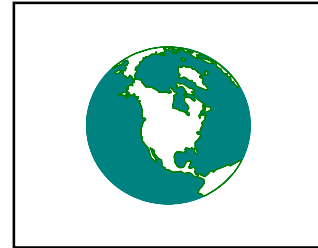


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# CAR LINES

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## EUROPE

### 1. Eleven EU Nations Exceed Air Pollution Ceilings: EEA

Eleven European Union nations breached ceilings for air pollution in 2012, the European Environment Agency (EEA) has announced. The number rose from 10 in 2011, with the addition of Malta to the list of states above national limits set for at least one of four pollutants.

"Air pollution is still a very real problem," EEA executive director Hans Bruyninckx said in a statement of the national limits that had been meant to be achieved by 2010, pointing to high pollution across parts of western Europe this month. "We need to improve this situation by making further emissions cuts," he said.

Despite the violations, the EEA said that EU-wide emissions of each of the four pollutants - sulfur dioxide, nitrogen oxides, ammonia and non-methane volatile organic compounds - had declined from 2011-12.

Nine EU nations - Austria, Belgium, France, Germany, Ireland, Luxembourg, Malta, Slovenia and Spain - breached their nitrogen oxide limits in 2012, mainly because of persistently high emissions from cars and trucks, the EEA said. Denmark and Finland exceeded the ammonia limits while Luxembourg was alone in overshooting the volatile organic compound ceiling. All countries met sulfur dioxide targets.

Violations of the limits can in theory end with fines, although none have yet been imposed.

Luxembourg exceeded its NMVOC limit by 9%. It also remained the worst offender for NO<sub>x</sub>, breaching its limit by 55%, although this was down from 61% in 2011. Last year, only Slovenia had breached its NMVOC limit but it complied in 2012.

The EEA noted that several member states have "persistent problems" meeting their NEC obligations, with Austria, Belgium, France, Germany, Ireland, Luxembourg and Spain consistently in breach of NO<sub>x</sub> limits since they came into force in 2010.

Emission reductions from road transport, which contributes around 40% of EU NO<sub>x</sub> emissions, have not been as large as was first anticipated. Alternatives to car use should be encouraged to achieve further cuts, said director Hans Bruyninckx.

### 2. EU Ministers Formally Adopt Passenger Car Carbon Emissions Limits

All new passenger cars sold in the European Union from 2021 will have to limit their carbon dioxide emissions on average to 95 grams per kilometer (152 grams per mile) under a regulation rubber-stamped by EU member states on March 10<sup>th</sup>. According to the regulation, 95 percent of new passenger cars in the EU on average must comply with the limit in 2020, and all must comply in 2021. If manufacturers do not conform to the standard, they will face an "excess emissions premium" of 95 euros (\$131.80) per g/km per vehicle sold above the limit.

The regulation amends a current regulation ((EC) No. 443/2009) that requires new passenger cars on average to meet a 135 g/km carbon dioxide limit by 2015. Most automakers are on track to meet the target. The amending regulation also includes a requirement for a review to be carried

out by 2015, including the possible setting of a realistic and achievable target for 2025, based on a comprehensive impact assessment that will consider the continued competitiveness of the car industry and its dependent industries, while maintaining a clear emissions-reduction trajectory comparable to that achieved in the period up to 2020.

With a view to ensuring that real world emissions are adequately reflected, and measured CO<sub>2</sub> values are strictly comparable, the Commission should ensure that those elements in the testing procedure that have a significant influence on measured CO<sub>2</sub> emissions are strictly defined in order to prevent the utilization of test cycle flexibilities by manufacturers. The deviations between type approval CO<sub>2</sub> emission values and emissions derived from vehicles offered for sale should be addressed, including by considering an in-service conformity test procedure that should ensure independent testing of a representative sample of vehicles for sale, as well as ways of addressing cases of demonstrated substantial divergence between survey and initial type approval CO<sub>2</sub> emissions.

The regulation also provides for the use of so-called "super credits" from 2020 to 2022: this means incentives for car manufacturers to develop new technologies and manufacture cars with low emission levels (less than 50g CO<sub>2</sub>/km), as these cars would count more towards meeting the fleet average than normal cars. The limit for the use of super credits is set at 7.5g of CO<sub>2</sub>/km for the three years 2020-2022.

The decision was taken without discussion at a meeting of the Employment, Social Policy, Health and Consumer Affairs Council at a meeting in Brussels. It has already been approved by the European Parliament, and will enter into force three days after publication in the EU Official Journal.

### **3. EU Scientists Say Safety Concerns About New Auto Refrigerant Are Unwarranted**

A less climate-damaging gas used as a refrigerant in vehicle air conditioning systems, which has been at the center of a dispute between the European Commission and Germany, does not raise any serious safety concerns, according to the results of a review carried out by the commission's Joint Research Center (JRC). The JRC, the commission's in-house science service, said in the review published on March 7 that there was "no evidence ... under normal and foreseeable conditions" of an excessive flammability risk from the fluorinated gas 2,3,3,3-tetrafluoropropene (R1234yf), as claimed by German corporation Daimler AG, the manufacturer of Mercedes-Benz cars.

Under the European Union's 2006 Mobile Air Conditioning Directive (MAC Directive, 2006/40/EC), which took full effect on Jan. 1, 2013, the previous industry-standard vehicle refrigerant, R134a (1,1,1,2-tetrafluoroethane) was banned because of its high global warming potential (GWP). R134a has a GWP about 1,430 times greater than carbon dioxide.

Most automakers opted to use the refrigerant R1234yf as a replacement, which has a GWP of 4. However, Daimler obtained from the German authorities permission to continue to use R134a through 2016 because of safety concerns. The continued use of R134a by Daimler caused a dispute between the European Commission and Germany. The commission said Germany should not have allowed continued use of R134a, and threatened in February to take Germany to the European Union Court of Justice. The non-observance of the rule by Daimler also caused a

dispute between Germany and France, which suspended registrations of new Mercedes cars at one point, though this was later lifted.

The commission in a statement released on March 7<sup>th</sup> said that the JRC report showed that “automotive manufacturers have the means to mitigate the inherent risks of the use of the refrigerant [R1234yf], which are known and have been studied.”

#### **4. Thousands Fined As Paris Curbs Car Use for a Day**

Paris enforced the most drastic traffic curbs in 20 years recently, fining almost 4,000 drivers who tried to dodge them, but stopping at a single day of restrictions as cooler weather brought relief from pollution. Transport chiefs made public transport free in the French capital, while drivers with even-numbered license plates were told to leave their cars at home.

Unseasonably hot and windless weather across Western Europe left cooler air containing tiny particles from car emissions and other sources trapped under a warmer layer. French policies to promote the use of diesel is seen as one factor why Paris was hit worse than other cities.

Some 700 police officers posted around the city fined 3,859 people for failing to respect the ban by mid-morning. Congestion was 60 percent lower than usual thanks to traffic volume that was down by a quarter, police said.

Car-sharing web site e-loue.com reported hundreds of requests to hire odd-numbered cars on Monday. A long list of exemptions from the ban included delivery drivers, taxis, and cars carrying at least three people, but the government hailed the move as a success.

Drivers who defied the curbs were fined 22 euros (\$31) on the spot. Policemen at the checkpoints said commuters were taking the measures well - even though 27 people had their cars impounded because of their reaction to the fine.

The government decided against imposing a second day of curbs that would have banned odd-numbered plates from the streets in their turn, saying a change in weather and the traffic curbs had helped ease pollution.

Paris is more prone to smog than other European capitals, World Health Organization (WHO) figures from 2008 show. A French tax regime that favors diesel over gasoline is regularly cited as a primary cause. New registrations of French cars in 2012 were 67 percent diesel-powered compared with western European average of 53.3 percent - although the proportion was higher in Ireland at 72 percent and similar in Spain and Belgium at 66.3 and 64.8 percent respectively.

While nowhere near levels seen in some Asian cities, figures from the European Environment Agency (EEA) web site showed last week 147 micrograms of particulate matter (PM) per cubic meter of air in Paris - compared with 114 in Brussels, 104 in Amsterdam, 81 in Berlin and 79.7 in London.

The last restricted Paris driving scheme was introduced in 1997. It also lasted one day.

City of Paris officials argue the situation would be much worse had the government not introduced the popular bike- and car-sharing schemes now being replicated in cities such as London. The use of Autolib cars had jumped by 46 percent on Thursday compared to the week before, Paris transport councilor Julien Bargeton said, while Velib cycle use had risen by 72 percent.

Speed limits were also reduced by 20 kilometers an hour and authorities in the Ile-de-France region around Paris took all but the most essential public vehicles off the roads.

## **5. Switching Baltic Sea Ships to LNG Seen As Short Term Option to Meet Emissions Rules**

Support for switching ships from heavy fuel oil to liquefied natural gas to help meet stricter global and regional emissions requirements has gained support from governments, shippers, and investors in the Baltic Sea region, but many see the technology as only an initial solution that must eventually lead to lower carbon fuels.

The new Green Technology and Alternative Fuels Platform in Baltic Sea Shipping has just been formed with the backing of a number of groups representing governments of all the states surrounding the Baltic Sea, international banks and investors, technology developers, and public-private partnerships. Along with support for LNG, the group is considering methanol, biofuels, battery power, hydrogen, wind and solar as alternatives that could meet sulfur and nitrogen emissions limits as well as strict greenhouse gas emission standards, which are expected eventually.

The Baltic Sea, along with the North Sea and North American and Caribbean areas, has been designated an Emissions Control Area by the International Maritime Organization for sulfur oxide. The anticipated lack of availability and high cost of low-sulfur fuel is forcing immediate plans for alternatives.

“Joint actions by the administrations and the private sector stakeholders would promote an early introduction and use of new technological solutions and clean power for ships,” said the platform’s draft road map for future actions from 2014 to 2025. The platform and draft road map were endorsed at a meeting aboard an LNG-fueled passenger ship on January 16<sup>th</sup>. It was presented to various stakeholders for input at a meeting on March 21<sup>st</sup> in St. Petersburg, Russia.

One of the initial solutions to the environmental impacts of shipping is the use of LNG, according to Javdat Hairrov, director of maritime electrical engineering and technology at the Krylov State Research Center, a St. Petersburg-based firm designing technologies for ships. “But if we speak about the future, then we understand that further development on the issue of environmental efficiency is undoubtedly connected to completely new technologies,” Hairrov said at the Baltic Sea Day forum March 21. The center is developing hydrogen fuel cells for ships and ports, of 50 kilowatts and eventually 250 kilowatts, with the help of its international partners, including American, British and German firms, he said.

Global shipper Maersk is involved in two projects on use of lignin, a waste product from paper production, as an alternative fuel, Niels Bjorn Mortensen, director of regulatory affairs at Maersk Maritime Technology, said in a January 16<sup>th</sup> presentation at the Council of Baltic Sea States meeting.

“It is very likely that in the future there will be a more diverse fuel mix where LNG, biofuels, renewable electricity and maybe hydrogen all play important roles,” according to a January 28<sup>th</sup> report by DNV, “Alternative Fuels for Shipping.” DNV is a Norway-based safety and sustainability advocacy group. The focus for shipping now is on the shift to LNG fuel, either through retrofits for existing ships or new builds. The technology is still very new. The DNV report concludes there

are only 45 LNG-fueled ships in operation worldwide and 47 commissioned new builds. However, growth is expected to be rapid.

“LNG uptake is expected to grow fast in the next 5 to 10 years, first on relatively small ships operating in areas with developed gas bunkering infrastructure, where LNG prices are competitive to [heavy fuel oil] prices. They will then be followed by larger ocean-going vessels when bunkering infrastructure becomes available around the world,” the DNV report said.

Shell is working to develop a global network of LNG fuel infrastructure by 2025, which captures traffic in existing and expected IMO emission control areas, as well as global shipping routes, Andrew Alderson, project manager for integrated gas projects at Shell Shipping and Maritime Technology, said in a January 16<sup>th</sup> presentation.

Shell is also working with Gazprom, the giant Russian natural gas company, to build LNG bunkering infrastructure in the Baltic Sea, according to several speakers at the forum. Gazprom is planning to build an LNG facility on the Baltic Sea in the coming years, the company announced last year.

## **6. EC Consults on Footprint Methods for Transport**

The European Commission has mooted an EU framework setting out common carbon footprint methodologies for freight and passenger transport services. The “mandatory use of a standardized approach endorsed by the [Commission]”, and the introduction of a voluntary EU label are also listed as options for EU-level action in the consultation launched recently. Respondents are asked whether efforts to standardize carbon footprint reporting should be pursued at national or at global level instead.

The Commission is also consulting on ways to promote carbon footprint reporting by companies and suggests possible next steps ranging from taking no action to making it mandatory for transport services to report their emissions.

It could also be made compulsory for carbon footprints to be evaluated when tendering for services, the consultation suggests.

Respondents are asked how detailed they believe emissions reporting should be. Options include average per kilometer emissions or actual fuel consumption.

Exchange of emissions data between different operators is important when a shipment involves a number of stages, the consultation document states. Respondents are asked whether a platform for data exchange should be established at industry or Commission level, or if it should be run by a neutral authority.

Views are also sought on the level of anonymity of such data exchange.

According to the Commission’s initial analysis, the main problem in relation to calculating the sector’s carbon footprint is that it is not possible to compare the greenhouse gas performance of transport services. This is because many companies do not report their emissions, while those that do use different methods.

A further problem is that some tools for measuring carbon footprints do not reflect real-world operations. Respondents are asked to rate the significance of problems including untrustworthy

emission models and algorithms, and the lack of verification procedures for reported carbon footprints.

Developing common standards for estimating the footprints of freight and passenger journeys was listed as an objective in the Commission's transport white paper.

## **7. EU Biodiesel Sector Pushes For New Targets**

The European Commission's climate and energy proposals for the period after 2020 will lead to a significant increase in CO<sub>2</sub> emissions from transport, putting extra pressure on other parts of the economy, a study has found. Abolishing the fuel quality directive's decarbonization target and the mandatory share of renewables in transport fuels will lead to increased fossil fuel use, according to the EMISIA emissions modelling center at the Aristotle University of Thessaloniki.

The research was commissioned by Europe's biodiesel and oilseed rape lobbies ahead of a high-level EU debate on post-2020 targets. The study did not take account of indirect land-use change (ILUC) emissions from first-generation biofuels.

Abandoning biofuels would cause additional CO<sub>2</sub> emissions equivalent to 2.7-3.1% of Europe's total in 2030, the study found. This could be offset by technological innovation in the transport sector including engine efficiency improvements, putting more electric cars on the market and use of alternative fuels. But technical difficulties and high costs are likely to hamper these developments, while the required behavioral change among vehicle owners also represents a significant obstacle, the researchers pointed out.

It is more likely that greater CO<sub>2</sub> reductions will have to be made in other sectors, with those outside the emissions trading system, such as agriculture and buildings, likely to bear the brunt, they concluded.

## **8. No Targets in EU Deal on Clean Fuel Infrastructure**



implementation by 2025.

The planned alternative fuels directive will have no targets for the number of charging points and hydrogen and natural gas fuelling stations that should be rolled out in Europe, member states and MEPs have agreed. Under a triologue agreement member states will draft national alternative fuel plans and implement them by 2020. The European Commission will review these plans in 2017 and 2018, as well as the development of the electric vehicle market, and may then propose charge point targets again for

Member states should put in place an "appropriate number" of charge points and compressed natural gas fuelling stations "accessible to the public" by 31 December 2020 so as to allow the vehicles to circulate at least in densely populated areas.

In its proposal in January 2013, the Commission had suggested national targets for charging points, including 150,000 for Germany and 97,000 for France. But a large number of countries strongly resisted this. Under the deal, member states can decide for themselves whether to include hydrogen refueling in their national plans.



If so, they should ensure enough fuelling stations are in place by the end of 2025 to allow vehicles to travel “within networks determined by those member states”. The Commission wanted stations every 300 kilometers.

Member states will also have until the end of 2025 to ensure that an “appropriate number” of LNG refueling points is in place for trucks. The Commission, backed by MEPs, had suggested that LNG points should be installed every 400km within the trans-European transport (TEN-T) core network by the end of 2020. Under the deal, it will assess the implementation of the revised LNG provisions and present a new proposal by the end of 2027 if needed.

Member states should also install LNG refueling points for barges and ships to allow them to travel through the TEN-T core network. This should be done at maritime ports by the end of 2025 and at inland ports by the end of 2030. CNG motor vehicles should also be able to use the TEN-T core network by the end of 2025.

The Parliament’s transport committee will vote on the deal on 1 April, followed by a plenary vote later that month. Member states must also rubber-stamp the deal.

## **9. EU Leaders Postpone Decision on 2030 Targets**

The EU will attend the UN climate summit in September without a CO2 reduction target for the post-2020 period, after heads of state and government decided they would agree the bloc’s future policies in October. The Council agreed to set a 2030 target in line with the low-carbon roadmap goal of reducing emissions by 80% by 2050, but did not explicitly back the 40% cut proposed for 2030 by the EU executive in January. The leaders plan to make the final decision themselves, rather than delegating it to their energy and climate ministers, Commission president José Manuel Barroso said at a press conference following the meeting.

Both Mr. Barroso and Council president Herman van Rompuy said there had never been any likelihood of leaders agreeing on the targets, including for renewable energy and energy efficiency, at the meeting. Further “dialogue” will be needed in relation to the impact on individual countries of particular CO2 and renewables targets, Mr. Barroso added.

The meeting’s conclusions state that climate and energy targets must allow flexibility as to how member states deliver their commitments and determine their own energy mix. And the emissions trading system should play a central role.

The leaders asked the Commission to “elaborate mechanisms which will result in an overall fair effort sharing”. It should also look at ways of encouraging modernization in the energy sector, and develop measures to prevent carbon leakage.

The Council meeting had been vaunted as a major opportunity to move the debate on new climate and energy policies forward, but it became increasingly clear that many countries were not ready to sign up to even indicative goals. Poorer member states, for example, first want detailed assessment of the potential economic impacts of their shares of the targets.

The September summit in New York is intended as an opportunity for large emitters to make early political commitments, ahead of technical talks on the draft text of a global climate deal later that year in Lima. Countries all over the world have committed to tabling their specific commitments for the planned 2015 deal by the first quarter of next year.

## **10. Sweden Seeks Ways to Cut PM10 Pollution**

The Swedish government may tax city drivers using studded winter tires in an effort to improve air quality, it has announced. The measure will be considered as part of an investigation into ways of cutting large particulate (PM10) pollution ordered by the environment ministry. PM10 levels in Swedish cities are still breaching EU standards at times.

Studded tires are partly to blame because they break up the road surface. They are already banned on one road in Stockholm where the reduction in use is estimated to save eight lives a year. Reducing the percentage of cars using studded tires in the rest of the city to 10% could save another 15 lives annually, according to a government official.

The tires play a bigger safety role for old cars than for new ones with traction control.

Norway already imposes a 1,200 krone (€145) fee on drivers using studded tires in its cities over the winter. A study by the Norwegian institute of transport economics for the Swedish authorities shows use of the tires halved in Oslo between 2002 and 2009 and also fell in most other affected areas.

The impact on safety was slight, the study says, with a 2% increase in personal injuries reported to the police and no change in the number of insurance claims.

The investigators will report back to the Swedish environment ministry on the measures available at the end of March next year.

## **11. EU Targets 2017 for New Auto Test, Despite Opposition of Car Makers**

The European Commission says it will push forward with plans to adopt a new engine test cycle for gaging automobile fuel efficiency standards by 2017, despite opposition from the European automobile manufacturers asserting the timeline is too ambitious, especially if it is to be applicable to all car models.

Rejecting claims by the industry that the new engine testing scheme—known as the World Light Duty Test Procedure (WLTP) and adopted by the United Nations Economic Council for Europe in March—will drive up costs, the Commission said on April 23<sup>rd</sup> that it will propose to implement the WLTP into EU law “in due time” in order for the new standard to be in place by 2017.

The European car makers want the new WLTP implementation date pushed back to 2021.

Compliance costs for the car industry with WLTP should not change according to a Commission official. “The existing regulatory CO2 emission targets of 130 grams per kilometer and the 95 grams per kilometer as from 2020 will be adapted to the WLTP ensuring the same level of stringency for vehicle manufacturers and vehicle segments.”

The controversy over the engine testing cycle comes as environmental groups insist that a move to the new testing cycle is urgent in order for the EU to reduce greenhouse gases from the transport sector, which currently is the largest source of the climate change emissions. Transport and Environment insists that fuel economy standards for vehicles are the EU's most effective policy to drive down transport CO2 emissions. However, it said the policy is “undermined by a 40-year-old test in which the car is stationary for 20 percent of the time.

However, the Association of European Automobile Manufacturers, ACEA, insists that much work needs to be done if WLTP is to be available for use in all automobile models from passenger cars to small trucks and vans.

The International Council for Clean Transportation insists that adoption of WLTP will actually reduce costs for the automobile industry especially as it will serve as a harmonized approach for vehicles of all sizes. “Regulations governing light-duty vehicle emissions and fuel consumption vary significantly across countries and markets,” the ICCT said in a position paper. “Harmonizing the test methodology and the test cycle will reduce costs to the benefit of both manufacturers and consumers,” the ICCT said. “A harmonized approach will also make it easier to compare fuel efficiency and emission standards across regions and countries. Over time this will improve the effectiveness of air quality targets and CO2 reduction policies.”

## **12. Italy's GHG Emissions Down 11.4% Since 1990; Transport Emissions Rise**

Italy's greenhouse gas emissions fell by 11.4% between 1990 and 2012, with a 36.8% decrease from manufacturing leading the way, according to information released on April 16<sup>th</sup> by ISPRA, the technical branch of the country's Ministry of Environment. However, emissions from transport and energy production and services, the two most important sectors in the calculations, increased by 2.9% and 8.2%, respectively.

Under the Kyoto Protocol to the UN Framework Convention on Climate Change, Italy was required to reduce emissions by an average of 6.5 percent between 2008 and 2012 compared to 1990 emissions.

ISPRA said the reduction in manufacturing emissions resulted from a widespread shift to natural gas as the major fuel source, instead of coal and petroleum. Additionally, Italy's overall industrial production was about flat from 2000 to 2012.

From 1990 to 2012, emissions from industrial production, which includes manufacturing, were down 26.5 percent, emissions from agriculture were down 16 percent and emissions from waste management were down 17.5 percent.

Among non-carbon dioxide greenhouse gases, nitrous oxide emissions, produced mostly by the chemicals industry, fell 96.5 percent in the wake of laws aimed at phasing it out. But emissions of powerful fluorinated gases used in refrigeration and air conditioning increased 244.3 percent, due mostly to increased sales and use of such devices.

