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EUROPE

1. Ozone Pollution in Europe: Fewer Alert Days But Concentrations Still High

Air pollution by ground-level ozone continued to affect many countries across Europe during summer 2014, according to a new briefing published by the European Environment Agency (EEA). Almost all reporting countries exceeded the long-term objective set by EU legislation at least once, while the stricter alert threshold was exceeded only on four occasions.

Exposure to high concentrations of ground-level ozone can cause and aggravate cardiovascular and respiratory diseases. The European Union's Air Quality Directive sets four standards to reduce air pollution by ozone and its impacts on health:

- information threshold: 1-hour average ozone concentration of 180 µg/m³,
- alert threshold: 1-hour average ozone concentration of 240 µg/m³,
- long-term objective: the maximum daily 8-hour mean concentration of ozone should not exceed 120 µg/m³,
- target value: long-term objective should not be exceeded on more than 25 days per year, averaged over 3 years.

Concentrations of ground-level ozone significantly exceeded these standards during summer 2014, according to the EEA's latest analysis. However, the number of exceedances was lower than in many previous years, in line with the long-term downward trend observed over the last 25 years.

Depending on which threshold is exceeded, authorities in the affected areas and countries have to take specific measures. For example, exceeding the information threshold triggers an obligation to inform the population on possible risks, while exceeding the alert threshold requires authorities to take immediate action.

Key facts – summer ozone 2014

- Measurements were reported from 1607 monitoring stations across 30 European countries.
- Approximately 80% of these stations recorded at least one exceedance of the long-term objective between April to September 2014, with exceedances occurring in all reporting countries except Croatia, Estonia, Ireland, Romania and Serbia.
- Seven EU Member States (Austria, Cyprus, France, Germany, Hungary, Luxembourg, and Spain) had stations where ozone levels exceeded the long-term objective on more than 25 days. This corresponds to 6% of all reporting stations, affecting approximately 1% of the total population in the reporting countries.
- Averaged over the past three years, 16 countries (Austria, Bulgaria, Croatia, Cyprus, the Czech Republic, France, Germany, Hungary, Luxembourg, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain and Switzerland) exceeded the 2012 target value.
- Ozone concentrations higher than the information threshold were reported from monitoring stations in 18 countries. No exceedances were reported by Andorra, Bulgaria, Croatia, Estonia, Finland, Ireland, Lichtenstein, Lithuania, Romania, Serbia, Slovenia and Sweden.
- Ozone concentrations higher than the alert threshold were reported only in France, on four occasions.

- Approximately 36% of the exceedances of the information threshold, 75% of exceedances of the alert threshold, and 20% of long-term objective exceedances took place during a single episode of high concentrations between 7 and 14 June 2014.

2. New Diesel Car Pollution Test Agreed

On May 18th, Member states agreed rules on assessing the real NOx emissions of diesel cars that could force manufacturers to comply with much stricter standards than currently in place. At present car emissions are assessed in laboratory tests that do not reflect real driving conditions, leading to results that are much better than the reality. New test rules, for both CO2 emissions and air pollution, are being negotiated by member state experts and the European Commission

Under the Euro 6 pollution standard agreed by member states and MEPs in 2007, all new cars should meet an 80mg/km NOx limit from this September. The recent decision on the new diesel pollution test was not opposed by any member state but Hungary, Slovakia and the UK reportedly abstained.

A number of controversial issues on the new tests must still be resolved. The policymakers have yet to decide how to translate the NOx limit into the new test. It is possible that they will introduce a multiplier that would effectively allow manufacturers to miss the target.

A decision must also be made in the next two months on when the new lab test, including for CO2, should come into force. A 2017 start date with a transition period to give the industry time to adapt is likely. Carmakers' lobby ACEA wants a "two-step date framework, which would allow industry the proper lead-time to apply the complex real driving emissions regulation and make very significant hardware changes to future vehicles".

Commission research published in 2013 showed lab techniques explained around a third of a recorded drop in average EU emissions from passenger cars of carbon dioxide (CO2), linked to reduced fuel consumption. ACEA said it was "actively contributing" to the development of the more stringent rules and was committed to introducing them as soon as it is feasible. "When considering all the issues that have to be addressed in finalizing the work, it becomes clear that unrealistic deadlines for implementing WLTP (real-world testing) simply cannot be rushed into," ACEA said.

The new testing method, the WLTP, was agreed by the United Nations Economic Commission for Europe (UNECE) last year. The Commission has been consulting on how to transition to the new testing method by 2017.

Research has shown that cars emit up to seven times more NOx on the road than in the existing laboratory test, said Greg Archer of NGO T&E. T&E is pushing for the new test to be implemented in such a way that the Euro 6 standard is strictly applied.

ACEA criticized the Commission's "piecemeal approach" in taking a final decision on the diesel test procedure without agreeing other implementation details. "This is not smart regulation. We need clarity in advance so that we can plan the development and design of vehicles in line with the new requirements," the association said.

ACEA is lobbying for a three year delay to new rules claiming they can make for their vehicles, according to an industry paper seen by the press. The European Commission wants to introduce the tougher standards by September 2017, but a position paper from the European car industry

trade group says it "cannot envisage vehicle testing beginning before 1 January 2020". The paper from ACEA -- whose members include BMW, Volkswagen and Fiat Chrysler -- goes on to say a further year's delay might be needed because of the time required for all manufacturers to have newly-registered vehicles tested under the new rules.

Legislation introducing the new tests would need to be approved by both MEPs and member states.

Archer told a conference that that the gap between laboratory testing and real-world conditions is most pronounced in those countries with emissions-based vehicle taxation, such as the Netherlands.

The existing test procedure, used both for consumer labelling and for complying with EU car fleet average CO2 limits, allows manufacturers to test under conditions that do not emulate real-life driving conditions. Loopholes allow carmakers to overinflate tires, use special lubricants, remove wing mirrors and use unrealistic driving techniques to try and reduce fuel efficiency.

3. UK Motor Industry Counts Down To New Emission Regulations

The UK motor industry is counting down the final 100 days until new stricter European vehicle emissions regulations come into force in September, claiming that UK vehicle manufacturers are "ahead of the game" with more consumers already purchasing Euro 6 cars in increasing numbers. SMMT claims UK buyers have a "huge range" of Euro 6 cars to choose from

EU vehicle exhaust emission standards have been in place and gradually tightened since 1992, and from September 1 2015, all new cars registered will be required to meet Euro 6 exhaust emission standards for a number of air pollutants. And, ahead of the tightening of regulations, the Society of Motor Manufacturers and Traders (SMMT) said it was demonstrating its commitment to the new standards by showcasing the industry's latest Euro 6 cars on May 21st at its 'key' industry event SMMT Test Day.

According to SMMT's latest figures, with three months to go until September, around half of new car buyers already opted for Euro 6 cars last month – a number which has been increasing.

In April 2015, almost one out of every two new cars registered (45.9%) boasted Euro-6 technology, compared with fewer than one in five (18.7%) in September 2014. Meanwhile, 70.4% of the UK's top 10 best-sellers registered last month met the Euro 6 standard.

Mike Hawes, SMMT chief executive, said: "With 100 days still to go until the new Euro-6 standard becomes mandatory, new car buyers are shifting to these next-generation vehicles. This is the result of huge investment from manufacturers in clean technology – and the quicker we get these Euro-6 cars onto the roads, the quicker we'll see improvements in air quality."

SMMT said the latest Euro 6 technology vehicles emit "virtually zero" particulate matter, while nitrogen oxide emissions "are more than half those of previous generation motors built in the past five years". It also said the latest vehicles "boast the lowest CO2 emissions on record".

However, the EU currently regulates vehicle emissions through laboratory testing of exhausts rather than testing vehicles in real-world driving situations on the road. As a result, the EU plans were approved to introduce a real-world driving emissions test procedure, probably in 2017, as

European Commission said it was “well aware under real driving conditions, NOx emissions of diesel vehicles are significantly above regulated emission limits” (see above).

It follows SMMT’s ‘myth busting’ campaign launched earlier this year to challenge the “increasing demonization of diesel” vehicles, with campaigners often criticizing diesels for their impact on air quality.

4. MEP Calls for Ban on Diesel in Urban Areas

The European Commission should draw up a ‘transport and climate plan’, including a ban on diesel in urban areas by 2020, an MEP drafting the European Parliament’s position on urban mobility has argued. The Commission should encourage member states to introduce such bans to cut harmful air pollution in cities and to gradually reduce the use of petrol cars in urban areas by 2030, with a view to taking them out of cities by 2050, Green MEP Karima Delli proposed.

For the EU to meet its greenhouse gas commitments, the targets must be followed by a shift away from fossil fuels in urban mobility, according to Ms. Delli. She wants EU and member state authorities to draw up electric mobility plans and set targets to double cycling rates in urban areas by 2025.

The European Commission will propose a plan on alternative fuels in 2017 as part of its energy union strategy. Commission Vice-President Maroš Šefčovič told MEPs that he is also planning to make the development of charging stations for electric vehicles a condition to receiving EU funding for road projects.

To make cycling and walking safer, Ms. Delli wants member states to introduce a new speed limit of 30 km/h by 2020 in cities.

Sustainable urban mobility “can help achieve the EU’s resource efficiency objectives, in particular those linked to the circular economy with its job-creating potential”, the MEP argued.

To help EU countries invest in infrastructure, she proposed to dedicate half of the revenues from the Eurovignette directive on road-charging for lorries to improve urban mobility and 75% of urban tolls to develop urban transport infrastructure. The Commission should set aside at least 20% of EU transport funding for sustainable urban mobility projects, she added.

MEPs in the transport committee have until 4 June to table their amendments to the draft position with a view to voting on it in July.

5. Air Pollution Costs European Region in Lost Production, WHO Says

Air pollution costs economies in and around Europe \$1.6 trillion annually in diseases and deaths, or almost 10 percent of the region’s 2013 gross domestic product, according to a World Health Organization study. The study of 53 nations in the European region was released by the WHO Regional Office for Europe and the Organization for Economic Cooperation and Development April 28 in Israel.

“Reducing air pollution has become a top political priority,” Christian Friis Bach, executive secretary of the United Nations Economic Commission for Europe, said in a statement.

The economic cost of deaths related to air pollution totals more than \$1.4 trillion, with illnesses adding another 10 percent, according to the report. The \$1.6 trillion total “corresponds to the amount societies are willing to pay to avoid these deaths and diseases with necessary interventions,” the report said.

But it also said the estimated mortality in 2010 of 600,000 premature deaths linked to air pollution represented a “marked decrease” from 2005 for the region. The 53 countries in WHO's European region represent about a quarter of the world's countries and extend to Turkmenistan, Kazakhstan and Israel.

More than 90 percent of citizens in the region are exposed to outdoor fine particulate matter that exceeds WHO's air quality guidelines, the report said.

6. EU Climate Chief Sees Tough Talks on Carbon Market Reform, Car Targets

European Union lawmakers are set for difficult negotiations on a planned reform of the bloc's carbon market and a law to set emission limits for cars, EU Energy and Climate Commissioner Miguel Arias Canete said on May 28.

The European Commission, the 28-nation EU's regulatory arm, is drafting rules to implement a new target to cut greenhouse gases by 40 percent by 2030 from 1990 levels. The goal, which EU leaders endorsed last October, is tougher than the current objective to lower pollution by 20 percent by 2020.

“The two most difficult pieces of legislation we're going to deal with in the coming years is the review of the EU emissions trading system and the decarbonization of road transport,” Arias Canete told reporters in Brussels May 28. “Those are the most complicated ones.”

The EU headline climate target for the next decade translates into a 43 percent cut from 2005 levels for about 12,000 installations owned by utilities and manufacturers in the emissions trading system, or ETS. The pollution cap in the program will decrease 2.2 percent annually starting in 2021 compared with 1.74 percent in the eight years through 2020.

The commission intends to propose a draft law detailing how to implement the new goal on July 15, but can't rule out publishing it only after the summer break in August, according to a senior EU official. It could take EU governments and the European Parliament more than two years to agree on its final shape, said the official, who asked not to be identified, citing policy.

The most complex issues to be addressed in the draft law include the allocation of free carbon permits, according to Arias. Companies in the EU carbon market will buy most of the permits at government sales in the next decade, with allowances for auctions distributed among nations on the basis of verified emissions and gross domestic product criteria. Businesses prone to relocating production to regions without emission curbs will continue getting a bigger share of permits for free.

“We have two constraints: We have to maintain the proportion of allowances to member states, and we have a cap that decreases,” Arias Canete said. One permit gives the right to emit one metric ton of carbon dioxide.

The commission could propose improved allocation of free allowances after 2020 to better target businesses at risk of carbon leakage and companies that can't transfer the cost of emissions to

customers, the senior EU official said. It also is considering ways to coordinate various national practices of compensating companies for expenses relating to emissions passed on in electricity prices, or so-called indirect costs.

The planned law also could address the design of carbon-efficiency benchmarks, or standards used to determine the number of free permits, according to the official. While a periodic review of benchmarks may be considered, the annual updates that some groups seek have been deemed impossible.

Under the October deal on the 2030 framework, EU leaders asked the commission to examine measures for reducing emissions in transport. The regulator will host consultations with industry experts, government representatives and nongovernmental organizations on June 18th in Brussels. The EU, which already has binding emission targets for new car and van fleets, will propose new goals for the post-2020 period next year, Arias Canete said.

"We have to discuss the parameters and technological neutrality," he said. "There is no pressure yet but it will come. This is no one size fits all."

7. Spot Checks Show 94% Vessel Compliance with ECA Rules in European Waters

94 percent of spot checked vessels operating in European waters were found by the European Maritime Safety Agency (EMSA) to be compliant with new sulfur regulations for marine fuel, Ship Management International reports. A total of 1,458 vessels were checked between January and April of this year, with 6 percent of those, a total of 90 vessels, being found to be non-compliant.

The reasons for noncompliance were said to include keeping inaccurate records or having incorrect processes, being unable to produce satisfactory fuel samples, and having fuel in tank with a sulfur content above the permitted level of 0.10 percent.

As of January 2015, vessels operating within Emission Control Areas (ECAs) are required to burn fuel with a maximum sulfur content of 0.10 percent by weight, down from the previous limit of 1.0 percent.

The numbers compare to data released by the Port of Gothenburg in March, which showed 20 percent of ships were not complying with the new sulfur rules.

UK bunker supplier Geos Group says ship-owners and operators should be aware that the checks are taking place and ensure that their vessels meet the EU regulations. "It is increasingly important for fuel buyers to understand what they have on board in terms of specification, flashpoint and sulfur," Barry Newton, managing director, Geos Group said in an emailed statement. "Being in control of our supply chain from the oil refinery and onwards to the vessel means that our customers can trust us to supply top quality product every time."

The EU requires member states to conduct spot checks on a minimum of 10 percent of ships in its waters in 2015, although several states were said to be planning to exceed this and test up to 20 percent.

In February, the European Commission said that the number of Emission Control Area (ECA) non-compliance cases in Europe have been "very few" to date.

8. Rental Companies Welcome Agreement on 'Real World' Air Pollution Test

The European Union has come a step closer to introducing 'real world' air pollution tests for cars and vans after agreeing a more accurate procedure for measuring driving emissions. The BVRLA¹ has welcomed the agreement and looks forward to the new 'on the road' tests for NOx emissions being introduced in 2017 alongside a more accurate CO2 emission test cycle.

The new procedure agreed by EU regulators will require vehicles to be tested on the road and in traffic, rather than solely in laboratory-like conditions as is currently the case. This should provide more accurate, 'real world' NOx emission figures for diesel cars under the Euro 6 air quality standard.

The European Commission and member states still need to agree what the limits for the real world tests will be and whether they can be introduced by 2017. The Commission already has plans to bring in a new, more accurate CO2 test cycle in 2017 – the World Light Duty Test Procedure (WLTP).

"Air pollution is a major threat to public health so it is vital that we can accurately measure the part played by road transport, particularly diesel vehicles," said BVRLA Chief Executive, Gerry Keaney.

"This agreement is an important milestone in helping Europe get to grips with the issue of road transport based air pollution."

The BVRLA has already provided UK policymakers with a list of five measures they could take to help address road transport-based air pollution:

- Help regional authorities to use their newly devolved transport powers by providing a national framework for ultra-low emission zones
- Adopt the current tax regime to include NOx emissions, ensuring that any changes are well-signposted and non-retrospective
- Re-introduce 100% first-year allowances for companies renting or leasing ultra-low emission cars
- Provide better in-life incentives - for example freedom from tolls, congestion charges or parking fees – to encourage greater uptake of ultra-low emission vehicles
- Do more to support car clubs, car sharing and other alternatives to car ownership, and provide more low-emission public transport

9. EU Reports 4.5 Percent One-Year Drop in GHGs Covered by ETS

Greenhouse gas emissions from activities covered by the European Union's emissions trading system fell by 4.5 percent in 2014 compared with the previous year, the European Commission said on May 18th. The EU's executive arm said that data on emissions and the surrender by companies of carbon allowances to cover those emissions showed that in 2014, 1.8 billion metric tons of carbon dioxide-equivalent were emitted by the power stations, heavy industrial

¹ Established in 1967, the British Vehicle Rental and Leasing Association is the trade body for companies engaged in the leasing and rental of cars and commercial vehicles.

installations and airlines that participate in the ETS, representing about 45 percent of total EU greenhouse gas emissions.

This compared with emissions from ETS participants in 2013 of about 1.89 billion metric tons. In 2007, emissions were 2.01 billion metric tons, meaning emissions have declined by around 10 percent since then, even though the EU has added three member states: Bulgaria, Croatia and Romania.

Also since 2007, the ETS has extended its coverage to aviation emissions for flights between EU airports. However, these made up a small portion of overall emissions, totaling 59 million metric tons of CO₂-equivalent in 2014, the commission said.

EU Climate Action and Energy Commissioner Miguel Arias Cañete said the declining emissions showed that “economic growth and climate protection can go hand in hand,” and were “a powerful signal ahead of the new global climate deal to be agreed in Paris this December” that “carbon markets deliver cost-effective reductions.”

However, the commission said that the ETS carbon price continues to be affected by a surplus of about 2 billion allowances that built up because of past over-allocation of carbon permits to market participants, in particular when emissions dipped significantly because of economic recession in 2009. In July, the EU will finalize an ETS market stability reserve that will start to operate in 2019 and will remove some excess allowances from the system. In addition, the commission has said it will propose before August a reform of the ETS through 2030, by when the EU has pledged to cut its emissions by 40 percent compared to 1990 levels.

Commission Vice-President for Energy Union Maros Sefcovic said agreement on the ETS market stability reserve had been “very crucial” for commission plans to propose reforms to the system, and that ETS reform proposals would be published as part of a “summer package” that would also include measures to improve the functioning of EU electricity markets and to revise EU energy efficiency labeling rules.

10. MEP Proposes Weaker Machinery Pollution Rules

The MEP leading work on new air pollution limits for non-road mobile machinery has proposed weakening some standards, introducing new exemptions and granting extra time to comply. Elisabetta Gardini of the EPP group said she favored “more realistic and achievable emission standards” for NO_x and particulate matter for certain sub-categories of engine.

Exemptions should be granted for 10-16 years for replacement engines in machinery already in service. Many engines complying with newer rules are too large to fit in existing machinery and allowing existing machines to go out of service would cause “major economic disruption” for users.

The Commission should be given the power to adopt technical laws on placing replacement engines on the market. Ms. Gardini wants to extend the transition period for implementing the new regulation to 24 months, from 18 proposed by the European Commission last year, to allow time for machinery to be redesigned to accommodate the larger engines. Manufacturers’ associations have advocated such an extension.

A further extension of the transition period should be granted for engines used in mobile cranes as these are sold in relatively small quantities, Ms. Gardini said.

Small- and medium-sized businesses producing non-road engines should be given an extra 18 months to comply, rather than the extra 12 months proposed by the Commission. Ms. Gardini defined SME producers as those making fewer than 80 engines a year, rather than 50 as proposed by the Commission.

The railway sector in particular should be given extra time to comply and should be granted an exemption for projects already begun when the new regulation comes into force, because of long lead times in the sector, Ms. Gardini said.

The Commission proposal could also create an “excessive burden” for the inland waterways industry so the rapporteur advocates a “softer approach”, particularly given the sector is “energy-efficient and environment-friendly”.

MEPs on the European Parliament’s environment committee will discuss Ms. Gardini’s proposed changes on 4 June and have until 10 June to table their own amendments. The committee will vote on the matter on 15 July. Member states are still negotiating their position.

Non-road mobile machinery causes 15% of NOx emissions and 5% of particulate matter emissions in the EU.

11. Europe Calls for Tougher Limits on HFCs

The European Commission has called for a tougher U.N. Montreal Protocol to protect the ozone layer by curbing HFCs that have a global warming potential thousands of times greater than carbon dioxide. The European Union has already introduced its own law to curb climate-harming hydrofluorocarbons (HFCs), also called “F-gases”, used in refrigerators and air conditioners.

Under an EU amendment to the protocol, proposed recently, industrialized countries as major users of HFCs, are asked to commit to an ambitious reduction schedule beginning in 2019 and ending in 2034.

Obligations for developing countries and economies in transition would be more flexible.

The European Union is seeking to lead the push for more ambitious action on curbing greenhouse gases ahead of a conference in Paris late this year to seek a new U.N. pact on tackling climate change. Miguel Arias Canete, European commissioner for climate and energy, called for a global HFC agreement without delay. “This would send an important signal ahead of the international climate negotiations in Paris later this year,” he said.

After international action more than two decades ago led to the phasing out of ozone-depleting chlorofluorocarbons (CFCs), HFCs were introduced as industry-supported substitutes. But they trap up to 23,000 times more heat than carbon dioxide and can remain in the atmosphere for thousands of years.

Earlier this month, India made a surprise decision to phase-down the use of the highly potent gases. India, which had for years opposed action on HFCs under the protocol, proposed an amendment calling for a 15-year transition period for developing countries to phase down their use of HFCs.

David Doniger, a director at campaign group the Natural Resources Defense Council, noted there were a series of proposals on the table, from the United States, Canada and Mexico as well as

India and the European Union. "There proposals are different, but the differences are readily negotiable. There is a real chance to come to an HFC agreement as early as this fall," he said.

12. Ten Countries Breach Air Pollution Ceilings

Ten EU member states exceeded their air pollutant emission limits in 2013, down from 12 in 2012, according to preliminary data from the European Environment Agency. But total emissions of the four pollutants covered by the National Emissions Ceiling Directive (NECD) – NO_x, non-methane volatile organic compounds (NMVOCs), SO₂ and ammonia – were below EU-wide ceilings in 2013.

