January 4, 2017.

Smog red alerts are triggered when levels of PM2.5 above 300 are forecast to last for more than 72 hours. Red is the highest level in the country's four-tier warning

system.

Red alerts triggers a series of regulations, including the closure of schools, factories and offices, and a blanket ban on up to half the vehicles in affected cities.

The red alert affects over 20 Chinese cities and means that visibility could be down to 50 meters (160 feet) in just two hours, reports the People's Daily Online. China's National Observatory have also warned drivers in the affected cities to drive with caution while airports and ports are bracing themselves for cancellations.

People wearing masks dance at a square during a polluted day in Fuyang, Anhui province, on January 3.

### **Beijing Sets 2017 Air Pollution (PM2.5) Goal at 60 Micrograms per Cubic Meter**

Beijing's air quality target for 2017 is more than double the acceptable standard set by the World Health Organization (WHO), the mayor announced on Saturday in the wake of weeks of hazardous air pollution in the Chinese capital. "We will work hard to keep PM2.5 at an annual average of around 60 micrograms per cubic meter," Beijing mayor Cai Qi said during his delivery of the city's annual work report at the opening of the Beijing People's Congress.



The acceptable PM2.5 annual average set by the WHO is 20-25 micrograms per cubic meter.

Beijing's air quality likely improved 9.9 percent in 2016, the municipal government said in a document, and PM2.5 likely sat at an annual average of 73, better than the 2016 target of around 76.6.

But smog has engulfed Beijing and large swathes of the north and center of the country for days at a time in recent weeks, disrupting flights, port operations and schools.

### **China's Top Court Cracks Down on Environmental Crime**

China's Supreme People's Court clarified how judges, courts and procuratorial bodies should handle criminal cases related to the fabrication or falsification of data, illegally dumping hazardous waste, and use of evidence procedure in an updated interpretation on environmental crimes that went into effect on January 1.

The update to the previous interpretation, issued in 2013, was prompted both by a jump in the number of environmental criminal cases and amendments to China's 2015 Criminal Law, which includes 18 articles related to environmental crimes, the court said in a December 26 statement.

"The amendments [to the interpretation] will help crack down on behavior like distorting or fabricating evidence environmental monitoring data, allows [courts to] pursue those conducting or assessing environmental impact assessments if they falsified documents, and further clarifies how to handle hazardous waste cases, clarifies how certain crimes are defined and their punishments, and has removed regulatory barriers for presenting evidence," Bie Tao, head of the policy, law and regulation department of the Ministry of Environmental Protection, said in a December 28 statement.



The amended interpretation addresses definitions of certain environmental crimes, such as illegal imports of solid waste and illegal transport of hazardous waste. It also provides direction on which crimes deserve severe punishment, such as interfering with investigations related to environmental emergencies, for example, and which would merit lighter punishment, such as if an individual took quick action to remediate or resolve a spill incident.

The court also stipulated that data collected by all environmental protection bureaus and their monitoring authorities can be used as evidence in criminal cases.

### **Emissions Controls Start At Major Chinese Ports**

Ship emissions have become a growing priority in China and elsewhere in recent years. Ships at all major commercial ports in emission control areas China set up last year are now required to burn low-sulfur fuel for the majority of time spent at berth.

The higher costs of low-sulfur fuel and the possibility of refineries being unable to meet demand, have raised concerns that such rules will increase the operating costs of container lines, and by extension, the rates that shippers pay. As shipping lines remain mired in overcapacity that generates enormous financial losses, the rules create an additional financial pressure point for liners.

Although requirements were already mandatory at some ports in 2016, enforcement was limited, though not unheard of, as authorities gave ship-owners the chance to prepare for the changes under laws that were developed and announced with very little lead time.

Enforcement is widely expected to be stepped up this year, particularly in the wake of recent pollution levels that prompted red alerts and closed businesses and schools across the north of the country. The port city of Tianjin was one of the locations hit most severely by pollution, so much so that port operations were suspended due to safety concerns over poor visibility and excessive particles in the air.

Under the timetable issued by the ministry of transport since January 1 ships at berth in the ports of Tianjin, Qinhuangdao, Tangshan, Huanghua, Shenzhen, Guangzhou, Zhuhai, Shanghai, Ningbo-Zhoushan, Suzhou, and Nantong are required by law to burn fuel with a sulfur content equal to or less than 0.5 percent for the berthing period, excluding one hour after berthing and one hour before departure.

The Yangtze River Delta ports of Shanghai, Ningbo-Zhoushan, Suzhou, and Nantong had already made it mandatory for ships to burn low-sulfur fuel from April 1 last year. They were joined on October 1 by Shenzhen, where authorities issued a local directive covering the terminals of Yantian, Shekou, Mawan, and DaChan Bay.

The next key deadline under the national regulation is January 2018, when ships will be required to burn low-sulfur fuel at all ports in the three ECAs for the entire berthing period. In January 2019, all ships entering the ECAs, whether at berth or not, will be required to burn low-sulfur fuel.

Ships in breach of the rules are liable for fines of between \$1,500 and \$15,000 under the Law of Prevention of Air Pollution of the Peoples' Republic of China. Ships are required to keep bunker delivery documents on board for three years and a sample of fuel for one year, under the Regulation of Prevention and Control of Marine Pollution Act. Fines up to \$1,500 can be imposed on owners that fail meet the fuel record-keeping requirements.

The China Maritime Safety Administration issued guidelines on the implementation and supervision of ECAs that state how compliance with emission control measures will be verified. For ships using low-sulfur fuel, verification will be made by checking bunker delivery notes, fuel changeover procedures, engine room logbook records, and fuel oil quality and samples. For ships using alternative measures to reduce emissions, such as shore power, liquefied natural gas, or exhaust gas scrubbers, checks will center on the International Air Pollution Prevention Certificate/Record and engine room logbook records.

Analysts said the availability of low-sulfur fuel for vessels and support of the national oil companies that dominate oil and gas upstream and downstream sectors would be critical to ensure the success of the new regulations.

Local authorities in Shenzhen said ships could apply for immunity and exemption from the regulation in certain cases, including supply of sufficient proof that they made every effort but did not succeed in obtaining low-sulfur fuel.

The Shenzhen order said ship-owners could also take alternative measures to reduce pollutants while at berth, including use of LNG and other clean energy sources. Alternative measures need to be approved in advance by the Shenzhen Residential Environment Committee and the Shenzhen Maritime Safety Administration.

The Shanghai Maritime Safety Administration also launched an exemption scheme that allows shipping companies or agencies to apply for an exemption if using low-sulfur fuel oil is unsafe for vessels.

### **Pressure Builds to Fight Smog in Western China**

Three years into Premier Li Keqiang's declared "war on pollution," and this winter's smog is taking a new turn. On the one hand, statistics show that overall air quality in China has improved; on the other, a growing gap in air quality between China's east coast and its inland cities has tensions flaring.

In Chengdu, the city of 14 million people in central Sichuan province, the exceptionally poor air has become unbearable. Thick fog and smog closed runways at Shuangliu International Airport for 14 hours in December, resulting in morning cancellations that stranded 20,000 travelers.

That month, Chengdu experienced nine days of sustained air pollution, bringing media outlets to report on rising outcry from residents. According to the Sixth Tone, police clashed with a group of artists at an air pollution protest.

Around 600 kilometers away, in the large western city of Xi'an, another group of artists led an avant-garde protest following nearly a week of continuous smog. Putting their creativity into practice, students at the Xi'an Academy of Fine Arts affixed face masks to a stand of stone lions, turning the bad air into part of an art installation.

Perhaps more than the air pollution itself, residents of western cities are infuriated by the weak response from local governments. Beijing-Tianjin-Hebei (also known as Jing-Jin-Ji), being the region most closely associated with smog, is putting forward ever stronger measures to combat the problem. Far-reaching, regional, emergency air pollution response measures linking Beijing, Tianjin, Hebei, Henan and Shandong are now in place. Earlier this year, Shijiazhuang simply shut

down industrial production for a month-and-a-half in order to meet air quality standards. The difference in government response between these eastern cities and China's western urban centers has been striking.

The differences between smog response measures in Beijing and Chengdu are a case in point. The pollution conditions triggering a level-three (yellow) alert in Chengdu are basically identical to the triggers for a level-two (orange) alert in Beijing. This implies that under similar pollution conditions, mitigation measures in Chengdu will be weaker than in Beijing.

At its core, Chengdu's pollution problem is bound up in the structure of the economy. In 2015, the city's Air Pollution Sources Analysis showed that the top three sources of PM<sub>2.5</sub> were transportation, coal-burning and dust – each accounting for over 20% of the total. Although direct emissions from industry account for only 6%, heavy industrial plants like steelworks are big coal consumers, meaning that large-scale industrial production both directly and indirectly causes significant air pollution.

The local economy's overreliance on real estate development and infrastructure projects have added to Chengdu's environmental burden. Data from the National Bureau of Statistics website show that in 2014, real estate development sites in Chengdu covered 170 million square meters, overtaking both Beijing and Shanghai. By comparison, development projects only occupied 20 million square meters in 2002. Chengdu is transforming into one big, dusty construction site, and this dustiness is a major source of particulate matter.

Chengdu's traffic regulations are an even more direct source of air pollution. While the odds of winning Beijing's license plate lottery have dwindled to virtually nil, Chengdu residents still face no restrictions when buying a car. In 2013, rates of vehicle ownership in Chengdu were second only behind Beijing, and they continue to rise at an astounding rate: car ownership doubled between 2013 and 2016.

According to media reports, Chengdu currently has 4.64 million vehicles on the road, which contribute half of the city's nitrogen oxide emissions. In hot weather, nitrogen oxide produces ozone, which in high concentrations can cause respiratory inflammation, nerve damage, dizziness, and headaches.

Cities in eastern China have responded to environmental bottlenecks by carefully limiting development. In Beijing, Tianjin, Hebei, Henan, and Shandong, coal consumption is controlled, steel and cement producers have been forced to cut capacity, and factories must sometimes shut down on smoggy days. The old high-pollution industrial economic model is now facing serious challenges.