## **13. European Parliament Votes for More Aerodynamic, Fuel-Efficient Trucks**

Trucks on the roads of the European Union should be redesigned by the early 2020s to be more aerodynamic and therefore more fuel efficient, according to a European Parliament vote on April 15<sup>th</sup>. Sitting in Strasbourg, France, the Parliament voted 606-54, with 12 abstentions, to revise a 1996 EU law (Directive 96/53/EC) that sets out authorized dimensions and weights for heavy goods vehicles. The European Commission, the EU's executive arm, proposed the revision in April 2013, and the Parliament's transport committee voted on it in March.

The revised directive would give manufacturers of heavy goods vehicles, such as Daimler, Scania and Volvo, more freedom to elongate truck cabs and to include aerodynamic features such as fairings and curved sides, compared to current rectangular EU truck cabs.

Under the revisions supported by the lawmakers, more aerodynamic truck cab designs that also incorporate better safety features should be mandatory after 2022. However, the European Parliament must negotiate with the EU Council, which represents EU member states, to decide the final form of the legislative revision, and the mandatory requirement could be dropped.

The EU Council has yet to finalize its position on the revision of the directive. Negotiations between the Parliament and Council on the final form of the revision are likely to take place after the summer, once the Parliament has been reconstituted after elections in May.

#### **14. M4 Must Go Diesel Free For Heathrow Expansion, Says Outgoing Chief**

Heathrow's outgoing chief executive admitted the M4 would need to be diesel-free if a third runway was ever to be built at the airport. Colin Matthews, who will leave his post as the airport's boss in June, told aviation specialists Flightglobal the fleet of diesel engines travelling on the M4 would need to be replaced to fix the air quality at Heathrow.

The European Union has made clear that its air pollution legal limits set in 2010 must be complied with by 2020 or member states face hefty fines. There are pockets around Heathrow which remain above the legal limits caused by both the aircraft and the heavy traffic on the nearby roads and motorways. A Heathrow spokesman said: "The most significant contributor to emissions around Heathrow is road vehicles.

"We believe we can add capacity at Heathrow without exceeding air pollution limits with a combination of new road vehicle emissions standards, new aircraft technology and increased use of public transport."

The Airports Commission is currently assessing the case for a third runway at Heathrow and a second Gatwick runway and will release Government recommendations for future aviation capacity in summer 2015.

#### **15. Toxic Smog Clouds Have Hit Britain 900 Times in Just Five Years**

Toxic smog clouds similar to the one which enveloped the country in early April have hit the UK 900 times in the past five years. Between April 2009 and March 2014, level 10 pollution - the highest category - was reached on 25 days. The environment ministry's website advises people to avoid going outside or exercising when this level is reached.

The pollution cloud that hit the UK two weeks ago - dubbed 'killer smog' because of the risk it posed to health - was widely publicized. But new figures show that London, Yorkshire and Humberside, Northern Ireland, Merseyside and Manchester have been hit many times by similar levels of pollution.

Data reveals that there were also 94 days over the five-year period where smog reached levels 7-9, designated as high. On a further 849 days, pollution reached what Defra describes as a moderate level - but scientists say that pollution on these days remains well above the level permitted by EU law.

Earlier this month, people with breathing difficulties were warned to stay inside as a toxic cloud affected many parts of the country. A third of the country's 5.4m asthma sufferers were reported to have had an attack, and 100 more call-outs a day were logged by ambulance services in some areas.

## **16. PM2.5 Air Pollution Strongly Linked To Increased Risk of Heart Attacks**

In 2008, the EU adopted a new Air Quality Directive which merged existing legislation into a single directive. In response to evidence linking long-term exposure to particulate pollution with increased mortality, it included new concentration limits for PM2.5 (particulate matter with a diameter of less than 2.5 micrometers) of 25 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). These are to be met everywhere in the EU as from 1 January 2015.

Particulate air pollution is estimated by the World Health Organization (WHO) to cause more than 3 million deaths per year worldwide. However, estimates of its effects on public health have been primarily based on data from North America.

In order to complement previous studies, the EU-funded ESCAPE project was set up to study air pollution's impacts on human health in Europe specifically. The researchers used data from several European studies to investigate the effects of long-term exposure to PM2.5 pollution on acute coronary events, such as heart attacks and angina.

The data were collected from 100 000 people across five European countries (Denmark, Finland, Germany, Italy and Sweden), following each person for an average of 11.5 years. The study accounted and adjusted for a number of known risk factors for acute coronary events, such as smoking, existing illness and socioeconomic factors. Estimates of air pollution concentrations at participants' home addresses were calculated using mathematical models based on measurements taken over the course of a year.

The model results indicated that individuals were exposed to average annual concentrations of PM2.5 ranging from 7.3  $\mu\text{g}/\text{m}^3$  in Sweden to 31.0  $\mu\text{g}/\text{m}^3$  in Italy. The risk of coronary events was raised by 13% for each 5  $\mu\text{g}/\text{m}^3$  increase in annual PM2.5 concentration. During the study period, a total of 5 157 participants (around 5%) experienced acute coronary events.

Even at concentrations below existing EU limits, PM2.5 increased the risk of acute coronary events. This suggests that particulate matter pollution is a greater risk to health than previously thought. The study's authors conclude that these results, taken together with other findings from the ESCAPE project, present a strong case for further revising EU PM2.5 limits. This can better protect public health say the researchers, and point to the stricter WHO recommended limit for PM2.5 of 10  $\mu\text{g}/\text{m}^3$ .

The authors also highlight the fact that previous studies mainly considered only mortality. This study, however, included non-fatal measures of coronary disease giving a clearer picture of the overall burden of disease due to particulate matter in Europe.

## **17. Intercontinental Flight Exemption from ETS Ratified by EU Member States**

On April 14<sup>th</sup>, Ministers from the European Union's 28 member states approved environmental laws dealing with carbon dioxide emissions trading, biodiversity, fluorinated greenhouse gases

and impact assessments. Ratification of the four laws was approved without discussion by EU agriculture ministers at a meeting in Luxembourg. The ministers' approval was a formality following agreement on the laws by the European Parliament, and marks the finalization of the adoption of the laws by the EU.

Among the laws approved by the ministers was a regulation that extends an exemption for intercontinental flights from the EU emissions trading system (ETS) through Dec. 31, 2016.

The law continues a current exemption that would have expired on April 30<sup>th</sup> for international airlines to submit carbon dioxide allowances to cover their emissions from flights into and out of the EU. The exemption was introduced in response to international pressure on the EU from a number of countries, including China, India, Russia and the United States, to not include their airlines in the ETS. Opponents of the measure argued that regulation of carbon emissions from aviation should be done through agreement in the International Civil Aviation Organization.

The European Parliament approved the continued exemption on April 3. The exemption does not cover flights within the European Union, for which airlines must participate fully in the ETS.

The agriculture ministers also approved two regulations, or uniform EU-wide laws, on use of biodiversity resources and fluorinated gases.

The regulation on f-gases, which have high global warming potential, revises the 2006 EU F-Gas Regulation ((EC) No. 842/2006) by capping sales of hydrofluorocarbon greenhouse gases in the EU in 2015, and progressively tightening the cap until 2030, when HFC sales will be limited to 21 percent of the current level.

The revision of the regulation also restricts the use of f-gases in refrigeration and air-conditioning equipment. The European Parliament approved the regulation March 12.

## **18. New EU Rules on Energy Funding Phase Out Subsidies for Renewables**

Funding green energy will become harder under new EU rules designed to replace subsidies with market-based schemes, just when the Ukraine crisis has heightened the need for alternatives to imported fossil fuel. The executive European Commission said the guidelines, which will be gradually phased in, strike a necessary balance after fierce political debate about the cost of green subsidies. But green energy campaigners, who protested outside the Commission headquarters in Brussels, said the rules were a victory for industry and a blow to the renewables sector as well as ordinary consumers.

The rules take effect from July 1 this year and from 2017 all member states will have to hold tenders to support new green power facilities following a pilot phase from 2015-16.

The idea is to replace feed-in tariffs, which have little or no relation to market reality but have spurred renewable development, with auctions or bidding processes open to all green energy generators competing equally for government funds.

Following extensive lobbying from companies, the new rules allow for exemptions in special circumstances, including sparing energy-intensive industries such as chemicals, metals, paper and ceramics from helping to pay for renewable power. That leaves ordinary household consumers to pick up the bill.

The European Union's leading economy, Germany, has the biggest interest in the new rules as it seeks to enact its *Energiewende*, or shift from nuclear to green fuel. The Commission had been investigating whether Germany helped its industries unfairly by exempting them from green surcharges. This week, the German government reached a compromise deal that leaves Berlin with scope to set special rules for individual sectors.

Even with the changes, the German government expects its renewable sector to grow as technological improvements make sources such as wind and solar more competitive. Renewable power already accounts for 25 percent of Germany's electricity and the German government has set targets to increase the share to 40-45 percent by 2025.

The 28-country European Union as a whole has a target to get 20 percent of energy from renewable sources by 2020, which it is likely to achieve. After that, the picture is less clear. Debate is ongoing about a 2030 target of 27 percent across the bloc.

Environmental groups and the renewables lobby are concerned the EU's renewed emphasis on increasing energy security and weaning itself off Russian gas because of instability in Ukraine will lead only to more use of coal and efforts to develop shale gas, not more green power.

The European Wind Energy Association said it is appropriate that the increasingly competitive wind industry be integrated into the market, but that the Commission should eliminate all fossil fuel subsidies as a priority.

## **19. EU Set to Miss Renewables Goal for Transport**

The EU is likely to achieve only 8.7% renewable energy in transport by 2020, the European Commission's research arm estimates. The projection from the Joint Research Centre with oil industry body Concawe and R&D group EUCAR is 1% lower than their last projection in 2011.

The main reasons for the change include an updated understanding of what the EU electricity mix will look like in 2020, as well as different projections for passenger car sales and for the ramp up of the E10 ethanol blend market.

The EU will fall even further short of the 10% goal if lawmakers approve the Commission's proposed cap on the amount of first-generation biofuels that can be counted towards it. There will not be enough advanced biofuels available, even if these are double counted, to compensate for lower use of biodiesel and ethanol in 2020. If the Commission's proposed 5% cap on first-generation biofuels is implemented, the EU would be likely to achieve only 7.8% renewable energy in transport by 2020.

The researchers also examined the European Parliament environment committee's changes, as well as a draft compromise debated by member states that would raise the cap to 7% and boost multiple credits for electricity used in transport. The Parliament and Council positions would leave the EU short of its 10% goal, at 8.22% and 8.75% respectively, the researchers said.

All three institutions' proposals would also see the EU miss its Fuel Quality Directive (FQD) target to cut transport fuel emissions by 6%. Even under the reference scenario using first-generation biofuels, only a 4.3% decarbonization is likely, they added.

The Commission wants to scrap both the renewables sub-target for transport and the FQD after 2020, both of which have become politically contentious. It has yet to bring forward revised FQD

implementation rules. Technical work on the matter is ongoing. The Commission's decision to do away with transport sector targets has had a negative effect on new projects in the advanced biofuels sector.

## NORTH AMERICA

### **20. EPA Agreement Requires Posting Bond to Assure Imports Meet Emission Limits**

American Lifan Industry, Inc., an Ontario, California-based vehicle and engine importer, has agreed to ensure that future imports meet federal emission standards after illegally importing and selling nearly 28,000 highway motorcycles, recreational vehicles, and engines manufactured in China that did not comply with Clean Air Act standards to limit harmful pollution. The company will pay \$630,000 in civil penalties and will also post a \$300,000-\$500,000 bond to satisfy any future potential penalties related to importation of model year 2014, 2015, and 2016 vehicles manufactured by China Lifan Industry (Group) Co., Ltd or affiliated companies. This is the first time that the EPA has secured such a bond in a Clean Air Act settlement.

The settlement, approved by the Agency's Environmental Appeals Board, alleges that the company violated the Clean Air Act by importing and selling over 6,700 highway motorcycles, recreational vehicles, and engines that lack the required certification indicating that emissions meet federal standards. The EPA also alleges that the company failed to provide purchasers with the full emissions warranty required by the Clean Air Act; imported and sold vehicles without proper emission labels; and failed to follow recordkeeping requirements.

EPA's investigation showed that the company obtained certificates of conformity for numerous vehicles without conducting required emissions testing. In October 2013, EPA voided 45 invalid certificates of conformity held by the company, which affected over 21,000 additional model year 2006-2011 highway motorcycles and recreational vehicles.

The EPA and U.S. Department of Homeland Security's Bureau of Customs and Border Protection discovered the violations through inspections conducted at the Dallas/Fort Worth Service Port and the Los Angeles/Long Beach Seaport, and through a comprehensive review of documents provided by the company.

The Clean Air Act requires that all vehicles have EPA-issued certificates of conformity, warranty, and labeling prior to being imported or sold in the United States to demonstrate that they meet federal emission standards. Engines that do not have proper emissions controls can emit excess carbon monoxide, hydrocarbons and nitrogen oxides which can cause respiratory illnesses, aggravate asthma and contribute to the formation of ground level ozone or smog.

This settlement is part of EPA's ongoing effort to ensure that all vehicles imported into the U.S. meet federal limits for emissions of harmful pollution. In a similar action, a Chinese company, CFMOTO, and its U.S. distributor agreed to implement corrective measures related to the illegal import of over 12,000 recreational vehicles and highway motorcycles.

American Lifan, based in Dallas, Texas until 2013, imports highway motorcycles, recreational vehicles, gasoline engines, and gasoline-powered generators, manufactured by Lifan Industry (Group) Co., Ltd., Chongqing Lifan Industry (Group) Imp. & Exp. Co., Ltd., China Lifan Industry (Group) Co., Ltd. and Chongqing Lifan Power Co., Ltd.



## **21. North America's Largest Acid Manufacturer Agrees to Reduce Emissions**

LSB Industries Inc. (LSB), the largest merchant manufacturer of concentrated nitric acid in North America, and four of its subsidiaries have agreed to reduce emissions of nitrogen oxides (NOx) by meeting emission limits that are among the lowest for the industry in the nation at plants in Alabama, Arkansas, Oklahoma and Texas, the U.S. Environmental Protection Agency (EPA) and Department of Justice have announced.

EPA estimates that the measures required by the settlement will reduce NOx emissions by more than 800 tons per year, directly benefitting surrounding communities, which include low-income and minority populations living near the Arkansas and Texas plants. The companies estimate that it will cost between \$6.3 and \$11.7 million to implement the measures required by the settlement.

LSB and its four nitric acid producing subsidiaries will also pay a total penalty of \$725,000 to resolve alleged violations of the Clean Air Act and applicable Oklahoma state law. In addition to paying the penalty, the companies must continuously monitor emissions and make any necessary operational improvements such as installing new pollution controls or upgrading current controls to meet the new NOx limits.

The settlement applies to the ten nitric acid manufacturing plants owned or operated by the following Oklahoma City-based LSB subsidiaries: El Dorado Chemical Co., in El Dorado, Ark. (four plants); Cherokee Nitrogen Co. in Cherokee, Ala. (two plants); El Dorado Nitrogen Co. in Pryor, Okla. (three plants); and El Dorado Nitrogen Co. in Baytown, Texas (one plant).

The complaint, filed concurrently with the settlement, alleges that the Cherokee, El Dorado and Pryor subsidiaries constructed or made modifications to their plants that resulted in increased emissions of NOx without first obtaining pre-construction permits and installing pollution controls. The complaint does not allege any violations regarding the Texas facility.

The companies have also agreed to spend \$150,000 to remediate and reforest ten acres of land with acidified soils located near El Dorado, Ark. NOx emissions, such as those from nitric acid plants, can contribute to soil acidification. The project will help to minimize erosion, reduce storm water runoff, improve habitat for wildlife and capture carbon dioxide, a greenhouse gas.

The States of Oklahoma and Alabama are co-plaintiffs in the settlement and will receive a portion of the total penalty as follows: \$206,250 will be paid to the Oklahoma Department of Environmental Quality and \$156,250 will be paid to the Alabama Department of Environmental Management.

LSB, headquartered in Oklahoma City, Okla., is a major producer of nitrogen-based fertilizers, including anhydrous ammonia, urea and ammonium nitrate. The company owns and operates the largest fleet of concentrated nitric acid rail cars in the United States. LSB and its subsidiaries produce nitric acid for use in products that include herbicides, metal treatment, explosives and pharmaceuticals.

## **22. ARB Adopts Changes to California's Truck and Bus Regulation**

The California Air Resources Board has adopted amendments to its Truck and Bus Regulation that will provide new flexible compliance options to owners of aging diesel fleets and recognize fleet owners that have made investments to comply, while also protecting air quality. The changes

provide additional regulatory flexibility to small fleets, lower use vehicles, and fleets in rural areas that have made substantial progress towards cleaner air. Fleets that have invested in cleaner, compliant equipment and trucks will be able to use credits longer and any vehicles retrofit by 2014 do not have to be replaced until 2023.

“We recognize the enormous investments that many businesses have already made to clean up their equipment and abide by the terms of the regulation,” said ARB Chairman Mary D. Nichols, “but we are also aware that, particularly for many rural areas of the state, economic recovery has been painfully slow and funding for improvements scarce.

“By providing limited additional time for certain fleets to comply, we believe that we’ll have higher compliance rates overall. It’s a difficult balance but we believe that this is a fair approach that offers flexibility to those who need it, while also rewarding those business owners who have already upgraded their vehicles to meet the requirements of the regulation.”

Nichols also said that the amendments, while potentially delaying compliance for some, will still protect air quality, preserving 93% of the NO<sub>x</sub> (oxides of nitrogen) and diesel particulate matter (PM) benefits of the original regulation.

The amendments include:

- A longer phase-in period for diesel PM requirements for trucks that operate exclusively in certain rural areas with cleaner air;
- Additional time and incentive funding opportunities for small fleets;
- A new compliance option for owners who cannot currently afford compliance;
- Expansion of the low-use exemption and the construction truck extension;
- Recognition of fleet owners who have already complied by providing additional “useable life” for retrofit trucks and reducing near-term compliance requirements.

The amendments will still ensure that, by 2020, nearly every truck in California will have a PM filter, consistent with the goals of the Diesel Risk Reduction Plan.

### **23. Supreme Court Reinstates EPA's Cross-State Air Pollution Rule**

In a 6-2 ruling, the Supreme Court has reinstated EPA's Cross-State Air Pollution Rule (CSAPR), a cap-and-trade program to cut emissions of sulfur dioxide and nitrogen oxides. The majority opinion, written by Justice Ruth Bader Ginsburg, said EPA acted within its authority in how it created the trading program.

The ruling in *EPA v. EME Homer City Generation, L.P.* reverses an August 2012 ruling from the U.S. Court of Appeals for the District of Columbia Circuit which vacated the rule after that court found the agency exceeded its authority in how it imposed the program on 28 states.

The Obama EPA had crafted CSAPR as a replacement for the Bush-era Clean Air Interstate Rule (CAIR), a rule the D.C. Circuit remanded to the agency after finding it flawed, but which was temporarily left in place while the high court considered the legality of CSAPR.

EPA appealed *EME Homer City* to the Supreme Court, arguing that it had authority under the Clean Air Act (CAA) for its approach to assessing each regulated states' obligations to curb

interstate air pollution, and how to address a "Good Neighbor" provision of the air law that requires states to preserve other states' attainment of air standards.

The D.C. Circuit rejected the rule in part because EPA had imposed federal implementation plans (FIPs) on states to implement the rule, rather than allowing states to submit compliance plans to EPA -- an approach that critics said was a legal overreach.

But during oral argument before the Supreme Court -- and in the court's final ruling -- a majority of the justices held that the agency acted within its authority. "In sum, we hold that the CAA does not command that States be given a second opportunity to file a [state implementation plan (SIP)] after EPA has quantified the State's interstate pollution obligations," Ginsburg's majority opinion says.

Ginsburg also upheld EPA's decision to calculate states' contributions as required by the law's "Good Neighbor" provision. "We further conclude that the Good Neighbor Provision does not require EPA to disregard costs and consider exclusively each upwind State's physically proportionate responsibility for each downwind air quality problem. EPA's cost-effective allocation of emission reductions among upwind States, we hold, is a permissible, workable, and equitable interpretation of the Good Neighbor Provision," the opinion says.

Chief Justice John Roberts and Justice Anthony Kennedy were seen as the swing votes in the case based on their questions at arguments, and both justices sided with the majority in the ruling.

But Justices Antonin Scalia and Clarence Thomas dissented. Writing the dissent, Scalia said the D.C. Circuit was correct in finding EPA exceeded its Clean Air Act authority in how it wrote and implemented CSAPR. Scalia echoed the D.C. Circuit's finding that EPA unlawfully preempted states with the rule and should have first given states a chance to address their contributions to interstate pollution, before imposing FIPs on them. "The Clean Air Act simply cannot be read to make EPA the primary regulator in this context," Scalia wrote.

Justice Samuel Alito took no part in the EME Homer City decision. The justice's 2012 financial disclosure report also shows that, among many other investments, he has stock in at least one utility, Oklahoma Gas and Electric, which operates in Oklahoma and Arkansas -- states that could be covered by CSAPR. The state of Oklahoma was a party opposing CSAPR in the D.C. Circuit litigation.

## **24. U.S. Climate Has Already Changed, Study Finds, Citing Heat and Floods**

The effects of human-induced climate change are being felt in every corner of the United States, scientists recently reported, with water growing scarcer in dry regions, torrential rains increasing in wet regions, heat waves becoming more common and more severe, wildfires growing worse, and forests dying under assault from heat-loving insects.

Such sweeping changes have been caused by an average warming of less than 2 degrees Fahrenheit over most land areas of the country in the past century, the scientists found. If greenhouse gases like carbon dioxide and methane continue to escalate at a rapid pace, they said, the warming could conceivably exceed 10 degrees by the end of this century.

"Climate change, once considered an issue for a distant future, has moved firmly into the present," the scientists declared in a major new report assessing the situation in the United States. "Summers are longer and hotter, and extended periods of unusual heat last longer than any living

American has ever experienced,” the report continued. “Winters are generally shorter and warmer. Rain comes in heavier downpours. People are seeing changes in the length and severity of seasonal allergies, the plant varieties that thrive in their gardens, and the kinds of birds they see in any particular month in their neighborhoods.”

The report is the latest in a series of dire warnings about how the effects of global warming that had been long foreseen by climate scientists are already affecting the planet. Its region-by-region documentation of changes occurring in the United States, and of future risks, makes clear that few places will be unscathed — and some, like northerly areas, are feeling the effects at a swifter pace than had been expected.

Alaska in particular is hard hit. Glaciers and frozen ground in that state are melting, storms are eating away at fragile coastlines no longer protected by winter sea ice, and entire communities are having to flee inland — a precursor of the large-scale changes the report foresees for the rest of the United States.

The study, known as the National Climate Assessment, was prepared by a large scientific panel overseen by the government.