Overall emissions of NO_x, volatile organic compounds (VOCs) and SO₂ fell in 2013, compared with the previous year, but ammonia discharges rose slightly.

Six countries – Austria, Belgium, France, Germany, Ireland and Luxembourg – breached the NO_x limits, down from nine in 2012.

Germany and France exceeded the NO_x levels by the widest margin – 218 kilotons and 180kt respectively – while in percentage terms Luxembourg (41%) and Austria (32%) were the worst offenders.

Austria, Denmark, Finland, Germany, Netherlands and Spain have all failed to meet the ceiling for ammonia each year since the NECD limits were introduced in 2010, the EEA said. Germany had the highest breach in 2013 of 121kt, exceeding its limit by 22%.

VOC ceilings were breached in 2013 by Denmark, Germany and Ireland, down from four EU countries in 2012. In absolute terms, Germany again exceeded the limit by the greatest amount, 143kt, with Ireland the worst in percentage terms with 64%.

All member states complied with their SO₂ limits for the fourth year in a row.

The EEA said road transport continued to be the main problem for NO_x emissions, with reductions from the sector not as large as originally anticipated. "This is partly because the sector has grown more than expected, and partly owing to the increased penetration of diesel vehicles producing higher NO_x emissions," the agency said.

Agriculture is the problem for ammonia emissions, accounting for almost 95% of total EU emissions. The EEA said that compared with other pollutants covered by the NECD, agriculture emissions have not decreased to the same extent since 1990.

The European Parliament is currently debating revised NECD limits for 2030, on the basis of which the European Commission will come forward with a new proposal after it scrapped plans by its predecessor.

13. EU Environment Ministers Want Flexible Air Pollution Targets

On June 15th, Environment ministers demanded flexibility in meeting EU air quality targets, after dropping a cap on methane emissions from draft pollution rules. Governments were split on whether the proposed reduction goals for 2030 should be legally binding or non-binding. Poland demanded the targets be pushed back to 2040 and Hungary said the bill should be scrapped, while others called for review clauses to be inserted in the legislation.

The revised National Emissions Ceiling Directive (NEC) puts controls on different types of air pollution in each member state. Its overarching goal is to cut the number of premature deaths caused by air pollution by half by 2030. 400,000 people die each year from air pollution in the EU, according to the European Environment Agency.

The United Kingdom, Lithuania, the Czech Republic and Hungary welcomed the removal of methane ceilings from the bill arguing that the cap overlapped with EU commitments to cut greenhouse gases.

Environment Commissioner Karmenu Vella said non-binding targets would be pointless. "This would essentially deprive the policy of its content," he said. He told ministers that they should keep the cap on methane. The proposed revision to the NEC Directive is the first time the European Commission has tried to limit methane emissions, 40% of which in the EU comes from agriculture.

But Vella added that the European Commission could back "clearly defined and tightly constrained provisions for flexibility".

The United Kingdom and France want flexibility until 2030 based on the United Nations Gothenburg Protocol. It would allow a target to be adjusted to take account of unforeseen circumstances. Under the European Commission's plans, flexibility based on Gothenburg is only allowed up to 2020. Belgium and Sweden signaled support for some limited flexibility.

The Czech Republic put forward a separate flexibility proposal. The plan, backed by Hungary, Poland, Estonia, and the Slovak Republic, would allow governments to make up emissions shortfalls in one gas, with surplus reductions in another. The focus of the Czech plan is on energy production. Should, for example, a planned nuclear plant not be built, the targets should be re-evaluated without the country being punished.

"Complete agreement [between member states] will never be possible, said Jan Kriz, Deputy Minister for the Environment. "That's why we tabled a proposal for more flexibility." "If member states prove they can cut emissions in other areas, they should be allowed to partially cut other targets," he said, before adding the targets should be binding to give certainty to investors.

"We think that the existing flexibility mechanisms set out in the Gothenburg protocol are sufficient," said Germany's Jochen Flasbarth, State Secretary at the Federal Ministry for the Environment. "We don't want any more wide-ranging measures," he said. We see the risk of this undermining current commitments".

Lithuania, Slovakia, Romania and Poland were among the governments demanding that the targets should be indicative and not-binding. Spain also said that the 2030 targets were too ambitious for the country to reach in time. Bulgaria said it expected funding to hit the targets.

Poland warned that that imposing additional environmental costs could cause a recession and said the deadline should be pushed back to 2040. Polish citizens would bear the highest compliance costs in the EU said Marcin Korolec, Poland's Secretary of State in its Ministry of the Environment. It was equivalent to €14.46 euros per capita per year, he said. The average cost across the EU ranged between €0 and €8 annually.

Hungary called for a completely new discussion on "an absolutely new basis". "We cannot accept the approach of the proposal," said Zsolt Németh, Hungary's Secretary of State for Foreign Affairs. He said the reduction on methane and ammonia would hit agriculture in Hungary, where production is far behind the levels it was at in the 1980s under communism.

The meeting was a step towards member states agreeing a common position on the bill. Vella said that if a position could be agreed soon, negotiations with the European Parliament could begin in September.

The European Parliament is also considering the draft bill. Its Environment Committee is expected to vote on a report on the bill by Julie Girling (ECR), the lead MEP on it, ahead of a plenary vote expected in September. Reports indicate that the MEPs in charge of shepherding the bill through the committee – the shadow rapporteurs - have agreed that targets for 2025 should be binding, and that methane emissions should be included. If that position is backed by the whole Parliament, it will set up a fight with the Council over the bill.

But a "significant minority" of MEPs in the Environment Committee are against including methane. The Agriculture Committee also recently voted in favor of an opinion on dropping the ban.

After the vote of the full Parliament, talks with the Council of Ministers will begin. Both institutions must agree an identical text, before it can become law.

The demand for greater flexibility for national governments in meeting EU-set targets echoed the compromise reached by EU leaders last October on the 2030 climate and energy package. Heads of state and government agreed to reduce their greenhouse gas emissions by at least 40% compared to 1990 levels by 2030. They would increase energy efficiency and their share of renewables by at least 27% by 2030. But that EU-wide target would not be binding at national level, after some member states pushed to retain authority over their energy mix.

Green group EEB said that because methane contributes to ozone pollution, a contributor to respiratory disease, it should be regulated under the NEC Directive. EU climate policy does not require action on methane because countries can instead cut CO2 to meet their headline targets under the Effort Sharing Decision, said EEB's Louise Duprez.

She called on lawmakers to retain the level of ambition in the proposal on ammonia. Reducing ammonia emissions would reduce particulate matter pollution, to which ammonia contributes, and ensure the agriculture sector is doing its fair share, she said.

14. Belgium and Bulgaria Taken to Court Over Poor Air Quality

EU regulators are referring Belgium and Bulgaria to the bloc's top court over the quality of their air, which poses a major risk to health, the European Commission said. It has also issued a final warning to Sweden that it needs to take action.

Commission data shows about 400,000 premature deaths per year linked to air pollution in the European Union, but member states have systematically missed targets to reduce levels of harmful emissions and particles associated with respiratory disease and some forms of cancer.

In its statement, the Commission said data showed Bulgaria had persistently failed to comply with legal limits on levels for PM₁₀ produced by traffic and industry that can enter the lungs and bloodstream.

Belgium's track record has improved, the Commission said, but not sufficiently, with excessive levels of PM₁₀ and nitrogen dioxide and sulfur dioxide. Sweden is also exceeding EU legal limits on pollutants and has been sent a warning, which if ignored could also lead to court action.

The European Court of Justice in Luxembourg has the power to impose daily fines if member states are found to be in breach of EU law.

Another nation previously singled out for failing to clean up its air is Britain, which has been given until the end of this year to submit new plans to the European Commission on how it will tackle levels of nitrogen dioxide.

EU legal limits for various harmful pollutants are less stringent than levels set by the World Health Organization. The new Commission, in office since late last year, initially proposed to withdraw proposals put forward by the previous executive on narrowing the gap between the different standards. It encountered angry resistance from some member states and many in the European Parliament, forcing the new air quality law back on to the agenda.

15. Germany to Mandate Construction Equipment Retrofits In High PM10 Areas

Germany has notified the European Commission of a draft ordinance mandating emission reduction requirements for diesel mobile equipment used at construction sites in areas that exceed the limit values for PM₁₀. Specifically, the ordinance would apply to the cities of Ludwigsburg, Markgröningen, Reutlingen, Stuttgart, and Tübingen in Baden-Württemberg.

The regulation covers diesel engines above 19 kW used in such equipment as mini-excavators, compaction machines or excavators. The requirements are based on the Non-Road Mobile Machinery Directive 97/68/EC, with an alternative to require retrofits with a PM emission reduction system (Partikelminderungssystem, PMS).

The following emission requirements, applicable to machines used in construction sites with four or more machines, will be phased-in between 2016 and 2019 (80% machines in 2016; 95% in 2018; 100% in 2019):

- Engine power \geq 19 kW and $<$ 37 kW:
 - From July 1, 2016: Stage III A or PMS retrofit
 - From January 1, 2019: Stage III A machinery have to be PMS retrofit
- Engine power \geq 37 kW and $<$ 56 kW:
 - From July 1, 2016: Stage III B or PMS retrofit
- Engine power \geq 56 kW and $<$ 560 kW:
 - From July 1, 2016: Stage III B or PMS retrofit
 - From January 1, 2017: Stage IV or PMS retrofit

From January 1, 2018, retrofit PMS will have to be approved according to the requirements of the second stage of the UN REC Regulation No. 132 for Class I systems (no increase in NO₂ emissions). Until that date, retrofit devices can be approved as Class I or II, reduction stage 1 of the UN REC regulation. The approvals must be issued in accordance with one of the following protocols: (1) the Technical Rules for Hazardous Substances 554 (TRGS 554); (2) Verification of Emission Reduction Technologies (VERT); (3) quality seal of the Research Association for Diesel

Emission Control Technologies (FAD); or (4) Appendix XXVII of the Road Traffic Licensing Regulations (German designation: StVZO).

16. European Commission Launches Infringement Case against Germany's PKW-Maut

The European Commission has launched an infringement case against the German road charging scheme for cars, known as PKW-Maut. Germany adopted on 8 June 2015 a law introducing the PKW-Maut road charges for passenger cars. At the same time, it passed a law ensuring that vehicles registered in Germany benefit from a deduction of the road charge from the annual vehicle tax bill. This will lead—said the Commission—to a de facto exemption from the charge for cars registered in Germany, and only for those cars. Therefore, the charges could be described as a “toll for foreigners”.

The Commission's main concerns are on indirect discrimination based on nationality. Two features lead to such discrimination. The first is the fact that, effectively, German users will not pay the road charge because their vehicle tax bill will be reduced by the exact amount of the charge. The second is that the price of short term vignettes, which are typically bought by foreign users, is disproportionately high.

Commissioner for Transport Violeta Bulc said: “A toll system can only be compliant with European law if it respects the fundamental Treaty principle of non-discrimination. We have serious doubts that this is the case in the final text of the relevant German laws. We are now acting swiftly to clarify these doubts through an infringement procedure in the interest of EU citizens.”

17. EU And China Step Up Cooperation in Fight against Climate Change

The EU and China have agreed to step up their cooperation to fight climate change following the 17th EU-China Summit held in Brussels. In the EU-China Statement on Climate Change adopted by the Summit both sides commit to embark on low-carbon development and cooperate on developing a cost-effective low-carbon economy. The statement also highlights the importance of low-carbon investments and the need to increase ambition over time under the United Nations Framework Convention on Climate Change.

Miguel Arias Cañete, European Commissioner for Climate Action and Energy, applauded China's commitment to becoming a resource efficient and climate resilient, low-carbon economy. He said: "China and the EU are responsible for around a third of global greenhouse gas emissions. Add the United States, and we have around half of world emissions. Today's statement gives a strong signal that we are serious in the fight against climate change. We expect this to be reflected in an ambitious and binding global climate change agreement in Paris this December."

The EU and China agreed to intensify their bilateral climate cooperation for example in the areas of domestic mitigation policies, carbon markets, low-carbon cities, greenhouse gas emissions from the aviation and maritime industries, and hydrofluorocarbons (HFC). The on-going cooperation on emissions trading will be expanded, in view of China's plans to establish a nationwide emissions trading system by 2020.

18. EU Considering Future Action on Decarbonization of Road Transport

Road transport is responsible for around a quarter of the EU's final energy consumption and about a fifth of its CO₂ emissions. European Commissioners Arias Cañete, Bieńkowska and Violeta

Bulg, responsible respectively for Climate and Energy, Internal Market and Industry, and Transport, held a high-level conference in Brussels on June 18th to discuss the next EU-level actions on the decarbonization of road transport.

In the weeks preceding the conference, both the supporters and the opponents of tighter CO2 emission standards showed increased levels of lobbying activity. The Transport and Environment group (T&E) released an analysis concluding that Europe can only meet its future climate targets if it sets fuel efficiency standards for new cars, vans and lorries by 2025 or earlier. In a middle-of-the-road scenario where transport would reduce CO2 emissions by 30% by 2030, the study found that CO2 standards for all vehicles (cars, vans and lorries) in 2025 and 2030 would deliver as much as 42% of the emissions reduction required from transport.

Car makers and the European Automobile Manufacturers' Association (ACEA), on the other hand, have been reportedly lobbying the Commission to delay any new fuel efficiency standards for cars and vans until after 2030. ACEA presented a study by FTI Consulting on the potential effects of decarbonization on the competitiveness of the European automobile industry. According to the FTI study, the automotive sector faces higher reduction targets and is making bigger contributions to reduce CO2 than any other sector—by 2020 average emissions of new passenger cars will need to be reduced by 39% compared to their 2005 level.

The FTI analysis also emphasizes that future CO2 reductions are becoming more costly and less cost-effective. As vehicles become more fuel efficient, every additional percent in fuel consumption reduction is more costly, but brings less payback in fuel savings for the vehicle owner. The 2020 target will impose an additional €1,000-2,000 manufacturing cost per passenger car on the industry, estimates the study.

Meanwhile, four EU nations and European politicians from across the political divide called on the European Commission to publish next year a challenging 2025 emissions standard for new cars. In a letter dated June 16 to the European Commission, the environment or transport ministers from Finland, Ireland, the Netherlands and Sweden lent their support to publication in 2016 of "challenging new targets for 2025". They did not specify a level.

Separately a group of Green, center-right and liberal members of the European Parliament called on the Commission in a letter dated June 17 to confirm it would publish 2025 targets next year. Their letter pointed out the Commission had committed itself to assessing the range of 68-78 g/km.

The MEPs – including Karl-Heinz Florenz, and Peter Liese (EPP), Seb Dance and Matthias Groote (S&D), Catherine Bearder (ALDE) and Bas Eickhout (Greens) who sit in the European Parliament's environment committee – wrote to climate and energy commissioner Miguel Arias Cañete. "Following an evaluation of the success of the current targets for cars and vans for 2015 and 2020, it is crucial to assess what the most cost-effective targets for 2025 are," the MEPs wrote. The proposal should be published by the end of next year to allow industry enough lead time to meet the target, they added.

Carmakers exceeded a 2015 CO2 target for new cars two years early, while a 2017 target for vans was met four years in advance.

A Commission official said a review of post-2020 car and light commercial vehicle standards had already been announced for 2016-2017 and there would be extensive consultation involving all those affected.

Climate and Energy Commissioner Miguel Arias Canete said road transport, responsible for roughly 20 percent of EU carbon emissions, needed to play its part in achieving an EU pledge to cut emissions by at least 40 percent by 2030. Post-2020 standards would be "ambitious but achievable," he said.

Brussels does not intend to replace emission standards for cars and vans by including the sector in the emissions trading scheme (ETS) after 2020, the EU climate commissioner said. "I don't think personally inclusion in the ETS can replace emission standards. It can be a complement but not a substitute," he said, adding that member states are currently free to include transport in the ETS but that no country has done so.

The Commission will publish a strategy paper on decarbonizing transport in the first half of 2016, alongside a proposal to continue the Effort Sharing Decision setting emissions reduction targets in non-industrial sectors such as transport, buildings and agriculture after 2020, Mr. Cañete said.

Erik Jonnaert, secretary general of ACEA, said any future targets had to take into account a global perspective "to safeguard the competitiveness of the industry". He said the industry would only be "in a realistic position" to make any new commitments beyond 2020 once it had assessed the uptake of technologies such as electric and hybrid cars.

"With the Commission consultation on road transport emissions kicking off, and ahead of the COP21 conference in Paris, we have reached a pivotal moment in terms of road transport emissions policy," stated Jonnaert. "We believe that we have an historic opportunity to develop a policy framework that will allow us to drive down road transport emissions whilst protecting jobs and growth. However, we need to recognize that there is no magic bullet or single solution. Rather, we need to adopt a comprehensive approach to tackling road transport emissions which draws on the full spectrum of solutions."

This means not just focusing on continued emissions reduction from new vehicles, but also factoring in the elements that influence overall emissions from vehicles in use. These factors include the carbon content of fuels, driver behavior, infrastructure and the potential of intelligent transport systems (ITS).

To this end, ACEA is now working in partnership with over 50 relevant stakeholders – including businesses, trade associations, non-profit organizations, research bodies and think tanks – to examine the full potential of this approach for both light and heavy-duty vehicles. Policy makers should also focus on the most cost-effective measures, so as not to jeopardize the competitiveness of the European automobile industry.

Markus Heyn, member of the management board at Robert Bosch, which makes engines, told a Brussels conference that EU standards that led to the increase in fuel efficiency and lower emissions had helped make the European industry a world leader.

André Weidenhaupt from the ministry for sustainable development and infrastructure in Luxembourg – set to assume the EU presidency in July – called for more EU work on the electrification of transport.

Trucks received a lot of attention with some, including Mr. Zetsche, suggesting that market forces will drive fuel efficiency. Jos Dings of green group T&E said the US is already setting a second round of standards for trucks.

19. Several Carmakers Need To Improve CO2 Performance

Seven major carmakers will need to speed up progress towards 2020 EU emissions goals for new cars to avoid fines, according to analysis by campaign group T&E. Honda, Hyundai, General Motors and Fiat are the furthest off track, while Suzuki, BMW and Mazda are also struggling towards their targets, the NGO said.

Of 15 major producers it analyzed, only Honda, Suzuki and Hyundai have not yet met their interim CO2 targets for 2015.

The overall 2020 target for new cars of an average 95 grams CO2 per kilometer is likely to be met, T&E added. Overall new car emissions fell by 2.6% last year to beat the 2015 EU target early and by a significant margin, the European Environment Agency reported in April.

T&E estimates that the gap between real world emissions and those reported by carmakers based on laboratory tests continued to increase in 2014. It called on the European Commission to propose a new car CO2 target for 2025 based on real world testing next year, as part of planned proposals on climate policies for sectors outside the emissions trading system.

Peugeot-Citroën became Europe's lowest carbon carmaker in 2014, while Nissan made the biggest improvement in the performance of its new car fleet.

20. France Proposes National Clean Vehicle Scheme; Downgrades Diesels

Segolene Royal, the French Ecology Minister, announced a national clean air scheme designed to encourage cities beyond Paris to restrict circulation of older, more polluting vehicles, and to encourage purchases of electric vehicles. Under the plan, vehicles would be categorized (and color-coded) depending on their pollution levels.

The scheme follows the recently adopted Paris program that will restrict the circulation of older, high-polluting vehicles in the city. However, while the Paris program allows access for Euro 6 diesels, the national proposal excludes all diesels, including Euro 6 cars, from the most environmentally-friendly Category 1.

The plan was criticized by the auto industry. The European Automobile Manufacturer's Association (ACEA) has voiced its surprise and disappointment at the discrimination against Euro 6 diesel vehicles. "Policy should be technology-neutral to ensure the uptake of the latest low-emission vehicles. There is no reason to discriminate against clean diesel technologies," said ACEA Secretary General, Erik Jonnaert.

The new scheme will promote cleaner cars by granting them privileges such as free parking and access to priority lanes in urban areas from January 2016.

An optional sticker will rank cars according to their air pollutant emissions, ranging from blue for electric vehicles to grey for the oldest diesel and petrol vehicles. It ranks diesel cars below comparable petrol cars.

The new measure comes as part of the French government's plans to shift policy away from years of promoting diesel cars. "We have to give a message for moving beyond diesel - just as we are giving a message to move beyond petrol," said French Ecology Minister Ségolène Royal.

The ranking system will enter an experimental phase in September and come into full effect next year.

21. EU Set to Meet Green Energy Goal but UK, Netherlands Trail

The European Union is collectively on track to achieve its goal of sourcing a fifth of its energy from renewables by 2020, although Britain, the Netherlands and Luxembourg are lagging behind other states, the European Commission said. However it acknowledged that the transport sector - which accounts for around a quarter of greenhouse gas emissions - remained a problem area and was struggling to curb the use of fossil fuels.

EU officials are pushing renewables as they seek to reduce both carbon dioxide emissions and a dependency on expensive oil and gas imports, especially from Russia. Renewable energy is expected to have accounted for 15.3 percent of energy consumption in the EU last year, the Commission said, setting the bloc on course to reach its target in five years' time.

Its latest biennial progress report said 25 out of 28 nations should meet their 2013/2014 interim national goals. But, apart from the three laggards, it said France, Malta, Belgium and Spain may also need to ratchet up efforts, even though they have hit their interim targets.

Higher use of renewables such as wind, biomass, hydro and solar led almost half of the member states to reduce their gas consumption by at least 7 percent in 2013 and avoided around 388 million tons of carbon dioxide emissions, the report said.

Following on from the 20 percent goal for green energy for 2020, the EU has an outline target to increase the share of renewables to at least 27 percent by 2030. But some environmental campaigners and green politicians said the Commission was in danger of complacency and that the 2030 goal was not ambitious enough. "A whole new impetus is necessary to boost renewables in Europe and worldwide," said Claude Turmes, Luxembourg Green Member of the European Parliament.

For green energy in transport, the 2020 target is 10 percent, while the expected level for 2014 was 5.7 percent. No target has been set for 2030. The Commission said meeting the 10 percent target "is challenging but remains feasible".

A major problem has been policy uncertainty due to concerns many kinds of biofuel could be damaging to the environment. Apart from driving up food prices, using farmland to produce biofuels adds to pressure to free up land through deforestation, which can result in increased greenhouse gas emissions. To address the problem, in April EU politicians backed a deal to limit the amount of crop-based biofuel that can be used in the transport sector.

22. New Large Plant Pollution Standards under Fire

The EU has provisionally agreed new environmental standards for large combustion plants that industry says will be tough to implement but NGOs say are too weak to reduce the enormous public health impact of air pollution.