It is important to note that the strength of atmospheric pollution regulations varies by place in China. In September 2013, the State Council released ten regulations setting higher air quality targets for Beijing-Tianjin-Hebei, the Yangtze River Delta, and the Pearl River Delta (all the in the east of the country), relative to the rest of the country. By 2017, the Beijing-Tianjin-Hebei region is mandated to reduce PM<sub>2.5</sub> levels by 25% relative to 2013 levels, while other cities need only to reduce levels by 10% (in the two deltas the target is 15%).

These three dense urban regions, which have the highest GDP in China, are closely bound to high pollution sources. Yet the pollution management challenges facing other regions in China are no less daunting. According to a Greenpeace East Asia analysis of air quality data from 362 Chinese cities in the first quarter of 2016, of the 91 cities which experienced worsening air

pollution, two-thirds of them were located in central or western China – namely, the “other cities” outside of the three key eastern regions.

Compared to the relatively strict smog-control regulations in eastern cities, actions taken by central and western Chinese cities have been slow-coming. One reason for this trend is that governments in eastern regions have forced heavy polluting industries like coal-fired power plants and chemical factories to move elsewhere. China’s western provinces, which seek new investment to propel economic development, have welcomed these companies with open arms: in 2015, three-quarters of the country’s 210 newly-approved, coal-fired power plants were slated to be built in central or western China.

But for these “other cities,” the grace period to deal with air pollution is coming to a close. The recently-published 13th Five-Year Plan for Eco-Environmental Protection has set clear targets for cities not yet in line with air quality standards, which includes perhaps 78% of Chinese cities. By 2020, these cities must achieve an 18% improvement in air quality relative to current levels.

At present, average annual air pollution is slightly better in Chengdu than Beijing. In 2015, the average concentration of PM2.5 in Chengdu was 61 micrograms per cubic meter, compared to Beijing’s 81 micrograms per cubic meter. But no matter whether or not Beijing reaches its target of 60 micrograms per cubic meter by 2017, the relatively clean air enjoyed by residents in Chengdu and other western cities – if it can be called that – is likely to become worse.

And clearly, as residents of western cities become more environmentally aware, their patience for poor air and poor environmental governance will soon run out.

### **China Raises Its Low Carbon Ambitions in New 2020 Targets**

China’s 13th Five-Year-Plan on Energy Development (Energy 13FYP) might be one of the most anticipated energy blueprints in the world for its far-reaching implications for the carbon trajectory of the planet’s largest emitter. On Jan 5, 2017, the National Energy Administration finally unveiled the plan to reporters, with a set of 2020 targets covering everything from total energy consumption to installed wind energy capacity. One thing is worth noting: with the Energy 13FYP, China might have once again raised ambitions for its low-carbon future, highlighting the urgency that this smog-ridden country attaches to moving away from fossil fuels.

In March, China unveiled its 13th Five-Year Plan for Economic and Social Development (2016-2020), which contains a set of climate and energy related targets, including an energy consumption cap and a 15% goal for the share of non-fossil-based energy in the country’s primary energy mix. If we consider this the “Master Plan” for all aspects of China’s development in the next five year period (2016 – 2020), then the Energy 13FYP is the breakdown of that Master Plan for the energy sector, with more detailed targets to better guide policymaking, government spending and project planning in the sector.

Most of the Energy 13FYP targets are not entirely “new”. Many are in line with previous announcements, in particular the Strategic Energy Action Plan (2014-2020), which, at the time of its publication was already considered ambitious in curbing coal consumption and CO2 emissions beyond international expectations. However, this time round, policymakers seem even more determined to squeeze out coal’s share in the country’s energy mix, lowering its 2020 percentage in primary energy consumption from 62% to 58%.

The country is also aiming higher for renewables: installed capacity of wind energy and solar energy should reach “more than 210GW” and “more than 110GW”, respectively, by 2020; higher than what was declared at the end of 2014.

A quick look back at the progress of China’s energy targets since the 2009 Copenhagen climate summit, it is clear that:

- China has repeatedly strengthened its decarbonization and low-carbon energy targets.
- China exceeded most of its 2015 low-carbon energy and decarbonization targets and has made its 2020 energy and emissions targets more ambitious over time.
- It plans to reduce “emissions intensity” (the volume of emissions produced relative to economic activity) by more than other major economies.
- Set against the background of other major emitters, particularly the United States’ potential backtracking from its climate commitments, China’s continued strengthening of its own targets looks even more remarkable.

To achieve these goals in less than five years, China will have to overcome chronic problems in its energy sector. Media reports about the Energy 13FYP reveal deep-rooted concerns that have troubled Chinese policymakers.

**Overcapacity:** China’s power sector is faced with a severe overcapacity problem. Slowing demand for electricity due to the economic downturn and the slashing of energy intensive industries has caused widespread underutilization of existing power generation capacities, which are seeing their lowest utilization hours since 1978.

Yet the country is still seeing a fast build-up of coal-fired power capacity as a result of inertia (many projects were approved in the heyday of the economic boom), and perverse incentives (dropping coal prices and a government fixed electricity tariff is increasing the profit margin for coal power).

The situation has prompted regulators to consider putting a two-year “freeze period” in the Energy 13FYP for the approval of any new coal-fired power projects. At the press conference to launch the Energy 13FYP, government vowed to keep coal power capacity below 1100 GW by 2020, setting an upper limit for new coal capacity.

**Curtailment:** The other side of the overcapacity coin is curtailment of renewable energy, particularly wind and solar energy in western parts of the country.

A combination of transmission bottlenecks and market set-up has prevented large chunks of renewable electricity from reaching the grid. In 2015, 15% of China’s wind energy was wasted, a record high. Based on the Energy 13FYP, the problem seems to have pressed policymakers to put more emphasis on reining in curtailment, as opposed to further expansion of installed capacity. It has also prompted them to plan more new renewable electricity capacity in China’s eastern regions, where electricity demand is concentrated, reducing the need to transmit renewable energy across the country.

## **28. Despite Frigid Weather, Mongolians Protest Worsening Smog**

Hundreds of Mongolians have braved frigid weather to stage a protest in the country’s capital demanding that the government do more to address worsening air pollution they fear is sickening

their children and shortening their lives. The protesters gathered at the start of the New Year in a public square in front of government offices, holding banners with slogans such as "Let's give fresh air to our future children," "Smog is silent killer" and "We can't breathe."

Purevkhoo Tserendorj, one of the protest's organizers, said, "We are desperate and we are organizing this demonstration to make authorities feel our frustration and anger."

According to UNICEF, the United Nations' children's agency, air pollution is linked to the three diseases that have resulted in the most "lost life-years" in Mongolia.

## **29. India Continues To Battle Severe Air Pollution Problems**

### **Delhi's Air Quality Enters 'Severe' Zone Yet Again**

As the New Year arrived, Delhi's air quality entered the 'severe' zone again after steadily deteriorating. The National Air Quality Index (NAQI) of the Central Pollution Control Board (CPCB) had a reading of 402 (running average) based on the data of nine monitoring stations across the city. The level of pollutants had seen a rapid buildup before Christmas, however, the situation improved a little thereafter and remained so for at least two days.

Air quality had started deteriorating again on December 27<sup>th</sup>. The average AQI of December 27 and 28 were 329 and 385, both in the very poor category.

Delhi must prepare a long-term plan to reduce this winter pollution caused mostly by the cold weather locking up the smoke and the vehicle emissions.

### **On-Road Emission Tests To Be Mandatory In India From 2020**

On-road emission tests for vehicles plying on Indian roads will be mandatory once the Bharat Stage VI norm kicks in from 2020, for which testing agency the Automotive Research Association of India (ARAI) is developing a unified test cycle. ARAI is currently working on devising ways to determine the on-road emission benchmarks at different stages of vehicle lifetime in the aftermath of the Volkswagen emission cheating scandal which broke out in 2015.

In December 2015, Heavy Industries Ministry had said the agency would conduct checks on emission levels of diesel passenger vehicles in India over a period of six months. "It was explained to the ministry that we can take up that testing but as we migrate towards Bharat Stage VI norms, in any case, real driving emissions will be a part of that regulation," ARAI Director Rashmi Urdhwareshe said.

Therefore, she added: "Our current focus is rather than doing individual vehicle measurements but to develop a test cycle based on which emission tests would be done along with Bharat Stage VI. By that time we will be ready with the test cycles, so that data collection has started."

Elaborating further, Urdhwareshe said: "We will be looking at the development of a unified test cycle which the manufacturers are expected to use in mapping their vehicles so that a user is assured that when tested in laboratory as well as when actually the vehicle runs (its on-road performance is in line with the test results)."

Only lab testing of emissions is currently mandatory in India. However, the on-road testing will be compulsory in India too by 2023, three years after the implementation of Bharat Stage-VI regime

on April 1, 2020. Bharat Stage norms are similar to the now in vogue Euro-VI norms that brings down allowable emissions substantially.

Experts consider the on-road testing to be a way more efficient model to measure emissions. “If you carefully study emissions notification under BS-VI, it prescribes the closeness with which real emissions happen with respect to the standard lab conditions... We will start collecting data (for BS-IV compliant vehicles) on some sections of expressways, national and state highways, city and village roads. This will be done in a mix and match manner,” Rashmi Urdhwareshe, director, ARAI, said.

After a substantial amount of data is collected both for BS-IV and BS-VI vehicles, a variable factor (for emission limits) will be laid down and vehicle makers will be expected to abide by it. So, makers will have a defined conformity factor for on-road emissions when compared to the laboratory conditions.

The on-road data collection will continue even after April 1, 2020 to measure emissions under BS-VI, the government has outlined in its draft notification. Currently, it is anybody’s guess as to how much each vehicle emits on road.

In advanced countries, it is easier to lay down emission norms because road conditions are standard. In India, however, given the poor and non-standard nature of roads it becomes difficult to lay down the conditions for on-road testing. “With the data collection kicking in now, it’s time to standardize road conditions too. The test cycle condition based on road quality is still being worked upon,” Urdhwareshe said.