In the Northeast, the report found a big increase in torrential rains and risks from a rising sea that could lead to a repeat of the kind of flooding seen in Hurricane Sandy. In the Southwest, the water shortages seen to date are likely just a foretaste of the changes to come, the report found. In that region, the report warned, “severe and sustained drought will stress water sources, already over utilized in many areas, forcing increasing competition among farmers, energy producers, urban dwellers and plant and animal life for the region’s most precious resource.”

The report did find some benefits from climate change in the short run, particularly for the Midwest, such as a longer growing season for crops and a longer shipping season on the Great Lakes. But it warned that these were likely to be countered in the long run by escalating damages, particularly to agriculture.

The report was supervised and approved by a large committee representing a cross section of American society, including representatives of two oil companies. It is the third national report in 14 years, and by far the most urgent in tone, leaving little doubt that the scientists consider climate change an incipient crisis.

One of the report’s most striking findings concerned the rising frequency of torrential rains. Scientists have expected this effect for decades because more water is evaporating from a warming ocean surface, and the warmer atmosphere is able to hold the excess vapor, which then falls as rain or snow. But even the leading experts have been surprised by the scope of the change.

The report found that the eastern half of the country is receiving more precipitation in general. And over the past half-century, the proportion of precipitation that is falling in very heavy rain events has jumped by 71 percent in the Northeast, by 37 percent in the Midwest and by 27 percent in the South, the report found.

In recent years, sudden intense rains have caused extensive damage.

For instance, large parts of Nashville were devastated by floods in 2010 after nearly 20 inches of rain fell in two days. Last year, parts of Colorado flooded after getting as much rain in a week as

normally falls in a year. Just last week, widespread devastation occurred in the Florida Panhandle from rains that may have exceeded two feet in 24 hours.

The new report emphasized that people should not expect global warming to happen at a steady pace, nor at the same rate throughout the country. Bitterly cold winters will continue to occur, the report said, even as they become somewhat less likely. Warming, too, will vary. While most of the country has warmed sharply over the past century, the Southeast has barely warmed at all, and a section of southern Alabama has even cooled slightly.

The report cited the likely role of climate change in causing an outbreak of mountain pine beetles that has devastated millions of acres of pine forest across the American West and the Canadian province of British Columbia; warmer winters and longer summers have let more of the beetles survive and reproduce at an exponential rate. And the report warned of severe, long-lasting heat waves. For instance, it cited research saying the type of record-breaking heat that scorched Texas and Oklahoma in 2011 had become substantially more likely because of the human release of greenhouse gases.

On rising sea levels, the new report went beyond warnings issued in September by the United Nations Intergovernmental Panel on Climate Change, which said that by the end of the century, sea levels could rise by as much as three feet globally if emissions continue at a rapid pace. The American scientists said the rise could be anywhere from one to four feet, and added that six feet could not be ruled out. Along much of the East Coast, the situation will be worse than the global average because the land there is sinking, the scientists said.

The report pointed out that while the country as a whole still had no comprehensive climate legislation, many states and cities had begun to take steps to limit emissions and to adapt to climatic changes that can no longer be avoided. But the report found that these efforts were inadequate. "There is mounting evidence that harm to the nation will increase substantially in the future unless global emissions of heat-trapping gases are greatly reduced," the report warned.

## **25. EPA Says U.S. Greenhouse Gas Emissions Fall 10% Since 2005**

U.S. greenhouse gas emissions fell nearly 10 percent from 2005 to 2012, more than halfway toward the United States' 2020 target pledged at United Nations climate talks, according to the latest national emissions inventory. The report showed that emissions dropped 3.4 percent from 2012 to 2011, mostly due to a decrease in energy consumption and fuel switching from coal to natural gas.

The United States uses 2005 pollution levels as its benchmark to measure emissions cuts, and has a target to lower emissions by 17 percent from that starting point by 2020. Since 1990, the first year the United States kept the inventory, carbon dioxide emissions - largely energy-related emissions and the most prevalent greenhouse gas - rose just 5.4 percent.

Meanwhile hydrofluorocarbons (HFCs), super greenhouse gases used primarily as refrigerants, saw a dramatic rise of over 309 percent. The Obama administration has taken steps to reduce these emissions through bilateral and multilateral agreements with major polluters, including China, the world's biggest greenhouse gas emitter, and India.

A recent United Nations report said that governments must act faster to keep global warming in check and that a radical shift from fossil fuels to low-carbon energy such as wind, solar or nuclear power would shave only about 0.06 of a percentage point a year off world economic growth. The

report is meant as the main scientific guide for nations working on a U.N. deal to be agreed in late 2015 to rein in greenhouse gas emissions that have hit repeated highs this century, led by China's industrial growth.

The Obama administration's climate action plan, now being implemented, is expected to steer the United States to meet its 17 percent target by 2020.

## **26. EPA to Work with Ports to Improve Environmental Performance**

The U.S. Environmental Protection Agency (EPA) recently hosted the “Advancing Sustainable Ports” summit to mark the kickoff of a new EPA initiative to recognize ports that take action to improve environmental performance. EPA also awarded \$4.2 million in grant funding for clean diesel projects at six U.S. ports.

Most of the country's busiest ports are located in or near large metropolitan areas and, as a result, people in nearby communities can be exposed to high levels of pollution. For example, diesel powered port equipment can seriously impact air quality for nearby residents and generate substantial greenhouse gas and black carbon emissions. Implementing clean air strategies at ports will reduce emissions and provide health benefits from improved air quality for workers and families who live nearby.

Over the past eight months, EPA has led a national conversation on ports, which brought together a wide variety of stakeholders from community organizations, port authorities, shippers, local governments and academia for three themed webinars to share information, goals, and successes of ports in reducing emissions and improving environmental performance. Through this process, EPA set the stage for the development of a new port recognition initiative that will provide additional incentives to improve a variety of environmental issues including improving local air quality, reducing carbon emissions, and addressing environmental justice issues. In addition, EPA's new ports initiative program will work with port authorities to develop emission measurement tools, which will help ports better understand their energy use and environmental impact.

The new grants will help six ports improve air quality and reduce carbon emissions, by providing \$4.2 million in Diesel Emissions Reduction Act (DERA) grants to retrofit, replace, or repower diesel engines resulting in immediate emissions reductions in harmful pollution. The grant recipients are the Port of Seattle, the Port of Hueneme, the Port of Tacoma, the Maryland Port Administration, the Virginia Port Authority, and the Port of Los Angeles.

## **27. NRC Releases Report on Fuel Consumption by Heavy-Duty Vehicles**

Expanding the use of natural gas as a transportation fuel and greater use of aerodynamic devices on trailers are among the strategies recommended by a new National Research Council report on the fuel consumption by tractor-trailers, transit buses, commercial vehicles, trucks, and other medium- and heavy-duty vehicles.

The report follows a 2010 Research Council report whose findings and recommendations informed the “Phase I Rule” on fuel consumption and GHG emissions of medium- and heavy-duty vehicles issued jointly by the National Highway Traffic Safety Administration (NHTSA) and US Environmental Protection Agency (EPA). The new report offers guidance for the “Phase II Rule” under development, which is directed at the post-2018 time frame.

Among the new engine and vehicle technologies introduced since the Phase I Rule, the emergence of natural gas as a transportation fuel is significant, the report says. Due to low carbon content, the GHG emissions of natural gas are lower than for gasoline or diesel fuel, but this benefit is partially negated by the lower efficiency in currently available engines and may be offset by the increased GHG effects of methane. In addition, the natural gas fueling infrastructure is underdeveloped and will require large investments to provide enough stations to prevent disruption in routes and travel times.

In light of these trade-offs, the report recommends that NHTSA and EPA develop a separate standard for natural gas vehicles as is presently the case for diesel- and gasoline-fueled vehicles. The agencies should begin to consider the “well-to-tank” energy consumption and GHG emissions associated with natural gas vehicles as well as for other vehicle and energy technologies that include biofuels, dimethyl ether, and hydrogen fuel cells.

The report notes that the majority of van trailers currently do not use fuel-saving aerodynamic devices. Use of these devices, in particular side skirts, can provide a full return on investment through fuel savings in about one year. However, when a trailer is not owned by the tractor owner/operator (who pays for fuel), there is no incentive for the trailer owner to purchase fuel-saving devices. The report recommends that the agencies adopt a regulation requiring that all new 53 foot or longer dry van and refrigerated van trailers meet performance standards that will reduce fuel consumption and CO<sub>2</sub> emissions.

The 2010 Research Council report recommended that NHTSA conduct a pilot program to collect baseline data for evaluating the effectiveness of regulations on fuel consumption in various industrial sectors and parts of the country. While the agency was unable to undertake the pilot program due to its mandate to issue its rule quickly, the report recommends that NHTSA establish a repeatable, reliable data collection process as soon as possible.

A number of strategies that do not involve changes to the engine or vehicle are also available for reducing fuel consumption, the report says. These include changes to fleet operations and logistics, innovations in infrastructure, traffic management, and driver training and other behavioral initiatives. NHTSA should carefully consider and attempt to quantify the impacts of these nonvehicle approaches on the costs and feasibility of future fuel consumption improvements, and work with EPA, Federal Highway Administration, US Department of Energy, and the private sector to create incentives that capture the benefits of approaches other than regulating the vehicle.

## **28. US EPA Cuts 2013 Target for Cellulosic Biofuel**

The U.S. Environmental Protection Agency slashed its target for 2013 use of cellulosic biofuel to less than a million gallons after the industry failed to meet goals for production of the fuel last year. The agency lowered the mandate to 810,185 gallons in a new rule, well below the 6 million gallons it had required in the plan it finalized last August.

Oil groups challenged the previous plan after one of the two companies slated to make cellulosic biofuel in 2013 dramatically reduced its production estimates after the final rule was issued. Cellulosic biofuel is made from grasses, trees and crop waste.

In January, the EPA agreed to reconsider the mandate, which would have required oil refiners to buy millions of dollars worth of credits if cellulosic fuels were not available to be blended into gasoline or diesel.

The agency's newest target will serve as the final rule for 2013 regarding cellulosic fuel, unless the agency receives "relevant" adverse comment.

The American Petroleum Institute, which was one of the groups that challenged the 2013 target, said the EPA must change the way it sets its biofuel requirements. "EPA should base its cellulosic mandates on actual production rather than projections that - year after year - have fallen far short of reality," API Downstream Group Director Bob Greco said in statement.

The group said the EPA should also reconsider an "unrealistic" draft proposal that would require use of 17 million gallons of cellulosic biofuel for 2014. The final 2014 volume requirements are due out in June.

When Congress passed the Renewable Fuel Standard in 2005 with the goal of reducing U.S. reliance on oil, it expected cellulosic fuels would make up a significant portion of its mandated use of 36 billion gallons of biofuel by 2022. But development of the innovative fuel source has lagged and refiners successfully argued in court that they should not be responsible for using fuel that was not commercially available.

Every year refiners have to prove they have used a certain amount of advanced biofuels or have bought credits representing use of the fuel by others in an open market. If they do neither they are subject to fines. A U.S. federal court ruled in 2013 that the EPA could not inflate the target for cellulosic fuel use to help spur development of the fuel. Instead, the court said the agency should set its target based on realistic production assessments.

## **29. Disputed Study Says Fuels From Corn Waste Not Better Than Gas**

A \$500,000 study paid for by the federal government and released in the peer-reviewed journal Nature Climate Change concludes that biofuels made with corn residue release 7 percent more greenhouse gases in the early years compared with conventional gasoline. While biofuels are better in the long run, the study says they won't meet a standard set in a 2007 energy law to qualify as renewable fuel.

The conclusions deal a blow to cellulosic biofuels, which have received more than a billion dollars in federal support but have struggled to meet volume targets mandated by law. About half of the initial market in cellulose is expected to be derived from corn residue.

The biofuel industry and administration officials immediately criticized the research as flawed. They said it was too simplistic in its analysis of carbon loss from soil, which can vary over a single field, and vastly overestimated how much residue farmers actually would remove once the market gets underway.

"The core analysis depicts an extreme scenario that no responsible farmer or business would ever employ because it would ruin both the land and the long-term supply of feedstock. It makes no agronomic or business sense," said Jan Koninckx, global business director for biorefineries at DuPont. Later this year the company is scheduled to finish a \$200 million-plus facility in Nevada, Iowa, that will produce 30 million gallons of cellulosic ethanol using corn residue from nearby farms. An assessment paid for by DuPont said that the ethanol it will produce there could be more than 100 percent better than gasoline in terms of greenhouse gas emissions.



The research is among the first to attempt to quantify, over 12 Corn Belt states, how much carbon is lost to the atmosphere when the stalks, leaves and cobs that make up residue are removed and used to make biofuel, instead of left to naturally replenish the soil with carbon. The study found that regardless of how much corn residue is taken off the field, the process contributes to global warming.

"I knew this research would be contentious," said Adam Liska, the lead author and an assistant professor of biological systems engineering at the University of Nebraska-Lincoln. "I'm amazed it has not come out more solidly until now."

The Environmental Protection Agency's own analysis, which assumed about half of corn residue would be removed from fields, found that fuel made from corn residue, also known as stover, would meet the standard in the energy law which requires cellulosic biofuels to release 60 percent less carbon pollution than gasoline.

Cellulosic biofuels that don't meet that threshold could be almost impossible to make and sell. Producers wouldn't earn the \$1 per gallon subsidy they need to make these expensive fuels and still make a profit. Refiners would shun the fuels because they wouldn't meet their legal obligation to use minimum amounts of next-generation biofuels.

EPA spokeswoman Liz Purchia said in a statement that the study "does not provide useful information relevant to the life cycle greenhouse gas emissions from corn stover ethanol."

But an AP investigation last year found that the EPA's analysis of corn-based ethanol failed to predict the environmental consequences accurately.

The departments of Agriculture and Energy have initiated programs with farmers to make sure residue is harvested sustainably. For instance, farmers will not receive any federal assistance for conservation programs if too much corn residue is removed. A peer-reviewed study performed at the Energy Department's Argonne National Laboratory in 2012 found that biofuels made with corn residue were 95 percent better than gasoline in greenhouse gas emissions. That study assumed some of the residue harvested would replace power produced from coal, reducing greenhouse gas emissions, but it's unclear whether future biorefineries would do that.

Liska agrees that using some of the residue to make electricity, or planting cover crops, would reduce carbon emissions. But he did not include those in his computer simulation.

Still, corn residue is likely to be a big source early on for cellulosic biofuels, which have struggled to reach commercial scale. "The study says it will be very hard to make a biofuel that has a better greenhouse gas impact than gasoline using corn residue," which puts it in the same boat as corn-based ethanol, said David Tilman, a professor at the University of Minnesota who has done research on biofuels' emissions from the farm to the tailpipe.

### **30. EPA Weighs New 'Ultrafine' Particle Air Standard Ahead Of NAAQS Review**

EPA will revisit whether to set a first-time national ambient air quality standard (NAAQS) for "ultrafine" particles (UFP) in its upcoming review of its existing particulate matter (PM) NAAQS. "Are UFPs deserving of status in the PM NAAQS?" asked EPA research official Dan Costa in a presentation at an April 1 conference on vehicles' PM emissions held in Washington, D.C. His presentation highlighted ongoing limitations in scientific data on UFPs and their risks to human

health, and said that a key question for debate in considering an UFP NAAQS is whether a "causal" relationship between UFPs and health risks can be proved with data.

Costa -- EPA's national program director for air, climate and energy in the agency's Office of Research and Development -- said the agency will revisit the question of whether to create a separate standards for UFP PM as part of its upcoming review of the PM NAAQS.

PM is generally classified as "coarse" if particle sizes fall within a diameter of 2.5 to 10 microns ( $\mu\text{m}$ ), "fine" if they have a diameter of less than 2.5  $\mu\text{m}$ , and ultrafine if less than 0.1  $\mu\text{m}$ . Although ultrafine PM is a component of PM<sub>2.5</sub>, it is not regulated as a specific pollutant because the contribution of ultrafine PM to ambient levels is negligible, and compliance with EPA's PM air standard is based on particulate mass and total contribution.

The Clean Air Act requires the agency to review every five years its ambient air standards for criteria pollutants such as PM and ozone. EPA last revised the PM NAAQS in December 2012, tightening the "primary" ambient air standard, designed to protect public health, to 12 micrograms per cubic meter ( $\text{ug}/\text{m}^3$ ), down from the previous level of 15  $\text{ug}/\text{m}^3$  set in 1997. EPA said new scientific data showed a need for a stricter NAAQS to protect public health.

EPA opted against setting a novel UFP limit in that NAAQS review after finding evidence of links between UFP exposure and adverse health effects "suggestive" but not conclusive. The Health Effects Institute (HEI) research organization supported that decision in a study in January 2013 finding that there is little evidence showing adverse health effects from UFP exposure compared to those normally associated with PM<sub>2.5</sub>.

The upcoming PM NAAQS review, which under air law deadlines should result in a new standard by late 2017, will include an integrated science assessment (ISA) reviewing all policy-relevant science on PM; a risk and exposure assessment using the ISA to characterize risks to humans from PM exposure; and a policy assessment in which agency staff use both scientific documents to suggest policy options for revising the NAAQS.

Costa said EPA will consider the need for a stand-alone UFP standard as part of the review, though his presentation to the recent conference highlighted a host of gaps in scientific data on UFP, which could suggest a difficulty in proving the causal relationship between UFP and health risks necessary for setting a NAAQS.

At the conference, sponsored by the renewable fuels advocacy group Energy Future Coalition (EFC), EPA officials described roadway air pollution -- a primary source of PM -- as a complex mix of particles that change in the atmosphere, and said particle composition is influenced by various factors, including engine and fuel type.

Costa acknowledged that regulating by mass ignores the specific toxicities of constituents as well as any unique physical attributes of UFPs, but he also said fundamental uncertainties and research gaps on UFP risks remain.

While some studies have expanded evidence of respiratory and cardiovascular effects from short-term UFP exposures, Costa said that research is limited primarily to diesel exhaust.

He also repeated EPA's past assertions that limited epidemiological studies are inadequate to infer a causal relationship between long-term exposure to UFPs and adverse health outcomes. While the potential for UFP exposures is high, Costa said that too is uncertain.

Despite the scientific uncertainty, current EPA regulations "do not adequately address the hazards of ultrafine particles in vehicle emissions," UCLA School of Medicine Professor Andre Nel told the conference. Nel said UFPs are absorbed deeper in the lungs and persist longer in the body than larger particles, and so potentially pose greater health risks than the PM addressed under the current NAAQS. UFPs also carry an array of toxicities that are not clearly accounted for under EPA's current mass-based standards for PM.

Other researchers outlined a host of health risks from PM exposures near roadways and several presented research suggesting UFPs pose greater risks than other forms of PM emissions because of their physical properties, including their small size. Researchers also said some compounds in PM that appear to pose the greatest risks, such as polycyclic aromatic hydrocarbons (PAHs), are more highly concentrated in smaller particles.

Researchers presented a variety of studies that suggested increased PM exposure in high traffic areas pose health risks ranging from low birth weight and IQs in children of mothers exposed to high levels of PM, to cardiovascular and pulmonary effects in adults and children. They said risk for health effects is greatest for residents who live near heavily-traveled roadways and one said the risks are worsened when other social stressors are also present. Frederica Perera, of Columbia University, said high prenatal exposures to PAHs in air pollution are associated with lower IQ scores in children as well as behavioral problems including anxiety and depression.

Perera called her research "policy relevant," noting that rates of adverse effects from PAH exposures from air pollution in New York City decreased following traffic reduction efforts in the city.

### **31. Court Tells EPA to Issue New Air Pollution Standards by December**

A federal judge in Northern California has ruled that the Environmental Protection Agency must produce new draft standards for ground-level ozone pollution, the main component of smog, by December. Earthjustice had filed the case on behalf of the Environmental Defense Fund, Sierra Club, American Lung Association and Natural Resources Defense Council.

U.S. District Judge Yvonne Gonzalez Rogers directed the EPA to issue its draft proposal by Dec. 1, 2014, and a final rule by Oct. 1, 2015.

The decision comes after a lengthy debate over the ozone rules dating back to the George W. Bush administration. In March 2008, the Bush EPA adopted new standards that limited the acceptable amount of ozone in the air to 75 parts per billion. But those standards were weaker than the agency's own scientists had advised. And when the Obama administration came into office, then-EPA Administrator Lisa Jackson said the 2008 standards were "not legally defensible."

The EPA began revising and in January 2010 released new draft rules that suggested lowering the limit to between 60 and 70 parts per billion. But there were repeated delays in finalizing those rules under pressure from industry groups. Then in September 2011, President Barack Obama personally directed the EPA to withdraw the ozone proposal as part of an effort to reduce "regulatory burdens and regulatory uncertainty." He asked the agency to wait until 2013 to move on the rules.

Earthjustice argued that under the Clean Air Act, the EPA was supposed to review those standards by March 2013. The environmental groups filed their lawsuit last summer. Since then, the EPA has issued a draft policy assessment that again recommended lowering the ozone standard to between 60 and 70 parts per billion. The court ruling lays out a clear time frame for moving forward on that proposal.

Exposure to ground-level ozone pollution can cause "chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma," according to the EPA. It is created by chemical reactions between nitrogen oxide and volatile organic compounds, which are emitted from industrial facilities, power plants and automobiles.

According to the American Lung Association, the current, weaker standards leave as many as 186 million Americans breathing in unhealthy levels of ozone pollution. In announcing its 2010 draft rules, the EPA said that setting a lower standard of 60 parts per billion would prevent 4,000 to 12,000 premature deaths a year by 2020.

### **32. Kerry Urged to Make Climate Focus of Chairmanship of Arctic Council**

Secretary of State John Kerry should make climate change the "overarching theme" of the upcoming U.S. chairmanship of the Arctic Council, according to a report released on April 24<sup>th</sup> by the Center for American Progress. As part of that theme, reducing black carbon and methane emissions in the Arctic should be among the United States' top priorities for action to help control rapid warming in the region, the report said.

Kerry has made it clear that he wants climate change to be part of his legacy, Cathleen Kelly, who previously served on the White House Council on Environmental Quality, told reporters. "What I see is a secretary of state who has been dedicated to fighting climate change since the early days of his Senate career," Kelly, a co-author of the report, said. Kerry should use his tenure as Arctic Council chairman as an opportunity to continue that legacy, she said.

The Arctic Council was formed in 1996 by the five nations that border the Arctic Ocean—Canada, Norway, Russia, the U.S. and Denmark—as a venue for coordination on sustainable development, environmental protection and other issues. The chairmanship of the Arctic Council rotates among them, and each chair must choose a theme.

The Arctic Council is currently chaired by Canada under the theme of "development for the people of the North," with a focus on responsible Arctic resource development, safe Arctic shipping and sustainable communities.