Member state negotiators agreed a revised best available technique reference document (BREF) for plants such as large coal-burning power stations at a meeting in Seville, Spain. The new

standards, implemented through operating permits, are likely to come into force in 2020 or 2021, depending on when the European Commission publishes the Seville decision.

The standards adopted will lead to reduced NO_x and SO₂ emissions compared to the status quo. But they offer little improvement on the existing standards, dating from 2006, on many counts and do not reflect genuine best available pollution levels, said green group EEB's Christian Schaible, who was at the talks.

EEB has argued that 71,000 additional deaths and €52bn of lost working days are likely over 2020-29 as a result of weak standards rather than what it sees as genuinely possible using best available techniques. Mr. Schaible said he believes this assessment remains accurate because the ambition level has not significantly improved during the negotiation of the new standards.

As warned by Greenpeace in March, the standards adopted for NO_x pollution are weaker than those in place in China and the US.

The upper emission range agreed for mercury is weaker than the US standard and is likely to only require additional abatement by the most polluting plants, those burning lignite, Mr. Schaible said. The current BREF does not set specific abatement requirements for mercury.

A derogation has been introduced for large coal plants burning low-quality indigenous fuel with a high sulfur content, although the rules for these plants are more stringent than under an earlier draft. This measure was pushed by the Czech Republic, supported by other countries including Poland and Bulgaria that are concerned about the economic cost of having to upgrade their coal plants.

Power producers association Eurelectric said the economic impact of the revised BREF had been "totally ignored" in the negotiations, including the impact on security of supply. "We are convinced the European Commission should conduct a thorough impact assessment," a spokeswoman said. "Between 1990 and 2012, the electricity sector has already decreased its emissions of SO₂ and NO_x by 85% and 55% respectively, while emissions of [particulate matter] were reduced by 70%," she said, adding that power production rose 30% over this period.

The BREF strengthens the standards for new coal plants, but none are expected to be built meaning this is unlikely to have a major impact. Tighter requirements are also introduced for peat-fired plants, in spite of opposition from Finland and Ireland which use this fuel.

Greece and France successfully lobbied for weaker SO₂ and dust limits for plants on islands burning highly polluting fuel oil than was originally proposed by the Commission.

EEB called on the Commission to adopt and publish the decision without delay to allow the revised BREF to enter force as soon as possible.

23. Roads Still Transport 75% of EU Freight Failing To Shift More to Rail, Marine

Three-quarters of inland freight has been transported on roads since 2008 despite efforts to switch to less polluting modes, according to the latest Eurostat figures. The share of rail was around 18.2% in 2013, slightly below the shares of the previous two years but showing a general increase compared to the 16.9% share in 2009 when the rail sector experienced a "noticeable drop", Eurostat said.

The volumes transported along inland waterways have stayed above 6% since 2008, reaching 6.9% in 2013.

The European Commission is currently reviewing its 2020 transport strategy, which experts agree has failed to shift transport from road to rail and ships.

The Eurostat figures, measured in ton-kilometers, show large variations in the modal split among EU member states. Road transport increased its share by more than 5 percentage points in Poland, Lithuania, Bulgaria and Luxembourg over 2008-13. By contrast, the share of road transport dropped by 12.1 percentage points in Romania in favor of inland waterway transport. Drops of more than 5 percentage points were also recorded in Hungary and Slovenia primarily due to an increase in rail transport.

Only 17 member states have navigable inland waterways. In the Baltic States rail has historically had a share in the range of 70-80%, largely due to the transport of Russian energy products to the countries' ports, but the share fell in Estonia and Lithuania in 2013.

24. London's Famous Double-Deckers Might Be Banned On Smoke-Choked Oxford Street.

Taking the bus instead of driving your car is usually a smart way to do your part to reduce toxic vehicle emissions while helping your city reduce traffic jams. But in one of the busiest shopping districts in the world, London's Oxford Street, buses have long been identified as a significant part of the area's air pollution problem. Now officials in the U.K. capital are considering kicking the iconic red double-deckers off the road.

Peter Hendy, the commissioner of Transport for London, announced this week that the agency is considering removing buses from the bustling retail street. "For years we've been accused of being dog in the manger about buses on Oxford Street, now we are in a completely different place," Hendy told the London Evening Standard. "We are looking at all the options and we will countenance taking all the buses out. We wouldn't rule anything out."

It's a move that is sure to cheer Oxford Street business owners, air quality advocates, and tourism promoters, who have long pressured officials to reduce the number of pollution-generating vehicles on the road. According to the Standard, an astounding 270 buses roll up and down Oxford Street every hour, shuttling some of London's 8.62 million residents, as well as millions of tourists (London was the world's top tourism destination in 2014). The road is also a "street canyon"—the buildings that line Oxford Street rise high along the narrow thoroughfare, trapping toxic gases between them.

Last year researchers at King's College London set up an air pollution monitoring station on the shopping strip. The scientists found a peak level of nitrogen dioxide of 463 micrograms per cubic meter coming out of diesel-fueled tailpipes and other sources—more than 10 times the European Union's safe limit of 40 micrograms per cubic meter. That gave Oxford Street the dubious distinction of having the dirtiest air of any urban thoroughfare in the world. Although London's mayor, Boris Johnson, initially disputed those findings, last fall he admitted that air pollution along Oxford Street was out of control.

Toxic particulate matter from vehicles is to blame for an estimated 60,000 deaths per year in Britain, according to the U.K.'s Committee on the Medical Effects of Air Pollutants, and Londoners are disproportionately affected. But residents—or tourists heading to Selfridges or to Topshop's

flagship store on Oxford Street—aren't the only ones being sickened by heart- and lung-disease-causing exhaust fumes. Worldwide, about 7 million people die every year thanks to poor air quality, according to the World Health Organization.

Various emissions-reducing solutions, such as encouraging Londoners to cycle to work using underground bike lanes, have been proposed to cut the city's overall air pollution. Given that the EU Supreme Court ruled in April that the U.K. has to reduce emissions or pay hundreds of millions of pounds in fines, it seems that the government has no choice but to clean up its act.

25. European Big Oil and US Counterparts Not Aligned On Climate Change Policy

The heads of Europe's largest oil and gas companies joined together for the first time to call for governments to agree on carbon pricing at a United Nations climate summit, opening a schism with their American rivals. "It's clear that the subject isn't viewed in the same way on both sides of the Atlantic," Total SA Chief Executive Officer Patrick Pouyanne, one of the signatories, said on June 1 at a press conference in Paris. "We are working with those who come forward."

The banding together on climate change policy by BP Plc, Eni SpA, Royal Dutch Shell Plc, Statoil ASA, Total and BG Group Plc is unprecedented and follows comments by some of their chief executive officers calling for the industry to be part of the debate on a deal limiting greenhouse gases. It also highlights division within the sector as the top American companies, Exxon Mobil Corp. and Chevron Corp., decided to stay out of the European initiative.

"Climate change is a critical challenge for our world," the heads of six European energy companies wrote to the top UN official in charge of climate talks. "We need governments across the world to provide us with clear, stable, long-term ambitious policy frameworks."

Pouyanne pointed to remarks made in late May by a U.S. oil executive, whom he didn't name, that illustrated the difference in approach between companies on opposite sides of the Atlantic. Exxon Mobil CEO Rex Tillerson said he didn't intend to "fake it" on climate change. The company said on May 27 that it supports a carbon tax over a cap-and-trade system. Exxon is "actively engaged" with the European companies through the International Petroleum Industry Environmental Conservation Association, or IPIECA, representing more than 60 percent of oil and gas production, spokesman Scott Silvestri said.

Chevron CEO John Watson said the company wouldn't join the European initiative. "We think we can make our statements, and our statements speak for themselves," he told shareholders in May. The company said June 1 that it has been engaged on the topic of climate change and, like Exxon, pointed to its membership in IPIECA. "We believe that taking prudent, practical and cost effective action to address climate change risks is the right thing to do," Chevron said in a statement.

Nonetheless, the split resembles another industry schism in 1997–1998, when BP and Shell broke ranks with their American oil counterparts leaving the Global Climate Coalition, at that point the U.S. industry's foremost lobbying group in fighting efforts to limit the use of fossil fuels.

The letter to Christiana Figueres, the executive secretary of the UN climate body, and Laurent Fabius, the French foreign minister, promotes natural gas as the least-polluting of fossil fuels, in opposition to coal, and coincides with the start of the World Gas Conference in Paris the week of June 1. "We write to highlight the major role natural gas can play in addressing climate change," the CEOs said in a separate letter published in the Financial Times.

The main lobby group for the coal industry responded immediately, saying that for “many countries, the reality is that the only way they can meet their growing energy needs is through affordable, readily available coal.” In its statement, the World Coal Association said “cleaner coal technologies” were vital to reduce carbon emissions.

The push by Europe's oil companies comes as efforts to reduce fossil-fuel investments and spur renewables such as solar have gathered pace in the past two years, with oil companies sitting largely outside the debate. The European firms are more sensitive to environmental issues because governments in the region are leading the way on climate and voters are demanding action.

Carbon pricing was the main theme of a May meeting—also in Paris—of business leaders on climate change when CEOs from the banking, insurance and consumer products industries, as well as energy, called for a cost to be placed on carbon emissions as an incentive for companies.

Negotiators began 11 days of meetings in Bonn June 1 to work out differences ahead of talks in Paris later this year. The goal of envoys from more than 190 nations is a deal that for the first time would require developed and developing countries to take action.

Despite the public split between U.S. and European energy groups, emissions data released through the Carbon Disclosure Project show little difference between both sides. All have reduced pollution “slightly” since 2011, with BP in the lead mainly because of asset sales needed to pay \$40 billion in costs associated with the Gulf of Mexico disaster in 2010.

The letter could provide the European oil groups with alternative arguments to counter the divestment campaign, which has persuaded institutions such as the Rockefeller Brothers Fund and Stanford University to scrap fossil fuel investments. French insurer Axa SA and Norway's sovereign wealth fund, two of the world's most influential institutional investors, also announced that they will reduce their investments in coal mining and coal power plants.

The coming together of the European companies was borne out of an encounter by BP, Shell, Statoil and Total executives in Oslo, Pouyenne said June 1. “We realized that we were fundamentally in agreement,” he said. “Because we make up a significant part of the oil major market, it would be worth it that European oil companies make a commitment without necessarily having an American oil company on board.” Discussions with U.S. oil companies have taken place and “we hope that one of them will join us soon.”

A predecessor also without American participation called the Oil and Gas Climate Initiative was started in January 2014 and includes Total, BG and Eni, as well as Saudi Aramco, Petroleos Mexicanos and China Petroleum & Chemical Corp. It focuses on gas flaring, methane emissions, carbon capture and storage.

26. Carbon Permits Glut Limits Germany's Options to Meet 2020 Reduction Target

A glut of European Union carbon-emission permits is limiting Germany's options to meet its 2020 greenhouse gas reduction target, according to the nation's environment ministry. Europe will take years to eliminate its surplus before cost-effective climate strategies based on carbon markets will get traction, Dirk Weinreich, head of climate policy in the ministry, said on June 15th. Germany wants to cut emissions at home to meet its most immediate climate goal rather than just buy and retire pollution allowances, he said.

Europe's carbon-permit glut led to a 74 percent slump in the cost of emissions since 2008, eroding the penalty for burning coal and prompting market reforms that probably won't start for more than three years. Forcing utilities in Germany, primarily RWE AG and Vattenfall AB, to switch to cleaner natural gas from coal would cost about six times the current carbon price, according to consultants Bain & Co.

"We still live in the world of surpluses" and canceling allowances "would not change anything," Weinreich said. The carbon market is "like the machine room in a big ship. It gives the basic drive. If you want to change direction quickly you may need additional engines at the sides."

Germany is targeting a 40 percent reduction in emissions by the end of the decade from 1990 levels. European Union lawmakers plan to control the supply of carbon permits through a market reserve that will start in 2019. The reserve start is probably too late for Germany, which is considering alternatives to fill the probable 7 percent gap in its 2020 target because coal emissions are still too high, Weinreich said. "We are talking about additional instruments as a transition," he said, without being specific.

Chancellor Angela Merkel's cabinet has targeted lignite plants—power-generation's biggest polluters that account for a quarter of electricity output—to take the brunt of additional emission cuts through 2020.

Forcing coal plants to shut would push up power prices by about 10 percent as more natural gas generators would be used to cover demand peaks, according to UBS Group AG.

Closing stations to reduce emissions equates to a cost of about 50 euros (\$56) a metric ton of carbon dioxide, according to Boston-based Bain, which advises companies in industries from airlines and health care to energy. That compares with 7.52 euros to buy a benchmark EU permit to emit one ton of carbon dioxide, data from ICE Futures Europe in London show.

Industry and other energy consumers are seeking cheaper emission-reduction policies, according to Julian Critchlow, a partner at Bain. "Policy makers must embrace lower-cost pathways. That's the lesson from Europe writ large," Critchlow said.

Germany can show climate negotiators seeking a global treaty in Paris this year that reducing carbon at the cheapest price is sensible, no matter where the emissions are located, he said, adding that it also leaves money on the table for additional climate measures.

"The cost effectiveness, not only from a national perspective but from a global perspective, will be key," Fatih Birol, the chief economist at the International Energy Agency, said in a June 15 interview in London. It could be easier for some countries to reduce emissions elsewhere than at home, he said.

Emerging nations want to be shown how to cut their emissions, Germany's Weinreich said. Merkel is seeking a global carbon market to help finance clean energy in poorer nations and win their support for a climate deal, she said.

"We have set the precondition to reach a more cost-effective European, and maybe German, policy on climate," Weinreich said. "If we have a functioning emissions-trading system, maybe the need for other measures is a bit lower."

NORTH AMERICA

27. California Cities Still Have Nation's Worst Smog, Report Shows

Despite years of progress, California cities have the worst smog and particulate air pollution in the nation, conditions made worse by the state's ongoing drought, a report shows. The annual report by the American Lung Association comes as the state struggles to protect both water and air in the face of a prolonged, catastrophic drought that is entering its fourth year.

"Residents exposed to air pollution are at greater risk for lung cancer, asthma attacks, heart attacks and premature deaths," said Olivia Gertz, president of the American Lung Association in California.

Five California cities, including Los Angeles, Bakersfield and the state capital of Sacramento, led the nation in ozone pollution, commonly called smog, during the two-year period from 2011 to 2013, according to the report. The worst cities for both seasonal and annual particle pollution - the soot and dust made worse by warm, dry conditions during the drought - were also in California, the report said.

More than 70 percent of California residents, about 28 million people, are exposed to unhealthy air during the year, the report said.

According to the report, the Los Angeles area led the nation in smog, while the Fresno-Madera area in the state's San Joaquin Valley breadbasket had the worst particulate pollution.

Nationwide, metropolitan areas with the worst smog included Los Angeles, Visalia, Bakersfield, Fresno and Sacramento in California, followed by Houston; Dallas-Ft. Worth; Modesto, California; Las Vegas and Phoenix, the report showed.

Despite the rankings, the report showed that overall California's air has improved since the organization began tracking pollutants in 2000.

The number of bad air days in the San Francisco Bay Area and San Diego, for example, dropped 80 percent between 2000 and 2013. Particle pollution also fell during the period, dropping 70 percent or more in the Los Angeles, San Francisco, Sacramento and San Diego areas.

As the drought has continued, pollution levels ticked up in the state. The conditions have made it more difficult to keep the air clear in the state's vast valleys, where geography and warm, dry weather combine to keep dirt, haze and pollutants close to the ground.

In the summer of 2014, California was out of compliance with federal ozone rules for 99 days in the San Joaquin Valley, up from 89 the year before. Sooty particulates, which cause brown haze in the late fall and winter, were up throughout the state last winter.

28. Air Resources Board Releases Concept Paper on Short-Lived Climate Pollutants

The Air Resources Board has released a concept paper² describing ways in which California can move forward aggressively to reduce greenhouse gas and smog-causing emissions from a group

² The Short-Lived Climate Pollutants Concept Paper can be found at: www.arb.ca.gov/cc/shortlived/shortlived.htm

of chemicals with extremely high global warming potential. These chemicals may be responsible for as much as 40 percent of the global warming to date.

Short-lived climate pollutants (SLCPs) include methane, black carbon and fluorinated gases (refrigerants, insulating foam and aerosol propellants). These gases trap heat at many times the level of carbon dioxide, but also tend to have a shorter duration in the atmosphere than carbon dioxide, making their most dramatic climate impact over a period of days to about 10 years.

“Reducing the emissions of these short-lived climate gases is an important part of California’s – and the world’s – efforts to keep the planet from exceeding the most dangerous levels of warming,” said ARB Chairman Mary D. Nichols. “Taking steps to significantly reduce these greenhouse gases now will deliver climate and air quality benefits in the short-term while we move our energy systems and vehicle fleets to clean technologies.”

Strong planning and decisive actions on these climate pollutants will deliver reductions over the short-term and will play an important role in achieving the Governor’s goal of reducing greenhouse gases 40 percent by 2030. The concept paper identifies scientific targets that align with levels of reductions needed worldwide to stabilize the climate, including reducing methane emissions by at least 40 percent.

Senate Bill 605 requires ARB to develop, in coordination with other state agencies and local air districts, a comprehensive strategy to reduce emissions of short-lived climate pollutants. The release of the concept paper marks the first step in developing that strategy. A public workshop was held on May 27 to discuss the concept paper and overall strategy development.

Working on a fast-track, ARB will develop an initial draft strategy through public workshops over the summer. The draft proposed strategy will be presented to the Board in the fall and will include specific actions over a broad array of economic sectors, including the natural environment and biological systems.

Action to reduce emissions of these gases can also improve air quality and reduce related health risks, hospitalizations and medical expenses, especially in disadvantaged communities. Other benefits to California include reducing damage to forests and crops, reducing background ozone and particulate levels to help meet federal air quality standards, and reducing disruption of historic rainfall patterns.

For black carbon, produced in California primarily from diesel combustion and burning wood (including wildfires), the concept paper suggests building on, accelerating and expanding existing programs including the ongoing sustainable freight strategy and forest management.

Development of a regulation by ARB is already underway to reduce methane emissions from oil and gas drilling and storage sites. The concept paper addresses the need to act on other sources, including reducing methane emissions from dairies and eliminating the disposal of organic materials at landfills. The concept paper suggests an approach to consider new funding mechanisms and a range of incentive structures to address all sources.

“Reducing methane and other short-lived climate pollutants is an increasingly essential part of achieving California’s goals of reducing the impacts of climate change; protecting our land, air, water and communities; and enabling California’s farming sector to thrive,” said Sustainable Conservation Executive Director Ashley Boren. “Sustainable Conservation looks forward to working with state agencies, our agricultural partners and other stakeholders in developing

effective strategies and incentives that work for farmers, agricultural communities and the environment – and putting the state on the path to meeting its climate change and air quality goals.”

As for so-called fluorinated gases, the paper looks to an 80 percent reduction by 2030 in the use of hydrofluorocarbons (HFCs) in new refrigeration and air conditioning equipment, and taking early actions to significantly reduce these gases from commercial refrigeration. There is already an ARB program in place to address leaks from commercial systems.

Development of this plan will align with efforts being made by Mexico, one of the State’s international partners in efforts to curb the impacts of climate change and fight air pollution. Mexico is the only country to specifically include SLCP emissions in its reduction pledge for the upcoming Paris climate summit. Under an agreement signed last year, California and Mexico are working together on a host of climate and air quality issues, including short-lived climate pollutants. Last December, California and Mexico co-hosted an event on short-lived climate pollutants at the international climate meetings in Lima, Peru.

California already has some of the most stringent and effective regulations in the country for methane and black carbon. Our efforts to control emissions from diesel vehicles have reduced black carbon 90 percent since the 1960s, while diesel consumption has since tripled. These reductions help avoid about 5,000 premature deaths each year in the state, and if similar black carbon reduction levels were achieved globally, studies show it would avoid millions of premature deaths annually and slow the rate of global warming by about 15 percent.

29. California ARB Releases DPF Evaluation Report

On 15 May, the California Air Resources Boards (ARB) released a report that discusses their findings regarding the cost, reliability, and fire safety of diesel particulate filters (DPF) in on-road applications.

The ARB evaluation concluded that (1) PM filters do not increase the likelihood of truck fires and are manufactured in accordance with federal and state safety requirements; (2) PM filters are effective in removing more than 98% of toxic diesel PM emissions; and (3) PM filters are operating properly, and most trucking fleets are not having problems with their engines or PM filters. While some fleets are experiencing problems with their PM filters, engine durability issues and inadequate maintenance practices are the primary reasons for these problems, found the report.

Some of the key findings of the report include:

- The ARB evaluation indicates that DPFs do not increase the risk of truck or bus fires. National vehicle fire statistics suggest the frequency of truck fires is decreasing over time. Before the widespread deployment of PM filters, between 2004 and 2006, heavy-duty trucks accounted for 16,300 truck fires nationwide. Between 2008 and 2010, when virtually all new heavy-duty trucks were equipped with PM filters, heavy-duty trucks accounted for 13,200 truck fires. These data show that over this period truck fires declined by 20%. Over the same period, national diesel fuel sales, which are a reliable indicator of the amount of miles driven by trucks, declined by 6%. These data indicate during this period that heavy-duty truck fires declined at a greater rate than fuel sales, which suggests heavy-duty truck fires may be declining over time.

- The ARB has identified three fires, which occurred between 2011 and 2012, involving two models of previously verified retrofit DPFs. In all cases, the filters in question were constructed with metal rather than ceramic filter cores, were impacted by engine component malfunctions, and, in addition, were not operated properly. Shortly after the fires, ARB took prompt action to address potential future issues associated with improper operation of these verified retrofit PM filters.
- Some truck owners are experiencing vehicle downtime due to mechanical failures of their engines. The ARB believes that this downtime is caused by engine component failures, such as a turbocharger or EGR device, that cause the engine to generate excessive PM at rates that exceed designed values for PM filters. Many engine component failures are initially and incorrectly diagnosed as PM filter issues. Continued operation of a vehicle with malfunctioning or failed engine components and/or triggered malfunction indicator lights can damage the core of the PM filter if not addressed promptly. A small fraction of trucks with damaged PM filters appears responsible for the majority of PM emissions from the filter-equipped fleet.
- The analysis of warranty claims data indicates that MY 2010 and newer engines have better durability performance—as measured by warrantable claims for engine component failures—than engines manufactured between 2003 and 2009. Preliminary warranty reports from MY 2012 engines suggest better performance than the MY 2011 engines. Additionally, MY 2013 and newer engines are equipped with standardized onboard diagnostics that should encourage improved engine durability.
- A close examination of the warranty claims suggests upstream engine components could be the root cause of PM filter problems. Virtually all engine families with reported claims for the PM filter also had reported claims for another engine-related component. A total of 208 heavy-duty diesel engine families were sold between MY 2007 and 2011; of these, 127 engine families reported warranty claims for an upstream engine component, of which 77 had claims reported for an emissions-related component and the PM filter, where 44 engine families reported claims for an emission-related component and not the PM filter, and only six reported claims for the PM filter alone.