### **On The First Day of 2017, Mumbai Breathes Most Toxic Air Since Deonar Fire**

Mumbai recorded the worst pollution levels on the first day of the year, since the Deonar fire in January, 2016. Researchers attributed the spike in pollution to the use of firecrackers on New Year’s night. Pollution levels shot up to dangerously high levels as the air quality index (AQI) – pollutant measuring indicator — was recorded at 323, falling under the ‘very poor’ category, said officials from the System of Air Quality Weather Forecasting and Research (SAFAR).

Pollution levels on New Year’s Day were marginally close to that of Delhi as the national capital recorded an AQI of 338 (very poor). Pune, on the other hand, recorded AQI levels within the ‘moderate’ category at 187.

SAFAR had predicted AQI levels to be at the borderline of the ‘poor’ and ‘very poor’ category for New Year’s Day at 300. “Everyone is advised to avoid prolonged or heavy outdoor activity and everyone is advised to wear a mask and drink plenty of water,” read the health advisory from SAFAR. “Air quality in Mumbai may cause respiratory illness to the people on prolonged exposure. Everyone may experience more or serious health effects. You are advised to ensure minimum exposure to pollution.”

An AQI level between 201 and 300 is poor and 301-400 is ‘very poor’.

The last time the city recorded such high pollution was on January 29, 2016, with AQI levels at 341 (very poor) and January 31 at 333 (very poor), owing to the Deonar dumping ground fire, when the release of methane gas from untreated waste choked the city for almost a month.

SAFAR officials said there was a drop in visibility on New Year's Day owing to the pollution. "The city is currently experiencing cool conditions owing to low temperatures. There is hardly any moisture or wind speed, which is making the weather dry and stagnant," said Gufran Beig, project director, SAFAR. "The additional source of firecrackers intensified pollution levels further, creating a thick layer of smoke close to the earth's surface. Since there is not much wind speed, the pollutants are not being dispersed fast."

Seven of 10 locations in Mumbai recorded 'very poor' air with Mazgaon being the most polluted location on Sunday, with an AQI of 370 (very poor), followed by Andheri at 343, Bandra Kurla Complex at 332 and Malad at 322. The cleanest air was recorded at Worli with an AQI of 277 (poor).

Meanwhile, night temperatures in the suburbs was 16.5 degrees Celsius, almost 2 degrees Celsius below normal, while south Mumbai recorded a minimum temperature closer to normal levels.

### **You Aren't Alone Delhi, All 22 NCR Districts Are Choking**

New air pollution data derived from satellite imagery suggests that the severe levels of particulate matter (PM2.5, or respirable pollutants) seen in Delhi are also found throughout the 22 districts of the National Capital Region (NCR). These findings raise alarm about potentially serious adverse effects on the health and livelihoods of NCR residents outside of Delhi and underline the importance of a coordinated response to pollution across NCR.

Until now the focus has been on the pernicious effects of pollution in the major urban centers, but the new data will help shine the light on exposure to contaminated air in rural areas and smaller cities. For instance, Rewari in Haryana, like other relatively sparse NCR districts far from Delhi, recorded annual PM2.5 levels several times higher than the World Health Organization standard of 10 micrograms per cubic meter between 1998 and 2014. And between 1998 and 2014, NCR districts in Uttar Pradesh to the southeast of Delhi — Bulandshahr, Gautam Budh Nagar and Ghaziabad — registered pollution levels comparable to or even higher than in the national capital.

Rural populations tend to be more vulnerable to the effects of air pollution on their health and livelihoods since most residents work outdoors, where pollution levels are systematically higher than those indoors. Rural populations also have comparably poorer health and poorer access to health care than their urban counterparts, making them more likely to get sick from pollution exposure and less likely to get better. Moreover, air pollutants associated with particulate matter have been shown to harm crops and reduce agricultural yields, meaning that air pollution could contribute to deepening poverty.

Until now, analyses of air pollution in NCR have relied primarily on a handful of permanent ground monitors run by the Central Pollution Control Board, the Delhi Pollution Control Committee and the US embassy, all located in or just outside the capital. The satellite data, in contrast, measure pollution levels for every square kilometer across India. The new data were made available by Aaron van Donkelaar, an atmospheric scientist from Dalhousie University, and coauthors, who produced the estimates based on observations from NASA satellites. The satellite imagery provides a measurement called aerosol optical depth (AOD), which is the degree to which aerosols, or particles in the air, prevent transmission of light in an area and is considered a proxy for air quality.



Health ministry deputy commissioner Dr Damodar Bachani acknowledged the widespread impact of air pollution in rural areas. "I have seen satellite images which show even rural areas are equally badly affected. The sources of air pollution may be different in rural areas but you cannot isolate urban air from rural air. The impact of air pollution is also strongly dependent on wind direction because of which many rural areas are affected when wind brings pollution from other polluted areas." While we don't know for sure what is causing severe air pollution in these districts of Uttar Pradesh, the sources identified by various research organizations include industries, brick kilns, vehicles, crop fires, waste burning and others. We also know that there are thermal power plants to the east of Delhi and the brick kilns are primarily to the northeast.

The NCR's counter magnet areas, or towns and cities that act as alternatives to Delhi as centers of growth and attract migrants, among them Kanpur, Bareilly and Patiala, often suffer bad air, with pollution ranging from poor to severe. Despite this, the National Capital Region Planning Board's Regional Plan 2021 has no mechanism to address air pollution. It only states, "The pollution impacts have to be identified through appropriate field research studies so that the levels and types of industrialization can be established for different sub-regions."

Proper enforcement of the December 2, 2016 order of the Supreme Court on the MC Mehta petition against air pollution could reverse the trend. The court directed the notification and implementation of a graded response action plan for the entire NCR. Such a plan envisages action to reduce emissions from various sources depending on the air quality status. For example, when air quality is rated as 'emergency' (PM 2.5 levels higher than 300 micrograms per cubic meter persisting for 48 hours), the entry of trucks into Delhi, other than for essential commodities, is to be stopped, vehicles on roads lowered through the odd-even scheme and other steps taken, like banning waste burning, closing brick kilns and controlling emissions from industrial units and hot mix plants.

"It has to be seen how stringently this graded response action plan is enforced in the NCR," said Anumita Roy Chowdhury, head of Centre for Science and Environment's clean-air campaign. "To check industrial pollution, it's important to stop the use of polluting fuels like furnace oil and pet coke, transition to modern technology for brick kilns, change thermal power plants in Dadri and Jhajjar to natural gas and upgrade emission norms for commercial vehicles to Bharat Stage 4 at the earliest."

The union health ministry has recently included chronic obstructive pulmonary disorder (COPD) — a health condition closely associated with exposure to polluted air — in its non-communicable diseases program. As Dr Bachani pointed out, "We know of pollution's association with chronic respiratory diseases, some cancers, heart ailments, low birth weight of new-borns, early onset of cataract and other effects."

On December 20 last year, the NCR Planning Board reviewed the measures being taken by the four member states and Punjab to contain air pollution in the capital and has directed them to submit detailed action plans.

### **Air Pollution Problem 'Very Serious', Urgent Steps Needed: Supreme Court**

"This pollution problem is very serious. If you talk for years for a solution, then it is a problem," a bench of Justices MB Lokur and PC Pant said, adding that some of the victims of air pollution are due to inefficient systems and non-implementation of norms. The observation came after amicus curiae and senior advocate Harish Salve said there was a need to ensure 100 per cent compliance

of Pollution Under Certificate (PUC) and linking them with the insurance of vehicles done every year.

"The year period is too far. Insurance of vehicle is done annually. We need to find solutions fast," the bench said and asked Solicitor General Ranjit Kumar, appearing for Centre, to specify the number of PUC centers in Delhi. Kumar said there were 962 such centers in Delhi with each of them inspecting around 5000 vehicles every three months. He said show cause notices have also been issued to some 174 for irregularities, licenses of 14 have been cancelled, licenses of 75 have been suspended and warning notices issued to 78 such centers.

The bench asked the Centre to furnish a status report regarding show cause notices issued to PUC centers and directed the Environment Pollution Control Authority (EPCA) to inspect all 962 PUC centers and submit the report about their functioning.

### **Pollution Crosses Emergency Limit, Government Sits On Action Plan**

While the air pollution level crossed the emergency mark — 300 mg per cubic meter of PM 2.5 — recently, the Centre's ambitious Graded Response Action plan was nowhere in sight. The plan is expected to fix responsibility of neighboring states in reducing emissions that affect Delhi's air quality.

Although a number of agencies are involved in tackling the issue, the lack of detailing as per the said plan is taking a toll on Delhi's air quality. Almost a month after the Central Pollution Control Board (CPCB) submitted the plan in the Supreme Court, the government is yet to notify other states and agencies involved.

The plan involving three neighboring states, Delhi government agencies, and municipal bodies is stuck in a bureaucratic quagmire, sources said. A senior Delhi government official said: "The file is still with the secretary, Ministry of Environment and Forests (MoEF). They are finalizing the details. While all stakeholders are aware of their role in the plan, still the gazette notification has to come for them to start acting on it."

According to an analysis conducted by the Centre for Science and Environment (CSE), pollution levels on December 23 and 24 were seven times higher than the prescribed standards. "This spike was seen due to the decrease in temperature, and the wind speed to 1.8km/hour, which does not allow pollutants to disperse," the report stated.

The pollution level at Anand Vihar went beyond 500 mg per cubic meter while in residential areas such as Punjabi Bagh and Mandir Marg, the levels crossed 400 mg per cubic meter and 300 mg per cubic meter, respectively. While there will be some reprieve from the dense fog in the coming days, the air quality is not likely to improve much as nights will remain cold, trapping the pollutants in the air.

Vivek Chattopadhyaya, Senior Scientist at CSE, said: "While combustion level has not come down in Delhi-NCR areas, including Ghaziabad and Faridabad, the weather conditions are making additional difference to pollution level. The city cannot depend on weather alone to make the air quality better. There is no reason why the CPCB should delay the notification process now. The air quality in the Capital will only start improving once the emissions in the NCR industrial units come down."