The U.S., which will chair the council from 2015 to 2017, should choose climate change as its theme because rapid warming and other changes in the Arctic are driving growing commercial interests as well as growing environmental, economic and national security risks in the region and globally, the report said.

The report also called on President Barack Obama to announce climate change as the U.S. theme in September during a United Nations leaders summit.

"Arctic sea-ice volume has shrunk by 75 percent since the 1980s, and we are very likely to see ice-free summers by midcentury," the report said.

The report said warming could be significantly reduced in the short-term through immediate cuts in black carbon emissions, a climate forcer that has a short life span in the atmosphere. Black carbon, which is a component of soot produced primarily by diesel engines and vehicles, “peppers the Arctic snow with heat-absorbing black particles, reducing the amount of heat reflected away from the Earth by the region’s white snowpack,” according to the report.

At their 2015 ministerial meeting, Kerry should secure from Arctic Council members black carbon emissions reduction targets and an Arctic-wide goal for cutting black carbon, the report said. Arctic Council observer states—including China, India, the U.K., EU member states and others—should be encouraged to adopt similar pledges because “it’s clear that it’s not just the Arctic nations that are responsible for this problem,” Kelly said.

Most of the black carbon deposited in the Arctic comes from countries above a latitude of about 40 degrees North, according to Arctic Council research. “So getting Arctic nations on board, along with commitments from observer states who are part of the problem, I think would go a long way,” she said.

The report said Kerry should seek similar commitments from Arctic Council members by 2016 for reducing methane emissions, especially from oil and natural gas production in and outside the Arctic.

Together, these emissions reduction pledges could build on the work of a task force looking at ways to reduce black carbon and methane that the council established in 2013.

The report also urged Kerry to help Arctic communities adapt to climate change impacts, including melting ice, increasing storm intensity and coastal flooding. Building resilience in the Arctic is a shared priority for Sen. Lisa Murkowski (R-Alaska), who sought to bring the effects of coastal erosion on Alaska Native communities to the president’s attention in January. “As the United States prepares to assume the Chairmanship of the Arctic Council, it is essential we are prepared to address [adaptation] issues in our own Arctic communities,” she wrote in a letter to Obama.

### **33. California Snow Levels Remain Low, Signaling Less Water for Summer**

Snow levels atop California’s Sierra Nevada Mountains, key indicators of how much water will be available for drought-stricken farms, residents and wildlife this summer, remained precariously low despite recent storms, according to state officials. The snowpack, which melts in the spring and feeds streams and reservoirs throughout the state, has just a third of the amount of water it normally contains this time of year, said Mark Cowin, director of the state Department of Water Resources.

“We’re already seeing farmland fallowed and cities scrambling for water supplies,” Corwin said in a statement after snow surveyors turned in the results of their monthly examination of snow levels. “We can hope that conditions improve, but time is running out.”

Storms pummeled parts of California throughout the weekend, lasting through the day on Tuesday, allowing the state to release more water than had been anticipated from the fragile San Joaquin-Sacramento River delta to fill reservoirs and provide waters to farms and cities. But the rain has not brought enough water to alleviate three of the driest years on record, Cowin said.

### **34. Pemex to Invest In New Multi-Billion Dollar Diesel Projects**

Mexican national oil company Petroleos Mexicanos (Pemex) has come up with a new diesel project at the cost of USD3.4 billion, which is likely to focus on building four new ultra-low-sulfur diesel plants and upgrading 14 existing ones. Pemex is planning to construct the new plants at its current refineries, Madero in the northeastern state of Tamaulipas, Minatitlan in the Gulf coast state of Veracruz and Salamanca in the central state of Guanajuato.

The company also has plans to modernize four plants at the Salina Cruz refinery in the southern state of Oaxaca and the Tula plant in the central state of Hidalgo. Apart from this, 10 other plants will go through a refurbishment program.

The diesel project, which will be completed in 45 months, will be under the control of an expert team from the firm's refining unit Pemex Refinacion, and an external supervision body.

### **35. EPA Chief Says Power Plant Rule Will Be Tough, Enforceable**

The U.S. Environmental Protection Agency's Administrator Gina McCarthy gave her first remarks since the agency sent its proposed rule, which aims to curb carbon emissions from more than 1,000 existing power plants in the United States, to the White House's Office of Management and Budget for review and said that the new carbon pollution standards will be flexible enough for all states to meet but will be environmentally stringent and federally enforceable.

The rule, a centerpiece of President Barack Obama's second-term climate change strategy, is on track to be released in June, kicking off a months-long public comment process.

Without providing details on the rule, McCarthy said the proposal targeting the largest source of domestic carbon emissions would have regulatory teeth. "It is not going to be an aspirational goal," McCarthy said at a conference held by the Bipartisan Policy Center and the National Association of Regulator Utility Commissioners.

Opponents of EPA curbs on carbon pollution, including Republican lawmakers and Democrats representing states that rely on coal, have for months accused the EPA of a "war on coal" as they anticipate release of the power plant rule. McCarthy said the regulations will give states the flexibility to meet federal guidance in various ways, so long as the result is significant cuts to emissions, and that the standard will recognize the different economic and regional differences between states

"That doesn't mean it is going to be so flexible that I won't be able to rely on this as a federally enforceable rule to deliver carbon pollution reductions at the level that our guidance indicates," she added.

Utility commissioner association President Colette Honorable, who spoke on the same panel as McCarthy, urged the agency to recognize the work many states have already done to reduce carbon emissions.

Last November, the association unanimously approved a resolution that urged the EPA to give states enough flexibility to meet the future regulations in their own ways. "We aren't saying let everything count. We are saying, 'EPA, let's not reinvent the wheel here,'" Honorable said, adding there are many initiatives being carried out on the state level that should be recognized by the agency.

McCarthy said the challenge for the agency is trying to account for the fact that some states do not have access to easy emission reductions and may need more time while adhering to the parameters of the Clean Air Act, which does not give "unbridled flexibility." "The EPA is not issuing its own vision of what the energy world looks like. We are looking at what the energy world is," she said.

## ASIA-PACIFIC

### 36. Recent Developments in China

#### a. China Outlines Environmental Action in 'War' on Air, Water and Soil Pollution

China's Premier Li Keqiang pledged that the country would take stronger measures over the coming year to reduce and control air, water and soil pollution, speaking in his annual address at the opening of the National People's Congress (NPC) meetings in Beijing. Li said China would "declare war" on pollution, and would raise energy efficiency, reduce vehicle emissions and prevent and monitor airborne dust. He said that "blind and inefficient development" had led to major pollution problems in the nation.

Li said that around 50,000 smaller coal-fired furnaces would be shut down and that China would increase the use of denitrification and desulfurization technology in larger coal-fired power plants. China will continue the policy goal of having China IV diesel provided nationwide, and removing around 6 million older vehicles from the roadways, by the end of the year.

A separate report released by the National Development and Reform Commission (NDRC) before Li's speech outlined goals for reducing energy intensity per unit of gross domestic product (GDP) by 3.9 percent, and reducing carbon intensity per unit of GDP by 4 percent by the end of the year, compared with the year before.

Outlining goals for key pollutants targeted for reduction in the 12th Five-Year Plan (2011-2015), the NDRC said the aim is to reduce sulfur dioxide emissions by 2 percent and nitrogen oxide emissions by 5 percent, compared with the year before. Both discharge levels of chemical oxygen and ammonia nitrogen have 2 percent reduction targets.

Increased fines for violation of air pollution regulations could be among changes to the action plan, according to several reports. State-run China Daily newspaper on February 28<sup>th</sup> quoted officials from the Beijing Environmental Protection Bureau as saying more severe punishments are likely to be added to revisions of the capital's own air pollution action plan, which officially took effect on March 1<sup>st</sup>.

Fines for businesses in Beijing that do not reduce or suspend production when ordered to do so during air pollution emergencies will be increased to 500,000 Yuan (\$81,500), up from a current 100,000 Yuan (\$16,300) level, the paper reported.

#### b. Beijing Issues Fines for Violations of New Municipal Air Pollution Ordinance

Beijing municipality has announced the first fines for violations of a new air pollution control ordinance that took effect March 1, amid indications that the Chinese government could adopt even steeper nationwide penalties in 2014.

On March 11, the Beijing municipal environmental protection bureau (EPB) released details of 78 companies facing fines for violating the new ordinances, but the government did not disclose penalty details. The investigation and enforcement action by the Beijing EPB was launched between March 1 and March 10. According to a March 17 report from China Environmental News (CEN), a news agency directly attached to the MEP, another enforcement action is expected in the first week of April.

In the same report, CEN indicated that Beijing Hongxianghong Heating Co. was the first company fined under the new ordinance, which sets penalty limits between 50,000 and 500,000 Yuan (\$8,000 to \$80,900) for air pollution violations. The fine for the company was said to be 100,000 Yuan (\$16,180).

According to monthly data from 74 cities released March 18 by the MEP, air quality in February was worst in Beijing, the cities of the surrounding Hebei province of Xingtai, Shijiazhuang, Baoding, Tangshan, Handan, Hengshui, and the cities of Langfang and Jinan in Shandong province.

Shandong province also launched a special air pollution investigation and enforcement action in early March, according to a March 17 report on the MEP website. During the NPC meetings, Guo Shuqing, governor of Shandong, said the province was under intense pressure to treat air pollution because of the heavy industry there, that energy consumption and emissions in the province were about 10 percent higher than the national average, and that the province was working to strengthen the ability of EPBs at the local level to investigate air pollution violations, according to a report from Chinese Communist Party-affiliated Dazhong Media Group on March 7.

The data indicated that on average in the 74 cities in February, small particulate matter (PM-2.5), large particulate matter (PM-10) and sulfur dioxide levels decreased, respectively, by 5.9 percent, 5.9 percent and 8.2 percent compared to January, although nitrogen oxide levels increased by 7.7 percent.

A report on the MEP website from March 18 said Beijing would continue to remove higher-polluting heavy industry from the city.

On March 4, China's Ministry of Science and Technology (MOST) and the MEP co-issued a document on advanced technologies related to preventing and treating air pollution, pointing out certain technologies suggested for use by government, state-owned enterprises and other businesses.

MOST and the Ministry of Industry and Information Technology also co-issued an Energy Savings and Emission Reduction Science and Technology Action Plan on March 4<sup>th</sup>, which includes technologies that could help with energy savings and emissions reduction in several sectors.

### **c. Chinese Officials Find That Going Green Is Factor for Getting Ahead in Party**

Chinese cadres at the first legislative meeting with Xi Jinping as president are grappling with new performance metrics that will determine how they get ahead in the Communist Party. For decades, the solution for local officials was to promote economic growth rates that exceeded national targets, and to bring in revenue as land was sold to developers. Now, aspiring leaders are being judged on an array of issues, including how they tackle the environment and improve people's lives.



Eastern Shandong province is adding air quality to the criteria used to evaluate party cadres this year, and northwestern Gansu province is revising its assessment system to reduce the focus on economic expansion. The changes under Xi are designed to ensure that social stability isn't threatened by surging criticism of smog-choked cities that are a byproduct of China's ascent to become the world's second-largest economy.

"Most important is the environment," said Hou Liang, the mayor of Zhangjiakou, a city in Hebei province regularly shrouded in haze, as he came out of one regional session of the National People's Congress this month in Beijing. "We no longer rely on gross domestic product as in the past—yet dealing with the environment is much tougher."

Without an electoral mandate, the Communist Party for decades showcased growth that pulled millions out of poverty and provided jobs for a swelling urban population as a source of legitimacy. Seeking to meet middle-class demands for better quality of life, while retaining a national target for growth at 7.5 percent as announced by Premier Li Keqiang, risks sowing confusion in the party about its message.

China cares more about jobs and livelihoods than the GDP target, which is flexible, Li said March 13<sup>th</sup> at a press briefing to mark the end of the NPC in Beijing. China's economy has tremendous potential and resilience, and the country needs to strike a balance between its many goals, the premier said.

Air quality will be one of the metrics used this year to evaluate cadres, Shandong province governor and former securities regulator Guo Shuqing said March 7<sup>th</sup>, according to the official Xinhua News Agency. Anti-pollution measures in the eastern Chinese province will lower growth and lead to factory closures, Guo told reporters in Beijing on March 13<sup>th</sup>. Shandong took environmental protection into consideration when it set its GDP target for this year at 9 percent, compared with 9.6 percent in 2013, Guo said.

Han Zheng, party secretary in Shanghai, which suffered record pollution in December, said at his delegation's meeting: "We want only green GDP, sustainable GDP. That's in line with national strategy and long-term development."

"To get promoted, you need to assure no big things happen," Li Xiaoyang, assistant professor of finance and economics at the Cheung Kong Graduate School of Business, said by phone. "You don't want people to go the streets to protect the environment. That will create publicity and prevent you from getting promoted easily."

#### **d. Over 95 Percent of Chinese Cities Failed To Meet Environmental Standards**

Out of the 74 cities that China monitored, 71 had various degrees of problems, Wu Xiaoqing said at a news conference on the sidelines of the annual parliament session in Beijing. Only Haikou in the island province of Hainan, the Tibetan capital Lhasa and the coastal resort city of Zhoushan met standards.

Wu said the country's pollution problems will only be thoroughly solved by fundamental changes to the way it develops its economy. "When we were chasing GDP growth, we were also paying the price of pollution, and this price is heavy, is massive," he told reporters.

China's pollution action plan has focused primarily on the heavy industrial heartlands of Beijing, Hebei and Tianjin as well as the commercial and manufacturing centers around Shanghai and Guangdong, where heavy industrial capacity and overall coal consumption will be cut. But campaigners have expressed concern that the burden of pollution is likely to be shifted to other regions, with high-emission sectors like thermal power still on course to expand rapidly in big, coal-rich regions like Inner Mongolia, Ningxia or Xinjiang.

Wu said at the press conference that the three main regions covered in the current action plan occupied just 8 percent of China's total area, but were responsible for 55 percent of national steel production, 40 percent of total cement output and 52 percent of gasoline and diesel. As a result, they produce 30 percent of the country's pollution and average emissions were five times higher than other regions.

"China's central and western regions are rich in coal, and their environmental capacity is better than the Beijing-Hebei-Tianjin region, so we are encouraging them to develop coal-to-gas and to replace coal burning in eastern regions." "We also hope that these regions will also implement stricter environmental regulations," he added.

#### **e. Chinese Cities Open Up Green Car Markets as Government Battles Pollution**

Three of China's biggest cities are helping consumers pay for a range of electric cars, heeding calls to encourage the sale of green vehicles that the government sees helping tackle pollution. Premier Li Keqiang in January demonstrated the importance of green cars by visiting a factory of BYD Co Ltd, maker of the e6 pure electric car.

The government wants to put 10 times more e-cars on the road by next year but traffic management is under the remit of local authorities, and many cities including the polluted capital of Beijing have not had the infrastructure to deem the vehicles roadworthy. Tianjin lacked the means to issue license plate numbers for e-cars, while in Shanghai, technicalities in traffic management rules meant only Shanghai-made vehicles were eligible for local subsidies.

But the cities last month said they would subsidize purchases of pure electric and plug-in hybrid cars from Chinese makers including Warren Buffett-backed BYD, SAIC Motor Corp and Anhui Jianghuai Automobile Group Co Ltd (JAC Motors).

Any sales rise will add to a population of 50,000 new energy vehicles (NEV) - defined in China as electric, plug-in hybrid and fuel cell - well short of a government target for half a million by 2015 and 5 million by 2020. Many regard the targets as impossible, but China could edge closer if more cities broaden subsidies for which in many instances only locally made cars have been eligible.

BYD, for instance, sells most of its electric cars in its home of Shenzhen, where more than 800 taxis are its e6. The city offers subsidies for NEVs provided they are capable of 300 km (186 miles) per charge - criterion only the e6 satisfies. That effectively shuts out cars such as SAIC's Roewe E50 and JAC Motors' iev.

The government has vowed to fight pollution and since 2010 has been encouraging consumers to buy green cars. Under its latest initiative, it offers to pay up to 60,000 Yuan of the purchase price - an amount local authorities are encouraged to match.

Shanghai, before last month, only subsidized NEVs satisfying criteria such as the ability to reach 50 km/hour in 6 seconds, met only by models from Shanghai-based SAIC and Shanghai Zhongke

Lifan Electric Vehicle Co Ltd. In Beijing, the inability to obtain license plates for e-cars prior to February meant the BAIC E150 of local maker BAIC Motor Corp Ltd came up against limited competition on its official release this month. However, in September the central government said non-local cars should make up at least 30 percent of a city's NEV sales.

The opening up of city markets is likely to support China's fledging electric car industry before an inevitable onslaught from foreign brands, most of which will not be eligible for subsidies. Tesla Motors Inc is taking Chinese orders for its Model S, BMW aims to import its i3 this year, and Volkswagen AG plans to sell more than 15 models in China by 2018.

Unlike the luxury cars of Tesla and BMW, Chinese models are aimed at the lower-priced end of the market. But even with subsidies, prices are high. IT engineer Zhang Shuai, 32, paid 240,000 Yuan (\$38,800) for a BYD e6 after receiving 114,000 Yuan in Beijing and central government subsidies this month. China's top selling petrol car, Ford Motor Co.'s Focus, costs half as much.

#### **f. China's Smog Driving Top Foreign Talent Away Says U.S. Business Survey**



A tourist boat, decorated with green lights, travels on the Pearl River amid heavy haze in Guangzhou, Guangdong province March 3, 2014.

Photo: Alex Lee

China's smog is making it harder for foreign firms to convince top executives to work in the country, the American Chamber of Commerce in Beijing said

recently, offering some of the strongest evidence yet on how pollution is hurting recruitment. Some 48 percent of the 365 foreign companies that replied to the chamber's annual survey, which covers businesses in China's northern cities, said concerns over air quality were turning senior executives away.

Pollution is "a difficulty in recruiting and retaining senior executive talent", said the report. The 2014 figure is a jump from the 19 percent of foreign firms that said smog was a problem for recruitment in 2010.

China's slowing economy, however, remained the top risk for companies, the report added.

Foreign executives increasingly complain about pollution in China and the perceived impact it is having on the health of themselves and their families. Several high-profile executives have left China in recent years, citing pollution as the main reason for their decision to go.

Almost all Chinese cities monitored for pollution last year failed to meet state standards, but northern China suffers the most. It is home to much of China's coal, steel and cement production. It is also much colder, relying on industrial coal boilers to provide heating during the long winter.

The capital Beijing, for example, is surrounded by the big and heavily polluted industrial province of Hebei. It is also choked by traffic.

By contrast, China's commercial capital Shanghai, in the south, suffers less air pollution. Indeed, a similar survey conducted by the American Chamber of Commerce's Shanghai branch did not ask if pollution was affecting recruitment.

Lulu Zhou, associate director of the Beijing Office of international recruitment agency Robert Walters China, said some foreign executives were using pollution to negotiate higher salary packages. "We have seen some senior level professionals ... who are concerned about relocating to Beijing because of the pollution," she said.

In a sign of the growing corporate concern over pollution, Japanese electronics firm Panasonic Corp has told its unions it will review the hardship allowance paid to expatriates in China because of the air quality, according to a spokeswoman.

And a state-owned Chinese insurer said this week it would offer Beijing residents insurance cover against health risks caused by air pollution, promising to pay out 1,500 Yuan (\$240) to policy holders hospitalized by smog. The policy, available for people aged 10 to 50, will also pay out 300 Yuan when the city's official smog index exceeds 300 for five consecutive days, a level considered "hazardous", according to a notice posted on the People's Insurance Company of China (PICC) website. Beijing's official air quality index (AQI), which measures airborne pollutants including particulate matter and sulfur dioxide, routinely exceeds 300, and sometimes hits levels higher than 500.

Despite the concerns over pollution, China's cooling economy, which government leaders project to grow this year at about 7.5 percent, posed the greatest risk to companies, according to those polled in the Beijing survey. Firms increasingly reported a stagnation or contraction in operating margins compared with previous years, it said. As a result, more foreign firms saw China "as just one of many investment possibilities", the report said.

Nevertheless, a majority of companies surveyed remained optimistic about the business outlook for the next two years. "This optimism is driven by our membership's confidence in their own ability to adjust and deal with the challenges," said Mark Duval, China president of the American Chamber of Commerce. Many members had high expectations that recently announced economic reforms might deliver, Duval added.

But two in five respondents to the Beijing survey said the business climate had become less welcoming for multinationals, with a similar number saying foreign firms were being singled out in a series of pricing and corruption investigations. Those investigations have targeted various sectors, including pharmaceutical and milk powder multinationals, as well as American technology companies.

Other concerns included:

- Respondents chafed at perceived state enterprise favoritism, with 77 percent believing policies benefiting state-owned firms had negatively impacted their business.
- Protection of trade secrets and company name theft were among other issues worrying businesses. Half of all respondents said that protecting confidential company data was a concern.

- Other difficulties were a lack of clarity and inconsistency in the application of laws and regulations, the survey said.

#### **g. China Vows To Clean Up 60 Percent of Cities By 2020**

China pledged that it will make sure that 60 percent of its cities meet national pollution standards by 2020, with pressure growing to make cities livable as hundreds of millions of migrants are expected to relocate from the countryside.

China's environmental problems such as pollution and water scarcity are expected to intensify as rapid migration pushes urban infrastructures to the limit. Almost all Chinese cities monitored for pollution last year failed to meet the standards.

The pledge to clean up the nation's major metropolitan centers was made in a State Council plan for how to deal with China's rapid urbanization drive. "We will improve and promote green, sustainable and low carbon development in the urbanization process, enforcing the strictest measures on ecological and environmental systems," the plan said.

According to the State Council, 60 percent of the cities will meet national air quality standards in 2020, which it said was up from 40 percent in 2012. However, at China's annual parliamentary session earlier this month, officials said only three of 74 major cities met the pollution standards in 2013.

The State Council plan outlined a lengthy list of policies it will implement to meet the target, including boosting renewable energy use, curbing emission-intensive industries and taking the most-polluting vehicles off the roads. China will also set up a tiered pricing system for electricity, natural gas and water, to control rapid growth in consumption of scarce natural resources.

The government plans to roll out trading systems for carbon and air pollutant emissions, energy-saving certificates and water to provide economic incentives to reduce waste. China has already picked seven key regions to launch pilot carbon trading schemes with the intention of setting up a national market to cut emissions per unit of GDP by 40-45 percent from 2005 levels by 2020.

Guangdong province has already launched an emissions trading scheme, along with the cities of Beijing, Shanghai, Shenzhen and Tianjin.

China is also seeking to ensure it has enough labor in its vast farming sector to guarantee food security, with rural worker shortages one of the country's biggest challenges. The State Council plan restated China's commitment to protect agricultural land from further urban and industrial encroachment, a policy known as its "red line." It promised more state investment in major food-producing regions, improved insurance coverage in rural areas and reforms to the pricing systems of major agricultural commodities. It also promised to raise farming mechanization rates to around 70 percent from current levels of 60 percent.