The report includes five recommendations in regards to future ARB efforts:

- **Continue Working to Hold Manufacturers Accountable.** New in-use emission measurement programs will help better enforce engine certification standards. Additionally, the ARB is considering amendments to their Emissions Warranty Information Reporting regulations to hold manufacturers accountable for high warranty claims that can result in excess emissions.
- **Educate Truck and Bus Owners and Operators.** The ARB will identify best preventive maintenance practices to maintain properly functioning engines, and to disseminate this information to fleets.
- **Enhance Certification Programs.** Improvements to ARB's certification program requirements will provide broader in-use protections, greater warranty protections, and better assurances of engine component durability.
- **Develop Stronger Inspection and Maintenance (I/M) Requirements.** ARB is developing a proposal to expand heavy-duty truck inspection and maintenance requirements to help ensure these vehicles and their emissions control systems are properly maintained.

- Continue to Provide Assistance to Fleets Operating Retrofits in On-Road and Off-Road Applications. The ARB will continue to investigate fleet concerns with retrofit performance in on-road and off-road applications.

30. U.S., Canada and Mexico Create New Climate Change Partnership

North American energy ministers have announced that they had set up a working group on climate change and energy, a partnership designed to help Canada, the United States and Mexico harmonize policies. The partnership does not include binding targets, but will enhance cooperation and integrate more climate change-related policies into energy discussions between the countries, Canadian Natural Resources Minister Greg Rickford said during a conference call.

All three governments said they will prioritize working together on issues, including efficiency of electricity grids, pursuing new clean energy technologies and aligning regulations to control emissions from the oil and gas sector.

The agreement comes even as Canada's right-leaning Conservative government and the Obama administration clash over the lengthy and ongoing U.S. review of TransCanada Corp proposed Keystone XL pipeline that would connect Alberta's oil sands region with the Gulf Coast of Texas.

Environmental groups have aggressively campaigned against the project, arguing that it would accelerate heat-trapping emissions from the oil sands.

Canada's government has criticized the Obama administration for delaying the decision, while U.S. President Barack Obama has questioned the economic benefits of the project, indicating he would not approve it if it exacerbates global warming.

Canada has also repeatedly pledged to introduce emissions regulations for the oil and gas sector in recent years, only to delay those plans. In December, Canadian Prime Minister Stephen Harper said it would be "crazy" to introduce new rules at a time when global oil prices are plummeting.

Rickford, who met with his North American counterparts in Merida, Mexico, said Canada could align itself with recently proposed U.S. rules to cut methane emissions from oil and gas operations as part of the agreement. He said this could lead to other regulations for Canadian oil and gas companies.

"I believe we've had some very serious discussions around the potential this (focus on methane) holds for oil and gas regs in general," said Rickford, following his meeting with Ernest Moniz and Pedro Joaquin Coldwell, the U.S. and Mexican energy secretaries, respectively.

Monday's agreement would also enhance cooperation on technologies to capture and bury greenhouse gas emissions underground, Rickford said.

31. California Governor Orders Aggressive Greenhouse Gas Cuts By 2030

California Governor Jerry Brown has issued an executive order to cut greenhouse gas emissions 40 percent by 2030, a move he said was necessary to combat the growing threat of climate change. The targeted reduction was tied to 1990 levels and is "the most aggressive benchmark enacted by any government in North America to reduce dangerous carbon emissions," Brown said in a statement.

California operates the nation's largest carbon cap and trade system. The state sets an overall limit on carbon emissions and allows businesses to hand in tradable permits to meet their obligations.

Achieving the new target will require reductions from sectors including industry, agriculture, energy and state and local governments, Brown said. "I've set a very high bar, but it's a bar we must meet," Brown told a carbon market conference in downtown Los Angeles.

Brown said the new target will position California as a leader in combating climate change in the United States and internationally. Brown said he has spoken to leaders in Oregon, Washington and Northeastern states about collaborating with California to cut their output of heat-trapping greenhouse gases. Those states could potentially link to California's carbon market in future years.

He said he has had similar discussions with leaders in the Canadian provinces of Quebec, British Columbia and Ontario, as well as in Germany, China and Mexico. Quebec is already linked to the California market. Leaders in Ontario this month signaled their intention to join the program. "This will be a local policy but it will be globally focused," Brown told reporters on the sidelines of the conference.

United Nations Secretary-General Ban Ki-moon welcomed the news and encouraged other states and cities around the world to also take action, U.N. spokesman Farhan Haq said. "California's bold commitment to tackling climate change is a strong example to states and regions all over the world that they can join their national governments in taking ownership of this critical issue and in showing leadership," Haq said.

The plan for how California will achieve the 2030 target will be hammered out over the next year by the California Air Resources Board (ARB), which oversees the cap-and-trade program. "With this bold action by the governor, California extends its leadership role and joins the community of states and nations that are committed to slash carbon pollution through 2030 and beyond," said Mary Nichols, chair of the ARB.

32. U.S. Climate Change Targets 'Achievable' but More Cuts Possible, Report Says

The U.S. commitment to reduce its greenhouse gas emissions by at least 26 percent by 2025 is achievable, but additional reductions are possible with stronger regulations and a greater emphasis on energy efficiency, the World Resources Institute said. The U.S. can achieve that emissions reduction target using existing executive authorities such as regulating carbon dioxide emissions from power plants and rules targeting additional emissions sources, the World Resources Institute said in its May 27th report, "Delivering on the U.S. Climate Commitment: A 10-Point Plan Toward a Low-Carbon Future."

According to the report, the U.S. could reduce its emissions by as much as 30 percent from 2005 levels by 2025 by strengthening its Clean Power Plan (RIN 2060-AR33), which would set carbon dioxide emissions standards for the power sector in each state, to foster additional reductions through energy efficiency and renewable generation.

The 10-point plan identifies opportunities for the U.S. to achieve emissions reductions, including regulating power plants; improving energy efficiency at residential and commercial buildings; introducing programs to reduce use of hydrofluorocarbons (HFCs); adopting stronger vehicle emissions standards; and regulating methane emissions from oil and natural gas systems,

landfills and coal mines. The plan does not include measures to address greenhouse gas emissions from forestry or agriculture, however.

The Environmental Protection Agency's Clean Power Plan, which is expected to be finalized in August, would provide a significant portion of the projected emissions reductions. As proposed, the rule would account for 42 percent of emissions reductions in the World Resources Institute's base case scenario. But the group said in its report that the EPA's proposal could be strengthened to promote additional deployment of renewable energy and energy efficiency.

"We know the Clean Power Plan will accelerate these changes, but there's still some potential left there in terms of energy efficiency and renewables," said Karl Hausker, senior associate in the U.S. climate initiative at the World Resources Institute.

A stronger power plant rule coupled with new vehicle emissions standards and industrial energy efficiency requirements could reduce U.S. emissions by as much as 34 percent to 38 percent by 2030, the report said.

Following a panel discussion of the report, Rick Duke, deputy director for climate policy at the White House Office of Energy and Climate Change, was repeatedly asked during a question and answer period whether the White House would publicize the assumptions that led to its decision to adopt the 26 percent to 28 percent emissions reduction target and the steps the administration envisions will achieve that goal. Duke said the administration's plans were detailed in President Barack Obama's climate action plan, which ordered his administration to take steps to regulate power plant and vehicle emissions, as well as in biannual reports to the United Nations on the U.S.'s progress toward meeting its climate commitments.

He also said the World Resources Institute's report is further evidence that the U.S. targets are realistic and feasible. "This report from WRI is also consistent with our internal assessment that we're on track with both our 2020 and 2025 commitments," he said.

33. EPA Sends Biofuels Volumes Targets to White House for Review

The U.S. Environmental Protection Agency (EPA) has sent blending targets for the country's renewable fuels program to the White House for review ahead of a fast-approaching June 1 deadline for publicly releasing its proposal, according to industry sources. The EPA has reportedly sent proposed volume requirements for 2014, 2015 and 2016 to the White House Office of Management and Budget.

The EPA agreed to a June 1 deadline to issue targets for 2015 as part of a lawsuit settlement agreement with two oil industry groups over delays in the agency's target-setting. The agency also said it would propose 2016 volumes by June 1 and that it planned to re-propose 2014 requirements.

34. USDA Said Planning To Inject \$100 Million on Ethanol Infrastructure

The U.S. Department of Agriculture (USDA) plans to inject \$100 million in funding to get more ethanol at the gas pump, according to two industry sources, the latest push to get beyond a "blend wall" that has capped demand for the biofuel. That would mark a big push for an overhaul of fuel-blending pumps and related infrastructure to generate higher demand for the biofuel. The USDA is reportedly expected to announce the funding very soon.

Ethanol groups have asked the USDA to continue to offer this funding amid rising calls for policy reform from policymakers, oil companies, and environmentalists. The USDA launched a program in 2011 designed to get 10,000 flex-fuel options at gas pumps nationwide that would allow use of blends as high as E85, which is 85 percent ethanol.

The United States sets use requirements for biofuels, including ethanol, through the Renewable Fuel Standard (RFS) program, but has delayed setting targets for the current year and 2014 amid concern from oil companies that ethanol use has hit a saturation point without major infrastructure changes.

The plans come as oil companies and biofuels producers await a proposal from the Environmental Protection Agency (EPA) on biofuels use requirements for 2014, 2015, and 2016, widely expected to be announced very soon. (See above.)

35. EPA Delays Prompt \$13.7 Billion Shortfall in Biofuels Investment: Report

U.S. government delays in rolling out renewable fuels policy have stymied some \$13.7 billion in investments and have prevented advanced biofuels companies from meeting mandated target volumes, according to an industry group analysis. The U.S. Environmental Protection Agency's (EPA) slow rulemaking on the Renewable Fuel Standard program over the past two years has "chilled" an influx of capital needed to boost commercial production, according to the Biotechnology Industry Organization (BIO).

The Washington firm represents biotechnology companies like Abengoa Bioenergy and DuPont.

Production of advanced and cellulosic renewable fuels, which use plant waste as a feedstock, has failed to meet targets set by Congress in 2007, stoking debate over the policy. Corn-based ethanol represents the vast majority of renewable fuels in use.

The EPA has been late in meeting annual deadlines to set volumes of renewable fuels required to be blended into the transportation fuel pool, which critics say has created uncertainty throughout the industry. The agency is late in announcing mandates for both 2014 and 2015.

The EPA has to approve new ways companies have designed to qualify a fuel under RFS policy. Delays in that process have helped dry up funding, according to BIO.

36. Obama Moves to Slash Truck Pollution

The Obama administration has laid out a major step in its fight against climate change with a plan it said would reduce the greenhouse gas emissions from medium and heavy-duty trucks and buses by 1 billion metric tons. The matching regulations from the Environmental Protection Agency (EPA) and the Transportation Department would improve fuel efficiency standards by an average of 24 percent for medium-sized and heavy trucks, buses and big trailers through model year 2027, which would cut the output of Earth-warming carbon dioxide while saving 1.8 billion barrels of oil.

The federal agencies said the rules, which would be the second round of truck efficiency standards from the Obama administration, would bolster energy security and spur innovation in manufacturing while saving money for consumers and businesses.

Mark Rosekind, head of the Transportation Department's National Highway Traffic Safety Administration, said the rule would result in \$270 billion in benefits nationally and only cost \$25 billion. "Setting and implementing national standards for cars and trucks and other transportation sources has been a top priority for this administration, because cutting oil use is critical to our economic well-being and national security, while delivering cleaner air is important to the health and well-being of every American," he said. "And higher fuel efficiency helps us to bring these benefits to the nation, while bringing more money to the pockets of businesses and consumers."

While the new standards would add up to \$12,000 to the cost of a new truck, trucking companies could recoup the costs within two years, leading the industry to \$170 billion in fuel savings during the life of the vehicles.

Big trucks and buses account for about one-fifth of the greenhouse gas emissions and fuel use in the transportation sector, a sector that produces 27 percent of the country's emissions, second only to electricity generation. Those vehicles comprise only about 5 percent of the vehicles on the road.

The emissions reduction is the equivalent of the pollution from all United States residents' energy and electricity use for a year, while the oil savings amount to the country's annual imports from OPEC.

Janet McCabe, head of the EPA's air pollution office, said emissions from large vehicles are growing the fastest of any sector in transportation.

McCabe said that to reach the rule's goals, truck makers will have to use some technology that is not yet commercially available. But regulators believe the technology will be fully available by the time it is needed.

The rules come during a busy few months for the Obama administration's climate agenda. Earlier this month, the EPA kicked off a process to regulate greenhouse gases from aircraft (see story below.). In August, the administration plans to make final its most controversial climate change regulation, limiting carbon output from power plants. At some point this summer, the EPA will propose rules to crack down on methane emissions from the oil and natural gas sector.

But unlike some of Obama's more controversial rules, the truck regulations are receiving cautious support from the trucking industry. The American Trucking Associations (ATA) said it supports the rules, but it wants to make sure that the agencies do not mandate untested technology.

"Fuel is an enormous expense for our industry — and carbon emissions carry an enormous cost for our planet," Bill Graves, president of the trucking group, said in a statement. Glen Kedzie, who leads environmental policy for the ATA, said the federal government is generally following the advice that the industry suggested to keep technology attainable.

The industry fully supported the first round of truck efficiency rules, written in 2011.

Sen. Barbara Boxer (D-Calif.), top Democrat on the Senate Environment and Public Works Committee, applauded the "true leadership" Obama is showing through the rules. "This proposed truck fuel efficiency standard is another important step forward, because the reduction in carbon pollution will be the equivalent of taking more than 210 million cars off the road for one year," she said in a statement.

Environmental groups cheered the EPA's announcement. "Making our trucks go farther on less fuel will limit climate change and oil dependency while saving consumers and businesses money, and spurring innovation," Rhea Suh, president of the Natural Resources Defense Council, said in a statement. "We will be pushing the administration to require compliance sooner, in order to deliver these benefits more quickly."

Sara Chieffo, vice president of government affairs for the League of Conservation Voters, said the proposal "marks another important step in the Obama administration's plan to curb carbon pollution and combat climate change. A more efficient truck fleet will save money on shipping, driving down costs for companies and consumers."

The agencies will give the public 60 days to comment on the proposed rules, and will also hold public hearings on it throughout the country.

The proposed vehicle and engine performance standards apply to semi-trucks, large pickup trucks and vans, and all types and sizes of buses and work trucks. The ranges of CO2 emission and fuel consumption reductions necessary to meet the Phase 2 standards in model year 2027, relative to the respective 2018 vehicle categories, are:

- Class 8 tractors: Up to 24% emission reduction,
- Vocational vehicles: 12-16%,
- Commercial pickups and vans: 16%.

The technologies considered by the EPA/NHTSA include improved transmissions, engine combustion optimization, aerodynamic improvements and low rolling resistance tires.

The proposed Phase 2 standards maintain separate CO2 emission standards for complete vehicles and for engines. The engine standards have one advantage—the criteria of compliance are well defined and emissions are determined through physical testing using an engine dynamometer test bench, (Concerns have been raised that the proposal was weaker than expected on engine standards as some in industry had supported up to 10% improvement whereas the proposal only mandates 4% improvement.) Vehicle emissions, on the other hand, are determined through computer models that are not necessarily a perfect approximation of real vehicle emissions.

The proposal also includes efficiency and GHG standards for trailers (which were not included in the Phase 1 standards). The EPA trailer standards (which exclude certain categories such as mobile homes) would begin to take effect in model year 2018 for certain trailers, while NHTSA's standards would be in effect as of 2021, with credits available for voluntary participation before then. The efficiency technologies envisioned for trailers include aerodynamic devices, light weight construction and self-inflating tires.

The proposed standards are fully harmonized between the NHTSA and the EPA. The agencies have worked closely with the California Air Resources Board (ARB) in developing the proposed standards, said the EPA. In a statement on the EPA/NHTSA proposal, ARB Chairman M. Nichols said that the draft Phase 2 greenhouse gas regulations are a "positive next step for controlling emissions from trucks and other heavy-duty vehicles" and that the ARB will be working to ensure the final regulations help California meet its GHG emission reduction goals for 2030 and beyond. California harmonized its heavy-duty vehicle GHG program with the federal Phase 1 GHG standards in 2013.

37. California ARB Releases Draft Assessment of Heavy-Duty Truck Efficiency Technologies

The California ARB has published a Draft Technology Assessment that evaluates a range of technologies to increase fuel efficiency and reduce CO2 emissions from heavy-duty trucks. The release of the report coincides with the US EPA proposal for Phase 2 (post-2018) greenhouse gas (GHG) regulations. In April, the ARB published a related assessment of heavy-duty emission and fuel technologies.

The assessment found that the evaluated technologies can produce significant reductions in fuel consumption. Table 1 summarizes the potential additional fuel consumption reduction (FCR) beyond Phase 1 GHG standards (i.e., model year 2018) compliant vehicle that incorporates all of the applicable technologies.

Table 1: Potential additional fuel consumption reduction (FCR) beyond Phase 1 GHG standards

Vehicle Category	FCR Potential,	%
Heavy-Duty Tractor-Trailer (Class 7-8) Long Haul	8 -	36
Heavy-Duty Tractor-Trailer (Class 7-8) Short Haul	8 -	33
Heavy-Duty Vocational (Class 3-8)	10 -	28
Heavy-Duty Diesel Pick-ups and Vans (2b/3)	3 -	23
Heavy-Duty Gasoline Pick-ups and Vans (2b/3)	10 -	27

The percent FCRs shown in the table correspond directly to potential reductions in CO2 emissions, and can be used to help inform the Phase 2 GHG standard setting process, said ARB in the report.

California air quality targets also require significant further reductions in emissions of criteria pollutants, particularly NOx emissions. In the past, many NOx reduction technologies (such as exhaust gas recirculation and retarded ignition timing) have resulted in increased fuel consumption and reduced fuel efficiency. However, the introduction of urea SCR technology in 2010 allowed for increased fuel efficiency (and reduced GHG emissions) while achieving low tailpipe NOx emissions, noted the report.

The California ARB will further discuss NOx control technologies for heavy-duty engines (both diesel and natural gas) as part of three separate upcoming technology assessment documents expected to be released later this year: (1) Lower NOx Heavy-Duty Diesel Engines, (2) Heavy-Duty Hybrid Vehicles, and (3) Low Emission Natural Gas and Other Alternative Heavy-Duty Fuel Engines.

38. Truckers Brace for More Stringent California GHG Rules Following EPA Plan

Trucking industry representatives say they are bracing for California to propose more stringent greenhouse gas (GHG) regulations for heavy-duty trucks following last week's release of federal Phase 2 rules for the vehicles, fearing that they will be forced to comply with tighter standards from the state likely after the 2018 model year.

In addition, the industry is preparing for California to petition EPA to tighten nitrogen oxide (NOx) emission standards for heavy-duty engines for 2018 and beyond as some GHG controls boost NOx releases.

Even if the petition is rejected, California may still seek its own stringent NOx standards through the Clean Air Act waiver process, which effectively would amount to a national standard because the industry is unlikely to pursue two separate engine compliance paths, industry sources say.

EPA and the National Highway Traffic Safety Administration (NHTSA) last week released their harmonized proposals to further improve trucks' efficiency and curb their GHG emissions. (See story above.) The agencies said in a statement that they have worked closely with California officials and that all three agencies "are committed to the goal of setting a single set of national standards."

But following the proposal's release, California Air Resources Board (CARB) Chairwoman Mary Nichols released a written statement that welcomed the federal rules but kept open the option that California may adopt stricter rules. "We support this effort and will be working to ensure the final regulations help California meet our goals for 2030 and beyond," she said.

CARB added in the June 19 press release that it would "carefully review the draft federal Phase 2 regulations in light of" the state's efforts to reduce GHG emissions to 1990 levels by 2020 and Gov. Jerry Brown's (D) recently announced 2030 climate change target of 40 percent below 1990 levels, as well as the state's goal of halving petroleum use by 2030.

Some in industry reportedly believe that Nichols' comments and CARB's press release "virtually left the door open for CARB to take it up a notch," potentially setting more stringent standards than EPA in its own Phase 2 GHG rule. "All bets are off beyond 2018, and hopefully we have at least the 2018 harmonizations."

In meetings industry officials have had with CARB over the past year, "it was quite evident CARB will create this program that is not harmonized across the country, and EPA will have to do catchup if they choose to get harmonization," the source says. "And because of the long implementation period on this regulation, the next shot at doing that is going to be beyond some date post-2027, if they choose to have a round three" of the standards.

Because GHG controls can increase NOx emissions, trucking industry representatives have argued that reducing the pollutants are mutually exclusive endeavors, and have urged CARB to avoid setting its own more stringent standards for both pollutants.

One of the industry's "guiding principles" is to do everything possible to ensure there is one set of standards that every truck manufacturer can comply with, the source says. "We do not see a manufacturer putting up a production line for California-only trucks and one for the rest of the country -- that's not the way it works," the source says.

"If California takes it up a notch, it will be the California requirements" that are followed, "which is really pushing the envelope in terms of how far technology and engineering can take us as an industry. . . . There's a lot of concern about what's happening in California."

California's aggressive long-term GHG-reduction targets and its need to dramatically cut criteria pollutants to meet federal national ambient air quality standards in the coming decades are driving the state to pursue tighter engine rules. CARB's website says that upon EPA's adoption of its Phase 2 rules, "CARB staff plan to bring a proposed California Phase 2 program before the board, most likely in late 2016 or 2017."

CARB also revealed in a draft “sustainable freight” strategy released in April that it plans later this year to petition EPA to develop a lower NOx standard for new heavy-duty truck engines for rulemaking in 2018. The requested standard would be 0.02 grams NOx per brake-horsepower hour, which is 90 percent lower than EPA's 2010 model year on-road standard.

But some GHG-reduction technologies and processes, such as those that increase combustion chamber temperatures, have been shown to raise NOx emissions from engines. Trucking and engine manufacturing organizations have elevated this fact in debate with CARB officials over their regulatory plans.

CARB in 2013 harmonized its heavy-duty vehicle program with the federal Phase 1 GHG standards. But this will be the first time federal regulations have required large trailers to help achieve reductions in GHG emissions. CARB has had a GHG-reduction regulation in place for box-type trailers 53 feet and longer since 2010.

The federal proposal, which will be open for 60 days of public comment once it is published in the Federal Register, will regulate all classes of medium- and heavy-duty trucks including heavy pickup trucks, vocational vehicles and combination tractors from model years (MYs) 2021-2027. The rule will govern a longer period than what many had expected following industry lobbying to provide more production certainty.