Meanwhile, a senior CPCB official confirmed that they have not receive a notification from the MoEF. "We have held several meetings with all the stakeholders involved. Once we get the legal notification, we will be able to put the plan in action," he said.

### **No Justification for Ban on Old Diesel Vehicles: Centre**

Contesting the National Green Tribunal order banning more than 10-year-old diesel vehicles in Delhi and the National Capitol Region (NCR) to curb air pollution, the Central Government approached the Supreme Court just before the end of 2016, saying the fuel is not as polluting as being projected and that there no justification to ban old diesel vehicles. The Tribunal had in July last year ordered de-registration of diesel vehicles older than 10 years and scrapping of diesel vehicles older than 15 years.

Appearing before a bench of Justices Madan B Lokur and P C Pant, Attorney General Mukul Rohatgi and additional solicitor general Pinky Anand said the NGT directions were arbitrary and against the Constitutional provisions and there was no scientific or rational basis for banning diesel vehicles. The government even contended that diesel was a better and less polluting fuel than petrol in some respects.

"Scientific literature does not show that diesel is worse off fuel than other fuels on which automobiles run in the NCR region. Petrol vehicles cause higher carbon dioxide pollution, CNG vehicles cause higher nitrogen dioxide pollution and diesel vehicles have higher PM pollution," the Centre said in its appeal.

"Diesel vehicles, however, have higher fuel efficiency in comparison to petrol vehicles. Diesel vehicles emit 10-15% less carbon dioxide as compared to petrol vehicles. Diesel vehicles also have higher fuel efficiency. There exist exhaustive scientific evidence to show all vehicles of petrol, diesel and CNG cause some pollution or the other," the petition said.

The government said pollution caused by diesel vehicles represent a minuscule proportion of pollution. Diesel vehicles save over 1.5 million tons of carbon dioxide emissions in a year. "It is submitted that even European countries and Japan are promoting diesel vehicles. By cutting short the economic utility to be derived from a vehicle which is otherwise useful and is legally permitted, national loss as well as personal loss of livelihood and freedom of choice is being caused to the owner of the vehicle," it said.

The NGT's ruling in April 2015 was aimed at curbing pollution in the national capital, blamed largely on toxic emissions by diesel-fueled vehicles, and its impact on human health. In July 2016, the NGT directed the Delhi government's transport department to deregister diesel vehicles that are at 10 years old or older. The court later held that the process of deregistration would begin with scrapping of 15-year-old diesel vehicles.

The tribunal passed the orders despite repeated pleas from the Union ministry of heavy industry and public enterprises against such a move. The government suggested to the NGT that instead of banning old diesel vehicles, it must consider ways to tackle bigger causes of pollution such as crop burning and road dust.

As of 2014, Delhi had 8.9 million registered passenger vehicles. Of these, 220,000 were diesel passenger vehicles and 170,000 commercial vehicles that are older than 10 years, according to industry estimates.

The NGT passed a series of orders in 2014 and 2015 to control air pollution from vehicular emissions, waste burning, crop burning and construction dust, but their implementation has been ineffective. Besides banning diesel vehicles that are at least 10 years old, the green tribunal has also outlawed petrol vehicles that are 15 years old or older.

Experts said the government needs a clear strategy to tackle pollution caused by diesel-fueled personal vehicles. "There has to be some consistency in approach of the government. When so much has been done in Delhi to control diesel emission from trucks, buses and taxis, it should not be allowed for cars," said Anumita Roychowdhury, executive director at the Delhi-based Centre for Science and Environment. "The government needs to give us a strategy to control dieselization of the personal vehicle segment where we have not yet introduced clean diesel."

### **Gurgaon Gets Relief from Cold, But Not Pollution**

Even though the city got some relief from cold as the minimum temperature increased to 5 degrees Celsius, there was no respite from rising air pollution levels. Particulate matter (PM) 2.5 rose by nearly 50%. While the air quality index crossed the 360 mark, which is in the 'hazardous' zone, the level of PM2.5 remained seven times higher than the national safe standard of 60 g/m<sup>3</sup>. The highest level of PM2.5 was recorded at 445.06 g/m<sup>3</sup> on New Year's Eve.

Officials of the Haryana State Pollution Control Board (HSPCB) said mornings and evenings, in particular, had been very foggy and thus recorded an increase in pollution levels. "It has been noticed that pollution levels remained high in mornings and evenings. This shows that particulate matter is getting stuck in the lower atmosphere due to the increased fog at that time of day. Dip in temperature has also led to a decrease in the wind speed. The increase in pollution is, therefore, recorded due to extreme weather conditions," said an official of HSPCB.

Besides weather conditions, experts also blamed laxity on part of authorities for the worsening air pollution levels. "While last year, the authorities were talking about air pollution due to more smog in the lower atmosphere, this year, days are brighter and thus the authorities are not bothered. The fact is that pollution is as high as it was last year. The authorities need to take immediate steps to bring down air pollution," said Niranjana Raje, a former member of the Environment Pollution (Prevention and Control) Authority.

"Emergency measures such as restricting movement of diesel vehicles, temporary closure of polluting industries and closure of schools and colleges need to be taken to combat high air pollution levels," he added.

Doctors advised people to stay indoors as far as possible. "Children, elderly and pregnant women should remain indoors. Even healthy people should avoid doing physical activity outdoors," said Dr Sachin Verma, a city-based pulmonologist.

### **Drive out of Millennium Depot: SC**

The Supreme Court ordered Delhi government to drive out by February 4<sup>th</sup> the last of Delhi Transport Corporation's 320 cluster buses parked at the Millennium Bus Depot, which was meant to be a temporary shelter for two weeks for the fleet during the 2010 Commonwealth Games. "The Millennium depot shall not be put to use for any purpose till the National Green Tribunal determined the legality of its existence, proximate to Yamuna," said a bench of Chief Justice J S Khehar and Justice D Y Chandrachud.

Immediately after the completion of the scam-tainted Commonwealth Games seven years ago, NGO Yamuna Jiye Abhiyan had questioned the selection of the site on the river bed, a stand which was countered by the government terming the location as part of Yamuna floodplains.

The Delhi government had in 2014 decided to vacate the space, which was allotted to DTC for two weeks in 2010 for the duration of the Commonwealth Games. The Delhi High Court had repeatedly extended the deadline asking for modification of the Delhi Master Plan for continued using of the site, failing which DTC would have to vacate. As the Master Plan was not amended, the HC had asked DTC to vacate the site by January 27 last year.

An appeal against the HC order had been pending in the SC since then. Just before year's end, Justices Khehar and Chandrachud asked DTC counsel Santosh Tripathy to bring the head of the organization to the court to record his undertaking for vacation of the parking shelter. DTC's chief general manager appeared before the bench and informed that the corporation was no longer in possession of any part of the depot and that it had handed over the area to the transport department of the Delhi government.

The bench was informed by the transport department's counsel Wasim A Qadri that over 300 cluster buses operated by the department were still parked there every night. The bench ordered, "The transport department of Delhi government shall remove the cluster buses from Millennium depot by February 4."

The SC noted that the NGT was still to decide whether the site was located on the river bed or flood plains of Yamuna. "As and when the matter gets adjudicated, and in case it is found that the site is in the flood plains, the Master Plan could be amended to permit use of the Millennium depot. Subject to such alteration in the Master Plan, the depot shall not be used for any other purpose," it said.

This drew strong objection from Yamuna Jiye Abhiyan's counsel Jayant Bhushan, who argued that a bus depot even on the Yamuna flood plains was environmentally and ecologically hazardous. He requested the court to delete the reference to the amendment of Master Plan to accommodate the bus depot on Yamuna flood plains. The court, however, did not relent.

### **Air Pollution at Key Traffic Junctions Alarming, Says Study**

Air pollution at Mumbai's busy traffic junctions has hit alarming levels, a new study reveals. The study, conducted by the National Environment Engineering Research Institute (NEERI) and the Indian Institute of Technology (Bombay), reveals that busy traffic intersections in the commercial capital witness air contamination six to 27 times the optimal permissible levels, impacting the city's overall air quality.

Alarmed by the findings, the Maharashtra Pollution Control Board (MPCB) has decided to install air purifiers at 33 traffic junctions in the city. The facility was inaugurated for three junctions last week.

According to the study, the main indicators to gauge the level of contaminants in the air are the levels of Particulate Matter (PM) 2.5 and PM 10. While PM 2.5 indicates the extent of small pollutant particles released mainly from the exhaust of vehicles, the latter stands for slightly larger, coarser particles from windblown dust, road sweeping and construction.

While the permissible limits for PM 2.5 and PM 10 are 60 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and  $100 \mu\text{g}/\text{m}^3$ , the study found that the existing levels at the traffic junctions were far worse. The traffic junction outside Oberoi Mall in suburban Dindoshi, the scene of huge snarls during peak hours, was found to be the worst on these counts, with the PM 10 count at the site measuring  $2709.25 \mu\text{g}/\text{m}^3$ . The lowest PM 10 count, recorded outside Dadar's Siddhivinayak Temple ( $596 \mu\text{g}/\text{m}^3$ ), was nearly six times above the permissible limit. In fact, the surveyors found that for the 19 out of 33 junctions surveyed, the pollution was more than 10 times the permissible levels.

Officials attributed the "heavy vehicular movement" on the northbound end of the Western Express Highway during peak evening hours to be one of the worst contributors to air pollution in Mumbai. Further, officials fear that with the construction work of Metro along the same stretch underway, the traffic and the pollution count will worsen further.

Currently, Mumbai's overall air quality levels is recognized as 'very poor', according to SAFAR. Mumbai's Air Quality Index (AQI) is recorded by the System of Air Quality and Weather Forecasting and Research (SAFAR), which is run by the Indian Institute of Tropical Meteorology with the support of India Meteorological Department. On Saturday evening, Mumbai's AQI was more than 300  $\mu\text{g}/\text{m}^3$ , the worst area recorded was Mazgaon with  $345 \mu\text{g}/\text{m}^3$ .