#### **h. Chinese Legislature Tightens Environmental Law**

The China's legislature has passed the biggest changes to its environmental protection laws in 25 years, which would punish polluters more severely as the government works to limit smog and tainted soil associated with three decades of economic growth. Amendments to the law "sets environmental protection as the country's basic policy," the official Xinhua News Agency reported

on April 24<sup>th</sup>. The rules hadn't been changed since the law was first enacted in 1989, just as China started consuming more energy as it turned into a global manufacturing hub.

The new law says that economic and social development should be coordinated with environmental protection and encourages studies on the impact environmental quality causes on public health, urging prevention and control of pollution-related diseases.

The amendment was adopted after four readings. It is rare in China for a law or amendment to go through three readings and not be passed, highlighting the importance of the legislation in the country's pursuit of sustainable development.

Lawmakers said during their panel discussion that the phenomena in which the cost for observing environmental legislation is higher than violating laws widely exist, causing environmental pollution. Xin Chunying, deputy director of the Legislative Affairs Commission of the NPC Standing Committee, gave an example during the deliberation of the law, saying that an electricity generator complex with production capacity of 100,000 kilowatt needs to pay between 500,000 and 600,000 Yuan in environmental protection fees to alleviate and control pollution. But if the factory shuts down its pollution processing equipment and does nothing to protect the environment, it may only face a 10,000 Yuan fine, she said. Handing out heavier punishment for environmental wrongdoing is an important principle of the new legislation, and will deter enterprises from violating the law.

It says that the country should establish and improve an environment and health monitoring, survey and risk assessment mechanism.

The law gives harsher punishments to environmental wrongdoing, and has specific articles and provisions on tackling smog, making citizens more aware of environmental protection and protecting whistleblowers. It says citizens should adopt a low-carbon and frugal lifestyle and perform environmental protection duties, and nominates June 5 as Environment Day.

The public is encouraged to observe environmental protection laws and make their own efforts in this regard, including sorting their garbage for recycling.

Now the world's biggest carbon emitter, China has moved to address the environmental damage that has been a byproduct of its breakneck economic growth and become a major cause of social unrest. Government reports and recent comments from top officials about pollution have revealed the extent of the damage to China's soil, water and air.

The amendments become effective from January 1, 2015, Xinhua said, citing the Standing Committee of National People's Congress, China's top legislative body.

The amendments give the public and government “powerful new tools” to cut pollution:

- The revised law will offer channels for whistle-blowers to make environment-related appeals. Non-government groups can also file lawsuits for environmental damage under certain conditions, it says.
- Previously, polluters could often pay less in fines than it cost to install and operate pollution controls, lawmakers said during discussions on the legislation. New measures such as heavier fines, naming and shaming of companies and the demotion, sacking or criminal

prosecution of local government officials who don't enforce regulation or manipulate data are expected to be more effective, Xinhua said.

- Company officials can be detained for as much as 15 days if they haven't done an environmental impact assessment, ignore orders to stop construction, or continue to pollute after being asked to stop, the revised law says.
- The law also proposes that organizations in charge of environmental impact assessments and supervision would bear joint liabilities if they are found to have acted fraudulently.
- Local officials may be demoted or sacked, if they are guilty of misconduct, including covering up environment-related wrongdoing, falsifying data or asking others to falsify data, failing to publicize environmental information which should be made public according to law or failing to give closure orders to enterprises which illegally discharge pollutants.
- If offenders' behaviors constitute crimes, they will be held criminally responsible.
- If an enterprise illegally discharges pollutants and is fined and asked to correct its wrongdoing by authorities, but refuses to make corrections, the enterprise may face a fine which accumulates daily. In the past, enterprises received a one-off fine.
- The new law allows public litigation and expands the range of subjects of public interest litigation on environmental issues. According to the new law, the subjects could be social organizations which have registered with the civil affairs departments of governments at municipal level or above and have been engaged in public litigation on environmental issues for more than five years. By promoting public interest litigation, it is hoped that the public's appeal for a better environment can be addressed through rule of law, instead of resorting to protests. China has faced an increasing number of protests, or "mass incidents," over environmental issues in recent years. A few cities have seen residents take to the streets against paraxylene projects, which they believe are a major threat to the environment and public health. In most of the cases, the projects in question were later suspended.
- Courts should receive public litigation on environmental issues according to law, while social organizations should not seek to profit through such litigation, according to the new draft.

While China is currently the top global investor in clean energy, it will still be reliant on coal for most of its electricity in 2030 -- by when its power needs will have more than doubled, according to a report by Bloomberg New Energy Finance.

China has more than 30 environment-related laws and about 90 administrative regulations concerning environmental protection. After the adoption of the revised Environmental Protection Law, the country's fundamental environment law, other environmental laws may also face changes.

According to the NPC Standing Committee's annual legislation plan, the air pollution prevention and control law will be revised this year. A draft amendment to the air pollution prevention law will be tabled for a first reading in December, and the ministry of environment is working on a draft soil pollution law. Preparatory work on water pollution law has also started.

Lawmaker Zhao Deming said air, water and soil are the basic factors of the environment. The revisions of laws concerning pollution prevention and control of air, water and soil will facilitate the implementation of the Environmental Protection Law.

Vice minister for the environment Pan Yue described the new environmental protection laws as powerful tools against pollution, but warned of challenges in implementation. "Good environmental law only gets you halfway there. It needs to be implemented," Pan told Xinhua in an interview. Calling the new law "the most powerful legislation in the environmental category", the vice minister said it could still fail without ironclad enforcement.

#### **i. China Drops Environmental Ban on Two Major Oil and Gas Companies**

China's government removed its two biggest oil and gas companies from an environmental blacklist after their operations posted drops in pollution last year. The companies can resume applying for clearance from the Ministry of Environmental Protection for new refining and petrochemicals projects, the ministry said April 23 on its website. The announcement overturned an eight-month-old ban.

China National Petroleum Corp., China's biggest oil and gas company and parent of PetroChina Co., and Sinopec Group, Asia's biggest refiner and parent of China Petroleum & Chemical Corp., were banned from seeking environmental clearances in September 2013 following a review of their emissions in 2012. The ban effectively prevented the companies from building new refineries and petrochemical facilities.

The nation's energy companies generally have been reducing spending on downstream businesses to focus on capturing more supply. CNPC Chairman Zhou Jiping said in March that the company will spend most of its capital on natural gas exploration and production in China and would be more cautious in investing in new refineries and chemical plants.

#### **j. Beijing Says One Third of Its Pollution Comes From Outside the City**

People visit the Olympic Park amid thick haze in Beijing February 25, 2014.  
Photo: Kim Kyung-Hoon

About a third of the air pollution in China's smog-hit capital comes from outside the city, official media reported, citing a pollution watchdog.

Chen Tian, chief of the Beijing Environmental Protection Bureau, said that about 28-36 percent of hazardous airborne particles known as PM2.5





came from surrounding provinces like Hebei, home to seven of China's 10 most polluted cities in 2013, according to official data.

The central government has identified the heavily industrialized Beijing-Hebei-Tianjin region as one of the main fronts in its war against pollution, and it is under pressure to cut coal consumption and industrial capacity.

Chen said that of the smog generated in Beijing, 31 percent came from vehicles, 22.4 percent from coal burning and 18.1 percent from industry, according to China Environmental News, a publication of the Ministry of Environmental Protection.

Wang Junling, the vice head of the Beijing Environmental Protection Research Institute, said that while pollution from outside Beijing was a main component of its smog, the rapid growth of the city's population, energy use and economic output were also to blame for worsening air quality.

He told China Environmental News last month that from 1998 to 2012, Beijing's economic output rose 6.5 times and the number of vehicles rose 2.8 times. Over the same period, the city's population soared 66 percent while energy consumption rose 90 percent.

The city plans to cut coal consumption by 13 million tons by 2017, down from about 23 million tons in 2013. Hebei province used about 280 million tons of coal last year and aims to cut the total by 40 million tons over the same period.

Beijing also plans to limit the number of cars on its roads to 5.6 million this year, with the number allowed to rise to 6 million by 2017. It is also trying to enforce a ban on old vehicles with lower fuel standards.

The city government said in a report last week it failed to meet national standards in four of the six major controlled pollutants in 2013. It said its PM2.5 concentrations stood at a daily average of 89.5 micrograms per cubic meter, 156 percent higher than national standards.

In 2013, PM2.5 concentrations in 74 cities monitored by authorities stood at an average of 72 micrograms per cubic meter (cu m), more than twice China's recommended national standard of 35 mg/cu m.

#### **k. China Finds Nearly 2,000 Firms in Breach of Anti-Pollution Rules**

Nearly 2,000 Chinese enterprises were found to be in violation of state pollution guidelines following a nationwide inspection campaign covering 25,000 industrial firms, the environment ministry has announced.

With the environment identified as one of the government's top priorities after years of unfettered economic growth, Beijing has promised to enhance its powers to monitor and punish industries accused of ignoring state regulations.

Beijing has struggled to make local governments and industries comply with laws and has long been criticized for relying on national campaigns to bring industrial sectors like coal, steel or rare earth to heel. Illegal behavior often resumes once government inspectors have departed. The Ministry of Environmental Protection (MEP) has targeted firms that fail to install pollution control technology or provide fraudulent emissions data to try to avoid punishment.

In a notice posted on its website recently, MEP highlighted the following:

- It said a three-month inspection campaign beginning last November revealed that 1,888 industrial enterprises had failed to comply with pollution rules. A total of 2,185 industrial sites had failed to meet required emission standards.
- Another inspection was launched in February in six northern Chinese regions, the ministry said, and found environmental problems at 384 of 563 enterprises.
- A March follow-up inspection of 198 offenders showed that 29 had stopped operations, while most of the remainder were rectifying their problems, the ministry said.
- Several steel firms, including a unit of Hebei Iron and Steel Group, China's biggest steel producer, had failed for a time to install proper desulfurization equipment, but had rectified the problems.

Past monitoring failures had allowed dozens of enterprises to provide fraudulent data to authorities in order to avoid punishment and obtain clean energy subsidies.

The ministry is trying to improve enforcement by establishing real-time monitoring systems that will give government regulators direct access to pollution data. It said it planned to invest 40 billion Yuan (\$6.45 billion) over the 2011-2015 period to boost monitoring capacity.

### **I. China's New Energy Car Sales to Double; More Incentives Needed**

The number of new energy cars sold in China this year may hit 35,000, twice as many as were sold in 2013, as the government promotes use of greener vehicles, according to a new official forecast. Sales may reach 60,000 if hybrid-power vehicles are taken into account, according to a report on China's auto industry released by the China Association of Automobile Manufacturers (CAAM).

The Chinese government launched a trial program to subsidize new energy car purchases in several major cities in mid-2010. The Ministry of Finance and another three government organs initiated a plan to promote new energy vehicle use last year and renewed the policy in February by raising the subsidies for 2014 and 2015.

Data from the CAAM showed that 17,642 new energy cars were sold in China last year, up 37.9% from a year ago. In the first quarter of 2014, sales surged 120% year on year to 6,853 cars.

The Chinese government is mulling new incentives to power the development of new-energy vehicles, Vice-Premier Ma Kai told industry insiders late last month in Shenzhen. He told a meeting with auto executives on March 26<sup>th</sup> that new solutions will include purchase tax deductions or even exemptions for clean vehicles like pure electrics and hybrids.

He said the government is also considering dropping a policy that requires gradual reduction of subsidies on such vehicles.

In addition, he said the government plans to levy pollution fees on conventional vehicles, with the revenue used for development of new-energy vehicles and related facilities, according to a report by the 21st Century Business Herald.

The source said that Ma also proposed special "green-colored" license plates for new-energy cars that would be exempt from lottery or auction processes implemented by several local governments.

Delegates to the meeting said a lower market threshold for private investment would help ease the infrastructure shortfall. They said insufficient charging facilities are shackling the industry's development.

During the Shenzhen meeting, Vice-Premier Ma urged more coordination among ministries. To date, the Ministry of Science and Technology, the Ministry of Industry and Information Technology, the National Development and Reform Commission and the Ministry of Finance have been involved in planning and support for new-energy vehicles.

Ma proposed inclusion of more organizations including the Ministry of Housing and Urban-Rural Development, the National Energy Administration, the Ministry of Land and Resources and the Ministry of Transport.

### **m. China Struggling to Meet Emission Targets**

Although China has made great efforts in cutting emissions and energy use, it still faces serious challenges due to its development pattern and poor technology, the top economic planner said on Monday. "Some areas and departments have paid inadequate attention to the issue, and the development pattern is still extensive rather than intensive. In addition, we need a stronger policy mechanism," Xu Shaoshi, head of the National Development and Reform Commission (NDRC), said in a report to the Standing Committee of the National People's Congress, the top legislature.

According to Xu, energy consumption and carbon dioxide emission per unit of GDP in 2013 has dropped by 9.03% and 10.68%, respectively, from the level of 2010. But this is still far from the preset targets.

China has targets for emission cuts and energy saving in its 12th Five-Year Plan (2011-2015), under which energy consumption per unit of GDP should decrease by 16% and carbon dioxide emission should drop by 17% from the level of 2010.

Xu noted that coal accounted for 65.9% of total energy consumption in 2013, and outdated technology is still used in some areas, increasing energy consumption intensity and pollutant discharges. He said that 320 million tons of standard coal should be saved in the 2014-2015 period in a bid to achieve the targets of the 12th Five-Year Plan.

He called for a strengthened target-oriented responsibility system, controlling the increment of energy consumption, strengthened structural adjustment and pollution control.

### **n. China's Auto Industry Geared for Growth Despite Economic Slowdown**

China's automotive industry will keep the forward momentum this year propped by strong demand and a new energy vehicle boom despite increasing downward pressure on the country's economic growth, analysts said. Vehicle sales in China surged to 21.98 million units in 2013, with production amounting to 22.12 million, against a lackluster industrial climate. The figures marked the country as the world's largest auto market for the fifth straight year.

The China Association of Automobile Manufacturers (CAAM) predicted the country's auto sales will grow 8 to 10% year on year in 2014, as the country is at the automobile purchase expansion stage, and promotion of urbanization and consumption upgrade will help boost demand.

Under the backdrop, Wang Zhonghong, researcher with the Development Research Center of the State Council called for more efforts to develop new energy vehicles which will not only provide a major driving force in the future but accelerate structural adjustment for the sector's sustainable growth.

The Chinese central government has rolled out measures since 2010 to promote new energy cars, ranging from subsidies to facility construction. The efforts were intensified in 2014 as the authorities expanded its pilot program to put more new energy vehicles on the streets, covering 40 major cities in the country.

Boosted by the top-down policy, new-energy vehicle sales nationwide jumped 37.9% year on year in 2013, and soared around 120% in the first quarter from the same period of last year. China's two major manufacturers BYD and Guangzhou Automobile Group announced on Wednesday to establish a new energy vehicle joint venture, in a bid to overcome technical barriers and facilitate marketing progress.

Other new energy car producers, including JAC and Chery, have all been gearing up for the booming industry by stepping up brand design and production.

However, China still faces challenges like comparatively lagged technology and weak competitiveness of homegrown brands. Efforts should also be made to improve the infrastructure for new energy vehicles, and change attitudes of consumers, Wang said.

#### **o. Analysis: Green Cars Accelerate at China Automotive Show**

Luxury brands may have hogged spotlights at the Beijing International Automotive Exhibition, but environmentally friendly cars arguably became the hottest stars at the show. Around 80 new-energy vehicles from home and abroad are being exhibited at this event, featuring a total of more than 1,130 vehicles, with 118 debuting.

Visitors have been delighted to see an electric vehicle by DENZA, a joint venture between BYD and Daimler, on sale for 255,000 Yuan (41,397 U.S. dollars) with the subsidy offered by China's government to promote sales of new energy cars. Though it features Daimler Benz technologies, this car is much cheaper than a Benz.

The China Association of Automobile Manufacturers (CAAM) forecasted that 35,000 new-energy cars will be manufactured in China in 2014, doubling the production of 2013. Wang Zhonghong, a researcher with the Development Research Center of the State Council, said that China's stricter environmental protection and austerity measures are hitting the profits of car makers but also inspiring readjustments in the automotive industry. In this scenario, new energy vehicles could be the big winners.

Wang said that investment in research and manufacture of new energy vehicles will keep increasing, while limited technology and the purchase cost of such cars are the major challenges for their makers.

Chinese consumers still prefer traditional high-emission vehicles when prices are equivalent, worrying about the short battery life and lack of charging point infrastructure. Dong Yang, CAAM's executive vice chairman, said that the worries will be eased as momentum builds behind the green car industry, forcing related businesses to keep up with demand.

Chinese electric auto maker BYD has started installing charging points in some communities, and the Beijing Automotive Industry Corporation will set charging points every three km along the city's roads by the end of 2014, according to its technical advisor, Chen Zhuo. According to Wan Xinming, vice president of the China Automotive Engineering Research Institute, large state-owned power companies have started providing support for building charging stations.

However, analysts have pointed out that laggard technologies and lack of established brands and choice in models will hinder this nascent sector, while regulations governing the government's subsidies need to be made more detailed.

China has been the world's largest auto market and producer for five consecutive years, with 22 million vehicles sold last year, surpassing the United States.

#### **p. Siemens, BAIC Join Hands to Boost New Energy Cars' Market**

Siemens and BAIC will join hands to further expand green automotive technologies in the Chinese market. The two companies plan to set up a joint venture this year to produce highly efficient motors and inverters for hybrid and battery electric vehicles.

Beijing Siemens Automotive E-Drive System Co, the joint venture, will begin manufacturing the prototype and small volume production in 2014, and the mass production will start in 2015 in a new Beijing-based factory. The venture plans to produce more than 100,000 units per year with upside potential.

Siemens AG, a global player in the field of electric drivetrains and Beijing Automotive Industry Holding Co (BAIC), one of the major Chinese carmakers, signed the joint venture agreement at the 2014 Beijing International Automotive Exhibition during the media day. BAIC holds 40% share in the new joint venture, and Siemens 60% through Siemens AG and Siemens International Trading (Shanghai) Co equally holding 30% each.

Both parties outlined their plan to utilize Siemens' electric drive train components in BAIC's electric car platforms for a range of vehicles, including its S, C and L car series. The performance scale of these models ranges from 45 to 200 kW.

The joint venture will manufacture components for the electric drivetrain, including power-electronics and electric motors. The new electric drivetrains consist of a safer and higher power density inverters and highly energy efficient motors.

"The change from conventional drive to electrification will be done via plug-in hybrid," Joerg Grotendorst, CEO of Inside e-car with in the Drive Technologies Division in Siemens AG.

Through EV technology and manufacturing, the joint venture will contribute to Chinese government's initiative to establish higher environmental standards by pushing new energy vehicle technologies.

In fiscal year 2013 (Oct 1, 2012 - Sept 30, 2013), Siemens generated revenue of 6.14 billion euros in China. Siemens Industry Sector in China has eight R&D centers, 18 operating companies and 41 sales offices in China.

BAIC Group in 2013 sold about two million units of vehicles, with sales revenue of 266 billion Yuan, and profit of 16 billion Yuan.

#### **q. First Tesla Luxury Sedans Arrive in China**

US-based electric car manufacturer Tesla Motors Inc delivered the first batch of its Model S series cars to customers in China recently, a move that one New York-based analyst sees as a stepping stone to increased operations in the world's second largest economy. "China is the world's most important luxury vehicle market, period," said Craig Irwin, an analyst with Wedbush Securities Inc. "Tesla is a completely new transportation paradigm - coming out with amazing, technology-laden cars that don't use gasoline - and there are a lot of Chinese people that want the best technology available."

Tesla delivered the first eight of its Model S cars to Chinese customers in Beijing as it pledged to invest "hundreds of millions of dollars" into charging facilities and service centers in China. The first few customers included high-profile individuals such as Yin Xidi, the president of the Lifan football club, and Li Xiang, president of the Beijing-based automobile news outlet Autohome Inc.

Elon Musk, founder and CEO of Tesla, said he hoped to form partnerships with companies such as State Grid Corp of China to plan out the construction of more charging facilities. "Charging stations can also be run without power utilities," Musk said. "Solar panels can actually work independent of electricity, but our main goal is to make sure the power is sustainable and clean."

In terms of production in China, Musk said regulatory and other challenges might force the company's hand. It could take more than three to four years to relocate production facilities to China, during which time Musk predicts that the California plant would reach capacity.

"By that time, rather than creating another plant purely dedicated to exports, we would rather build in local markets - whether that's in China, Europe or elsewhere - so we produce more affordable vehicles," he said.

Musk said instead of building a dealership network, he was more concerned about service centers in China.

"Dealerships are the wrong approach," he said. "Tesla does direct sales everywhere in the world. In China, we will probably see more demand than we can fulfill this year." "Therefore, rather than trying to amplify our sales, we want to focus on service and Tesla super-charging locations, so every owner has a great experience," Musk said.

Tesla only got final approval from the government to import cars in January. Some customers have complained that they paid deposits as early as October 2013 and have had to wait a long time for delivery.

Tesla owners still need to win a license lottery in Beijing. Moreover, the cars don't qualify for any of the government subsidy programs.

The Palo Alto company previously announced a \$121,000 sticker price for its Model S in China. It said import taxes and shipping account for the difference with its US price tag of \$81,000.

Andrea James, senior research analyst at investment banking firm Dougherty & Co LLC, said the electric carmaker's pricing decisions in the Chinese market have created a "welcoming environment for Tesla". James said air quality issues in Chinese cities make Tesla's value to the consumer "even more compelling".

"Instead of capitalizing on this value proposition by charging a giant markup on Chinese consumers, Tesla is choosing to sell more zero emissions vehicles by keeping pricing consistent with North America. This is generating good will early on."

#### **r. Tesla Sets up Super Charge Stations in China**

Tesla Motors delivered their Model S electric vehicles to a number of Chinese customers in Shanghai on April 23. At the ceremony, Elon Musk, founder and CEO of Tesla, was there to hand out keys to some Chinese owner representatives.

In addition to long range and excellent control, Tesla is also praised for its direct sales mode and free charge service. It has recently set up two charging stations - "Super Charge" – in Shanghai, one of them in the Jiading district, and the other in the Jinqiao Export Processing Zone of Pudong district, a national-level economic and technological development zone.

The high price of a Tesla car, nearly 1 million Yuan (\$159,900), still keeps it affordable for only a few people. The safety and service life of its batteries, as well as its quality after mass production, all need to be further tested.

A charging facility is an important factor in e-vehicle development. Tesla promised its US customers that it would set up "Super Charge" in any areas where car owners live. With "Super Charge", drivers can charge their cars with 80% of full power in just half an hour. But whether the promise will work in China is still unknown.