Phase 2 will also regulate trailers used in combination with tractors for the first time beginning in MY2018. “Although the agencies are not proposing standards for all trailer types, the majority of new trailers could be covered,” the proposal says.

The phase 1 EPA and NHTSA rules, which were aligned with California's, cover MY2014-2018.

EPA says in a fact sheet that when the standard is fully implemented in MY2027, combination tractor trailers will reduce their carbon dioxide (CO₂) and fuel use by 24 percent compared to the phase 1 standards. Trailers will see an 8 percent reduction alone, when compared to an average MY2017 trailer. And vocational trucks, pickup trucks and light vans will see a 16 percent cut compared to phase 1.

EPA will also seek comment on alternative approaches, including one that would require the same level of emission cuts two to three years earlier.

39. U.S. Researchers See Auto Fuel Efficiency Standards Driving Technology

In 2012 the U.S. National Highway Traffic Safety Administration (NHTSA), which regulates fuel economy, and the U.S. Environmental Protection Agency (EPA), which regulates greenhouse gas emissions, proposed new unified standards for fuel economy and greenhouse gas emissions over the years 2017 to 2025. The Corporate Average Fuel Economy (CAFE) standards require that vehicles offered for sale in the U.S. attain an average fuel economy of 40.3 to 41 mpg by 2021 and 48.7 to 49.7 mpg by 2025. These standards will require the U.S. new vehicle fleet to double in fuel economy between 2012 and 2025.

NHTSA plans to conduct a joint mid-term review with EPA to evaluate if technology development and implementation is on track to help automakers meet the standards. To inform the review, the National Research Council was asked to independently assess the CAFE/GHG national program, the technologies that are expected to contribute to meeting the standards, and possible impacts of the standards.

The analysis used by federal agencies to set standards for fuel economy and greenhouse gas emissions for new U.S. light-duty vehicles -- passenger cars and light trucks -- from 2017 to 2025 was thorough and of high caliber overall, says the Council report. In addition, the report finds evidence suggesting that the standards will lead the nation's light-duty vehicle fleet to become lighter but not less safe.

The report said fuel economy and greenhouse gas emission standards will drive new powertrain designs, alternative fuels, more advanced materials and changes to body vehicle design. Most of the reduction in fuel consumption will come from improvements to gasoline internal combustion engines, due to the continuing dominance of such technologies through 2025, the report says. However, the study committee that wrote the report considered a wide range of technologies to be critical in meeting the 2025 standards and beyond, including improvements to transmissions, reductions in mass, and hybrid/electric engines.

By the end of the next decade, because of the standards and other regulations, new vehicles will be more fuel-efficient, lighter, less polluting, safer, and more expensive to purchase compared with current vehicles.

The study was sponsored by the National Highway Traffic Safety Administration. The National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council make up the National Academies. They are private, independent nonprofit institutions that provide science, technology, and health policy advice under a congressional charter granted to NAS in 1863. The National Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering.

40. EPA to Consider Greenhouse Gas Rules for Aircraft after Endangerment Finding

Greenhouse gas emissions from aircraft endanger public health and the environment and should be regulated, the U.S. Environmental Protection Agency said in a proposed endangerment finding. The finding, released June 10, also includes an advance notice of proposed rulemaking where the EPA said it would likely follow international standards being developed should it complete its determination to regulate those aircraft emissions.

The United Nations' International Civil Aviation Organization is expected to complete an international carbon dioxide emissions standard for aircraft by February 2016 that the EPA will use as a template for its own rules.

Christopher Grundler, director of the EPA's Office of Transportation and Air Quality, said an international standard would capture more aircraft and provide more significant emissions reductions than a domestic rule alone would provide.

Should the EPA finalize its endangerment finding, Grundler said, the EPA doesn't anticipate completing any aircraft standards until 2018, which would leave the decision as to how to regulate those emissions to the next administration.

Airline operators praised the EPA's pledge to pursue international standards, but touted their efforts to improve fuel efficiency 120 percent since 1978, preventing 3.8 billion metric tons of carbon dioxide during that period. Aircraft account for 2 percent of total U.S. greenhouse gas emissions.

Environmental advocates were disappointed by the EPA's lengthy schedule for issuing any standards once it completes its endangerment finding and pressed the administration to seek emissions reductions beyond those the International Civil Aviation Organization is considering.

The EPA is proposing to find under Section 231 of the Clean Air Act that concentrations of six greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride—in the atmosphere endanger public health and the environment and that aircraft contribute to those emissions.

Those are the same six greenhouse gases the EPA identified in 2009 when it determined that emissions from cars and trucks should be regulated. That finding subsequently triggered regulation of stationary sources such as power plants.

The proposed endangerment finding wouldn't apply to small piston-engine planes or to military aircraft.

The EPA in September 2014 agreed to undertake the endangerment finding for aircraft after Earthjustice, Friends of the Earth and the Center for Biological Diversity threatened to sue the agency for failing to respond to their petition seeking the regulation.

Determining which aircraft would be covered by any potential standards will be key to determining how significant the emissions reductions are that can be achieved.

The EPA in its advance notice of proposed rulemaking is seeking comment on how to structure the rule, whether it should regulate only new aircraft models or whether it should also be applied to models currently in production.

Few new aircraft models will be introduced by the 2023 implementation date, the EPA said. A standard that targeted emissions from only those aircraft would provide almost no carbon dioxide emissions reductions for several years until those new models form a significant portion of the airline fleet, the agency said. "If the international CO₂ standard is applied only to new aircraft types, then CO₂ emissions would not be expected to begin to deviate from business-as-usual (in comparison to CO₂ emissions reductions that would be achieved in the absence of a standard) before 2025," the EPA said. "Therefore, an international standard developed for only new aircraft types may not actually apply to any new aircraft for at least a decade."

The EPA also is seeking comment on an option the International Civil Aviation Organization's Committee on Aviation Environmental Protection is considering that would redefine new aircraft to include those that are in production but have made modifications to the design that would result in changes in carbon dioxide emissions. That would capture improvements to aircraft such as redesigned wings and new engine models, the EPA said.

Aviation accounted for 11 percent of energy-related carbon dioxide emissions from the transportation sector in 2013, and nearly 30 percent of global aircraft emissions in 2010, the latest year with complete global emissions data.

International Council on Clean Transportation Program Director Dan Rutherford said that to ensure real emissions reductions from airlines, ICAO should apply a carbon dioxide standard to all new aircraft delivered after 2020. But ICAO is weighing a standard that would apply only to new designs certified after the expected application date of Jan. 1, 2020. Such an

approach would mean the standard would only cover about 5 percent of the global aircraft fleet in 2030, he said.

41. US EPA Proposes Renewable Fuel Standards for 2014-2016

The US EPA has issued their proposal for volume requirements under the Renewable Fuel Standard (RFS) program for the years 2014, 2015 and 2016, and also proposed volume requirements for biomass-based diesel for 2017. The proposal was released on May 29, adhering to the schedule in a recent consent decree with the fuel industry.

The EPA has proposed to establish the 2014 standards at levels that reflect the actual amount of domestic biofuel used in that year; the standards for 2015 and 2016 (and 2017 for biodiesel) increase steadily over time, as shown below.

Table 1: Proposed Renewable Fuel Volumes (millions of gallons)

	2014	2015	2016	2017
Cellulosic biofuel	33	106	206	N/A
Biomass-based diesel	1,630	1,700	1,800	1,900
Advanced biofuel	2,680	2,900	3,400	N/A
Total renewable fuel	15,930	16,300	17,400	N/A

Units for volumes are ethanol-equivalent, except for biomass-based diesel volumes which are expressed as physical gallons.

Table 2: Proposed Percentage Standards

	2014	2015	2016
Cellulosic biofuel	0.019%	0.059%	0.114%
Biomass-based diesel	1.42%	1.41%	1.49%
Advanced biofuel	1.52%	1.61%	1.88%
Total renewable fuel	9.02%	9.04%	9.63%

While the proposed volumes are lower than the Clean Air Act targets—for total renewable fuels, the Clean Air Act (CAA) target is 18,150 millions of gallons for 2014; 20,500 for 2015; and 22,250 for 2016—they represent growth over historic levels. For example:

- The proposed 2016 standard for cellulosic biofuel is six times higher than actual 2014 volumes. Cellulosic biofuels have the most aggressive growth schedule among all renewable categories, from 33 million gallons in 2014 to 206 million gallons in 2016.
- The proposed 2016 standard for total renewable fuel is nearly 1.5 billion gallons more, or about 9% higher, than the actual 2014 volumes.
- The proposed 2016 standard for advanced biofuel is more than 700 million gallons—27%—higher than the actual 2014 volumes.
- Biodiesel standards grow steadily over the next several years, increasing every year to reach 1.9 billion gallons by 2017—17% higher than the actual 2014 volumes.

The proposal was long overdue—Under the CAA, the EPA has an obligation to set the annual RFS mandates by 30 November of the preceding year, but the EPA has not yet issued the 2014 or 2015 requirements (the EPA proposed RFS volumes for 2014, but never finalized the rule). In March 2015, the American Petroleum Institute (API) and the American Fuel and Petrochemical

Manufacturers (AFPM) filed a lawsuit over EPA's failure to meet mandated RFS deadlines. Under a proposed consent decree, the EPA has committed to propose the 2015 standards by June 1, 2015, and to finalize the volume requirements for 2014 and 2015 by 30 November 2015.

The proposal is open for public comments until 27 July 2015.

Shortly after the release of the proposal, EPA defended its handling of the program at a congressional hearing. At the hearing by the Senate subcommittee on regulatory affairs and federal management, U.S. lawmakers criticized the agency for years-long delays to quotas and for last month setting unattainable targets for the amount of corn-based ethanol and other biofuels that must be used in the nation's motor fuel supply over the next two years. They also questioned the future of the decade-old Renewable Fuels Standards (RFS), which critics say has inflated prices of food and fuel at the pump.

The panel will likely increase congressional attention to the pitfalls of the decade-old biofuels policy as it faces a fresh wave of criticism from policymakers, the oil industry and environmentalists. But it appears that a major legislative overhaul, which would need approval in Congress, is unlikely with an election less than two years away.

While acknowledging delays created uncertainty in the ethanol market, Acting Assistant Administrator Janet McCabe reaffirmed the agency's stance that the new targets sought to ensure growth of the U.S. renewable fuel industry while also going some way toward meeting goals set by Congress in 2007. She told the panel the latest targets are "ambitious but responsible." Still, the EPA is already looking at the possibility it will need to reset biofuels use targets in 2017 and beyond, McCabe said.

At the hearing, James Lankford, a Republican Senator and the subcommittee chairman, attacked the RFS for artificially pushing corn-based ethanol into the motor fuel stream without environmental benefits. "We must ask ourselves if the RFS goals of yesterday are worth the increased costs to our food, gas and the environment," said the senator from Oklahoma, an oil-rich state, in opening remarks.

Introduced in 2005 and a pillar of two presidential administrations, the RFS was aimed at cutting America's dependence on foreign oil and shift the nation to cleaner energy sources.

Supporters refute claims that the policy increases costs and the EPA said it sees no net increase in fuel prices from the program.

Oil companies including Tesoro Corp have threatened legal action to fight the latest proposal, while corn-based ethanol producers, like Archer Daniels Midland Co, say the rules don't go far enough.

42. Supreme Court Upholds \$72M Volvo Powertrain Verdict

The U.S. Supreme Court let stand a ruling ordering Volvo Powertrain Corp. to pay \$72 million for building engines that did not meet emissions standards, even though they never entered the United States. Without comment, the court did not take up a federal appeals court ruling that upheld a lower court decision that ordered the fine for the unit of Swedish conglomerate AB Volvo for producing 8,354 2005 MY engines that did not comply with EPA's nitrogen oxide emissions standards.

In 1998, the Environmental Protection Agency sued seven major engine manufacturers, alleging that they had been using “defeat devices” to meet EPA standards for emissions. The devices enabled the engines to meet EPA emissions standards in laboratory testing even though the engines produced emissions far above the legal limits in ordinary use.

The seven didn’t admit using the devices but collectively agreed to penalties of about \$80 million. They also agreed that diesel engines would meet tougher rules one year ahead of schedule — in the 2005 model year — as part of the deal.

In September 2005, a tip from Caterpillar Inc. — a competing engine manufacturer — prompted an investigation into Volvo’s 2005 Volvo Penta engines. After nearly seven years of legal battles, a federal district court found Volvo owed \$72 million for not complying with the agreement, including \$6 million in interest.

The California Air Resources Board also sued Volvo Powertrain for violating the consent decree.

A number of major business groups had urged the Supreme Court to take the Volvo Powertrain appeals, including the National Association of Manufacturers and American Petroleum Institute, arguing that EPA should not have the ability to “assess penalties on the basis of foreign emissions from engines that never entered the United States.” The business groups argued that “EPA’s power-grab would extend the agency’s authority extraterritorially, with foreign policy implications that the agency is not equipped to take into account,” they wrote.

The company had sought certificates of conformity from EPA in order to import the engines for sale from a factory in Sweden.

The Justice Department noted that the EPA certificates are valuable even outside the United States because of the secondary market for engines. It called the argument from Volvo Powertrain and outside groups “flawed” because it is “neither illegal nor anomalous” for consent decrees to go beyond what federal law requires.

43. US Supreme Court Strikes Down Obama's EPA Limits on Mercury Pollution

The US Supreme Court struck down rules for America’s biggest air polluters, dealing a blow to the Obama administration’s efforts to set limits on the amount of mercury, arsenic and other toxins coal-fired power plants can spew into the air, lakes and rivers. The 5-4 decision was a major setback to the Environmental Protection Agency (EPA), and could leave the agency more vulnerable to legal challenges to its other new carbon pollution rules, from industries and Republican-led states.

The justices embraced the arguments from the industry and 21 Republican-led states that the EPA rules were prohibitively expensive and amounted to government overreach.

But the EPA pointed out that most plants had already either complied or made plans to comply with the ruling. “EPA is disappointed that the court did not uphold the rule, but this rule was issued more than three years ago, investments have been made and most plants are already well on their way to compliance,” the agency said in a statement..

According to data compiled by SNL Energy, many generators in the US complied with the mercury and toxics requirements, despite the possibility that the court would strike down the rule. The data

showed that 200 plants, or roughly 20% of the US generating capacity, were given up to an extra year to comply with the standards, mostly in order to finish installing mercury controls.

Plants moved ahead with compliance plans due to the long lead time for environmental control projects, SNL said. The compliance deadline fell in April of this year.

The EPA “remains committed to ensuring that appropriate standards are in place to protect the public from the significant amount of toxic emissions from coal and oil-fired electric utilities and continue reducing the toxic pollution from these facilities,” the agency added.

Monday’s decision, written by Justice Antonin Scalia, ruled that the EPA did not reasonably consider the cost factor when drafting the toxic air-pollution regulations.

The Clean Air Act had directed the EPA to create rules to regulate power plants for mercury and other toxic pollutants that were “appropriate and necessary”.

The agency had previously said it did not need to consider costs during that stage of the regulatory process. The agency estimated that the cost of its regulation to power plants would be \$9.6bn a year, but it said that its analysis “played no role” in whether regulations were deemed “necessary and appropriate”.

The EPA also estimated that the rule would produce up to \$37bn-\$90bn in benefits and would prevent up to 11,000 premature deaths and 130,000 asthma cases each year.

The EPA rule took effect for some plants in April and was due to go into full effect by next year. In the meantime, the rule remains in effect, lawyers working on the case told the press. The ruling only concerns the cost consideration, so the EPA may try to write the rule again with cost in mind.

Scalia was joined in overturning the rule by the more conservative members of the bench, Chief Justice John Roberts, Clarence Thomas, Samuel Alito and Anthony Kennedy. The dissent, written by Elena Kagan, was supported by Ruth Bader Ginsburg, Stephen Breyer and Sonia Sotomayor.

In his majority opinion, Scalia called the EPA’s counterarguments “unpersuasive”. In her dissent, Kagan said that the majority decision was “micromanaging” EPA’s rule-making, “based on little more than the word “appropriate”.

Kagan also said that the court’s invalidation of the EPA’s rule because the agency had not considered cost at the initial stage of the regulatory process was a “blinkered” assessment, considering the “subsequent times and ways EPA considered costs in deciding what any regulation would look like”.

The landmark decision is the latest chapter in a two-decade-long effort to force stricter emissions standards for coal-fired power plants. The regulation, adopted in 2012, would have affected about 600 coal-fired power plants across the country – many of which are concentrated in the Midwest and the south.

It was already going into effect across the country. But Republican governors and power companies challenged the EPA’s authority, saying the agency had mishandled estimates of the cost of the new rules.

The decision was also a blow to years of local efforts to clean up dangerous air pollution.

The Supreme Court has now sent the case back to the Washington DC circuit court of appeals, which will ask the EPA to reconsider its rule-making. Activists are now urging the EPA to act definitively and quickly to issue revised regulation.

44. Climate Change Growing Threat to Public's Health, Not Just Planet's: U.S. Officials

The White House wants to start a national dialogue on why climate change isn't just bad for the planet's health but for the public's health, too. Climate change brings with it a host of public health problems, from more intense heat waves to longer allergy seasons to higher risks of Lyme disease. Children, the elderly, the sick, the poor and some communities of color will feel the brunt of these impacts, according to federal research.

So to help spread the word, the White House hosted a summit June 23 on climate change and health, bringing together administration officials, doctors, deans of medical schools and others to talk about how Americans will be affected and what they can do to prepare.

President Barack Obama, who addressed the summit via a pre-taped video message, said, "Evidence of climate change is no longer relegated to decades of carefully collected scientific data. "It's something that we can increasingly see and feel as we step out our front doors," he said, on a day when temperatures in Washington reached near-record levels.

The summit was part of a communications push from the Obama administration marking the second anniversary of the president's plan to tackle climate change. A day earlier, the Environmental Protection Agency released a report outlining the impacts of a changing climate on the U.S. economy and the benefits of taking action (See related story.).

EPA Administrator Gina McCarthy said that report was part of an effort to make Obama's executive actions on climate change resonate better with what she called "normal human beings." "When I put a report out on acting on climate like we did yesterday—that shows how dramatically our world will change if we don't act and the benefits we can deliver if we do—I am doing that not to push back on climate deniers," McCarthy said. "In any democracy, it's not them that carries the day. "It is normal human beings that haven't put their stake into politics above science," she said. "It's normal human beings who want us to do the right thing, and we will if you help us."

The president has made climate change a centerpiece of his second term, issuing a suite of new policies, including the first-ever curbs on greenhouse gas emissions from power plants. Health was a focal point of the administration's messaging when those rules were proposed.

Part of the reason for the emphasis on health is that it is a much less polarizing issue than climate change, said Edward Maibach, director of George Mason University's Center for Climate Change Communication. "All Americans feel strongly about their health," he said at the summit, but the problem is they don't know how climate change will affect them.

Most Americans either have no idea people will die, get sick or injured by climate change or they underestimate how many people will be affected each year, according to surveys conducted by George Mason and Yale universities. Yet, in the British medical journal *Lancet*, a panel of 46 health professionals and climate scientists just identified the world's changing climate as one of the biggest threats to humans in the coming decades.

Administration officials at the summit also pitched climate change's impact on health as a moral issue, building on the argument that Pope Francis made a week earlier in a ground-breaking encyclical. "My concern is that, among other things, climate change has the potential to worsen not only health overall but also worsen disparities in health," Surgeon General Vivek Murthy said, referring to its outsized impact on children, the elderly, the poor and minorities. "For that reason, I believe that climate change is a moral issue."

Brian Deese, one of the president's top climate advisers, likewise made an appeal as a parent, saying, "For many of us, this issue starts at a very personal level. We need to make sure that people know why we are pushing so hard in this fight against climate change. And at the end of the day, that comes back to the health of our children and the health of our families and our communities."

45. EPA Report on Costs, Benefits Bolsters Argument for Global Action on Climate Change

The Environmental Protection Agency bolstered its case for global action to address climate change in a June 22nd report that details the benefits of reducing greenhouse gas emissions. The report, "Climate Change in the United States: Benefits of Global Action," looks at the benefits of global greenhouse gas mitigation across water resources, electricity, infrastructure, public health, agriculture and forestry and ecosystems and details the risks of failure to act. The data were collected as part of the EPA's ongoing Climate Change Impacts & Risk Analysis project.

"Left unchecked, climate change threatens our health, our infrastructure and the outdoors we love, but more importantly, the report shows that global climate action to cut carbon pollution will save lives, it will reduce the damages and it will avoid costs," EPA Administrator Gina McCarthy told reporters at a White House briefing. "It's really not too late to avoid the worst impacts of climate—which is a very hopeful sign—but it really relies on us taking action soon and making that action significant."

Both the report methodology and the scientific underpinnings were peer-reviewed, officials said. The EPA developed the report in collaboration with the Massachusetts Institute of Technology, Pacific Northwest National Lab, National Renewable Energy Laboratory and other organizations.

Taking action to keep global temperature increases below 2 degrees Celsius would prevent 57,000 deaths from poor air quality in 2100, the report said. Taking action on climate change could also avoid \$110 billion in lost labor due to rising temperatures in 2100.

Reducing greenhouse gas emissions also could benefit the power sector, the report said, saving the industry between \$10 billion and \$34 billion in costs by 2050. In addition, climate mitigation could reduce coastal property damage from sea level rise from \$5 trillion through 2100 to \$810 billion.

The report comes on the second anniversary of President Barack Obama's climate action plan, which directed federal agencies to take action to reduce greenhouse gas emissions. As the centerpiece of that plan, the EPA in August will finalize carbon dioxide emissions standards for both new and existing power plants.

The report does not evaluate the benefits and costs of any specific greenhouse gas mitigation strategy or adaptation policies.

46. On Capitol Hill, Lawmakers See Little Effect on Their Work from Pope's Climate Call

Amid great international fanfare about the potential impact of Pope Francis's call to climate action (see story below), Democrats and Republicans in Congress were skeptical on June 18th that the pontiff's encyclical would significantly boost the chances for U.S. legislative action on the issue.

Democrats were nearly unanimous in lauding the pope for taking on the issue and predicted his decision to frame climate change as a moral issue would carry heavy weight internationally. But they also doubted it would sway the minds of Republicans—many of whom deny that climate change is either occurring or is caused by human activity—to reconsider their positions.

Coalescing around a theme they have returned to time and time again in recent days, Republicans said the pontiff had the right to express his views on the climate issue but then declined to address the second part of his message, which challenged nations to act.