The joint air pollution study further revealed that a high percentage of toxic matter released from vehicles had accumulated near the junctions. Officials said the 33 congested traffic junctions were selected based on several factors such as location of the site, vehicular congestion, pedestrian movement and construction in the area. The sampling time of the survey was during peak-hour time of the junctions and they were all surveyed last year before and after the 2016 monsoons.

WAYU (Wind Augmentation and Air Purifying Unit), that are currently operational in Kalanagar, Sion and Ghatkopar junctions, is an active air pollution mitigation technology that works on the principle of breaking down carbon monoxide, officials said. The gadget WAYU was created in a joint collaboration between NEERI and IIT. More WAYU devices are proposed to be set up in the other 30 traffic junctions in the city.

Each of the WAYU devices has filters attached with a thermal oxidizer to separate the toxic content from the air, which is then released back into the atmosphere with the help of a fan. There area air quality sensors have been used to assess efficiency of the devices and the efficiency of the devices is expected to purify 40-60 per cent of the air it processes, officials said.

### **Traffic Police Face the Brunt of Rising Air Pollution**

The city's traffic police, faced with the task of managing over 65 lakh vehicles, is facing the brunt of rising air pollution. The result is an uptick in instances of lung-related problems among traffic police personnel.

A pulmonary function test conducted on 235 traffic policemen in Bengaluru has revealed that 31% of those surveyed had reduced lung function. A total of 20% had some form of respiratory system problems. The results will be submitted to the traffic police, which has a strength of 2,700 personnel.

The report, compiled by Mangaluru-based Anti Pollution Drive (APD) Foundation and Eureka Forbes, puts on record issues that traffic policemen have been complaining of for a long time. Forced to stand at junctions that see some of the worst traffic jams in the country, the lack of proper pollution control enforcement for vehicles makes an already bad situation worse.

“We work at junctions for more than eight hours daily as thousands of vehicles pass by. Trucks and buses are the worst as they emit black smoke. Wheezing or coughing is very common among my colleagues,” said a constable stationed at Minerva Circle junction.

According to the report, 166 policemen complained of various associated symptoms including cough, blocked nose, watering of eyes, breathlessness, wheezing and chest tightness. According to doctors, these symptoms are more pronounced among traffic police personnel, when compared to residents in Bengaluru.

“This is much higher than what was found in the general population in a previous study that looked at the epidemiology of asthma, respiratory symptoms and chronic Bronchitis in adults,” said Priya Ramachandra, Department of Pulmonary Medicine, St. John’s Medical College. She added that other factors like smoking as well as family history could also contribute to lung problems.

“Long-term effects include worsening of cough or breathlessness or Chronic Obstructive Pulmonary Disease (COPD),” she said.

As many as nine policemen were diagnosed with obstructive lung function, a form of COPD. Suggestions on how the situation can be mitigated will be submitted to the traffic police.

“The police is committed to the well-being of our staff and will look at the recommendations made. If cost-effective measures can be put into place, we will certainly consider them,” said R. Hitendra, Additional Commissioner of Police (Traffic).

Recognizing the need to protect traffic policemen from the harmful effects of air pollution, the State government has instituted measures to combat health problems afflicting personnel. But experts argue that there should be more effort to help policemen do their job effectively.

Currently, policemen are subject to a health check-up once a year. This helps highlight issues with lung function and associated disorders such as allergies and infections.

“We are also holding several check-up camps and rotate our staff regularly from traffic duties to other police work,” said Mr. Hithendra. Masks have also been distributed to policemen but many prefer not to wear them as they cannot blow their whistles at violators. “We have been issuing masks to our staff. They have been sensitized about the importance of wearing them as well,” Mr. Hitendra added.

But experts say that these masks, without a replacement of filters or regular cleaning of masks can actually make the situation worse. “If the masks are not kept clean or if the filters are not changed regularly, issues like skin infection or other infections can occur. Besides, masks need to be made compulsory with orders being issued for every traffic policeman to wear them,” said M.N. Sreehari, a traffic expert.

### **30. Korea Bans Sales of Some Nissan, BMW Models in Emissions Probe**

South Korea banned the sale of 10 models built by Nissan Motor Co., BMW AG and Volkswagen AG’s Porsche after an investigation found the automakers fabricated documents related to emission tests. The three manufacturers were slapped with total fines of 7.17 billion won (\$5.9 million), which apply to 4,523 vehicles, and the certifications given for these models have been

withdrawn, the Ministry of Environment said in a statement. Six of the models are on sale, while four were discontinued, it said.

Carmakers and component suppliers worldwide are facing increased scrutiny following a spate of product performance scandals at companies including Volkswagen, Takata Corp. and Mitsubishi Motors Corp. Last month, South Korea imposed a record fine on VW's local unit for falsely advertising emissions ratings on cars sold in the country and in August blocked sales of 80 of the automaker's models because it fabricated documents related to emissions and noise-level tests.

Imported cars accounted for about 15 percent of the market in South Korea in the 11 months through November, and the most popular choices include diesel models made by BMW and Daimler AG's Mercedes-Benz, according to data from the Korea Automobile Importers and Distributors Association.

A spokesman for Nissan said the automaker will closely cooperate with the regulators, while a representative of BMW said the company will work on regaining its certifications.

South Korea expanded its VW investigation in August into the fabrication of emission and noise-level test results to all foreign car brands covering 23 companies involving 110 diesel models.

### **31. S. Korean Volkswagen Exec Gets Jail Term in Emissions Scandal Fallout**

A South Korean court sentenced an executive of Volkswagen Group's local unit to one year and six months in prison for fabricating documents on emissions and noise-level tests to achieve certification for vehicles for import. This is the latest fallout from VW's emissions-test cheating scandal that last year resulted in a sales suspension in South Korea, a once fast-growing market for the German automaker.

"Volkswagen has by itself undermined its credibility as a global brand as a result of this crime which has caused grave social and economic damages," the Seoul Central District Court said in a statement, referring to the suspension.

The court statement only gave the surname of the executive, Yun, and said he was convicted of document fabrication, obstruction of work and the violation of an environment law.

In August, South Korea's environment ministry suspended the sales of 80 models of Volkswagen, Audi and Bentley vehicles, and fined the group's local unit 17.8 billion won (\$14.91 million) for allegedly forging documents on emissions or noise-level tests.

South Korea has taken a particularly hard line against the automaker, filing criminal complaints against executives including Johannes Thammer, managing director of Audi Volkswagen Korea, raiding their offices and fining the company an additional 37.3 billion won (\$31.87 million) for false advertising.

According to the prosecution, they tampered with vehicle software and documents from 2010 to last year so that substandard vehicles can pass certification tests at the National Institute of Environmental Research of the Ministry of Environment of South Korea. This led to the import of tens of thousands of unauthorized vehicles divided into dozens of models such as Audi A3, Golf 1.4 TSI and Golf 1.6. Between July 2011 and August 2013, they manipulated the emission reduction devices of 15 Euro 5 diesel vehicle models for the same purpose and imported 46,317



cars not satisfying emission standards. In addition, they imported 102 Euro 6 diesel cars not complying with nitrogen oxide emission standards.

From August 2010 to January 2015, they submitted a total of 149 manipulated documents to obtain 28 certificates regarding exhaust gas and noise and 47 certificates regarding fuel economy. In March 2015, they tampered with the software of the Golf 1.4 TSI after it failed to pass the ministry's nitrogen oxide emission test. From 2013 to last year, they imported 41,168 cars divided into 39 models that skipped exhaust emission and noise certification or were equipped with auto parts different than those on certification documents.

During the 11-month investigation, the prosecution asked for cooperation from Germany and the United States while working with the ministry to cancel the authorization of 80 Audi and Volkswagen models. The cancellation is almost as powerful as the suspension of business and the Volkswagen headquarters in Germany became more cooperative after the cancellation.

### **32. Oz Government Proposes Fighting Emissions with Three Options**

The Australian government took a step toward cleaner air with a call for consumer and industry input on three draft proposals to reduce fuel consumption as well as greenhouse-gas emissions and pollution from vehicles. A joint statement from Environment and Energy Minister Josh Frydenberg and Urban Infrastructure Minister Paul Fletcher says the proposals are designed to keep Australia in line with international vehicle markets.

The first proposal for new fuel-efficiency standards would require global automakers to supply vehicles in Australia with more fuel-efficient engines, as they are doing in many other countries. The government says these new standards could cut consumer fuel spending up to A\$28 billion (\$20.3 billion) by 2040 and translate into annual fuel savings for the average car or light-commercial-vehicle owner up to A\$519 (\$376) and A\$666 (\$482), respectively. The proposed standards also could reduce Australia's greenhouse-gas emissions up to 72 million tons by 2030.

The second proposal calls for upgrading existing air-pollution standards for vehicles in line with the higher standards already applied in Europe, the U.S. and many other countries. The government says this could reduce toxic emissions and potentially save A\$4.2 billion (\$3.04 billion) in health care costs by 2040.

The third proposal is for a discussion paper exploring options to improve the quality of road-transport fuels to reduce noxious emissions. "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 statement says. "The right standards will deliver further health and environmental benefits."

The Ministerial Forum on Vehicle Emissions will host a meeting with stakeholders in February as part of the consultation process.

The Federal Chamber of Automotive Industries says the industry always has supported a mandated target for new cars which is tailored to the Australian market, taking into consideration consumer choice, consumer driving conditions, market fuel and infrastructure. FCAI CEO Tony Weber says while the CO2 contribution made by Australia's annual sales of new vehicles is less than 1% of the country's annual greenhouse-gas emissions, the auto industry recognizes it has a role to play in emissions reductions and is committed to developing and delivering new technologies to reduce CO2 emissions.

Emerging technologies, such as automated and connected vehicles including hydrogen and electric variants, he says, present another opportunity to achieve further emissions reductions in the longer term. "To effectively introduce a range of low-emissions vehicles, it is important the industry and government work together to provide the appropriate infrastructure," Weber says. Australia needs its own solution for emissions reductions. "Australia is not the same driving or market environment as Europe or the U.S," he adds. "We have our own driving needs and our particular consumer requirements."