#### **s. VW to Build Plug-In Hybrid Cars in China**

Volkswagen plans to make plug-in cars in China, company sources say, seeing a big potential market as the country's leaders fight hazardous levels of air pollution with measures that include boosting green power. VW will announce its plans at the Beijing auto show and will build the plug-in hybrids - a combined petrol engine and electric motor that can travel longer distances on battery power than ordinary hybrids - with their Chinese partner First Automotive Works, the sources told reporters.

Production is likely to be at its new assembly plant in Foshan, southern China.

Volkswagen, Europe's biggest carmaker, is a late starter in terms of making environmentally-friendly cars in China, even though the country is its No. 1 market and accounted for a third of last year's record 9.7 million global deliveries.

Rival Daimler and its local partner BYD Co. plan to start selling their Denza electric vehicle this year, though as yet they have given no start date. Hybrid vehicle champion Toyota unveiled the Yundon-Showanchin II hybrid model last year, specifically developed for China.

Faced with caps on carbon dioxide emissions in core European markets and a drive by rivals to develop battery-powered cars, VW needs to grab a share of the market for plug-in hybrids.

Volkswagen's Foshan factory has been building its Golf hatchback and the Audi A3 compact since last September, and Volkswagen said it will double capacity at the site, co-owned by FAW, to 600,000 cars per year over time.

VW said last month it planned to develop and build a new, environmentally-friendly vehicle with FAW, after talks between German Chancellor Angela Merkel and Chinese President Xi Jinping in Berlin, but gave no further details.

#### **t. China Accelerates Plans for Environmental Taxes**

China will speed up the development of environmental tax legislation that could penalize heavy polluters to help the central government pay for programs to address air, soil and water pollution, said a report from the State Council, China's top decision-making body. Authorities from the State Administration of Taxation (SAT), the Ministry of Finance and the Ministry of Environmental Protection (MEP) have submitted proposals on environmental tax legislation to the State Council's Legislative Affairs Office. The State Council and Standing Committee of the National People's Congress (NPC) will review and possibly modify the proposals before any release for public comment, the April 10<sup>th</sup> report stated.

The SAT is conducting research along with the Beijing municipal tax, environmental protection, finance and development and reform bureaus in the Haidian district of the capital to possibly launch pilot environmental taxes.

Jin Dongsheng, vice director of a tax policy research institute under the SAT, said environmental tax policies should include "polluter pays" principles, which the central government outlined as a priority during high-level meetings in 2013.

Sectors such as steel, cement, glass, coal, chemical and aluminum will likely be the first to face environmental taxes, an April 3 report from China Environmental News, a news agency under the MEP, stated. The report quoted officials saying it could take until August for the NPC Standing Committee to begin reviewing the draft legislation.

In addition to higher taxes for heavy polluters, authorities are considering cutting taxes for companies engaged in environmental protection industries. Those companies could be exempted from paying a value-added tax and could see potential cuts in corporate income taxes, said an April 2<sup>nd</sup> notice from the SAT.

On April 3<sup>rd</sup>, the MEP and National Development and Reform Commission (NDRC) outlined policies to subsidize coal-fired power plants that install systems to remove sulfur dioxide, nitrogen oxides and dust emissions. In a document, the groups said the subsidized coal-fired plants would install systems to automatically gather real-time information on emissions and dust.

Companies that fail to implement monitoring systems could have subsidies removed and face penalties up to five times the amount of their subsidy, according to the statement.

#### **u. Beijing Eyes Smog Controls Ahead Of APEC Meeting**



China may revive 2008 Beijing Olympics-style air pollution controls when it holds a meeting of Asia-Pacific leaders in the often smog-shrouded capital in November, state media said recently. Officials are mulling traffic curbs based on license plate numbers to cut emissions and the closure of plants and construction sites during the Asia-Pacific Economic Cooperation (APEC) Economic Leaders' Meeting, which draws many heads of state from the group's 21 member economies.

The plan is reminiscent of emergency measures implemented with mixed results to tame Beijing's chronic pollution when the city was on the world stage ahead of the 2008 Summer Olympics.

During the APEC meeting, officials would work with the local governments in the nearby city of Tianjin and surrounding Hebei province to combat smog, Zhuang Zhidong, deputy head of the Beijing Environmental Protection Bureau, was cited by the China Daily as saying.

During the meeting, to be held in Beijing's Huairou district, authorities would carry out "regional inspections and supervision of polluting workshops, illegal outdoor barbecues and coal-fired boilers," Zhuang said, according to the paper.

But the paper cited Zou Shoumin, the Ministry of Environmental Protection's inspection office chief, as saying the curbs may not be as effective as those used during the Olympics because fall weather makes dispersing smog harder.

With a population of more than 21 million and more than 5 million cars on the road, Beijing's living conditions are being pushed to their limits.

Across the country, air quality is of increasing concern to China's stability-obsessed leaders, anxious to douse potential unrest as a more affluent urban population turns against a growth-at-all-costs economic model.

#### **v. Shanghai Base for Yangtze River Delta Air Pollution Alert Center**

Shanghai residents will soon receive more accurate air quality reports with the launch of a new calculating system. Air Quality Index (AQI) calculations will be partly based on an hourly figure for PM2.5 — tiny particles especially harmful as they can get deep into the respiratory system — instead of a 24-hour average PM2.5 figure used at present.

Already approved by central government, the new system will be introduced very soon, Zhang Quan, director of Shanghai Environmental Protection Bureau, has announced.

Currently, the AQI, which is reported hourly, is calculated based on levels of six pollutants: PM2.5, PM10, sulfur dioxide, nitrogen dioxide, ozone and carbon monoxide. While readings for four of these are presently updated hourly, PM2.5 and PM10 figures are an average for the previous 24 hours, in line with national standards.

Zhang also said Shanghai will need approval from central government if it intends to introduce an Air Quality Health Index (AQHI), already in use in Hong Kong. AQHI provides health advice and alerts for groups particularly sensitive to air pollution — such as the very young, the elderly and those with respiratory problems — depending on levels of pollutants. "Shanghai's AQI system gives advice to people to reduce short-term exposure to air pollution through adjusting activities but AQHI is more detailed," Zhang said.

In another air pollution initiative, a joint air quality alert center covering Shanghai and neighboring provinces Zhejiang, Jiangsu and Anhui is to be located in the city. Joint alerts are intended to ensure that the Yangtze River Delta can take quick, coordinated action to tackle air pollution. “The meteorological and environment departments of Shanghai and the three provinces are working together closely on the air pollution joint alert system,” said Zhang.

A coordinated effort to fight pollution across the Yangtze River Delta was launched in January, and also includes a unified standard for energy conservation and emission cuts to be achieved. “Our main concerns include the use of resources, coal consumption restrictions, straw burning and emissions from vehicles and ships,” said Zhang.

He said in Shanghai 500 to 600 polluting industrial enterprises are made to clean up their act or closed each year, and some neighbors are having to play catch up to achieve uniform standards.

“Jiangsu Province might have to take action on more than 1,000 polluting enterprises every year to catch up with the pace of the joint effort in the Yangtze River Delta region,” said Zhang. “These are historical problems from earlier developments.”

Meanwhile, the city is to continue increasing punishments for polluting air, water and soil through illegal discharges and emissions.

Shanghai has already adjusted its penalty system, levying fines on a daily basis to encourage immediate improvements. Fines totaling 70 million Yuan (US\$11.27 million) were collected by the environment bureau in 2013 — up 50 percent on 2012.

Now the bureau is also turning its attention to individuals in companies responsible for pollution. “In future, punishments will also be handed out to individuals, with them receiving fines and shouldering legal responsibilities,” said Zhang.

### **37. Hybrid Vehicles More Fuel Efficient In India, China Than in U.S.**

Driving conditions in Indian and Chinese cities — heavy traffic, aggressive driving style, few freeways—makes them ideal for saving fuel with hybrid vehicles, according to new research by scientists at the U.S. Department of Energy’s Lawrence Berkeley National Laboratory. In a pair of studies using real-world driving conditions, they found that hybrid cars are significantly more fuel-efficient in India and China than they are in the United States.<sup>1</sup>

These findings could have an important impact in countries that are on the brink of experiencing an explosion in the sales of personal vehicles; the government of India has already taken note of the findings. “Currently greenhouse gas emissions from the transportation sector in India and China are a smaller piece of the pie compared with other sectors,” said lead researcher Anand Gopal. “But vehicle ownership is going to skyrocket in these countries. That is why we decided to focus on this area. Hybrid and electric vehicles can significantly reduce carbon emissions and other pollutants.”

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<sup>1</sup> Their results were reported in two papers, [“Understanding the fuel savings potential from deploying hybrid cars in China.”](#) published in *Applied Energy*, and “Understanding fuel savings mechanisms from hybrid vehicles to guide optimal battery sizing for India,” accepted for publication in the *International Journal of Powertrains*, also co-authored by Berkeley Lab battery scientist Venkat Srinivasan.

What's more, hybrids in India are also more fuel-efficient than they are officially rated for. "With the official fuel economy test procedure currently used in India, fuel savings for hybrids are fairly grossly underestimated, showing only a 29 percent savings over conventional vehicles," Gopal said. "The test cycle is not representative of driving conditions in India, so that's sending the wrong signal to the consumer."

For the India analysis the researchers simulated drive cycles in two Indian cities (New Delhi and Pune) taken from published studies and also used the Modified Indian Drive Cycle, the test for the official fuel economy rating.



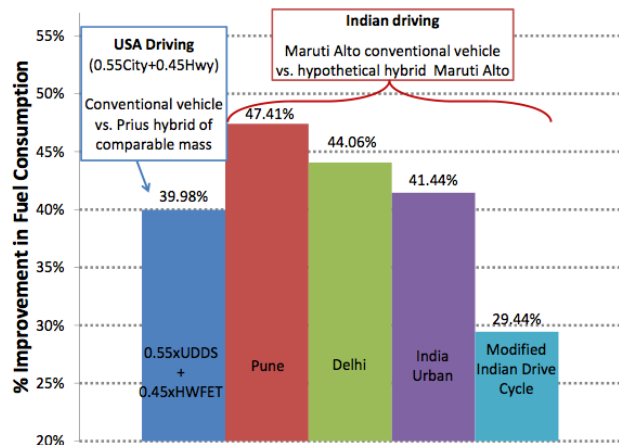
In China they simulated drive cycles in 11 cities and with three types of hybrid powertrains (start-stop, parallel and power-split). In both cases they compared it to drive cycles used for U.S. fuel efficiency ratings, which include about 55 percent city driving and 45 percent highway driving.

They found that driving a hybrid would achieve fuel savings of about 47 to 48 percent over a conventional car in India and about 53 to

55 percent in China. In the United States, hybrids are rated to produce a fuel savings of about 40 percent over their conventional counterparts.

Improvement in fuel consumption in India of a hybrid vehicle over a conventional vehicle

In technical terms, the frequent starting and stopping, considerable amount of time spent idling, and low percentage of time spent on highways provide hybrids three ways to save additional fuel. "One is regenerative braking, another is being able to turn off the engine when the car is stopped or in low-power condition, and another is that the hybrid system—the electric motor, the batteries—enable the engine to operate at a higher efficiency operating condition," Saxena explained. "We weighed the importance of these three mechanisms against each other for the Indian vehicles, and found that the ability to increase engine efficiency was the most important reason, second was regenerative braking, then engine shutdown."



### 38. Indian Expert Committee Report Expected Soon; Bharat-V Fuel Proposed by 2021

An expert committee, tasked by the petroleum ministry to suggest standards and timelines for switching to higher quality fuel and emission norms in the country, has recommended upgrade to the intermediate BS-IV+ norms across India by April 1, 2017 followed by introduction of BS-V fuel on April 1, 2021 if fresh investments are made.

The emission standards are instituted by the government to regulate the output of air pollutants from internal combustion engine equipment including motor vehicles. According to the committee, oil marketing companies (OMCs) had invested Rs30, 000 crore for moving from BS-III to BS-IV emission norms in 2010. It is estimated by the committee that fresh investments of at least Rs80, 000 crore will be needed over the next few years for OMCs to set up new facilities capable of producing the BS-V fuel.<sup>2</sup>

"Enabling investments of this magnitude will require an appropriate pricing policy in the country. In the absence of investment of this magnitude, the transition could take another four years," Saumitra Chaudhuri, Planning Commission member and head of the committee, told the press.

Laying the roadmap for a transition from BS-IV to BS-V fuel, the Chaudhuri-led committee has proposed phased rollout of intermediate fuel from April next year.

The committee, which is likely to submit its report soon, has suggested introduction of BS-IV+ fuel in northern parts of the country from the next fiscal followed by western and some southern states in April 2016 and coverage of the entire country by April 1, 2017.

The BS-IV+ fuel will have sulfur content at 40ppm compared with 50ppm under BS-IV norms. The bar will be raised to 10ppm under BS-V. India has been following European emission norms, albeit with a time lag as this allows use of readily available technology and does not require much investment in research. The decision to upgrade to better quality fuel rests entirely on the oil marketing companies and will not require much technological change at the end of vehicle manufacturers, said Vishnu Mathur of the Society of Indian Automobile Manufacturers.

"However, if there is a corresponding change in emission norms, the automobile manufacturers will have to make necessary changes to adapt to intermediate emission norms," he added. The existing fuel quality and emission standards were laid out in the National Auto Fuel policy of 2003. This, in turn, was based on the recommendations of the Mashelkar committee report of 2002 which had laid down the road map for implementation of the Bharat Stage norms till 2010.

In the absence of a road map for emission norms beyond 2010, the government had set up a 13-member committee under Chaudhuri to chart a road map for fuel quality and vehicle emission standards. Bharat stage emission standards and their timelines are set by the Central Pollution Control Board under the ministry of environment and forests.

### **39. Hyundai Motor to Launch First Battery-Powered Electric Car In 2016**

Hyundai Motor Co plans to start selling its first battery-powered electric vehicle (EV) in 2016 as South Korea's champion of fuel-cell cars hedges its bets in next-generation green technology. Hyundai has leant toward engines which turn hydrogen into electricity in response to stricter emissions regulations in markets such as the United States. Research and development partner Kia Motors Corp has focused on rechargeable batteries.

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<sup>2</sup> An analysis carried out for ICCT in 2012 estimated that total investment would be approximately \$4.16 billion (Rs 20,800 crore).

But the division of labor is blurring at a time when the number of battery-powered EVs is on the rise. BMW's i3 and Nissan Motor Co Ltd.'s Leaf are widely expected to reach Korea this year - as will Kia's Soul EV.

"There is no clear direction about which eco-friendly cars will win. We are dividing roles of Hyundai and Kia, with Hyundai launching fuel cell cars and Kia focusing on electric cars," Senior Vice President Lee Ki-sang told reporters recently. "But the time will come when Kia will introduce a fuel-cell car. Hyundai is also preparing to launch a (battery-powered) electric car in 2016," Lee said at the Korean launch of the Soul

Kia, 34 percent owned by Hyundai, said it will start building the Soul EV compact in Korea next month. The car will be the pair's first battery-powered EV export, with destinations including the United States and Europe. For this year, the global sales target is 5,000 Soul EVs, said Cho Yong-won, vice president of Kia's Domestic Marketing Group.

In Korea, the Soul EV will cost about half of its 42 million won (\$39,400) price tag after government subsidies, similar to the higher-end model of the gasoline version. The car can run up to 148 kilometers (92 miles) per 24 to 33 minute fast charge or four hours on slow charge.

Relatively short driving ranges and a lack of charging stations, as well as the high cost of batteries, has kept the battery-powered EV market niche.

Korean sales of Kia's Ray EV, Renault SA's SM3 EV and General Motors Co.'s Spark EV totaled just 713 vehicles last year, industry data showed. Hyundai's BlueOn is only used by government agencies.

#### **40.S. Korea Tax for New Cars to Be Based on Carbon Footprint**

Consumers buying new cars in South Korea from January 2015 either will receive a subsidy or pay a surcharge, depending on the carbon footprints of their car choices, the Ministry of Environment said on March 11<sup>th</sup>. Details on how the system works will be finalized as early as April.

Basically, people purchasing cars, domestic or imported, with high carbon dioxide emissions will be required to pay a surcharge on top of the price of the car, and the surcharge revenues will go to financing subsidies for people choosing cars with lower emission levels, typically compact and subcompact cars. Given that more than 70 percent of passenger cars on South Korean roads are large cars, the new climate change policy program should help shift consumers' car buying choices toward smaller cars, the ministry said in a statement.

Similar programs already are in place in France, Austria, the Netherlands, Belgium and Singapore, the ministry said.

Details on the amount of surcharges some South Korean car buyers could face, and the subsidies others could receive, should be announced by April, the ministry said.

An April 2013 amendment of the Air Quality Preservation Act, which took effect on February 6<sup>th</sup>, provides a legal basis for the South Korean scheme.

“This is not a carbon tax or any kind of tax based on automotive engine capacity,” Park Yeon-jae, director of the Transportation Environment Division at the ministry, told the press. Therefore, it is consistent with the provisions of the existing free trade agreement between South Korea and the United States that prohibit vehicle tax discrimination based on engine capacity, he said. The United States Trade Representative had previously conveyed its concern to South Korea about any adverse surcharge impact on large-size U.S. cars imported into the country, the official said.

#### **41. Hong Kong Looks at Mainland Energy Sources, Natural Gas as Future Options**

Hong Kong has launched a three-month public consultation on the future energy mix of the special administrative region, asking citizens for input on an option that would involve getting more energy from mainland China and another that would boost the local use of imported natural gas, according to March 19 statements from Secretary for Environment Wong Kam-sing.

With some coal-fired power units being retired beginning in 2017 and new air pollution reduction targets looming in 2020, the government is planning for “necessary infrastructure” needed a decade from now to ensure a sustainable energy supply for the region, Wong said.

The first option is for Hong Kong to import 30 percent of its power directly from Guangdong's Southern Grid Co., to get 40 percent generated locally from imported natural gas, get 20 percent from mainland nuclear sources, and 10 percent from Hong Kong-based coal-fired power plants.

The second option would be a mix of 60 percent from imported natural gas, 20 percent from Hong Kong coal-fired power plants, and 20 percent from mainland China nuclear sources.

Hong Kong now gets nuclear power from the Daya Bay nuclear power plant in China's neighboring Guangdong province. Wong said the options do “not really increase the reliance on nuclear” power, something that has been controversial in Hong Kong.

Sum Yin Kwong, head of the Hong Kong air pollution watchdog Clean Air Network (CAN), said in a statement on March 19<sup>th</sup> that more effort should be made by the government to “advocate further energy savings plans and the use of renewable energy in order to avoid excessive reliance on any type of fuel for power generation.” CAN called on the government to provide more information regarding sources of imported energy under the proposals, and about possible increases in coal-fired power emissions in Guangdong province.

Friends of the Earth, which favors the first option, said that sourcing more energy from the mainland grid would “open new opportunities for the future liberalization of the energy market” in both areas, and that some of that energy sourced would likely come from renewable sources in Guangdong. The first option would help “strengthen monitoring on the energy sector via closer cooperation” between Hong Kong and Guangdong province, the group said in a March 19 statement.

The public is invited to submit comments on the plans through June 18.

#### **42. Japanese Project Aims to Create Cleaner Diesel Technology**

Japan's Ministry of Economy, Trade and Industry has launched a joint government-business project to develop improved clean-diesel technology for vehicles. Japan wants to improve clean-

diesel-fuel efficiency 30 percent by 2020, compared with 2010 efficiency levels of vehicles sold by Japanese automakers, the ministry said on March 20<sup>th</sup> in announcing the project.

The project is part of the Next-Generation Automobile Strategy 2010 national program that Japan's government introduced four years ago, according to officials of the METI Automotive Policy Division. The program also focuses on gasoline hybrid, plug-in hybrid, fuel cell, electric, and compressed natural gas engines.

In Japan, diesel power trains are mostly mounted on commercial vehicles, large trucks and buses. Only a few passenger vehicle models use diesel fuel, but demand for Japanese and European diesel models is growing.

The project will focus on the development of a better diesel particulate filter, exhaust gas recirculation systems that are resistant to deposits and corrosion, and reduction of white tailpipe fumes caused by inefficient burning of hydrocarbons and sulfur, officials said. They hope to develop a diesel particulate filter that improves fuel efficiency and significantly reduces particulate matter, including fine particles (PM-2.5) officials said.

The project will use technology and personnel from the government, auto industry, academia and other entities across from Japan. A METI official said it was “probably the first time” such collaboration has been attempted since Japan abandoned government-industry alliances in the 1990s after U.S. criticisms in bilateral trade negotiations.

## **SOUTH AMERICA**

### **43. Latin American Leaders Vow Regional Action to Address Climate Change**

Latin America will bolster efforts to fight climate change and strengthen cooperation on key environmental initiatives, the region's environment ministers said in a Los Cabos, Mexico, meeting on March 12<sup>th</sup> – 15<sup>th</sup>. During the 19th Forum of Latin American and Caribbean Environment Ministers, representatives of more than two dozen countries vowed to develop a common working agenda to tackle climate change, to improve waste management and air quality and to protect species' biodiversity.

“The leaders made pledges to start working together on a number of issues,” a spokeswoman for Mexico's Environment Secretariat Semarnat told reporters. “They realized Latin America can no longer wait to take action on climate change. Its negative effects are seen everywhere.”

The action plan is not binding, but the countries hope to draft a stronger working agenda during the COP20 meeting in Lima, Peru, later this year, she said.

During closed-door meetings, the officials came up with a five-step action plan:

1. Promote a regional cooperation program for climate change in line with the region's interests.
2. Hand program coordination to Mexico, in conjunction with Peru and in consultation with other countries, the U.N. Environment Program and other global institutions.
3. Make relevant scientific and economic information more widely available to help decision-making efforts surrounding climate change.

4. Consider, within the cooperation program, any aid to help small Caribbean states cope with climate disasters.
5. Update the Latin American and Caribbean Initiative for Sustainable Development in line with the region's needs and the U.N. Framework Convention on Climate Change.

“We need practical and innovative solutions and a solid commitment between our nations to develop the region's economy in a sustainable way,” Mexico's Environment Minister Juan Jose Guerra Abud said at the forum's opening.

U.N. Under-Secretary General and Environment Program Executive Director Achim Steiner and Ecuador Environment Minister Lorena Tapia also were present to launch the biennial event, and Tapia handed Guerra the forum's two-year presidency.

The ministers also vowed to hasten efforts to build a joint position for the COP20 negotiations. Peru's Environment Minister Manuel Pulgar-Vidal said doing so is crucial. While the Latin America and Caribbean region accounts for 12.5 percent of global greenhouse gas emissions, the region stands to be one of the hardest hit if temperatures rise, he said.