“Well, one thing we know about this pope is he's not afraid to challenge everyone's thinking on issues, frankly, one way or another, and I admire his dedication to the poor and his work to protect the sanctity of life,” House Speaker John Boehner (R-Ohio) said. “And frankly, I respect his right to speak out on these important issues,” Boehner said at his weekly press conference. But asked if the pontiff's message might spur congressional action, Boehner said he was unsure. “There's a lot of bills out there. I'm not sure where in the process these bills may be,” he said.

Few, if any, observers seriously expect Congress to tackle broad actions on climate change anytime soon. Democrats blame Republican skepticism or outright denial of the problem for the inaction. “It's important that the pope does [weigh in],” Sen. Bob Casey (D-Pa.) told reporters. “I think the policy debate here, though, is going to be a challenge.”

Francis released the 183-page document June 18 urging a strong response to rising temperatures worldwide and linking the issue to a theme he has returned to repeatedly during the past two years: the need for a global response to poverty.

Republicans almost universally declined to directly criticize the pope for wading into the contentious issue, but also declined to say whether his message might sway their own views.

- “Pope's the pope,” Sen. Lisa Murkowski (R-Alaska), chairman of the Senate Energy and Natural Resources Committee, told reporters. “He can talk about whatever he wants.”
- Sen. Cory Gardner (R-Colo.) said that any message from the pope was likely to draw interest around the world. “It's his right to express opinions and concerns,” Gardner said.

But one senator took exception to the idea that Pope Francis should insert himself in the climate debate. “I think he ought to be focused on other issues,” said Sen. John Barrasso (R-Ky.).

Though most Democrats were skeptical that the pope's encyclical would have any impact on Congress, many expressed optimism that it would play a larger role in international negotiations under way to seal a global climate accord at in Paris later this year.

- “As Pope Francis so eloquently stated this morning, we have a profound responsibility to protect our children, and our children's children, from the damaging impacts of climate change,” President Barack Obama said in a statement. “And as we prepare for global climate negotiations in Paris this December, it is my hope that all world leaders—and all

God's children—will reflect on Pope Francis's call to come together to care for our common home.”

- House Minority Leader Nancy Pelosi (D-Calif.) called the encyclical a potential breakthrough in that push for global climate action. “This church has not spoken on this subject, and so he is breaking new ground in terms of climate,” she said at her weekly press conference. “What he's talking about is new ground,” said Pelosi, who pushed a climate bill to passage in the House in 2009; the legislation died in the Senate in 2010.

Outside of Congress, too, observers saw an encyclical that repeatedly returned to what most scientists say is a consensus that human activity contributes to climate change. The pope's words potentially could sway minds around the world, they said.

“I find that the pope's decision to start with empirical data ... shows his and the church's deep respect for the world of science and the understanding that it is a domain of its own,” Cardinal Donald Wuerl, the archbishop of Washington said at a National Press Club forum. “And so he begins with what is evident data. It saves the encyclical from being dismissed as simply abstract reflection.” Wuerl also said the copies of the encyclical he and other church leaders received came with a handwritten note from the pope, which highlighted the need for humans to “care for our common home.”

Other senior members of the Roman Catholic Church also took aim at Republican presidential candidates—like former Florida Gov. Jeb Bush (R) and former Sen. Rick Santorum (R-Pa.)—for questioning the pope's decision to wade into the debate. “We talk about these subject matters not because we are experts on those matters; we talk about them because they concern the impact on our lives,” Cardinal Peter Turkson, a papal adviser who helped write the encyclical, said June 18 at the Vatican. “The Republicans and presidential figures who say they will not listen to the pope, it is [a] freedom of choice that they can exercise,” he said.

- Bush said June 17 that he wouldn't take his cues on how to address climate change from religious leaders. “I hope I'm not going to get castigated for saying this by my priest back home, but I don't get economic policy from my bishops or my cardinal or my pope,” Bush said in New Hampshire. “I think religion ought to be about making us better as people and less about things that end up getting in the political realm,” Bush said.
- Santorum told a radio show in early June that “the church has gotten it wrong a few times on science, and I think that we probably are better off leaving science to the scientists” and having the church stay focused on theology and morality.

Candidates for the Democratic presidential nomination strongly embraced Pope Francis' encyclical and expressed optimism his words could profoundly impact global efforts to address climate change.

- “I applaud the pope and I think [the encyclical] is going to have an international impact because one of the great religious leaders of the world is telling us climate change is real and has got to be addressed,” said Sen. Bernie Sanders (I-Vt.), who caucuses with Democrats and is seeking to be their presidential nominee.
- Coinciding with the encyclical's release, former Gov. Martin O'Malley (D-Md.) released his plan for powering the U.S. on 100 percent clean energy by 2050. Echoing a phrase from the pope's encyclical, O'Malley said there is a “moral obligation” to act immediately and aggressively to stop climate change.

ASIA-PACIFIC

47. What's Behind Delhi's Air Pollution?

What is poisoning Delhi's air and making India's capital the most polluted city in the world? The government has taken on the National Green Tribunal, contesting that old private vehicles plying in the National Capital Region are not significant contributors. It has marshalled some science to defend its claim. But, it has also conveniently ignored well known public health studies that contradict its stance. The tribunal will decide on the matter on July 13th.

The NGT had earlier ordered a ban on all diesel vehicles over 10 years of age in the Delhi-NCR region and petrol vehicles older than 15 years - commercial or private. But as the government protested, it put the ban on hold, hearing the government out.

The Union ministry of road transport and highway commissioned a quick analysis to IIT Delhi to look at what impact the NGT ban on private vehicles would have on the city's pollution. The study looked only at old private vehicles and said their overall contribution to one particular pollutant - particulate matters below 2.5 micron (PM2.5)-was negligible and so banning them would not pay off. The IIT-Delhi study also said that the number of 11-15 years-old diesel cars is very small - only 6 per cent of the fleet and contributes 1 per cent of PM2.5 pollution. The government consequently demanded they be allowed to ply.

In doing so, the government side-stepped studies which suggest that the public health priority must be set by not just measuring the pollutants in the air (ambient pollution) but also by discovering what pollutants people in a city end up breathing in the most (exposure levels to pollution) and what is the source of that pollution.

Since vehicular emissions take place within our breathing zone, living between 200 and 500 meters of a major road has severe consequences for public health in the long run. This was concluded by the Boston-located Health Effect Institute, which mapped that more than half of Delhi's population lives within 500 meters of a freeway and 50 meters of a major road. Unlike in cities of developed countries, the institute noted that in cities like Delhi populations are clustered differently in the urban spaces. Consequently, the public health mandate requires a different focus in any developing country.

"We may have power plants at a distance or an industrial zone which has other polluting sources but vehicular pollution poisons the air we breathe every day and has to be a priority," says Anumita Roy Chowdhury of Centre for Science and Environment.

She points out that diesel fumes are now designated as a class I carcinogen by the World Health Organization - a lung cancer causing cocktail of chemicals in the air. The IIT-Delhi study also focuses on just PM2.5 while ignoring the public health burden of other pollutants that vehicles emit like Nitrous Oxides (NOx). Even small amounts of such chemicals in the air are harmful and whatever can be done to reduce them is necessary, show studies.

The IIT Delhi study relies on previous work done to apportion the pollution to different sources - vehicles, diesel gensets, power generation units and others. But many critics have called this 'source apportionment study' misleading. The report commissioned by the government is used often to show that vehicles are not as much to blame for the foul air. Indian Institute of Tropical Meteorology's study for Delhi-NCR in comparison found that transport sector's contribution to

PM2.5 pollution was as high as 45 per cent. Another 2008 study by Jawaharlal Nehru University also found vehicles contributing 86 per cent of fine particulates that pollute Delhi's air.

The IIT-Delhi report notes that many old vehicles that are registered with the authorities do not really ply on the NCR roads. But Roy Chowdhury notes that, according to the Automotive Research Association of India's research, emissions from one old diesel car (manufactured before 2005) equal those from four to seven new cars. Compared to a BS IV car, a 15-year-old diesel car emits 7.6 times higher particulate matter and 3.4 times higher NOx. A 10-year-old diesel car emits 2.4 times higher particulate matter. Air toxics emissions are high from older vehicles.

Using the IIT report, the government has advocated focusing on long-term reforms that would bring improvement to Delhi's air. One of them is improving the quality of fuel used in vehicles. That is expected to happen only in 2020 at the earliest.

"It's not a choice of one versus the other. We need to act on all fronts - measures that will help in the short run and fix the problem over long term as well," Roy Chowdhury notes. She says that cities like Beijing have done so -they have banned old vehicles from plying and pro-actively follow a scrapping policy. As long as the new cars that replace the old ones use cleanest technology, there is value in having such a policy.

The government insists that regular pollution control checks could suffice to ensure old vehicles are not polluting. But these tests only measure smoke density. Even the standard for that is lax as compared to other developing countries. Then, the smoke density test does not measure other pollutants which are equally, if not more, harmful.

In the last hearing of the tribunal, the ministry has put forth more studies bolstering its position, while the NGT has indicated that it is unwilling to take the government's selective referencing of science at face value. It noted that the government was providing information only to defend the right to ply old private vehicles, though the NGT order had also focused on old commercial vehicles.

As has often been the case with regulating Delhi's air pollution, the lead is again being taken by the courts. The last big leap the courts forced on the government was shifting the city's public transport to CNG from diesel. The advantage gained from that over more than a decade has been negated by an increase in the number of vehicles on Delhi's roads. The government's decision to put out an easy-to-read air pollution index has helped citizens digest the complicated science of air pollution. But the ministry of road transport and highways, it seems, is still to figure out a way to solve Delhi's pollution problem.

48. India Proposes Standards to Cut Air Pollution from Coal-Fired Power Plants

India's Ministry of Environment, Forests and Climate Change has proposed emissions standards for coal-based power plants with the goal of significantly cutting emissions of particulates, sulfur dioxide, nitrogen oxides and mercury. India currently has no such standards at its coal-fired power plants.

Starting January. 1, 2017, power companies will be required to cut particulate emissions from new plants by 25 percent, sulfur dioxide emissions by 90 percent, nitrogen oxides emissions by 70 percent and mercury emissions by 75 percent, according to the standards, proposed on May 18th.

New Delhi-based public interest research organization Centre for Science & Environment (CSE) said if the proposed changes are implemented, they could go a long way in safeguarding public health and the environment. CSE said the energy efficiency of India's plants is now among the lowest in the major coal-based power producing countries.

Also, existing cooling tower-based plants would be required to restrict water consumption to 3.5 cubic meters per megawatt hour. Plants coming online after January 2017 would have to achieve 2.5 cubic meters. Also, all existing once-through-cooling system plants would have to be replaced with cooling tower-based systems that consume no more than 4 cubic meters per megawatt hour.

"This can have a remarkable reduction in freshwater withdrawal by thermal power plants," said CSE. "Cumulatively, freshwater withdrawal will decrease from around 22 billion cubic meters in 2011–2012 to around 4.5 billion cubic meters in 2016–2017, an 80 percent dip."

The proposal is open for stakeholder comment until June 18.

Thermal power dominates the Indian electricity sector, accounting for 71 percent of installed capacity, according to the Energy Research Institute, based in Delhi. Coal is the dominant fuel in the power sector, contributing 60 percent of the total installed capacity.

49. Beijing Takes Next Important Steps

The Beijing EPB has announced that Beijing is going to implement the China V/Beijing V standard for new heavy diesel vehicles starting from June 1st. The standard is primarily China V with additional local requirements. Below are the key elements of the announcement.

- Starting from Jun 1, 2015, all new heavy-duty diesel vehicles to be sold (certified) in Beijing must meet China V emission standards and two additional Beijing local standards -- WHTC limits and PEMs limits.
- Starting from Jan 1, 2016, new public HDDVs (buses, sanitation, postal, tour coaches, shuttles etc.) must install DPF
- Starting from Aug 1, 2015, China IV new HDDVs can no longer register in Beijing (incl, locally produced and sold, or transferred vehicles from outside Beijing).

50. Non-Automotive Diesel Fuel in China to Meet New Quality Standards In 2018

Diesel used outside the automotive sector will have to meet the "National V" fuel quality standards by January 2018, a year later than automotive fuels, China's powerful central planning authority said, as the government continues to battle rampant smog. China earlier moved up implementation of the new quality standards for automotive fuels to the beginning of 2017, excluding so-called "general" diesel used in agriculture and industry.

Starting next year, China will expand the areas receiving automotive gasoline and diesel that meet the standards to 11 eastern provinces and cities, before rolling them out nationwide in 2017.

In 2018, the Chinese market will need a supply of 52 million tons, or 388 million barrels, of "general diesel", the central planning authority, the National Development and Reform Commission (NDRC), said. "Building on the basis of upgrading automotive gasoline and diesel can speed up the refitting of main refineries in order to upgrade general diesel ... and safeguard the domestic market supply of automotive and general diesel," the NDRC said.

The fuel standards are similar to quality specifications of Euro V, which has a maximum sulfur content of 10 parts per million (ppm).

51. China to Implement Strict Auto Fuel Standard Early

China will start implementing stricter diesel and gasoline standards a year earlier than scheduled to reduce vehicle emissions as part of a broader plan to control air pollution. The government will expand the adoption of the new emissions standard, equivalent to Euro V, to 11 provinces in eastern China on Jan. 1, 2016, the National Development and Reform Commission said in a statement May 7. The new standard, known as “China V,” which is cleaner and has a lower sulfur content than most fuel used today in China, will take effect nationwide from Jan. 1, 2017, a year earlier than was previously announced, according to the statement. The government will increase policy support to refining companies to upgrade fuel quality, the commission said.

52. China Removes Key Tax on Electric, Hybrid, Fuel Cell Commercial Vehicles

China has extended a tax exemption already available to consumers who buy the most fuel-efficient cars to companies purchasing similarly green vehicles for business purposes. China's State Council announced that electric, plug-in hybrid and fuel-cell commercial vehicles will be exempt from the country's so-called vessel tax, which traditionally is applied to new cars, trucks and commercial vehicles at the time of purchase.

The country's main decision-making body also said buyers of certain gasoline and diesel passenger vehicles—those that meet strict fuel-economy requirements—will have their vessel tax cut in half.

The measures, effective immediately, are meant to spur sales of electric and hybrid vehicles and reduce fuel consumption and air pollution, according to a May 18th announcement from the State Council.

All-electric, plug-in hybrid and fuel cell passenger vehicles already were exempt from the vessel tax, which varies widely depending on a vehicle's engine displacement and fuel efficiency.

The State Council also announced on May 18th that it will gradually alter subsidies that go to operators of commercial new-energy buses to encourage their widespread use. The state-level municipalities of Beijing, Tianjin and Shanghai, and the provinces of Hebei, Shanxi, Jiangsu, Zhejiang, Shandong, Guangdong and Hainan will aim to have 40 percent of their public buses operating on all-electric, hybrid or fuel-cell technology by the end of 2015 and 80 percent by the end of 2020. Other provinces have lower targets.

“The core of this policy change is to encourage the use of new energy buses and set a mechanism to limit the growth in the use of buses operating on fossil fuels,” Bai Jingming, branch deputy director under the Ministry of Finance, said in a statement.

Vice Premier Ma Kai said the country would be more aggressive in installing charging stations for such vehicles, according to a separate State Council announcement May 18.

53. After Generous Subsidies Next Year, China to Slash Incentives to Buy Cleanest Cars

China said government subsidies to encourage the purchase of the most fuel-efficient motor vehicles will be scaled back beginning in 2017. The Ministry of Finance released an updated plan April 29 on the subsidies available to buyers of all-electric, hybrid and fuel-cell passenger vehicles, taxis and buses.

In 2016, the government will offer significant subsidies—as previously planned—to help spur purchases of clean vehicles in one of the new strategic industries the country is targeting for development. But starting in 2017, subsidies will be decreased by an average of 20 percent from the 2016 levels. In 2019, they will be cut to 40 percent less than the 2016 subsidies, according to the April 29 announcement.

The ministry had always planned to reduce the subsidies, but the reductions are twice as steep as what the ministry had previously announced. Last December, the government said it anticipated a 10 percent reduction in the subsidies in 2018, and a 20 percent reduction in 2019.

While China is implementing a series of aggressive anti-pollution measures and taking steps to cut greenhouse gas emissions across industries, the country also is attempting, where possible, to let market forces work.

The China Automobile Industry Association data showed March sales of all-electric, hybrid and fuel-cell passenger cars were three times greater than the same month in 2013, with 14,100 vehicles sold last month.

The April 29 announcement “will force carmakers to speed up product development and make their electric cars and hybrids cheap enough to lure consumers even without government’s financial help,” Song Yang, an analyst with Barclays Plc, told Bloomberg News.

In 2016, subsidies will vary widely. For instance, an all-electric passenger vehicle able to travel more than 250 kilometers on a single charge will be eligible for the highest subsidy of 55,000 yuan (\$8,870). Buyers of new electric cars that can travel between 100 and 150 kilometers on a single charge can get 25,000 yuan (\$4,030) off the purchase price.

Plug-in hybrid passenger vehicles with a range of more than 50 kilometers before they switch to a fossil-fuel source are eligible for a subsidy of 30,000 yuan (\$4,800).

The plan also greatly supports purchases of fuel-efficient buses. All-electric buses traveling 250 kilometers or more on a single charge can receive 500,000 yuan (\$80,600). A plug-in hybrid bus with a range of more than 150 kilometers before switching to a fossil-fuel source is eligible for 250,000 yuan (\$40,300).

A fuel-cell passenger vehicle of any range is allowed a 200,000 yuan (\$32,200) subsidy; small passenger buses and trucks with fuel-cells get a 300,000 yuan (\$48,400) subsidy; and mid-to-large buses and medium or heavy trucks operating on fuel-cell technology can get a 500,000 yuan (\$80,600) subsidy.

54. China's Shift to Consumer-Led Growth Drives Jump in Gasoline Demand

China's shift to consumer-led growth is accelerating demand for gasoline in the world's biggest energy user, with the fuel on track to challenge the dominance of diesel as an increasing number of middle class consumers buy bigger family cars.

Diesel production is still forecast to be some 14 percent higher than gasoline this year, but the gap is on course to halve in five years and then disappear in the next decade, according to calculations based on data from consultancy Wood Mackenzie.

The importance of diesel and gasoline varies globally, largely due to the usage in cars and industry. Most cars in China use gasoline, a similar picture to North America where almost 90 percent of private vehicles run on gasoline, while in Europe more than half of new cars are diesel powered.

The relative change in the fortunes of diesel and gasoline in China will require billions of dollars to be invested in new refineries or conversions to meet the shift in demand.

"The gap between these two fuels in terms of their volumes will be narrowed further, since gasoline will likely grow at a faster pace than diesel over the next five to 10 years," said Wood Mackenzie's principal China downstream consultant Fu Feng, highlighting a shift away from investment-led growth.

Chinese investment growth fell to the lowest in nearly 15 years, data in April showed.

A drop in investment in smokestack industries that policy makers are encouraging will impact diesel demand most as trucks, machinery and heavy equipment are all big users of the fuel.

While slower economic growth is hitting overall car sales, gasoline demand has benefited from faster sales of sport utility vehicles with bigger engines that consume more fuel. Retail sales of SUVs soared more than a third last year to 3.82 million, and have more than doubled since 2012, according to the China Passenger Car Association (CPCA).

China's gasoline demand is expected to grow by 8 percent in 2015, compared with growth of less than 1 percent for diesel, Wood Mackenzie's Feng said. For 2016 to 2020, annual demand growth for gasoline is seen at 5.5 percent, versus 1.7 percent for diesel, he said.

Chinese refiners, which just four years ago were scrambling to crank up diesel output to ease shortages, had to change tack in 2014 by expanding gasoline output at the expense of diesel.

About 35 percent, or 3.6 million barrels per day (bpd), of the output of refineries in China is now diesel, down from 45 percent a few years ago, according to refining sources. On the other hand, gasoline output is now 2.7 million bpd, or 26.3 percent of total output, up from 22.3 percent in 2012, separate data from Wood Mackenzie showed. The consulting firm said gasoline supplies will rise on average by about 160,000 bpd a year for the next five years, while diesel is forecast to increase 90,000 bpd,

China plans to invest in gasoline-producing residue fluid catalytic crackers with a capacity of 450,000 bpd in the next five years, Wood Mackenzie said.

55. Air Quality Improved In Beijing Ahead Of Olympic Vote

Beijing Municipal Environmental Protection Bureau (BMEPB) has announced that thanks to the capital's continuous air pollution control efforts and favorable weather conditions, Beijing's air quality has been much improved in the last four months, with the average density of PM 2.5 (airborne particles smaller than 2.5 microns in diameter) dropping by 19 percent compared with the same period last year.

The average densities of sulfur dioxide, nitrogen dioxide and PM 10 also dropped by 43.1 percent, 13.7 percent and 12.3 percent respectively.

According to BMEPB, Beijing's neighboring city Zhangjiakou has the best air quality among over 70 cities in China. Beijing is pursuing a joint bid with Zhangjiakou for the 2022 Olympic Winter Games.

Beijing has renewed its fights against pollution, which include closing a series of coal power plants to bring back "APEC Blue" -- a phrase coined by Chinese netizens to describe the city's clear skies during the Asia-Pacific Economic Cooperation (APEC) meetings in November, 2014.

The International Olympic Committee will vote on Beijing's bid race against Almaty, Kazakhstan, on July 31 in Kuala Lumpur.

Chinese officials say a remarkable improvement in Beijing's air quality is due to good policy. Fang Li, the deputy director of Beijing's environmental protection bureau, said much had been done to address the problem over the last year. "Over the past 12 months our efforts to clean up have actually been greater than at any time before," he told journalists at Beijing's air quality measuring center.

Mr. Li said 476,000 older cars were denied registration last year, with hundreds of thousands more to come off the road. Petrol quality has also been improved, he said, and larger polluting factories have been moved further away from Beijing — potentially to become somebody else's problem.

Recent weather has also seen wind hitting the inland metropolis, blowing away some of the harmful airborne particulates.

Zhang Wangcai, the deputy director of Beijing's department of energy, said Beijing is moving away from coal for electricity generation. Two coal-fired power plants have been closed recently, and a new gas-powered plant has opened up. Mr. Wangcai said no more coal-fired electricity will be produced in Beijing by the end of 2016. "If we're talking about Beijing, by next year all our local power plants will be using clean energy," he said.

56. Hong Kong to Implement New Low Sulfur Fuel Regulation

The Hong Kong Marine Department is implementing a new low-sulfur regulation for ocean-going vessels (OGVs) moored or anchored at a berth in Hong Kong waters from July 1, 2015. The "Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation (Cap. 311AA)" requires OGVs to use "compliant" fuels while at berth in Hong Kong, when operating main engines (except when used for the propulsion of the vessel), auxiliary engines, boilers or generators. The requirement does not apply during the first hour after arrival and the last hour before departure.