Doctors and health experts have criticized the government review for under-reporting the health risks, sidelining the Minister for Health, and potentially putting thousands of Australians' lives at risk. Australian fuel quality and emissions standards are "appalling", the atmospheric and respiratory specialists say. Of the 35 countries in the OECD, our petrol quality is ranked last, below Mexico, Turkey and Estonia.

The draft proposals to address these quality concerns acknowledges 1483 premature deaths in 2012 were due to outdoor air pollution (a sharp increase from 882 in 2005), about half of which could be attributed to road transport pollution. It indicates the cost to the Australian economy from these premature deaths at \$7.8 billion. But environmental scientists say these figures are understated, with one study estimating around 3000 deaths a year in Australia are attributable to air pollution. They say the government's modelling also overlooks recent research and extrapolates from OECD data in ways that may significantly discount the current Australian health costs and contribution of pollution to local mortality and morbidity rates.

Scientists fear this discounting will strengthen the hand of those opposed to better quality standards, including climate-change sceptics in and outside of government. (Some of the proposed standards could reduce Australia's greenhouse gas emissions by up to 65 million tons and help meet the government's targets under the Paris Agreement.)

Fuel producers and the road lobby have already signaled concerns about the impact of new rules on the cost of petrol, new cars and upgrades to refineries that could "threaten their economic viability".

"It's going to be hard to do - we already know refiners aren't going to like it, and there's going to be a consumer backlash," said University of Melbourne atmospheric scientist Professor Peter Rayner. "The [government has] weakened [its] own position because there is almost certainly more money to be saved in health costs."

Respiratory physician Louis Irving described Health Minister Sussan Ley's absence from the debate about new regulatory standards as "incredibly alarming. The health minister needs to be there to highlight the dangers ... and advocate for stronger monitoring," said Professor Irving, who works at the Royal Melbourne Hospital and the Peter MacCallum Cancer Centre.

The recent "thunderstorm asthma" public health crisis in Melbourne, in which eight people died and thousands sought emergency hospital treatment, showed the consequences of a lack of real-time monitoring of air quality and its impact on vulnerable populations, Professor Irving said. "Thunderstorm asthma was an extreme example of how air quality can have very significant population effects," Professor Irving said. "It was a real wake-up call."

Sticking with the current regulations is among the five alternatives contained in the government's December discussion paper - a policy approach rated as "neutral" (without costs or benefits) in its analysis.

"It's a cost to our community, but manufacturer's don't pay it, refineries don't pay it," said climate systems scientist Dr Robyn Schofield. "It's a hidden cost, shifted into the health sector."

Spokespeople for the ministers for Health and Environment and Energy said interested stakeholders were encouraged to lodge submissions to the proposals, including those in the health sector.

### **33. Singapore's Vehicle Carbon Emissions Scheme under Review**

The Straits Times understands that the Government is reviewing the Carbon Emissions-based Vehicle Scheme (CEVS), which currently dispenses rebates or surcharges according to how much carbon dioxide (CO<sub>2</sub>) a car or taxi emits. The revised scheme is likely to measure other pollutants emitted, such as nitrogen oxides, hydrocarbons and particulate matter. It could kick in as early as July 1, when the current scheme expires.

However, the change could be delayed so as to be in line with the Euro 6 emission standards, which will take effect for petrol vehicles from September and diesel models from January next year.

The CEVS revision is likely to affect diesel vehicles most. Although they produce less CO<sub>2</sub> than petrol equivalents, diesel engines tend to emit more nitrogen oxides - which are harmful to the environment and can also lead to serious health issues - and particulate matter.

The Land Transport Authority and National Environment Agency would not provide details when asked about the review. In a statement, they said: "We are in the midst of reviewing the scheme and will share more details when ready."

Observers said the impending change could be why taxi companies such as ComfortDelGro and SMRT have been ramping up their fleet of petrol-electric cabs. Mr. Neo Nam Heng, chairman of the Prime group of companies which runs Prime Taxi, noted that in 2009, it was the first cab company to use hybrid cabs. "Diesels have good CO<sub>2</sub> levels, but their NO<sub>x</sub> (nitrogen oxides) and PM (particulate matter) are a real problem," he said.

This is why a number of cities, including Paris, Mexico City and Madrid, are planning to ban diesel vehicles, he added. Mr. Neo, who is also adviser to the Automobile Importer and Exporter Association, said incentives like road tax exemptions should also be considered for petrol-electric hybrid commercial vehicles such as vans and lorries. Mr. Neo pointed out that these commercial vehicles, which are mostly diesel-driven, account for nearly 60 per cent of Singapore's total pollution from vehicles, even though they make up only around 30 per cent of vehicles on the road.

Motor Traders Association president Glenn Tan said moving away from a carbon-centric scheme is "the way to go". "It is better to have a balance of various pollutants, rather than focusing just on CO<sub>2</sub>, which can be one-sided," Mr. Tan said. "Because the net effect is that you are trying to reduce pollution on the whole."

### **34. Pakistan Moving Toward Lower Sulfur Fuels**

Continuing its leadership role in transforming the quality of fuels in the country, Pakistan's flagship oil marketing company Pakistan State Oil has imported the first vessel of the country's low-sulfur diesel product that ensures a healthier environment and better performance of vehicles. The move comes just two months after PSO successfully launched higher-grade RON petrol for the first time in Pakistan.

Bringing the fuel revolution that it triggered and spearheaded to a full-circle, PSO has received the first 55,000 MT low-sulfur diesel vessel from Kuwait, heralding a new era of premium quality diesel in the country with more to follow in the coming weeks and months. PSO's new low-sulfur diesel product with 500 ppm (as opposed to 10,000 ppm that the existing local diesel products from Karachi-based refineries contain), is the first and the only EURO II compliant diesel to be shortly available on the Pakistani market.

"I congratulate Pakistan State Oil on becoming the first OMC to import the country's first environment and vehicle-friendly diesel product, and compliment the company for materializing the vision of the Government of Pakistan and Ministry of Petroleum and Natural Resources of improved fuels in the country that has eluded us for decades," said Mr. Shahid Khaqan Abbasi, Minister of Petroleum and Natural Resources. "It gives us great satisfaction that the country's national oil marketing company has played the leading, proactive and responsible role in effectively transforming the country's fuel landscape within a short span of time," he added.

With the new diesel product being rolled out, it is expected to assist in improving the environment and facilitating the climate change commitments of the government in addition to reducing health concerns associated with air pollution, as low-sulfur diesel is expected to significantly improve the air quality. The resultant emission reductions of hydrocarbons and oxides of nitrogen by use of low-sulfur diesel will be a huge step forward toward improving the country's environment.

"With the import of Pakistan's first low-sulfur diesel vessel, PSO has yet again emerged as an industry leader, working hand-in-hand with MP&NR to realize the shared mission of better fuels in the country," said Sheikh Imran ul Haque, CEO & MD Pakistan State Oil. "Having introduced LNG in 2015 and higher-RON 92/95 grade gasoline in November 2016, and now the low-emission diesel product, we are proud to be the torchbearer of Pakistan's fuel revolution and will continue to introduce and promote quality fuels in the country," he added.

## **MIDDLE EAST**

### **35. Air Pollution Costs Iran \$20 Billion per Year**

Air pollution costs Iran about \$20 billion annually, which could be used to purchase 20,000 subway cars or establish 140 power plants, 60 stadiums with a 50,000-seat capacity and 900 60-hectare parks, the chairman of the Iranian Parliament's environment group said. "In fact, air pollution costs are three to four times more than the government's development budget," Mohammad Reza Tabesh was quoted as saying by the Persian monthly Ayandeh Negar.

In a major study of the economic costs of indoor and outdoor pollution, the World Bank found that in 2013—the year to which the latest estimates belong—Iran lost nearly 2.3% of its gross domestic product to air pollution-related costs (around \$30 billion using 2011 as the base year for dollar exchange rate).

The bank believes air pollution costs the world trillions of dollars a year and severely impedes the development of many countries.

Air pollution is the fourth leading cause of premature deaths worldwide behind smoking, diet and obesity, and is known to lead to cancers and heart, lung and respiratory diseases. While pollution-related deaths mainly strike young children and the elderly, premature deaths also result in lost income for working-age men and women. Without including the costs of treating illnesses linked to pollution, the World Bank calculated that in 2013 premature deaths alone cost the global economy about \$225 billion in lost work days.

Iran's Department of Environment releases a daily air-pollution index—also referred to as an air-quality index—which rates air quality based on the health risk it represents. Anything above 100 is bad news. In Tehran, the index regularly hits 150 in fall and winter, putting everyone's health at risk.

Head of the department, Massoumeh Ebtekar, said environmental problems cost Iranian people about \$9 billion in 2010, whereas currently the damage is estimated to hover around \$30 billion per annum.

## **GENERAL**

### **36. Future Car Technology Being Applied to Buses, Trucks First**

According to industry sources, the electric bus sales volume in the Chinese market totaled 117,000 units in 2015 to show a four-fold increase from a year earlier and is estimated to have topped 200,000 in 2016.

These days, Chinese automakers are supplying an increasing number of advanced yet inexpensive commercial electric vehicles in the global market. For example, BYD recently signed contracts to supply 85 electric buses in California and 150 in Indonesia and KMB is working with Gwangju City and Korea Express to develop small electric trucks for door-to-door parcel delivery.

In the meantime, the Future Bus of Mercedes Benz equipped with the City Pilot system for self-driving succeeded in covering a 20 km-route in August last year. Mitsubishi Fuso Truck and Bus Corporation is planning to launch the eCanter, a seven-ton electric truck, soon. Volkswagen's four-ton electric van is likely to make its debut this year while Tesla unveils its electric truck concept. Volvo has tested its fully self-driving truck since August last year in an underground mine tunnel in Sweden. At the European Truck Platooning Challenge in April last year, six European automakers such as Mercedes Benz, Scania and Volvo successfully tested their trucks over a distance of 600 km to 2,000 km while maintaining an inter-vehicle distance of 10 to 15 meters. Japanese companies like Hino and Isuzu are planning to conduct a similar test in early 2019.