## MIDDLE EAST

### **44. Israeli Car Buyers Getting Greener Because of Economic Incentives in New Tax**

Israeli consumers are buying environmentally friendlier cars after the government instituted a “green reform” on new vehicles that raised taxes for some vehicles and lowered them for others, according to a new Bank of Israel study. “Clear economic incentives have a significant effect in the desired direction on consumer behavior, and even more so when the technological environment (the entry into the market of new, less-polluting models) supports the change,” the bank said in an excerpt from its 2013 Annual Report, released on March 11<sup>th</sup>.

The findings could lead the government to adopt similar policies aimed at reducing traffic congestion on the roads, the report added, noting a three-year test under way to determine how differential payments on travel during peak hours affect driving habits. “The findings of the test are intended to assist a professional committee, appointed by the Ministers of Finance and Transportation, in proposing a new tax policy that will change travel habits and thereby reduce congestion on the roads,” the report stated.

The Israeli buyer's tax for automobile purchases is among the highest in the world, according to the Jerusalem Institute of Market Studies. In 2009, the country adopted the “green reform” on private vehicle taxes, raising the base purchase tax rate on cars from around 73 percent to 90 percent of a purchase price— and then cutting it for some, according to 15 specified pollution levels, the report explained.

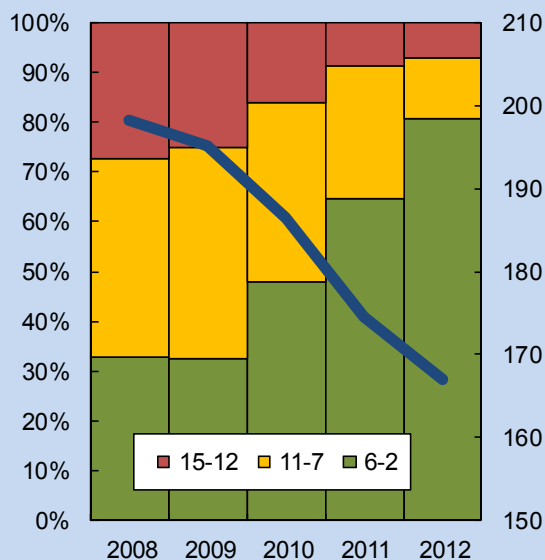
The actual tax rates—after the benefit—ranged from 30 percent to 83 percent of the purchase price, in effect lowering the final cost of less-polluting vehicles and raising prices on vehicles that pollute more, it said.

The system was updated in 2013, after a significant increase in the import of vehicles in the lower pollution categories cut into state tax revenues. Vehicle purchase taxes accounted for 7.2 percent of total tax revenue in 2012, the report noted.



The declining differentiation between pollution levels also reduced the tax rates' influence on green decision making, the report said, justifying the “re-calibration” which adjusted taxes on a number of popular models upward in order to return purchasing patterns to 2009 targets.

**Figure 1**  
**Distribution of air pollution levels and the "green" score of passenger vehicles (the line, and relating to the right scale), yearly average by purchase month, 2008–12**



SOURCE: Based on Ministry of Transportation and Israel Tax Authority Finance and Development Division

Figure 1 indicates the change as a result of the reform: The average green grade of vehicles has improved consistently.<sup>3</sup>

The report rejected claims that rising fuel prices, instead of economic reforms, were responsible for the reduction in pollution levels of imported vehicles. Average engine sizes of cars purchased between 2000 and 2008 increased despite rising fuel prices, it noted, but decreased after the reform's implementation, even though fuel prices continued to rise. “It therefore seems that the green taxation reform on vehicle purchases, rather than fuel prices, is what explains the change in the composition of vehicles being purchased by individuals,” the report said.

It also ruled out the possibility that an increase in the number of two-vehicle households—since a family's second vehicle is usually smaller—caused the decline in engine size. “An examination of the rate of change in the number of households owning

more than one vehicle between 2000 and 2012 shows that the growth is linear and does not change after 2008,” the report said.

#### 45. Israel Air Quality Reports Bring Mixed Results

Controlling pollution from transportation and industry require greater supervision and, according to a leading nongovernmental organization, enhancements to Israel's environmental policy. Although airborne contaminants from transportation dropped between 2001 and 2012, data collected at more than 100 monitoring stations throughout the country recorded no change in inhalable fine particles or ozone levels, both of which pose more serious health risks, according to a report released by Israel's Environmental Protection Ministry.

The report, released on April 8<sup>th</sup> at a gathering of local authority heads, noted some improvement in nitrogen dioxide and sulfur dioxide concentrations in Jerusalem and Tel Aviv. And Haifa's air

<sup>3</sup> Technically, the “green” grade declines with a decline in the pollution level of the vehicle.

quality showed an even greater improvement, the report said, due to decreased emissions from vehicles and industries located in Haifa Bay.

Monitoring stations located alongside power plants and oil refineries before Israel's Clean Air Act came into effect in January 2011 measured a drop in sulfur dioxide levels nationwide, which the report credited to the use of "cleaner" fuels such as natural gas.

Stations located at major intersections also recorded improved air quality due to regulations on transportation fuel quality as well as car scrapping and "green tax" programs, the report said.

All the monitoring stations, however, measured higher than targeted concentrations of inhalable fine particles that can contain toxic and carcinogenic matter, the report said, pointing to an influx from the Arabian Desert and North Africa.

Responding to the data, Environmental Protection Minister Amir Peretz called air pollution "the silent enemy of our citizens" and said "the effect of clean fuels and natural gas will make itself felt in improved air quality" over time.

He also announced that the ministry is launching a nationwide air quality monitoring system based on the stations' readings. And he said the data will be posted in real time on the popular Waze navigation app to help drivers avoid areas of particularly high pollution.

More monitoring, however, is not enough to protect public health, the Israel Union for Environmental Defense (IUED) said on April 3<sup>rd</sup>, releasing its own report on nationwide air quality in 2012. The IUED report, based on statistics from Israel's new Pollutant Release and Transfer Register (PRTR) database, found that factories throughout Israel emitted a variety of carcinogens in 2012, at levels that threaten public health, even though they fall within legal limits, the NGO said.

"Standards are not all-inclusive," IUED Executive Director Amit Bracha said in a statement. "When a factory emits massive amounts of poison into the air, it must be limited, even if it has not violated the law."

"Regulations never provide full protection for public health and the environment," added Arye Vanger, the IUED's air quality and education coordinator, and author of the report. "We must examine the large sources of emissions with a magnifying glass in order to identify more options for environmental improvement and emission reduction through a modern and wise environmental policy," he wrote in the report.

The IUED examined the emissions of six substances—arsenic, mercury, formaldehyde, hydrocarbons, benzene and trichloroethylene—and found their highest levels near power, recycling and waste treatment facilities.

While the precise impact of the toxins has not been fully documented, most are widely accepted carcinogens and their collective impact on public health can be fatal, the report said. For example, inhalation of mercury vapor can lead to vision, memory and hearing loss. Arsenic is a carcinogen that strongly affects the respiratory and nervous systems. And benzene causes anemia and harms blood production, the report said.

Several of the facilities cited as the greatest sources of air pollution responded that the report was based on outdated information and that their emission data has since greatly improved.

The Israel Electric Corporation (IEC) also said the report fails to take into account characteristics of power plants such as chimney height and temperature adjustments that minimize the amount of chemicals reaching public areas. “Unfortunately, the report creates a distorted picture, which does not give a true indication of public exposure to polluting substances,” the IEC said in a statement.

The PRTR database, which Israel committed to create in 2009 as part of its bid for membership in the Organization for Economic Cooperation and Development, first obligated businesses to submit their emissions data in July 2013, for the year 2012. Statistics for 2013 are due in May.

#### **46. Kuwait EPA Says Rising Air Pollutants Call For More Preventative Programs**

The increasing air pollution due to urban and industrial expansion in the country calls for setting up more programs and systems to lessen the detrimental effect of this phenomenon on human health and the Earth's ecosystems, Environment Public Authority (EPA) announced Monday.

EPA's Deputy Director for Environmental Monitoring and Technical Affairs Mohammad Al-Enezi told KUNA that the swelling number of vehicles in the country was another factor that led to rising levels of air pollutants; hence, more programs should be set up to improve the quality of air.

He added that EPA has built a partnership with both Kuwait Oil Company (KOC) and the United Nations Development Programme to counter the phenomenon by setting up programs that monitor air, water, and land for any signs of pollution activities. He also added that future studies and projects will be conducted in collaboration with KOC to monitor and, thus, prevent all causes of pollution.

### **AFRICA**

#### **47. Measuring Africa's Air Pollution**

Air pollution in Asia and Europe has grabbed headlines. But the problem is pervasive across Africa as well. Africa is urbanizing quickly, and pollution from sources like vehicle exhaust, wood burning and dusty dirt roads has reached worrisome levels in many cities. Equally or more troubling is air pollution inside homes, caused by cooking with wood or other sooty fuels. But few nations outside South Africa have imposed regulations to address the problem, experts say.

“We do know that in Africa, there's a very major problem with indoor air pollution,” said Dr. Carlos Dora, an official with the World Health Organization's Department for Public Health and Environment. Data for outdoor air pollution in cities, he added, is less available and may not capture the scope of the problem.

Dirty air can cause lung damage as well as heart disease, strokes and cancer. Last month the W.H.O. estimated that one in eight deaths worldwide resulted from air pollution. The organization found that air pollution in African homes contributed to nearly 600,000 deaths in 2012. Africa had the third highest level of deaths per capita from indoor air pollution of any region of the world, though it was still well behind areas of the western Pacific region (including China) and Southeast Asia.

The W.H.O. figures for deaths per capita from outdoor air pollution in Africa are well below the world average, but the lack of data is a barrier. Pollution monitoring is minimal on a continent that is mostly focused on other problems. Instruments are expensive, and academics say they often struggle to get grants to study the problem. The W.H.O. assesses outdoor pollution in Africa by drawing from satellite data, inventories of pollution sources, air-current modeling and occasional ground monitors, Dr. Dora said. Continent-wide data is stronger than that for individual countries, he added.

In Nairobi, the Kenyan capital, normal levels of fine dust (meaning particles less than 2.5 micrometers in diameter, about 1/30 of the width of a human hair and a significant health threat) are usually five times as high as those in Gothenburg, Sweden, according to Johan Boman, a professor of atmospheric science at the University of Gothenburg. The Nairobi pollution doubles near the central business district, he said, reflecting high pollution from vehicle exhaust.

“It’s certainly not as bad as what we see from China,” he said. “On the other hand, in China it’s very much seasonal,” whereas Nairobi, with its relatively stable climate, has less variation.

A survey several years ago by the W.H.O. showed Gaborone, Botswana, as having the eighth-highest level of particulate pollution (particles of up to 10 micrometers in diameter) among a list of world cities. But the W.H.O. stresses that it is an incomplete list, since many cities did not provide data — including some of the most polluted.

The outdoor pollution problem is growing, as more Africans move to cities. Ms. Linden, a research associate in urban climatology at the University of Mainz, in Germany who did research in Burkina Faso until 2007, said that “the situation is likely worse now” because Ouagadougou’s population has swelled by more than 50 percent since then. Major outdoor sources of pollution include old vehicles; the burning of wood and trash; industrial activities; and even dust from dirt roads, a serious issue in Ouagadougou. In West Africa, a wind called the harmattan adds to the problem in the winter, coating the region in Saharan desert dust.

One recent study, published in the journal *Environmental Research Letters*, estimated that Africa could generate 20 percent to 30 percent of the world’s combustion-driven sulfur dioxide and nitrogen oxides by 2030, up from about 5 percent each in 2005. Other pollutants are growing too: Organic carbon from Africa could rise to over 50 percent of the world’s combustion output, from 20 percent, the study said. The authors did their calculations using estimates about fuel consumption, growth and other emissions factors, and warned of “a considerable increase in emissions from Africa” in the absence of regulations.

One of few countries to put regulations in place is South Africa, where ozone and tiny particles are particular worries. Air quality standards went into effect in 2009. Restrictions on particles will tighten in 2015 and 2016, according to Rebecca Garland, a senior researcher at the Council for Scientific and Industrial Research in Pretoria.

Elsewhere, action is lacking as African nations grapple with other problems. Dr. Dora of the W.H.O. said that in countries like China, the pressure to stem pollution comes from businesses, and “from what I know, there’s still not that pressure from businesses in Africa,” he said. However, some leaders are aware of the issue and want to address it, he added.

One initiative that has gotten considerable attention is cleaner cook stoves. The current fuels, including wood, charcoal, animal dung and crop residues, create smoke and soot. The W.H.O. is releasing information soon about how various technologies can improve indoor air pollution. The

concept of cleaner cook stoves has been getting high-profile attention; however, some experts caution that some of the new cook stoves may be focused less on reducing air emissions than on other benefits like increased energy efficiency and preventing forest degradation.

“I don’t think anybody’s really demonstrated that they’re clean enough” to play a serious role in improving public health, said Darby Jack, an assistant professor at Columbia University’s Mailman School of Public Health.

## GENERAL

### 48. IPCC Says Step Up Action to Curb Global Warming, Or Risks Rise

A new report by the Intergovernmental Panel on Climate Change (IPCC) shows that global emissions of greenhouse gases have risen to unprecedented levels despite a growing number of policies to reduce climate change. Emissions grew more quickly between 2000 and 2010 than in each of the three previous decades.

According to the Working Group III contribution to the IPCC’s Fifth Assessment Report, it would be possible, using a wide array of technological measures and changes in behavior, to limit the increase in global mean temperature to two degrees Celsius above pre-industrial levels. However, only major institutional and technological change will give a better than even chance that global warming will not exceed this threshold.

The report, entitled *Climate Change 2014: Mitigation of Climate Change*, is the third of three Working Group reports, which, along with a Synthesis Report due in October 2014, constitute the IPCC’s Fifth Assessment Report on climate change.

Scenarios show that to have a likely chance of limiting the increase in global mean temperature to two degrees Celsius, means **lowering global greenhouse gas emissions by 40 to 70 percent compared with 2010 by mid-century, and to near-zero by the end of this century.** Ambitious mitigation may even require removing carbon dioxide from the atmosphere.

Scientific literature confirms that even less ambitious temperature goals would still require similar emissions reductions.

For the report, about 1200 scenarios from scientific literature have been analyzed. These scenarios were generated by 31 modelling teams around the world to explore the economic, technological and institutional prerequisites and implications of mitigation pathways with different degrees of ambition.

Estimates of the economic costs of mitigation vary widely. In business-as-usual scenarios, consumption grows by 1.6 to 3 percent per year. Ambitious mitigation would reduce this growth by around 0.06 percentage points a year. However, the underlying estimates do not take into account economic benefits of reduced climate change.

Since the last IPCC assessment report, published in 2007, a wealth of new knowledge about climate change mitigation has emerged. The authors of the new, fifth Working Group III report have included about 10,000 references to scientific literature in 16 chapters.

Stabilizing greenhouse gas concentrations in the atmosphere requires emissions reductions from energy production and use, transport, buildings, industry, land use, and human settlements.

Mitigation efforts in one sector determine the needs in others. Cutting emissions from electricity production to near zero is a common feature of ambitious mitigation scenarios. But using energy efficiently is also important.

Since publication of the Fourth Assessment Report there has been a focus on climate policies designed to increase co-benefits and reduce adverse side-effects.

Land is another key component for the 2°C goal. Slowing deforestation and planting forests have stopped or even reversed the increase in emissions from land use. Through afforestation, land could be used to draw carbon dioxide from the atmosphere. This could also be achieved by combining electricity production from biomass and carbon dioxide capture and storage. However, as of today this combination is not available at scale, permanent underground carbon dioxide storage faces challenges and the risks of increased competition for land need to be managed.

The Working Group III report consists of the Summary for Policymakers, a more detailed Technical Summary, the underlying 16 chapters, and three annexes. Working Group III chapter teams were formed by 235 authors and 38 review editors from 57 countries, and 180 experts provided additional input as contributing authors. More than 800 experts reviewed drafts of the report and submitted comments.

Some Key Excerpts From The Report Include:

- Strategies to reduce the carbon intensities of fuel and the rate of reducing carbon intensity are constrained by challenges associated with energy storage and the relatively low energy density of low-carbon transport fuels (medium confidence). Integrated and sectoral studies broadly agree that opportunities for switching to low-carbon fuels exist in the near term and will grow over time. Methane-based fuels are already increasing their share for road vehicles and waterborne craft. Electricity produced from low-carbon sources has near-term potential for electric rail and short to medium-term potential as electric buses, light duty and wheel road vehicles are deployed. Hydrogen fuels from low-carbon sources constitute longer term options. Commercially available liquid and gaseous biofuels already provide co-benefits together with mitigation options that can be increased by technology advances. Reducing transport emissions of particulate matter (including black carbon), tropospheric ozone and aerosol precursors (including NO<sub>x</sub>) can have human health and mitigation co-benefits in the short term (medium evidence, medium agreement).
- Mitigation strategies, when associated with non-climate policies at all government levels, can help decouple transport GHG emissions from economic growth in all regions (medium confidence) These strategies can help reduce travel demand, incentivize freight businesses to reduce the carbon intensity of their logistical systems and induce modal shifts, as well as provide co-benefits including improved access and mobility, better health and safety, greater energy security, and cost and time savings (medium evidence, high agreement).
- Bioenergy can play a critical role for mitigation, but there are issues to consider, such as the sustainability of practices and the efficiency of bioenergy systems (robust evidence, medium agreement). Barriers to large-scale deployment of bioenergy include concerns about GHG emissions from land, food security, water resources, biodiversity conservation and livelihoods. The scientific debate about the overall climate impact related to land use competition effects of specific bioenergy pathways remains unresolved (robust evidence, high agreement). Bioenergy technologies are diverse and span a wide range of options

and technology pathways. Evidence suggests that options with low lifecycle emissions (e.g., sugar cane, Miscanthus, fast growing tree species, and sustainable use of biomass residues), some already available, can reduce GHG emissions; outcomes are site-specific and rely on efficient integrated biomass-to-bioenergy systems, and sustainable land-use management and governance. In some regions, specific bioenergy options, such as improved cook stoves, and small-scale biogas and biopower production, could reduce GHG emissions and improve livelihoods and health in the context of sustainable development (medium evidence, medium agreement).

Many governments had complained that an earlier draft was not clear in its estimate of the costs of low-carbon energy, which include solar or wind, nuclear and fossil fuels whose greenhouse gas emissions are captured and buried underground. The new draft indicates that world economic losses would be small compared to projected costs of heat waves, floods, storms and rising sea levels; it said that a radical shift from fossil fuels to low-carbon energy such as wind, solar or nuclear power would shave only about 0.06 of a percentage point a year off world economic growth. The new draft also adds context that losses are tiny compared to soaring wealth - consumption is set to rise by anywhere from 300 to 900 percent this century, it says.

The report says trillion-dollar shifts in investments are needed to make low-carbon energies the dominant source of energy by 2050, up from 17 percent now, in a shift from conventional fossil fuels.

Governments have promised to limit temperature rises to a maximum 2 degrees Celsius (3.6 Fahrenheit) above pre-industrial times to avert ever more heat waves, floods, droughts and rising sea levels that the IPCC says are linked to man-made warming. Such levels were still attainable, it said, but policies in place so far put the world on target for a temperature rise of up to 4.8C (8.6F) by 2100. Temperatures have already risen by about 0.8 C (1.4F) since the Industrial Revolution of the 18th and 19th centuries.

The study by the Intergovernmental Panel on Climate Change (IPCC) is a main guide for governments working on a U.N. pact due to be agreed in Paris at the end of 2015 to slow global warming, which the IPCC says is extremely likely to be man-made.

The report was released amid controversy, in part because significant swaths of text shown in earlier drafts were left out of the final summary for policy makers. Among the eliminated text was information about the parts of the world where emissions are growing fastest and how to divvy up the historical responsibilities for existing emissions. That information remains in the full report but at more than 1,000 pages and with nearly 40,000 comments, the longer report may not be used as often by climate negotiators as the summary.

Pachauri, during the April 13 presentation, brushed aside the charges that key elements had been left out of the summary. "The entire IPCC process and the approval of the [summary] document was based on debate," he said. "Naturally, when you have different points of view, there are disagreements."

The transport sector accounted for 27% of final energy use and 6.7 GtCO<sub>2</sub> direct emissions in 2010, with baseline CO<sub>2</sub> emissions projected to approximately double by 2050. Emissions growth from increasing global passenger and freight activity could be partly offset by future mitigation measures, such as fuel carbon and energy intensity improvements, infrastructure development, behavioral change and comprehensive policy implementation. Reductions in total transport CO<sub>2</sub>

emissions of 15–40% compared to the *baseline growth* could be achieved by 2050, suggests the report.

#### **49. El Nino More Than 50 Percent Likely By Summer: U.S. Weather Forecaster**

The chances have increased over the past month that the much-feared El Nino phenomenon, which has the potential to wreak havoc on global crops, would strike by summer in the Northern Hemisphere, the federal U.S. weather forecaster said. In its monthly report, the Climate Prediction Center, an agency of the National Weather Service, pegged the likelihood at more than 50 percent.

In March, it said there was about a 50 percent chance of the weather pattern that causes floods and droughts across the world during the summer or autumn. Recently, Australia's Bureau of Meteorology pegged the chances of El Nino in 2014 at more than 70 percent.

El Nino - a warming of sea-surface temperatures in the Pacific - affects wind patterns and can trigger both floods and drought in different parts of the globe, curbing food supply.

#### **50. IMO Weakens Rules on NOx Emissions from Ships**

Members of the International Maritime Organization (IMO) have weakened the rules for new NOx emissions control areas (NECAs). Amendments adopted by member countries will lower the number of ships included in a planned NECA in the Baltic Sea. The scope of a NECA under consideration for the North Sea will also be affected by the decision. But a NECA in North American waters that will enter force in 2016 will not be affected.

Under the previous rules, all ships built after 1 January 2016 sailing in NECA waters would have to comply with stricter NOx standards. Under the new decision, only ships built after the adoption of a NECA would have to comply, which means a NECA entering into force in 2018 for example would not apply to ships built in 2016 or 2017.

As a result, only ships sailing in North American waters will need to install the necessary abatement technology in the immediate future. Ships with marine diesel engines built after 2015 and operating in the North American Emission Control Area or the U.S. Caribbean Sea Emission Control Area will be required to reduce nitrogen oxide emissions by 80 percent from 2010 levels, the IMO said in its April 7 statement. The requirements, made with the adoption of amendments to regulation 13 on NOx under the International Convention on the Prevention of Pollution from Ships (MARPOL), will be applicable to ships within 200 miles of the U.S. and Canadian coasts—the North American Emission Control Area, which was created in 2010. The 2016 NOx requirements will extend to ships in the U.S. Caribbean Sea Emission Control Area off the coasts of Puerto Rico and the U.S. Virgin Islands, according to the IMO.

The only exemptions to the new requirements would be for a marine diesel engine installed on a ship constructed before 2021 of less than 500 gross metric tons, 24 meters or longer and designed and used solely for recreational purposes, the IMO said.