Under the regulation, compliant fuel means low-sulfur fuel with a sulfur content not exceeding 0.5% by weight; liquefied natural gas (LNG); or any other fuel approved by the Hong Kong authority.

Masters are required to record the date and time of fuel switching and keep the records for three years. If an OGV uses technology that can achieve the same or less SO₂ emissions as can be achieved with compliant fuel, the OGV may be exempt from fuel switching.

After the Regulation enters into force on July 1, 2015, masters and owners of any OGVs using non-compliant fuel while at berth in Hong Kong may be liable to a maximum fine of \$200,000 and imprisonment for six months. Masters and owners who fail to keep the required records may also be liable to a maximum fine of \$50,000 and imprisonment for three months.

57. Hong Kong Vehicle Emission Test Fee to Be Increased

On May 15th, the Government published in the Gazette the Road Traffic Ordinance (Amendment of Schedule 10) Order 2015 proposing to increase the fee to be charged by a designated vehicle emission testing center (DVETC) for testing emissions of vehicles. Under section 77B of the Road Traffic Ordinance (Cap 374), the Commissioner for Transport may, for the purpose of ascertaining whether a motor vehicle complies with vehicle emission standards, require the registered owner to have the motor vehicle tested at a DVETC. The vehicle owner who uses the vehicle emission testing services shall pay to the DVETC a fee that is specified in Schedule 10 to the Ordinance.

A Government spokesman said that the current emission test fee of \$310 was set on a full cost recovery basis in 1998 and has not been revised since then. The increase in the test fee reflects the prevailing costs for serving different types of vehicle. Details of the revised fees are set out in the Annex. The fee increase would not affect vehicle owners who properly maintain their vehicles.

As for those who overlook vehicle maintenance and are subject to this emission test, the proposed increase could be a deterrent to negligence.

The amendment order will be tabled at the Legislative Council on May 20 for negative vetting. The proposed new fees are scheduled to take effect on August 1.

58. Air Bubble Shield That Filters Dangerous Particulate Matter to Be Tested in Beijing

A contraption that creates a kind of air bubble that could shield people against as much as 70 percent of the most harmful pollutants debuts next month in Beijing, as China's capital battles the toxic smog that often enshrouds the city.

The outdoor air purifier has a canopy and creates an area protected by an air curtain that attempts to cover around 20 people, lead inventor Jimmy Tong said May 13 in Hong Kong. It was designed by London-based engineering firm Arup Group Ltd. and a unit of Hong Kong property-developer Sino Group.

Beijing's leaders said earlier this year that they will spend 10.8 billion yuan (\$1.74 billion) to fight air pollution after the city missed its target in 2014 to reduce the smog. Public concern exploded in 2013 as Beijing's levels of PM-2.5, the tiny particles posing the greatest risk to human health, peaked at 35 times the World Health Organization's recommended limit. The city's air was stuck at hazardous levels again for a week in early 2014.

The technology and prototype of the air purifier was developed for around HK\$600,000 (\$77,391). It is expected to be used in Beijing's Tsinghua University starting in June. The partners have fielded queries from owners of commercial buildings and Chinese officials, who are interested in having the technology retrofitted onto building canopies and facades, Tong said.

An engineer with a doctorate degree in fluid dynamics from the University of Minnesota, Tong, 38, has experience in designing wind turbines and a rocket launcher.

Testing on the new outdoor air purifier began on Hong Kong's busy Queen's Road East in March, and indicated a 30 percent to 70 percent reduction of PM-2.5 for users standing under the unit's canopy, which had been erected at the front of one of Sino's new residential developments. The partners have applied for a patent for their machine.

Under the canopy, air is filtered in the same way it would be by indoor air purifiers. The machine doesn't clean out nitrogen dioxide, a common roadside pollutant. Tong says he first wanted to filter out the most pressing problem: particulate matter. He says he is looking at applying different filters to eventually help the machine sift out other hazardous substances.

Sino Group in an e-mail said its corporate social responsibility arm is focused on the project and doesn't have plans to commercialize it as yet. The company is working on a cost-effective way to scale up production in case of demand from government bodies.

Across the world, various methods are used to filter dirty air. Some cities plant trees in heavily polluted areas. The University of Engineering & Technology in Peru put up a billboard that filters air in the middle of a Lima construction site; while a jumbo air freshener was installed in the center of New Delhi a few years ago.

"We would of course welcome any new technology that decreases human exposure to pollutants," said Sum-yin Kwong, chief executive officer of Hong Kong-based advocacy group Clean Air Network. "But at the end of the day, the only way we can be safe is to stop the hazardous particles from filling the air in the first place."

59. China Turns Focus to Smoky Ships, Boats in Fight against Pollution

China is considering regulating emissions from boats and ships, the environment ministry said, as it tries to clamp down on pollution. The Ministry of Environmental Protection said it was seeking public feedback on whether to pass the regulation, which could include an IMO Emissions Control Area (ECA) to be established along China's 14,500 km coastline and include new standards for marine fuel quality.

"Environmental pollution problems caused by shipping are becoming more evident," Xiong Yuehui, an official with the ministry, said in a statement on the ministry's website, adding that China had 172,600 vessels at the end of 2013. He estimated that the shipping sector accounted for 8.4 percent of China's sulfur dioxide emissions and 11.3 percent of nitrogen oxide emissions in 2013.

Environmental regulations for ships are overseen globally by the International Maritime Organization. But while the IMO has cut pollution with emissions controls in America and Europe, which use low-sulfur marine fuels as standard, Asia has been left untouched with the upcoming July 1, 2015 at berth low-sulfur regulation in Hong Kong marking the first port in the region to take such action.

Last October, a U.S. environmental group said shipping was a significant source of air pollution in China and that one container ship along the country's coast emitted as much diesel pollution as 500,000 Chinese trucks a day.

Beijing has previously promised tax cuts to ships that cause less pollution, but Yuehui is understood to be the first government official to openly discuss the possibility of an ECA being

established. As eight of the top ten busiest container ports are in China, which now also has over 70 percent of the global seaborne iron ore trade and a substantial portion of seaborne oil trades, a Chinese ECA would have far reaching implications for vessel operators.

Earlier Hong Kong's under-secretary for the environment Christine Loh said China's increasing interest in improving the country's air quality meant a potential Pearl River Delta (PRD) ECA has a high chance of success. According to Loh, China's government has taken heavy interest in improving the country's air quality, though she admits that the plans could take some years to come to fruition. "You [in California and Europe] are the ones with the Emission Control Areas (ECAs) and the Sulfur Emission Control Areas (SECAs)," Loh said. "We want that too."

The PRD area, which includes the ports of Hong Kong, Guangzhou and Shenzhen, reportedly accounts for 12 percent of all goods shipped worldwide. "Our longer-term aim, hopefully in a few years, is to make the whole PRD area an ECA," she said.

Starting July 1, new sulfur regulations in Hong Kong are set to begin limiting sulfur content in marine fuel for berthed ocean-going vessels (OGV) to 0.5 percent. (See story below.)

60. China's Draft Standards Would Regulate Airborne Emissions from Inland Boat Engines

China's Ministry of Environmental Protection released draft standards that for the first time would regulate emissions from boats on the country's rivers and lakes. The regulations would require all boats or boat engines sold after Jan. 1, 2017, to limit emissions of carbon monoxide, hydrocarbons, nitrogen oxide and particulate matter. After three years, the limits would be tightened again for hydrocarbons, nitrogen oxide and particulate matter.

The government also said it could begin regulating the sulfur content in diesel fuel used by inland boats by mid-2018.³ Standards for gasoline-powered boats could follow, the Ministry of Environmental Protection said.

The MEP released draft standards June 4 for engines in domestic marine vessels such as river boats, tugboats and ferries that it expects could reduce air pollution near riverside and coastal areas. The standards would cover diesel motors with a rated power of 37 kilowatts or above for inland and coastal vessels, but would not apply to ocean-going vessels. A first draft of the standards was released last July. The draft released June 4 could undergo additional changes.

Environmental officials also are updating wastewater and solid waste discharge standards for ships in China's waters, and will be formulating emissions standards for the shipbuilding industry, primarily to control volatile organic compound emissions, the MEP said June 8 in an explanatory document.

Officials are studying emissions data from the Yangtze River Delta near Shanghai and the Pearl River Delta in Guangdong province and could recommend more policies to cut emissions by year's end, according to a document released internally by the China Maritime Safety Administration. Currently, only port areas in Shenzhen in southern China and Hong Kong are

³ According to a draft amendment to the Air Pollution Law, tabled to the National People's Congress (NPC) Standing Committee for a second reading in June, ships on inland or river-to-sea waterways must use standard diesel as fuel to cut emissions. Sulfur levels in standard diesel are to be limited to a maximum of 10 ppm by 2018 across the entire country.

experimenting with emissions control for oceangoing vessels. In Shenzhen, which started piloting policies to encourage a switch to lower sulfur bunker fuels at berth late last year, the process has been slow to take hold.

61. Hong Kong Incentives Would Spur Ships to Adopt Use of Low-Sulfur Fuels in Port

Hong Kong, the world's fourth-largest container port by volume, is extending financial incentives to get ocean-going ships to switch to low-sulfur fuels while in the special administrative region's waters. Under rules finalized in April, ships berthing in Hong Kong must use fuel with a sulfur content of 0.5 percent or below as of July 1 or face potential fines of up to \$25,000.

But a new policy announced June 1 by Hong Kong's Environmental Protection Department would let some ships offset the costs of switching fuel by halving other port facility fees. It is part of an effort to reduce persistent air pollution near heavily populated areas along the port areas of Hong Kong.

The incentive program actually started in 2012, and was set to expire in September. The June 1 announcement extends the program for 30 months and coincides with the first 2 1/2 years of the required low-sulfur-fuel-use period.

Incentives also will be available for the first time for vessels that use liquefied natural gas or other approved fuels and technologies that reduce sulfur dioxide emissions, according to the statement.

Around 40 percent of the sulfur dioxide emissions in Hong Kong comes from ocean-going vessels, but total sulfur dioxide emissions could be cut by 12 percent if the fuel-switching is adhered to, the Environmental Protection Department said.

Mainland neighbor Shenzhen also is giving incentives to ships to switch to 0.5 percent sulfur fuels at its ports.

62. Beijing-Tianjin-Hebei Rolls Out Measures to Tackle Air Pollution

Beijing and Tianjin will give financial and technological support to four cities in Hebei province to help them tackle air pollution. In addition, the six cities are to build a unified emergency response system to cope with heavy smog.

Beijing will join forces with its two southern neighbors, Langfang and Baoding, while Tianjin will work with the neighboring port cities of Tangshan and Cangzhou, the Beijing Environmental Protection Bureau said.

The cities in Hebei will receive special funds and advanced technology from the two municipalities.

All six cities, which form the core area for regional efforts to control air pollution, are to build a unified system to forecast heavy smog and implement emergency response measures. The project will draw on the experience gained from the coordinated efforts made during the Asia-Pacific Economic Cooperation meetings in Beijing in November, the capital's environmental bureau said. The cities currently have their own emergency systems and impose different restrictions on the use of vehicles on smoggy days.

During the APEC meetings, the governments of Beijing and Tianjin, the provinces of Hebei, Shandong, Shanxi and the Inner Mongolia autonomous region jointly adopted tough measures to improve air quality. Work at more than 14,000 factories in polluting industries and 40,000 construction sites was suspended.

Their efforts meant that residents saw a clear improvement as the concentration of PM2.5—airborne particles measuring 2.5 micrometers or less that can penetrate the lungs and harm health was reduced by 30 percent in Beijing, Fang Li, deputy head of the bureau, said in November.

The coordinated efforts by the six core cities are expected to reduce air pollution in a similar way, the bureau said.

Officials set out a number of major areas in which action will be taken this year — cutting vehicle exhaust emissions and coal consumption, reducing the amount of straw that is burned by farmers, phasing out industrial overcapacity, lowering emissions of volatile organic compounds and reducing pollution at ports.

Seven of the 10 Chinese cities with the worst air pollution are in Hebei, but the province is making efforts to take at least Langfang off the list this year, the provincial Environmental Protection Bureau said.

Beijing needs to control the amount of pollutants blown in from other areas, since they are a major cause of smog in the capital, according to Ma Zhong, dean of Renmin University of China's School of Environment. Research by the Beijing environmental bureau found that 28 to 36 percent of PM2.5 in the atmosphere over the capital comes from surrounding areas, including Hebei. Beijing should compensate Hebei for the economic losses caused by closures of factories that cause pollution and the introduction of more advanced technology, Ma said.

In addition, the governments need to unify standards on pollutant emissions, fuel quality and sewage discharges.

63. Study Says China Can Stop Catastrophic Climate Change. But Will It?



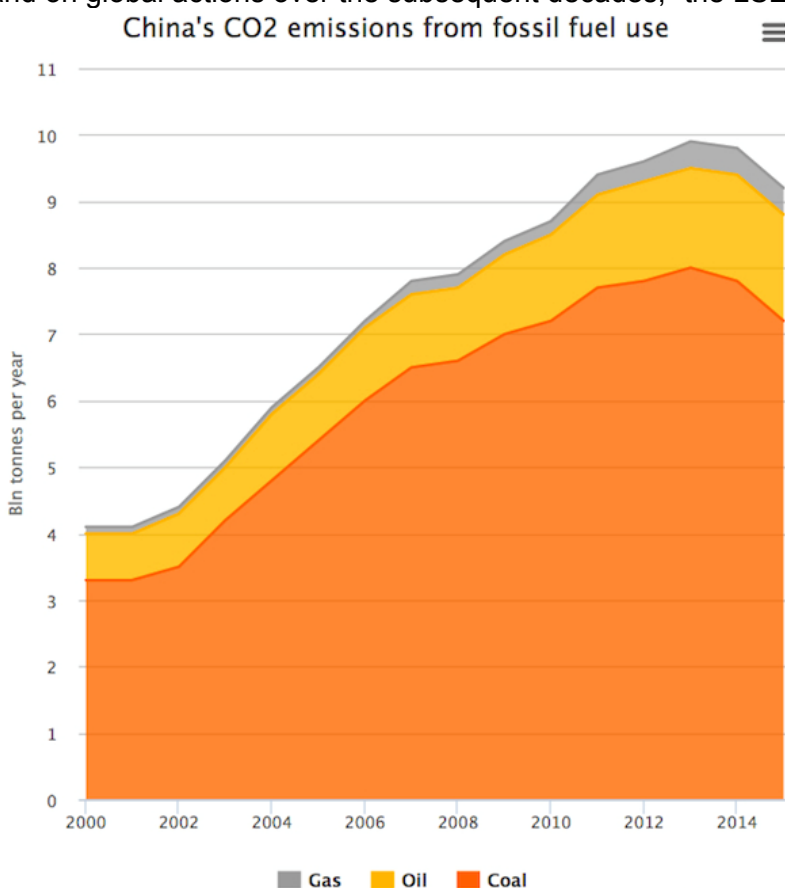
CREDIT: AP Photo / Andy Wong

A new study⁴ confirms what has been increasingly clear to outside observers: Whether or not the world will avert catastrophic climate change is now, to a large extent, in the hands of the Chinese.

The New London School of Economics (LSE) study was written by analyst Fergus Green and climate economist Nicholas Stern and notes that China's coal use appears to have peaked. And that means China's CO2 will likely peak by 2025 — five years earlier than the public commitment the country made to the world as part of the climate deal with the United States last year.

The world needs to slash greenhouse gas emissions roughly in half by 2050 and then drop to zero emissions or below by 2100 to have a reasonable chance of stabilizing below 2°C — the level that the world's leading scientists and governments have determined is a threshold beyond which dangerous climate impacts accumulate and accelerate rapidly.

“Whether the world can get onto that [2°C] pathway in the decade or more after 2020 depends in significant part on China's ability to reduce its emissions at a rapid rate, post-peak (as opposed to emissions plateauing for a long time), on the actions of other countries in the next two decades, and on global actions over the subsequent decades,” the LSE paper explains.



China's coal use (dark orange) has dropped sharply since 2013, according to government data analyzed by Energydesk China.

Speeding up climate action outside of China remains vital. All efforts must be taken to preserve, meet, and even beat the CO2 commitments that countries have made — and to mobilize for even deeper cuts in the future. But the stranglehold the anti-science and pro-pollution crowd have on Congress limits the US near-term flexibility to act and lead. And the EU is already committed to cut total emissions 40 percent below 1990 levels by 2030, and will no doubt make stronger

commitments in the future.

But China has publicly committed only to peak CO2 emissions by 2030 or earlier, to peak coal use by 2020, and to double its share of carbon-free power by 2030. When the peaks occur and

⁴ China's "new normal": structural change, better growth, and peak emissions from LSE's Grantham Research Institute on Climate Change and the Environment and its Center for Climate Change Economics and Policy.

whether they look more like plateaus or actual peaks will determine whether we have a serious chance at avoiding climate catastrophe. That said, the Chinese agreed in the pledge “to make best efforts to peak early” — which strongly suggests they always anticipated peaking earlier.

According to the report’s authors, “to reduce its emissions at a rapid rate, post-peak, China will need to deepen its planned reforms in cities and in the energy system, supported by a concerted approach to clean innovation, green finance and fiscal reforms.”

In the report, authors Stern and Green include a scenario whereby CO₂ emissions from energy could peak as early as 2020. They argue that a China CO₂ peak between 2020 and 2025 could allow the world to put global greenhouse gas emissions on the 2°C pathway.

64. China Pledges to Cut the Carbon Intensity of Its Economy Up to 65 Percent by 2030

China promised to further decarbonize its economy as part of its national commitment toward a global climate deal submitted to the United Nations June 30. The world’s top emitter and second-biggest economy pledged to cut its carbon emissions per unit of economic output 60 percent to 65 percent by 2030 from 2005 levels. It already has cut the carbon intensity of its economy by about 34 percent.

Chinese Premier Li Keqiang unveiled the pledge at a meeting with French President François Hollande in Paris where nearly 200 countries will gather later this year in hopes of signing a global accord that would for the first time commit both developed and developing nations to act on climate change.

“As a developing country with a population of more than 1.3 billion, China is among those countries that are most severely affected by the adverse impacts of climate change,” its pledge said.

The country’s rapid industrialization and urbanization have made its greenhouse gas emissions climb significantly during the past decade or so, now accounting for about a quarter of the world’s total emissions.

The carbon intensity goal builds on China’s earlier pledge to peak its overall greenhouse gas emissions by 2030 or sooner, which many hailed as ground-breaking when it was announced in November 2014.

If China hits the higher end of the new intensity goal, it could mean deeper cuts on an annual basis than China’s current carbon intensity target—a 40 percent to 45 percent reduction by 2020 from 2005 levels—according to an analysis by Greenpeace. China first pledged to cut its carbon intensity in the run-up to the 2009 climate summit in Copenhagen.

The new target should help China to peak its carbon emissions earlier and lower than previous estimates, the Natural Resources Defense Council said in its take on the pledge.

China also reiterated its goal to expand the share of non-fossil fuels, including renewables and nuclear power, in its energy mix to “around” 20 percent. Doing so would require curbing its coal consumption, which fell in 2014 for the first time in at least a decade (.

The pledge maintained China's stance that any commitments it makes will “match its national circumstances, current development stage and actual capabilities.”

UN Secretary-General Ban Ki-moon told those attending the one-day UN climate event that the world's “journey toward bold climate action is at a critical moment. The stars have aligned as never before—the world's biggest emitters of greenhouse gas emissions have announced ambitious climate actions and are showing leadership based on mutual respect and collaboration.” But Ban warned that there has been too little progress so far on the global accord as negotiating time runs out.

Aside from China, the U.S. and the EU, about a dozen other countries have filed their formal submissions to the UN, known as Intended Nationally Determined Contributions (INDCs), which will serve as building blocks of the global agreement. In a pledge submitted the same day as China's, South Korea said it plans to cut its emissions 37 percent throughout a business-as-usual scenario by 2030. Serbia and Iceland also filed their submissions, according to the UN website that tracks them.

Other major emitters, such as India, Indonesia and Brazil, have yet to submit their climate plans.

The climate accord did come up, however, during a June 30 meeting between Brazilian President Dilma Rousseff and U.S. President Barack Obama, in which the two said they would work “to resolve potential obstacles towards an ambitious and balanced Paris agreement” (see related story).

“Countries accounting for nearly 70 percent of current global energy carbon-dioxide emissions have already announced and are taking action on post-2020 climate policies,” Brian Deese, one of Obama's top climate advisers, said in a statement, adding that the U.S. “encourages all major economies to submit their INDCs as soon as possible” to ensure a successful outcome at the Paris talks.

65. China Puts \$6 Trillion Price Tag on Its Climate Plan

It will cost China over \$6.6 trillion (41 trillion yuan) to meet the greenhouse gas reduction goals it will lay out later this month in its strategy for United Nations climate negotiations, the country's lead negotiator for the talks recently announced. Xie Zhenhua, special representative for climate change affairs at China's National Development and Reform Commission, said the objectives China will outline by the end of June will be “quite ambitious”.

Xie was participating in a three-day Strategic and Economic Dialogue forum in Washington where he met with counterparts in the Obama administration, including U.S. climate negotiator Todd Stern, Environmental Protection Agency Administrator Gina McCarthy and Energy Secretary Ernest Moniz.

To meet its objectives, China, the world's biggest greenhouse gas emitter, must reconfigure its coal-dependent energy mix and develop new energy sources, Xie said. “We will need to carry out international cooperation and research and development to reduce the costs of relevant technologies and to innovate so that we can reach our objectives,” he told reporters at a State Department briefing.

The United States and China also announced they will partner on two new carbon-capture, utilization and storage projects to help commercialize the technology.

While key details of China's plan are not yet known, it is expected to include targets announced in November, when it reached a key climate change deal with Washington to cap its emissions by 2030 and fill 20 percent of its energy needs from zero-carbon sources.

Earlier this month, Chinese Premier Li Keqiang reaffirmed the government's commitment to hit a carbon emissions peak by "around 2030". The country's coal consumption decreased for the first time in years in 2014, however, leading some to speculate that its emissions could reach their peak sooner.

Stern, the U.S. climate change envoy, told reporters the plans China has already announced with Washington were "a quite strong contribution". But he said he hopes a final agreement of all countries at this December's key UN climate change conference in Paris contains "a strong set of contributions, which are updated periodically" to ensure more ambitious targets. Stern said China does not expect public finance to support its climate goals and that it is likely to attract investment as it adopts new technologies.