Global automakers are applying their future car technology to commercial vehicles first as mentioned above because various governments are tightening environmental regulations with regard to that type of vehicles. An average commercial vehicle's nitrogen oxide emissions amount to 47.6 times the emissions of an average non-commercial vehicle and the former's daily traveling distance is more than four times that of the latter, which means electric technology combined with the former can result in a significant contribution to fuel cost reduction. In addition, self-driving commercial vehicles can be attained with a lower level of self-driving technology in comparison to cars in general because they are operated along predetermined routes in many cases.

### 37. Warming is Sending Mountain Glaciers 'Off a Cliff'



But while scientists could draw a line from human-caused warming to glacier loss on a global scale, attributing any one glacier's retreat to climate change has been difficult because of relatively short records and glaciers' large natural variations.

In a new study detailed in the journal *Nature Geoscience*,

researchers have figured out how to link global warming to the retreat of individual mountain glaciers. They showed that for 36 glaciers with robust records, that retreat is “categorical evidence” of climate change, study co-author Gerard Roe of the University of Washington said during a press conference at the annual meeting of the American Geophysical Union in San Francisco.

Other research presented at the meeting also illustrated the increasingly detailed view that scientists are getting of glaciers — often situated in remote, hard-to-access areas — thanks to improvements in observational technologies. Clearer pictures of how glaciers around the world are changing helps improve predictions of how everything from local water supplies to global sea levels could be affected as the glaciers melt.“

“We’re entering an era where our eyes are open,” Mark Fahnestock of the University of Alaska, Fairbanks said during a separate press conference presenting a new satellite database of near real-time glacier changes.

Glaciers are massive flowing rivers of ice, some of which terminate in glacial lakes or the oceans. The length of glaciers changes naturally in response to the competing influences of accumulating snow and summertime melt. In a constant climate, or one without human-driving warming, in which accumulation and temperatures would fluctuate randomly, glacier length would also advance and retreat randomly in response.

Roe and his colleagues used statistical techniques to examine the changes to a set glaciers from all over the world with at least a century of length measurements, as well as nearby meteorological records to compare what would happen with and without warming. They found that with the warming trend, “the glacier basically falls off a cliff,” Roe said, its length substantially retreating. The glacier is effectively amplifying the climate change signal, he said.

The team also examined the probability of seeing such dramatic retreats in a constant climate and found they would be extremely unlikely. For the 37 glaciers they looked at, there was a greater

than 99 percent likelihood that the observed retreat wouldn't have happened without warming for 21 of them. That likelihood was greater than 90 percent for all but one.

The results of the new study, Roe said, provide a "sobering perspective on how far out of equilibrium these glaciers are."

At the AGU meeting, scientists announced the creation of a new database of glacier measurements made by the Landsat 8 satellite, the newest in the Landsat series. The satellite, which passes over the same spot every 16 days, can take more pictures that are more detailed than its predecessors, giving researchers a near real-time look at changes to glaciers all over the world. "What we're able to do now is track the flow of the world's ice from pole to pole and on every continent," Ted Scambos, of the National Snow and Ice Data Center, said during one of the press conferences.

The researchers have developed an algorithm that compares two pictures taken at different times, using stable parts of the landscape and characteristic patterns in the ice (like bumps or dune-like features) to track how far the glaciers have moved and therefore how fast they are flowing.

In Alaska, for example, the Landsat images can help glaciologists keep a closer watch on periodic glacier surges, whereas before they depended on the odd report from pilots who happened to notice that a glacier had made a significant jump. With the Landsat data, they can spot these surges sooner and watch them for longer and in more detail.

Another technology, called lidar, uses laser pulses that bounce off the landscape to get more detailed pictures of glaciers and their finer features. Ben Peltó, of the University of Northern British Columbia, has used lidar measurements to examine glaciers in the Columbia Basin of British Columbia and compared them to measurements taken on the ground. He found good agreement between the two, pointing to the usefulness of lidar in monitoring glaciers, he said at AGU.

These techniques can help scientists figure out which glaciers to go study on the ground, as well as how fast once land-bound ice is being dumped into the ocean and raising global sea levels. They can also be combined with atmospheric and ocean data to figure out what is driving changes in glacial flow and melt to better predict how they will evolve in the future.

Glaciers are "a critical bellwether for how Earth's climate is evolving," Scambos said.

### **38. Researchers Link Heavy Traffic to Higher Dementia Risk**

The risk of developing dementia can rise by up to 12% for people who live near major roads, a new study has concluded. While dementia risks were higher for residents close to heavy traffic the same study did not find evidence of a higher risk of Parkinson's disease or multiple sclerosis.

Scientists from Public Health Ontario analyzed medical records from around 6.6 million citizens living at varying distance from major roads in the Canadian province between 2001 and 2012. The research, published in the medical journal *The Lancet*, found more than 240,000 cases of dementia, 31,000 of Parkinson's and 9,000 of multiple sclerosis during that period. The scientists concluded that the risk of developing dementia, a term that encompasses a broad range of conditions including Alzheimer's disease, was 7% higher for residents based within 50 meters of a major road than for those living more than 300 meters away.

Meanwhile, the risk increased by a respective 4% and 2% for citizens living 50-100 and 101-200 meters away from the road but stayed the same for those residing 200-300 meters away.

According to the study, the dementia risk was exacerbated by factors including living in one of Ontario's six major cities or not moving house during the 2001-2012 period. Citizens who, in addition to living within 50 meters of a major road, met either of these criteria faced a risk of up to 12%.

In addition, the study identified a connection between dementia cases and citizen exposure to NO<sub>2</sub> and particulate matter PM<sub>2.5</sub>. The association was "significant" for NO<sub>2</sub>. However, researchers acknowledged that NO<sub>2</sub> and PM<sub>2.5</sub> together could not fully explain the link between major roads and dementia. Additional pollutants or other factors such as road-related noise might have played a role, they added.

In contrast to the dementia finding, the Public Health Ontario study found "no evidence" linking roadway proximity of Ontario residents to any development of Parkinson's disease or multiple sclerosis. "[One] possibility is that traffic exposure could augment neurodegeneration through pathways that are related to dementia but not Parkinson's disease or multiple sclerosis," the study said.

### **39. IMO Slams Regional Approach to Shipping Emissions**

Suggestions that shipping emissions within the EU can be tackled using the EU emission trading system (ETS) have been strongly criticized by the International Maritime Organization (IMO). The maritime body said the suggestion, made by MEPs, was "premature" and risked undermining future work on a global measure for the sector.

Kitack Lim, IMO secretary-general, said in a letter to the heads of EU institutions that "unilateral or regional" actions to reduce shipping emissions could undermine the imminent, global roadmap which was adopted by more than 170 governments last October.

The warning comes in response to an environment committee (ENVI) vote in December 2016, where MEPs supported new requirements for ship owners to buy ETS carbon allowances if they are stationed at or travelling between EU ports, from 2023. At the time, ENVI MEPs said that shipping should only be included under ETS rules if the IMO fails to deliver a "comparable" worldwide mechanism to curb emissions by 2021. The proposal was criticized shortly afterwards by global ship-owner association ICS.

The timetable agreed by negotiators last October foresees the publication of an initial strategy by 2018, with a final deadline set in 2023.

IMO spokesperson Natasha Brown told the press that countries, including EU member states, agreed last October to tackle shipping emissions through a three-step process: collecting data, analyzing it and then considering whether reductions are needed. "If a region jumps to step three by, for instance, implementing a market-based measure, this undermines the whole roadmap and the process of involving all countries in the debate," she said.

The European Commission did not clarify whether it would support the ENVI proposal to tackle shipping emissions under EU ETS. Aviation has been covered by EU ETS since 2008 but this inclusion will cease in 2016.



Shipping, which is responsible for 2.5% of the current global greenhouse gas output, is expected to increase emissions between 50% and 250% by 2050. Shipping and aviation were the only sectors not included under the Paris Agreement pledge to cut emissions.

#### 40. Earth Sets a Temperature Record for the Third Straight Year

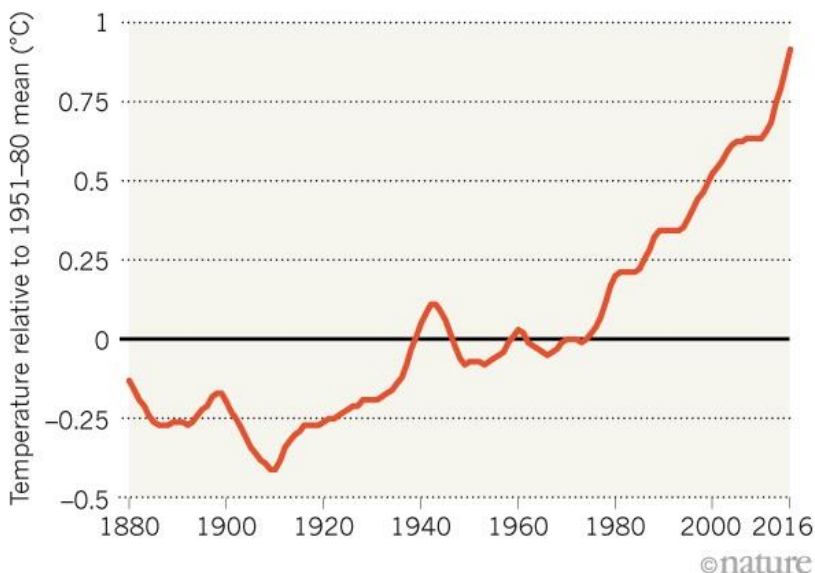
Marking another milestone for a changing planet, scientists reported that the Earth reached its highest temperature on record in 2016 — trouncing a record set only a year earlier, which beat one set in 2014. It is the first time in the modern era of global warming data that temperatures have blown past the previous record three years in a row.

The findings come two days before the inauguration of an American president who has called global warming a Chinese plot and vowed to roll back his predecessor's efforts to cut emissions of heat-trapping gases.

The Earth is heating up, a point long beyond serious scientific dispute, but one becoming more evident as the records keep falling. Temperatures are heading toward levels that many experts believe will pose a profound threat to both the natural world and to human civilization.