The agreed amendment was based on a compromise tabled by the Cook Islands and is stronger than the original amendment proposed by Russia to push back entry into force of NECAs from 2016 to 2021.



Countries now have six months to formally object to the decision. If one third of countries do so the decision will be nullified but experts say this is very unlikely. Three European countries, Lithuania, Ireland and Spain, criticized the procedure by which the decision was adopted, which they said was too rushed.

The United Nations agency said it also was renewing calls to make mandatory the draft Polar Code, a set of international guidelines for the safety of ships operating in polar waters; extending energy efficiency measures to a wider range of ships; and proposing a framework for the collection and reporting of data on the fuel consumption of ships.

MEPC established a correspondence group to finalize the draft MARPOL amendments of relevance to the Polar Code to report back to its next session in October in London, the IMO's headquarters. The effects of shipping in the Arctic and Antarctic regions are viewed as particularly risky due to ice, low air and water temperatures, and extreme weather.

MEPC also agreed to ask the IMO Council to approve the holding of an inter-sessional working group on the Polar Code before October. The draft Polar Code covers the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters surrounding the two poles.

The IMO agreed to amendments to MARPOL Annex VI concerning the extension of the application of the Energy Efficiency Design Index (EEDI) to the following ships—liquefied natural gas carriers, roll off-roll on (ro-ro) cargo ships and ro-ro passenger ships and cruise passenger ships with nonconventional propulsion.

Almost three years ago, the U.N. body adopted two mandatory energy efficiency measures for ships, including EEDI to ships weighing 400 metric tons or more. An ad hoc working group agreed to a plan to help the transfer of energy efficiency technology from wealthier shipping nations to developing countries, the IMO said.

And MEPC adopted the 2014 standard specification for shipboard incinerators, which covers the design, manufacture, performance, operation and testing of incinerators intended to incinerate garbage and other shipboard wastes generated during the ship's normal service. The specification applies to incinerator plants with capacities up to 4,000 kW per unit.

## **51. Rich Nations' Greenhouse Gas Emissions Fall In 2012, Led By U.S.**

Emissions from more than 40 nations were 10 percent below 1990 levels in 2012, according to a compilation of national data submitted to the United Nations in recent days that are the main gauge of efforts to tackle global warming. Still, with emissions rising elsewhere, experts said the rate of decline was too slow to limit average world temperature rises to 2 degrees Celsius (3.6 Fahrenheit) above pre-industrial times, a ceiling set by almost 200 nations to avert droughts, heat waves and rising seas.

In 2012 "the success story is the declining emissions in the United States," said Glen Peters, of the Center for International Climate and Environmental Research in Oslo. "Europe is a mix with slow GDP growth offset by a shift to coal in some countries."

Total emissions from industrialized nations fell to 17.3 billion tons in 2012 from 17.5 billion in 2011 and compared with 19.2 billion in 1990, the base year for the U.N.'s climate change convention.

U.S. emissions fell 3.4 percent in 2012 to 6.5 billion tons, the lowest since 1994, the U.S. Environmental Protection Agency said on April 15. The fall was linked to low natural gas prices, helped by a shale gas boom and a shift from coal, a mild winter and greater efficiency in transport.

In the European Union, emissions dipped 1.3 percent in 2012 to 4.5 billion tons and were 19.2 percent down from 1990 levels, the European Environment Agency said.

Road transport emissions declined in some EU nations such as Italy, Spain and Greece that are suffering prolonged economic downturns. Emissions rose against the trend in Germany and Britain, with more coal used to generate electricity.

Among other major nations, emissions dipped in Canada in 2012 but rose in Russia, Japan and Australia.

The overall decline in emissions by industrialized nations is not enough to offset a rise in world emissions, driven by emerging economies such as China, India, Brazil and South Africa which are using more energy as their populations get richer.

Global emissions surged to 49 billion tons in 2010 from 38 billion in 1990, according to the U.N.'s Intergovernmental Panel on Climate Change (IPCC).

Corinne Le Quere, professor of climate change at Britain's University of East Anglia, said far tougher action was needed to reach the target of limiting global warming to 2 degrees C, with global cuts of about 3 percent a year. Industrialized nations' emissions have fallen since 1990 partly because many manufacturers had shifted operations abroad to emerging economies with lower costs, she said, meaning there was no overall reduction in emissions.

Counting greenhouse gases emitted to make products consumed in rich nations - from cars to washing machines - emissions by industrialized nations had risen an estimated 6 percent since 1990, she said. Data submitted to the United Nations, however, only cover emissions inside each country.

## **52. Suzuki Joins Fuel Efficiency Race with Simplified Hybrid System**

Japanese small-car maker Suzuki Motor Corp has announced that it will introduce an affordable, simplified gas-electric hybrid technology in its cars, joining rivals in the race for fuel efficiency. Japan's fourth-biggest car maker, which has largely focused on internal combustion engines, said it needs to boost fuel efficiency to survive in a competitive industry.

"The customers' expectations for fuel efficiency are growing not only in Japan and Europe but also in emerging markets. Even a small-car maker like Suzuki will need to further improve fuel efficiency," Executive Vice President Osamu Honda told reporters at a technology briefing.

Suzuki has already introduced a regenerative braking system in which the car's kinetic energy is converted to electrical energy during braking. That electricity is sent to a lithium-ion battery and used to power equipment such as the air conditioner, but not for acceleration. The new system uses the energy to help the car accelerate, it said.

Suzuki's system differs from the more sophisticated gas-electric hybrid technology used in Toyota Motor Corp's Prius in that it cannot run on electric power alone, though because it is simpler it is also cheaper.

The new system will be introduced on a compact car that will be sold in Japan, followed by Europe, Managing Officer Masato Kasai said. He declined to say when the cars will go on sale.

### **53. In Green Car Race, Toyota Adds Muscle with Fuel-Cell Launch**

In 1997, Toyota caught its competitors by surprise with the revolutionary Prius, the first commercially successful gasoline-electric hybrid car. Now, the Japanese firm is trying to do the same with a technology that seems straight out of science fiction.



Toyota Motor Corp will next year launch a hydrogen-powered car in the United States, Japan and Europe. For now, people at Toyota are calling it the 2015 FC car, for fuel-cell.

Fuel-cell cars use a "stack" of cells that electrochemically combine hydrogen with oxygen to generate electricity that helps propel the car. Their only emission, bar heat, is water vapor, they can run five times longer than

battery electric cars, and it takes just minutes to fill the tank with hydrogen - far quicker than even the most rapid charger can recharge a battery electric car.

The 2015 launch culminates a 20-year zig-zag quest during which Toyota first struggled to get the technology to work and then strained to lower manufacturing costs enough to permit realistic pricing. It has also been playing catch-up to rival Honda Motor Co, which has set the early pace with its FCX Clarity, a sleek, purpose-built hydrogen car.

The cost-cutting continues, though Toyota thinks it has cracked the code with incremental design improvements, such as using wider, flatter "fettuccine-style" copper in coils that make the motor more powerful, and thus smaller and cheaper.

"With the 2015 FC car we think we've achieved a degree of dominance over our rivals," Satoshi Ogiso, a Toyota managing director, said in a recent interview at the group's global headquarters. "With the car, we make a first giant step" toward making fuel-cell vehicles practical for everyday use.

What's more, executives and engineers say Toyota is willing to sell the car at a loss for a long while to popularize the new technology - just as it did with the Prius, which, with other hybrids, now accounts for 14 percent of Toyota's annual sales, excluding group companies, of around 9 million vehicles.

As a result, drivers in key "green" markets such as California may be able to buy the car for a little more than \$30,000-\$40,000, after government subsidies - if management approves a pricing

strategy put forward by a group of managers and engineers. General Motors Co.'s Chevrolet Volt, a near-all-electric plug-in hybrid, for comparison, starts at around \$35,000 in the United States.

The stakes are high - for global automakers, oil producers, economies, and the environment.

As with battery electric cars, a major challenge for fuel-cell automakers is a lack of infrastructure, with few hydrogen fuel stations in the world. Estimates vary, but it costs about \$2 million to build a single hydrogen fuel station in the United States, according to Toyota executives.

Safety is also a concern. Hydrogen is a highly flammable element when not handled properly. Tesla chief Elon Musk has said hydrogen is an unsuitable fuel for cars. In a videotaped speech last year to employees and others at a new Tesla service center in Germany, Musk said: "Fuel-cell is so bullshit. Hydrogen is a quite dangerous gas. It's suitable for the upper-stage rocket, but not for cars."

The Toyota launch pits fuel-cell technology against battery electric in a race to capture the hearts and wallets of drivers looking for engines that are easier on the environment. Automakers are under pressure to invest in so-called "zero-emission" cars as tougher rules globally demand lower harmful emissions and better fuel economy.

Takeshi Uchiyamada, the 67-year-old "father of the Prius" whose success catapulted him from mid-level engineer to Toyota board chairman, says technology inefficiencies will make the battery electric car little more than an "errands car" - a small run-around for shopping, dropping the kids at school and other short-haul chores.

Other global automakers in the fuel-cell camp include Daimler AG, Hyundai Motor Co and Honda, which plans to introduce an upgraded FCX Clarity next year with seating for five, a smaller fuel-cell stack, greater power and a longer driving range.

Those betting on battery electric cars include Nissan Motor Co, Tesla Motors Inc, Bayerische Motoren Werke AG, GM, Ford Motor Co and Chinese automakers backed by the country's industrial policymakers. China offers generous purchase incentives for those buying battery electric cars and aims to have 5 million "new energy" vehicles - mostly all-electric and near all-electric plug-in hybrids - on the road by 2020. Several of these were exhibited at the Beijing auto show.

Even Toyota only expects tens of thousands of fuel-cell cars to be sold each year a decade from now as the new technology will need time to gain traction.

It's been a long road for Toyota to get this far.

Ogiso, who was part of the team that came up with the Prius and now leads the development of hydrogen cars, likens the two-decade effort to "racing cars in dark tunnels." "You don't know whether you're ahead or behind," said the 53-year-old engineer-turned executive.

Just a decade ago, it cost more than \$1 million to manufacture a fuel-cell vehicle propulsion system. Toyota has whittled down those costs and overcome technological hurdles, such as how to start the car in very cold weather. In October 2003, a materials researcher at Toyota's tech center in Ann Arbor, Michigan gave a presentation in which he highlighted the difficulty his team faced in solving this issue. Shortly afterwards, rival Honda said it developed a fuel-cell car that

could run in temperatures as low as minus 20 Celsius (minus 4 Fahrenheit). "It was embarrassing, and we were yelled at by the big bosses," recalled a person familiar with the incident.

Five years later, there was more embarrassment at the hands of Honda - what Toyota fuel-cell engineers call the "Clarity shock" - referring to Honda's launch of the FCX Clarity. "Honda built every part of that from the ground up, and it had cool styling," said a Toyota engineer who has been on the fuel-cell team for more than a decade. "It sent shockwaves through our team."

On a single floor of Toyota's research tower, across the street from the Tokyo headquarters, some 200 material scientists, chemists, computer programmers and mechanical engineers worked to nail down the hydrogen electric fuel-cell technology they needed.

A sizeable chunk of the cost savings has come from using less platinum as a catalyst in the electrochemical reaction between hydrogen and oxygen, resulting in fuel economies. Toyota says its 2015 hydrogen car should drive 700 km (435 miles) on a single tank, more than many conventional gasoline-engine cars, and a strong selling point to those worried about driving range.

Ogiso and his engineers are reluctant to talk specifically about how they made their breakthrough, but noted Toyota's expertise in nanotechnology, allowing them to shrink platinum particles to better combine oxygen and hydrogen and generate more electricity. That allowed them to reduce the size of the cell stack and use less fuel to make the car go farther. Ogiso says Toyota has cut the platinum use per car by more than two-thirds through nanotechnology and stack-design improvements, and he expects to trim that further. Engineer Hitoshi Nomasa said a hydrogen-powered Toyota SUV now uses around 30 grams of platinum in the fuel-cell, down from 100 grams previously. Platinum currently costs \$1,437 an ounce (28 grams) on world markets.

Toyota has also borrowed spare parts from the Prius and other gasoline-electric hybrids it sells around the world. While the fuel-cell car uses hydrogen as fuel, it otherwise resembles the hybrid models as both use electricity to power their motors. "Very roughly ... under the hood of the 2015 FC car lie more or less the exact same components used for the Prius and other hybrids," said another Toyota fuel-cell engineer, referring to the electric motor, "transaxle" gear and hybrid battery pack, among the parts lifted from the hybrid spares bin.

Even the incremental advance with the "fettuccine coils" - the wide, flat-shaped copper wire can bind the coil more tightly and needs less space - took the Toyota team a decade to hone.

While costs have come down significantly, Toyota says a hydrogen car's fuel-cell propulsion system alone still costs it close to \$50,000 to produce. That's partly why some Toyota money managers want a more conservative pricing strategy - of \$50,000-\$100,000 - said one individual on the 2015 FC car launch team. "It might be tough to price it below \$50,000," Ogiso said. "But anything is possible at this point."

### **54.7 Million Premature Deaths Annually Linked To Air Pollution**

In new estimates, the World Health Organization (WHO) reports that in 2012 around 7 million people died - one in eight of total global deaths - as a result of air pollution exposure. This finding more than doubles previous estimates and confirms that air pollution is now the world's largest single environmental health risk. Reducing air pollution could save millions of lives.

In particular, the new data reveal a stronger link between both indoor and outdoor air pollution exposure and cardiovascular diseases, such as strokes and ischemic heart disease, as well as

between air pollution and cancer. This is in addition to air pollution's role in the development of respiratory diseases, including acute respiratory infections and chronic obstructive pulmonary diseases.

The new estimates are not only based on more knowledge about the diseases caused by air pollution, but also upon better assessment of human exposure to air pollutants through the use of improved measurements and technology. This has enabled scientists to make a more detailed analysis of health risks from a wider demographic spread that now includes rural as well as urban areas.

Regionally, low- and middle-income countries in the WHO South-East Asia and Western Pacific Regions had the largest air pollution-related burden in 2012, with a total of 3.3 million deaths linked to indoor air pollution and 2.6 million deaths related to outdoor air pollution.

Cleaning up the air we breathe prevents noncommunicable diseases as well as reduces disease risks among women and vulnerable groups, including children and the elderly," says Dr Flavia Bustreo, WHO Assistant Director-General Family, Women and Children's Health. "Poor women and children pay a heavy price from indoor air pollution since they spend more time at home breathing in smoke and soot from leaky coal and wood cook stoves."

Included in the assessment is a breakdown of deaths attributed to specific diseases, underlining that the vast majority of air pollution deaths are due to cardiovascular diseases as follows:

**Outdoor air pollution-caused deaths – breakdown by disease:**

- 40% – ischemic heart disease;
- 40% – stroke;
- 11% – chronic obstructive pulmonary disease (COPD);
- 6% - lung cancer; and
- 3% – acute lower respiratory infections in children.

**Indoor air pollution-caused deaths – breakdown by disease:**

- 34% - stroke;
- 26% - ischemic heart disease;
- 22% - COPD;
- 12% - acute lower respiratory infections in children; and
- 6% - lung cancer.

The new estimates are based on the latest WHO mortality data from 2012 as well as evidence of health risks from air pollution exposures. Estimates of people's exposure to outdoor air pollution in different parts of the world were formulated through a new global data mapping. This incorporated satellite data, ground-level monitoring measurements and data on pollution emissions from key sources, as well as modelling of how pollution drifts in the air.

"The risks from air pollution are now far greater than previously thought or understood, particularly for heart disease and strokes," says Dr Maria Neira, Director of WHO's Department for Public Health, Environmental and Social Determinants of Health. "Few risks have a greater impact on global health today than air pollution; the evidence signals the need for concerted action to clean up the air we all breathe."

After analyzing the risk factors and taking into account revisions in methodology, WHO estimates indoor air pollution was linked to 4.3 million deaths in 2012 in households cooking over coal, wood and biomass stoves. The new estimate is explained by better information about pollution exposures among the estimated 2.9 billion people living in homes using wood, coal or dung as their primary cooking fuel, as well as evidence about air pollution's role in the development of cardiovascular and respiratory diseases, and cancers.

Many people are exposed to both indoor and outdoor air pollution. Due to this overlap, mortality attributed to the two sources cannot simply be added together, hence the total estimate of around 7 million deaths in 2012.

“Excessive air pollution is often a by-product of unsustainable policies in sectors such as transport, energy, waste management and industry. In most cases, healthier strategies will also be more economical in the long term due to health-care cost savings as well as climate gains,” says Dr Carlos Dora, WHO Coordinator for Public Health, Environmental and Social Determinants of Health. “WHO and health sectors have a unique role in translating scientific evidence on air pollution into policies that can deliver impact and improvements that will save lives.”

The release of the new data is a significant step in advancing a WHO roadmap for preventing diseases related to air pollution. This involves the development of a WHO-hosted global platform on air quality and health to generate better data on air pollution-related diseases and strengthened support to countries and cities through guidance, information and evidence about health gains from key interventions.

Later this year, WHO will release indoor air quality guidelines on household fuel combustion, as well as country data on outdoor and indoor air pollution exposures and related mortality, plus an update of air quality measurements in 1600 cities from all regions of the world.

## **55. Global Warming Not Stopped, Will Go On For Centuries: WMO**

There has been no reverse in the trend of global warming and there is still consistent evidence for man-made climate change, the head of the U.N. World Meteorological Organization (WMO) said recently. A slow-down in the average pace of warming at the planet's surface this century has been cited by "climate skeptics" as evidence that climate change is not happening at the potentially catastrophic rate predicted by a U.N. panel of scientists.

But U.N. weather agency Chief Michel Jarraud said ocean temperatures, in particular, were rising fast, and extreme weather events, forecast by climate scientists, showed climate change was inevitable for the coming centuries. "There is no standstill in global warming," Jarraud said as he presented the WMO's annual review of the world's climate which concluded that 2013 tied with 2007 as the sixth hottest year since 1850 when recording of annual figures began.

"The warming of our oceans has accelerated, and at lower depths. More than 90 percent of the excess energy trapped by greenhouse gases is stored in the oceans. Levels of these greenhouse gases are at a record, meaning that our atmosphere and oceans will continue to warm for centuries to come. The laws of physics are non-negotiable," Jarraud told a news conference.

The 21-page survey said the global land and sea surface temperature in 2013 was 14.5 degrees Celsius (58.1 Fahrenheit), or 0.50C (0.90F) above the 1961-90 average. It was also 0.03C (0.05F) up on the average for 2001-2010.

The WMO's Annual Statement on the Status of the Climate, pointed to droughts, heat waves, rising seas, floods and tropical cyclones around the globe last year as evidence of what the future might hold. It was issued on the eve of a conference bringing climate scientists together with officials from over 100 governments in Japan from March 25-29 to approve a report on the effects of future global warming and how these might be mitigated. (See below)

Some 200 countries have agreed to try to limit global warming to less than 2.0 degrees Celsius above pre-industrial times, largely by cutting emissions from burning fossil fuels like coal, oil and gas.

Skeptics argue that changes in global weather are the product of natural fluctuations or other natural causes. But such arguments were rejected by Jarraud. Natural phenomena like volcanoes or the El Nino/La Nina weather patterns originating in Pacific Ocean temperature changes had always framed the planet's climate, affecting heat levels and disasters like drought and floods, he said. "But many of the extreme events of 2013 were consistent with what we would expect as a result of human-induced climate change," declared the WMO chief, pointing to the destruction wreaked by Typhoon Haiyan in the Philippines.

Another example was the record hot summer of 2012-13 in Australia which brought huge bush fires and destruction of property. Computer simulations showed the heat wave was 5 times as likely under human influence on climate, Jarraud said.

Among other extreme events of 2013 probably due to climate change were winter freezes in the U.S. south-east and Europe, heavy rains and floods in north-east China and eastern Russia, snow across the Middle East and drought in south-east Africa.

### **56. Environment Panel's Warning on Climate Risk: Worst Is Yet to Come**



Greenland's immense ice sheet is melting as a result of climate change. Credit Kadir van Lohuizen for The New York Times

Climate change is already having sweeping effects on every continent and throughout the world's oceans, scientists reported, and they warned that the problem is likely to grow substantially worse unless greenhouse emissions are brought under control.

The report by the Intergovernmental Panel on Climate Change concluded that ice caps are melting, sea ice in the Arctic is collapsing, water supplies are coming under stress, heat waves and heavy rains are intensifying, coral reefs are dying, and fish and many other creatures are migrating toward the poles or in some cases going extinct.



The oceans are rising at a pace that threatens coastal communities and are becoming more acidic as they absorb some of the carbon dioxide given off by cars and power plants, which is killing some creatures or stunting their growth, the report found.

Organic matter frozen in Arctic soils since before civilization began is now melting, allowing it to decay into greenhouse gases that will cause further warming, the scientists said.

And the worst is yet to come, the scientists said. In particular, the report emphasized that the world's food supply is at considerable risk — a threat that could have serious consequences for the poorest nations.

The report was among the most sobering yet issued by the intergovernmental panel. It cited the risk of death or injury on a widespread scale, probable damage to public health, displacement of people and potential mass migrations.

“Throughout the 21st century, climate-change impacts are projected to slow down economic growth, make poverty reduction more difficult, further erode food security, and prolong existing and create new poverty traps, the latter particularly in urban areas and emerging hotspots of hunger,” the report declared.

The scientists emphasized that climate change is not just some problem of the distant future, but is happening now. For instance, in much of the American West, mountain snowpack is declining, threatening water supplies for the region, the scientists reported. And the snow that does fall is melting earlier in the year, which means there is less meltwater to ease the parched summers.

In Alaska, the collapse of sea ice is allowing huge waves to strike the coast, causing erosion so rapid that it is already forcing entire communities to relocate.

“Now we are at the point where there is so much information, so much evidence, that we can no longer plead ignorance,” said Michel Jarraud, secretary general of the World Meteorological Organization.

The experts did find a bright spot, however. Since the group issued its report in 2007, it has found growing evidence that governments and businesses around the world are starting extensive plans to adapt to climate disruptions. But with a global failure to limit greenhouse gases, the risk is rising that climatic changes in coming decades could overwhelm such efforts to adapt, the panel found. It cited a particular risk that in a hotter climate, farmers will not be able to keep up with the fast-rising demand for food.

The poorest people in the world, who have had virtually nothing to do with causing global warming, will be high on the list of victims as climatic disruptions intensify, the report said. It cited a World Bank estimate that poor countries need as much as \$100 billion a year to try to offset the effects of climate change; they are now getting, at best, a few billion dollars a year in such aid from rich countries.

The warning about the food supply in the new report is much sharper in tone than any previously issued by the panel. That reflects a growing body of research about how sensitive many crops are to heat waves and water stress.