#### 2016 WAS THE HOTTEST YEAR ON RECORD

The global average temperature in 2016 was almost a full degree warmer than the mid-twentieth-century mean, continuing a long-term warming trend, according to NASA's analysis.



In 2015 and 2016, the planetary warming was intensified by the weather pattern known as El Niño, in which the Pacific Ocean released a huge burst of energy and water vapor into the atmosphere. But the bigger factor in setting the records was the long-term trend of rising temperature, which scientists say is being driven by increasing levels of carbon dioxide and other greenhouse gases.

“A single warm year is something of a curiosity,” said Deke Arndt, chief of global climate monitoring for the National Oceanic and Atmospheric

Administration. “It’s really the trend, and the fact that we’re punching at the ceiling every year now, that is the real indicator that we’re undergoing big changes.”

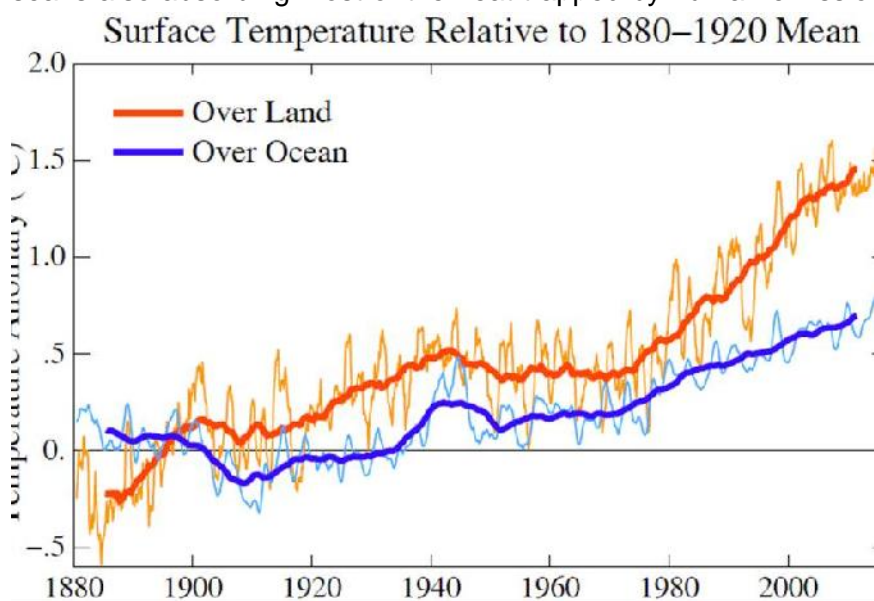
The heat extremes were especially pervasive in the Arctic, with temperatures in the fall running 20 to 30 degrees Fahrenheit above normal across large stretches of the Arctic Ocean. Sea ice in that region has been in precipitous decline for years, and Arctic communities are already wrestling with enormous problems, such as rapid coastal erosion, caused by the changing climate.

“What’s going on in the Arctic is really very impressive; this year was ridiculously off the chart,” said Gavin A. Schmidt, head of the Goddard Institute for Space Studies in Manhattan, a unit of the National Aeronautics and Space Administration that tracks global temperatures.

But Arctic people were hardly alone in feeling the heat. Drought and starvation afflicted Africa. On May 19, the people in the town of Phalodi lived through the hottest day in the recorded history of India, 123.8 degrees Fahrenheit.

El Niño has now ended, and climate scientists almost universally expect 2017 to be cooler than the year before. But the scale of the heat burst has been startling to many of the experts, and some of them fear an accelerated era of global warming could be at hand over the next few years.

Even at current temperatures, billions of tons of land ice are melting or sliding into the ocean. The sea is also absorbing most of the heat trapped by human emissions. Those factors are causing



the ocean to rise at what appears to be an accelerating pace, and coastal communities in the United States are spending billions of dollars to fight increased tidal flooding.

The finding that a record had been set for the third year in a row was released by three government agencies, two American and one British that track measurements made by ships, buoys and land-based weather stations.

They analyze the figures to correct for known problems, producing an annual average temperature for the surface of the Earth. The national meteorological agency of Japan also confirmed the findings in a preliminary analysis.

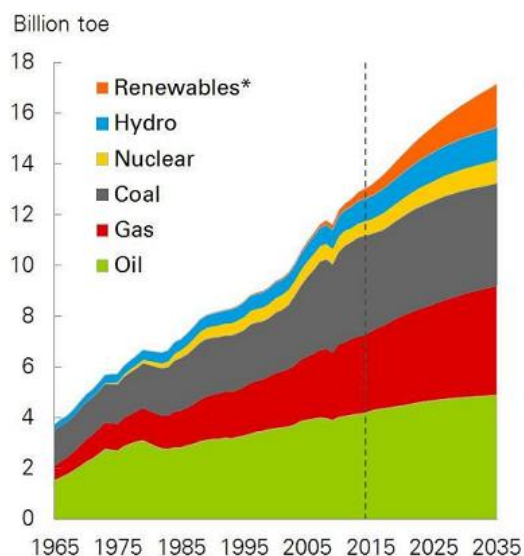
Two of the agencies that issued Wednesday’s figures, NOAA and NASA, will soon report to cabinet secretaries appointed by President-elect Donald J. Trump, who has expressed doubt about the findings of climate science. Mr. Trump famously issued a tweet in 2012 that said: “The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing noncompetitive.”

Fear has erupted within the agencies about whether their data will now be subject to political manipulation. However, Mr. Trump and his cabinet nominees have given no detailed indication of what their broad climate policies are likely to be, much less how they will manage the scientific enterprise of monitoring the climate.

#### 41. BP Energy Outlook: Global Energy Demand to Grow 30% To 2035

According to the 2017 edition of BP's Energy Outlook, global energy demand will increase by around 30% to 2035, an average growth of 1.3%/year, driven by increasing prosperity in developing countries, partially offset by rapid gains in energy efficiency.

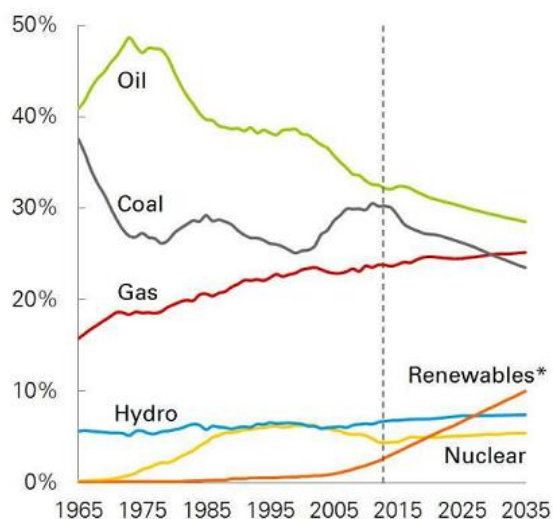
Primary energy consumption by fuel



\*Renewables includes wind, solar, geothermal, biomass, and biofuels

2017 Energy Outlook

Shares of primary energy



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While non-fossil fuels are expected to account for half of the growth in energy supplies over the next 20 years, the outlook projects that oil and gas, together with coal, will remain the main source of energy powering the world economy, accounting for more than 75% of total energy supply in 2035, compared with 86% in 2015.

According to the outlook, oil demand grows at an average rate of 0.7%/year, although this is expected to slow gradually over the period. The transport sector continues to consume most of the world's oil with its share of global demand remaining close to 60% in 2035. However, non-combusted use of oil, particularly in petrochemicals, takes over as the main source of growth for oil demand by the early 2030s.

The transport sector accounts for around two thirds of the growth in oil demand. Within that, oil demand for cars increases by around 4 million b/d, underpinned by a doubling in the global car fleet. The number of electric cars is assumed to increase from 1.2 million in 2015 to around 100 million in 2035, around 5% of the global car fleet.

The slowing rate of oil demand growth is contrasted by the abundance of global oil resources. The outlook speculates that the abundance of oil may cause low-cost producers, such as Middle East OPEC, Russia, and the US, to use their competitive advantage to increase their market share at the expense of higher-cost producers.

The outlook also forecasts that all of the demand growth for oil in the period to 2035 comes from emerging markets, with China accounting for half.

Gas grows more quickly than either oil or coal over the outlook, with demand growing an average 1.6%/year. Its share of primary energy overtakes coal to be the second-largest fuel source by 2035. The main growth comes from China, Middle East, and the US. In China, growth in gas consumption outstrips domestic production, so that by 2035 imported gas comprises nearly 40% of total consumption, up from 30% in 2015. In Europe, the share of imports rises from around 50% in 2015 to more than 80% by 2035.

Shale gas production accounts for two thirds of the increase in gas supplies, led by growth in the US. LNG growth, driven by increasing supplies in Australia and the US, is expected to lead to a globally integrated gas market anchored by US gas prices. The outlook expects LNG supplies to grow rapidly to account for more than half of traded gas by 2035. This increase is led by supplies from the US, Australia, and Africa. Around a third of this growth occurs over the next 4 years as series of projects currently under development come on-stream.

Coal consumption is projected to peak in the mid-2020s, largely driven by China's move towards cleaner, lower-carbon fuels. India is the largest growth market for coal, with its share of world coal demand doubling from around 10% in 2015 to 20% in 2035.

Renewables are projected to be the fastest growing fuel source, growing at an average rate of 7.6%/year, quadrupling over the outlook, driven by increasing competitiveness of both solar and wind. China is the largest source of growth for renewables over the next 20 years, adding more renewable power than the EU and US combined.

Carbon emissions are projected to grow at less than a third of the rate seen in the past 20 years, by an average of 0.6%/year vs. 2.1%/year, reflecting gains in energy efficiency and the changing fuel mix. If achieved, it would be the slowest rate of emissions growth for any 20-year period since records began in 1965. However, carbon emissions from energy use in the base case are still projected to grow throughout the period, by about 13%. This is far in excess of the International Energy Agency's 450 Scenario, which suggests that carbon emissions need to fall by around 30% by 2035 to have a good chance of achieving the goals set out in Paris.