Earlier, Chinese Vice Premier Wang Yang told a panel moderated by former U.S. Treasury Secretary Hank Paulson that 750,000 electric vehicles were sold in China last year, three times more than the year before, "giving great opportunities and profit to companies like Tesla and BYD (Auto)". "To tackle climate change is both a challenge and an opportunity," Wang said.

Ahead of the UN's climate change conference in Paris, countries are required to submit national plans, which will serve as the building blocks of a final agreement. So far, 11 countries, including the United States and Mexico, as well as the European Union have submitted theirs.

66. U.S.-China Strategic & Economic Dialogue Outcomes of the Strategic Track

At the seventh round of the U.S.-China Strategic and Economic Dialogue (S&ED) June 22-24, 2015, in Washington, D.C., Secretary of State John Kerry, special representative of President Barack Obama, and State Councilor Yang Jiechi, special representative of President Xi Jinping, chaired the Strategic Track, which included participation from senior officials from across the two governments. The two sides held in-depth discussions on major bilateral, regional, and global issues. The dialogue on the Strategic Track produced the following specific outcomes and areas for further cooperation:

44. CCWG Heavy-Duty and Other Vehicles: With the support of numerous technical and policy exchanges under the Climate Change Working Group, the two sides made significant domestic policy and programmatic progress in the key working areas of the Heavy-Duty and Other Vehicles initiative. On fuel consumption and greenhouse gas emission standards, the United States is currently developing new greenhouse gas emissions and fuel economy standards for medium- and heavy-duty vehicles for post-2018 model years. These standards were proposed in June 2015, and are to be finalized by the end of 2016. China is developing new fuel consumption standards for light- and heavy-duty commercial vehicles for 2020 model years and thereafter, to be finalized by the end of 2015 and the end of 2016 respectively. On tailpipe emissions and fuel quality standards, China has accelerated its schedule to implement ultra-low sulfur gasoline and diesel fuel nationwide one year, to the end of 2016. To take advantage of high quality fuel availability, China is currently developing the China 6/VI emission standards for light- and heavy-duty vehicles, to be finalized by the end of 2017. China has additionally established an improved compliance program for heavy- and light-duty vehicles in 2015. On green freight, the United States has expanded the SmartWay Program to include barge freight in the United States starting

in 2015, and is to add air freight in 2016. China has enhanced the Green Freight Initiative to include green freight efficiency standards, a 20 company pilot project, and green driving pocket book. Finally, the two sides decided to launch a new U.S.-China Race to Zero Emissions bus initiative to commence in fall 2015.

45. Electric Vehicles Workshop: In support of U.S.-China cooperation on electric vehicles and the U.S.-China Innovation Dialogue, the U.S. Trade & Development Agency and the Ministry of Science and Technology of China co-hosted an Electric Vehicles Workshop to engage public and private sector representatives in discussions on standards and technology in June 2015.

Cooperation on Environmental Protection

69. Air Quality: The U.S. Environmental Protection Agency (EPA) and the Ministry of Environmental Protection of China (MEP) collaborated on a range of air quality issues and advanced capacity on regional air quality planning; pollution prevention and multi-pollutant control of emissions from refineries, cement, petrochemical, coal-fired power, iron and steel; emissions from vehicles and vessels; and mercury emissions controls. EPA and MEP are discussing hosting the 2015 Regional Air Quality Management Conference on volatile organic compounds; a workshop on outcomes/lessons learned from the Jiangsu Province project for Chinese provinces and cities; sharing best practices on mercury emissions; and **promoting implementation of the action plan for heavy-duty diesel vehicles, including ultra-low sulfur fuel, advanced emission and fuel efficiency standards, strong compliance programs, and green freight programs.**

70. Exchanging Ideas to Combat Air Pollution: In order to share best practices on solutions to combat air pollution and further support the regional air emission technical assistance program supported by the United States Trade & Development Agency (USTDA) and the Ministry of Environmental Protection (MEP), USTDA and MEP decided to bring representatives from Jiangsu's Environmental Protection Bureau on a study tour in fall 2015 to showcase U.S. technologies and best practices in air quality management.

71. Low NO_x Boiler Emission Reduction Feasibility Study and Pilot Project: The United States Trade & Development Agency and the Beijing Environmental Protection Bureau decided to work together to conduct a feasibility study and pilot project to demonstrate low nitrogen oxides (NO_x) burner technologies to meet stricter NO_x emission requirements for gas-fired boilers in Beijing.

75. Enforcement of Environmental Laws: The U.S. Environmental Protection Agency (EPA) and the Ministry of Environmental Protection of China continued to advance best practices in environmental compliance and enforcement with national, provincial, and municipal officials. The two sides held high-level discussions on new technologies/approaches and next generation compliance and enforcement; oversight of local enforcement; and implementation of penalty authorities under China's Environmental Framework Law. The two sides are exploring a potential visit to China by the EPA Assistant Administrator for Enforcement and Compliance Assurance in advance of the Joint Committee on Environmental Cooperation to focus on next generation compliance and enforcement, participation in the International Network for Environmental Compliance and Enforcement workshop on air enforcement and climate change.

76. Environmental Laws and Institutions: The U.S. Environmental Protection Agency (EPA) and the Ministry of Environmental Protection of China (MEP) shared information and best practices on revisions to China's framework Environmental Protection and Air Pollution

Prevention and Control Laws and supporting regulations. China's 2014 revisions to its Environmental Protection Law include provisions discussed by the two sides, such as authorities for environmental public interest litigation, public disclosure of pollutant discharges, suspension of new pollution source approvals in non-attainment areas, and enhanced penalties for violations, such as daily penalty, detention and criminal penalty. EPA hosted officials from China's Supreme People's Court on legal experience and approaches to water protection and pollution control. EPA and MEP intend to continue collaboration on environmental law and adjudication, regional air quality planning and pollution control, and pollutant permitting. Experience has proved that the professional communication between MEP and EPA has promoted the progress of environmental laws and adjudication.

77. Environment and Development: The U.S. Environmental Protection Agency and the Ministry of Environmental Protection of China supported and attended the China Council for International Cooperation on Environment and Development (CCICED) Environment and Development Think Tank Symposium June 22, 2015 in Washington, D.C. **The symposium was held to support the development of CCICED as a new type of think tank and promote experience sharing on environment and development.** Think tanks and research institutes from the United States and China participated in the symposium and discussed the functions, operational models and development trends of think tanks, and how to strengthen cooperation to promote the realization of post-2015 sustainable development goals.

67. China's Air Quality Shows Signs of Improvement: Environmental Minister

Environmental Minister Chen Jining revealed to the country's legislators that China's air quality has shown consistent improvements in 2014 and thus far in the first four months of this year. According to Xinhua, Chen said that PM10 readings reduced by more than two percent in over 300 cities across the country last year. In the first four months of 2015, PM10 readings from these cities continued to drop by more than five percent. Also, in 74 cities, PM2.5 readings reduced by 11 percent in 2014 and over 15 percent in the first four months of this year.

Authorities have taken a direct approach to combat pollution by developing regulations to control the activities of individuals and companies in sectors that contribute to the country's air pollution. Among other things, authorities have sought to promote 'green' renewable energy and reduce the country's use of coal, regulate emissions in industries as well as in the shipping sector and level greater punishments on individuals and companies responsible for polluting the atmosphere.

According to Chen, strict implementation of the country's environmental policies has contributed to the successful reduction of pollutants in the atmosphere. He revealed that last year, more than 8,000 suspects were apprehended by the police for environment-related crimes. (See story below.)

Chen explained that support and coordination between government agencies and the adoption of the latest technology have also contributed to the reduction of pollutants in the atmosphere. He added that the country will impose stricter regulations on the coal industry, improve technological research as well as the measurement of pollutants in the air and impose heavier penalties on wrongdoers.

68. Minister Chen: China Arrested Over 8,000 People for Environmental Crimes Last Year

More than 8,000 people were arrested in China for violating environmental laws last year, in what officials said was a sign of the country's determination to enforce its laws more strictly, in the face of grave pollution. Chen Jining, China's recently appointed Minister of Environmental Protection and former Tsinghua University president and environmental scientist, told a meeting of the country's legislature that some 8,400 people were detained in 2014 -- while more than 2,000 cases of environmental violations were handed over to police, twice as many as in the previous decade.

The announcement comes amid growing public concern about environmental pollution in China. The director of China's National Development and Reform Commission said recently that natural resources and the environment were among the biggest obstacles hindering China's drive to become a "moderately prosperous society."

Chen told the legislature that enforcing environmental laws more strictly was key to curbing air pollution, according to the Xinhua news agency. He said that inspections on the ground, and some using drones, had led to the closure of more than 3,000 companies, a similar number of small factories, and 3,700 construction sites in 2014.

Chen added that aside from some \$4.1 billion that the government spent on pollution prevention last year, private investment worth 300 billion yuan (\$48 billion) also went into the sector. He also said that China planned to reduce the levels of sulfur dioxide and nitrogen oxide in the air by 3 percent and 5 percent respectively this year.

Earlier this year, China passed a new environmental law, with stricter fines for polluters -- and the past few months have already seen record fines for a number of polluting businesses, including a state petroleum giant and a factory supplying food to McDonald's restaurants in Beijing.

The government has also pledged to spend billions to clean up the country's polluted water resources, and has proposed a new pollution tax that would levy charges on companies that produce not only air and water pollution, but also noise above a certain level.

The authorities have also promised a particular clean-up of the area in and around the capital city Beijing, which has become notorious for its bad air pollution. The city's mayor recently acknowledged that environmental problems were making Beijing "unlivable" -- but as Beijing and neighboring Hebei province bid to stage the 2022 Winter Olympics, steps are being taken to improve air quality; one major power plant in the center of the city was closed down in April.

Environment minister Chen said that official measures were having some impact, with pollution readings down in major cities in the first four months of this year, falling the most in Beijing and the surrounding area (though official readings have often been questioned in the past). Xinhua also reported that China's coal consumption fell last year, for the first time in 15 years, by 2.9 percent, as cleaner energy sources came on-stream. And Chen said 1,000 small coal mines would be closed down this year.

Environmental groups have said that the government does seem to be taking the country's problems increasingly seriously. Yet issues remain deep-rooted: a government-backed magazine recently reported that tens of millions of people are affected by water containing dangerous levels of fluoride and iodine, for example.

And implementation at the local level remains the biggest problem, with local governments often desperate to boost economic growth and cutting corners on the environment to do so, while some

major companies have traditionally felt powerful enough at a local level to defy the law. China's state prosecutors recently admitted that not all cases of environmental violations are handed over to prosecutors as they should be, due to protectionism and favoritism.

However China's Supreme People's Procuratorate added that it was launching a campaign to scrutinize law enforcement in such cases, and would also focus on abuses of the environmental impact assessment process. (63 companies involved in risk analysis were recently barred or restricted from bidding for projects after being found to have falsified results.)

And there have been some signs of the Ministry of Environmental Protection cooperating more effectively with other ministries, including the legal authorities: 18 staff of a company that manufactured weed-killer in eastern Zhejiang province were recently jailed, and the company fined around \$12 million, for discharging wastewater that severely polluted streams in the area.

And in an attempt to reduce the blind pursuit of economic growth, the government recently said that officials found to have caused environmental damage would be barred from being promoted, and would be "held responsible for their lifetime."

Chen also pledged "more covert inspections" of companies, and heavier penalties for those that "forge pollution data," and stressed that those who neglected their duties or abused their power would be investigated. His comments follow the announcement earlier in June that more than 2,000 officials had been arrested for environmental violations in the previous 16 months.

69. China Enforces Requirements on 17 Companies

Subsidiaries of three of China's largest state-owned power generators were among 17 companies that had excessive emissions of sulfur dioxide and nitrogen last year or failed to have properly operating technology to detect and remove those airborne pollutants, the Ministry of Environmental Protection said.

Subsidiaries of China Datang Corp., China Power Investment Corp. and China Guodian Corp. were among those cited for excessive sulfur dioxide or nitrogen oxide emissions, and with problems at the facilities with desulfurization and denitrification technologies, which remove sulfur dioxide and nitrogen oxide from exhaust flue gases of fossil fuel power plants. Other state-owned companies named included subsidiaries of textile, power and aluminum producer Shandong Weiqiao Pioneering Group Co. Ltd.

The companies must submit upgraded plans to ensure that emissions are under control by the end of 2015, and must pay airborne pollution discharge fees for 2014. In addition, 14 of the companies must return subsidies they received for operation of desulfurization and denitrification technologies, the ministry said.

Sulfur dioxide and nitrogen oxide are the two key air pollutants officially controlled under Chinese regulations. Companies are charged for these emissions above certain thresholds and major emitters are expected to install and operate technology to reduce their release into the atmosphere.

In mid-May, the environment ministry announced that it would launch a special investigation campaign through the end of August to ensure that companies are properly operating desulfurization and denitrification technologies.

70. Former Secretary Paulson Says Pollution Could Overwhelm China as Cities Expand

Former U.S. Treasury Secretary Henry Paulson said China's leaders are serious about tackling environmental problems but could be overwhelmed as hundreds of millions more people flock to cities in coming decades. China's leaders "care about climate change and they understand it and are seriously working on it—that's the good news," Paulson said June 25 during an event in Seattle. "The bad news is they've taken all kinds of actions, but they've been blown away by the explosive, breakneck growth."

Paulson has been traveling the globe to promote his latest book, "Dealing With China: An Insider Unmasks the New Economic Superpower." He has said Asia's largest economy is "running out of steam" and risks a "day of reckoning" if leaders don't adopt a new model for municipal finances.

The book also addresses environmental challenges the country is facing. On June 25, Paulson called China's urbanization policy "broken" because it creates pollution and stress. He estimated that the number of people in cities there could surge by 300 million during the next 25 years from about 650 million now.

"The dirty air is killing people," Paulson said. China's leaders "don't believe the Communist Party will stay in power unless they make progress" on pollution, he said.

Paulson, 69, was chairman of Goldman Sachs Group Inc. before serving as Treasury secretary under President George W. Bush from 2006 to 2009.

71. China Considers Replacing Problematic Pollution Fee System with Environmental Tax

An environmental tax law expected to replace China's ineffective pollution fee system could help the nation fight severe pollution while bringing more revenue into local government coffers, according to a Chinese tax expert. The draft Environmental Protection Tax Law, released June 10 by the State Council Legislative Affairs Office, would target primarily the most polluting industries. It is available for public comment through July 9.

"One of the main breakthroughs with this law is that the pollution fees, which are currently collected by environmental protection departments, will be managed both by tax authorities and environmental authorities," Gao Ping, a professor at the School of Taxation of the Central University of Finance & Economics in Beijing, told reporters on June 15.

While the draft law states that the projected tax rate is similar to pollutant discharge fees, Gao said, in reality, it could force polluters to pay more than currently levied under pollutant discharge fee rules, which are applied inconsistently and lack the force of law.

Local-level environmental protection bureaus—which often manage the current fee-based penalty system—are tied directly to local governments and have been accused of helping to protect polluting companies, or of lax enforcement meant to protect the local economy. Under the current system, it is not unusual for pollution fees to be halved for some violators, Gao said.

"The [proposed] law also encourages local governments, which are facing pressure to improve the environment, in places such as Beijing and Tianjin, to increase their tax bases," Gao said. "These areas have also been increasing their pollutant discharge fees a lot lately."

Under the proposal, airborne pollutants would be charged 1.2 yuan (\$0.19), depending on the unit (per 0.95 kilogram for sulfur dioxide, for example), water pollutants 1.4 yuan (\$0.23) a metric ton, with solid wastes including refining waste, coal ash, waste coal, and other liquid and solid wastes charged between 5 to 30 yuan (\$0.81 to \$4.83) a metric ton, depending on the category.

Industries potentially covered include thermal power, steel, cement, electrolytic aluminum, coal production, metallurgy, building materials production, mining, chemical production, pharmaceutical production, brewing, paper making, fermentation, sugar processing, vegetable oil processing, textiles and leather.

Agricultural production and **pollution from mobile sources such as vehicles, trains, airplanes, ships, railways and off-road mobile vehicles would be exempt from the taxes.** Wastewater treatment plants and incinerators that do not breach their emissions quotas also would be exempt, and companies within the taxed group that emit half the national average could have their taxes reduced by local governments.

Detailed taxes on the most emitted heavy metals and on noise—levied by decibel level—are expected to be announced later.

According to a June 13 report from Economic Information Network, a news organization affiliated with the National Development and Reform Commission, the earliest the draft law would be reviewed by the Standing Committee of the National People's Congress would be at the end of 2015. At that earliest timeline, approval could come in 2016, but official adoption of the tax is not likely until 2017 at the earliest. The report also indicated that the Ministry of Finance has prepared draft implementation guidelines for the law.

72. Delhi Budget Plan Focuses on Improving Public Transport to Address Air Pollution

The government of Delhi wants to cut the number of private vehicles on city roads, provide more public transport and subsidize electric-rickshaws in an effort to reduce air pollution. The proposals are part of its budget plan for the current fiscal year that includes an energy conservation fund, a water treatment plant and a tree planting drive.

Delhi has among the worst air quality in the world, much of it attributed to its high vehicular density and per capita ownership of cars. It also is battling pollution of the Yamuna River and depleting groundwater level and quality.

Because of the makeup of Delhi's government, the budget proposal is almost certain to become law.

The budget proposes to increase the allowance for transportation by nearly a quarter to Rs 5,085 crore (\$799 million), which will be used to buy 10,000 buses, set up 1,200 bus stop shelters, and install closed-circuit TV cameras and deploy marshals on state-run buses to ensure the safety of passengers, particularly women. This last measure aims to improve attitudes toward public transport, which worsened considerably after a gang rape in a moving bus in Delhi in December 2012.

The budget also proposes a congestion tax on trucks entering the capital territory, the revenue from which would be used to improve public transport. To improve last-mile connectivity, about

5,500 new auto-rickshaw permits would be issued for the National Capital Region, which includes Delhi, New Delhi, Gurgaon, Noida and other neighboring cities. And a subsidy would be offered on purchase of e-rickshaws.

Other proposals include planting 1.2 million saplings, establishing a fund to finance energy efficiency projects and street lighting, opening a new water treatment plant close to the Yamuna, and refurbishing two existing plants.

The emphasis on the environment in the budget, the first to be presented by the Aam Aadmi Party—a new and small political party that came to power largely on an anti-corruption and anti-incumbency plank—won kudos from environmentalists. Anumita Roychowdhury, executive director at New Delhi-based Centre for Science & Environment, who also heads its air pollution control campaign, told reporters on June 26th that the emphasis on public transport “is a much needed move at a time when Delhi is gasping for breath and the daily travel trips are expected to explode to 25.3 million trips a day. The travel choices of the people will determine the livability of Delhi.”

The budget will be voted on in the ongoing session of Delhi Assembly and would come into effect after being passed and approved by the lieutenant governor.

73. South Korea to Adopt New Diesel On-the-Road Emissions Standards in 2017

All new diesel cars and other light-duty diesel-powered vehicles sold in South Korea must meet on-road emissions standards based on real-world driving conditions beginning in September 2017, the Ministry of Environment said. “On-road emissions evaluation will be conducted as an add-on to the existing laboratory testing program,” the ministry said in a June 12 statement. “The enforcement of on-road emissions standards will contribute to tighter oversight of compliance with diesel car emissions standards.”

On-road emissions are measured by a portable emission measurement system (PEMS) that works while a vehicle is in actual road use, rather than in a laboratory setting. The standards are being developed by South Korea in conjunction with the European Union, which is studying its own on-road testing methods and standards for diesel vehicles.

Testing has found that while laboratory tests closely mirror actual on-the-road emissions from gasoline-powered vehicles, they can significantly understate the real-world emissions from diesel-powered vehicles, the ministry said. For instance, while nitrogen oxides emissions standards for diesel-powered vehicles were made more than 600 percent tougher in 2000, the reduction in actual emissions on the roads was only 40 percent, the ministry said, **citing data from the International Council on Clean Transportation.**

In South Korea, the new tests are needed to give a clearer picture of actual automobile emissions that can be affected by things like outside temperature, road slope variations, driving styles and even air conditioner use, the ministry said.

South Korea's own on-road testing conducted by the Transportation Pollution Research Center shows that Euro V-compliant diesel vehicles (generally built since 2008) emitted between 1.14 times and 9.6 times more nitrogen oxides emissions than legally allowed in real-world driving, while Euro VI-compliant (built since 2014) vehicles exceeded the prescribed standards by 1.25 times to 2.8 times.

South Korea has adopted Euro engine emissions standards since 2005, and Euro VI is currently in force for new diesel passenger and commercial vehicles.

The ministry will develop on-road testing methods and standards for light-duty diesel motor vehicles weighing less than 3.5 tons in 2015 and incorporate new provisions into the Air Quality Preservation Act in 2016, to take effect in 2017.

South Korea's diesel motor vehicle emissions control has been a joint venture with the EU under a bilateral free trade agreement begun in 2011. The latest agreement on diesel motor vehicle regulation came from the annual meeting of the Working Group on Motor Vehicles and Parts held June 10 in Seoul. "Both sides agreed to introduce PEMS and develop common standards," Park Yun-jae, director of the Transportation Environment Division at the Ministry of Environment, told reporters on June 15.

Separately, South Korea plans to introduce on-road evaluation for heavy-duty diesel vehicles weighing 3.5 tons or more. According to the ministry, 68 percent of all nitrogen oxides emissions in the capital region around Seoul comes from transportation, and 76 percent of pollution from transportation in the region is attributable to diesel-powered vehicles.

The rising popularity of diesel cars among South Korean consumers is another factor contributing to diesel exhaust pollution. Diesel cars accounted for 40.7 percent of all passenger vehicles sold in South Korea in 2014, up from 29.7 percent in 2012, according to the ministry. Seven out of 10 new imported cars sold in South Korea are powered by diesel.

74. South Korea to Cut 2030 Greenhouse Gas Emissions By 37 Percent from BAU Levels

South Korea has finalized its 2030 target of reducing greenhouse gas emissions by 37 percent from business-as-usual (BAU) levels, higher than its earlier plan for a 15-30 percent cut.

The country is among the world's top 10 carbon emitters, so any steps it takes to curb emissions are key to global efforts to combat greenhouse gases in the environment.

The country's emissions are projected to reach 850.6 million tons of carbon dioxide equivalent by 2030 based on BAU levels, a joint statement from ministries such as environment, trade and energy, and finance said on Tuesday.

Earlier this month, Seoul outlined four scenarios for the country's emissions target and said a final reduction rate, of either 14.7, 19.2, 25.7 or 31.3 percent from BAU levels, would be set after holding a public hearing.

"We decided to raise the target from the reduction scenarios, considering our leadership in climate changes such as inviting GCF (Green Climate Fund), our global responsibility, and opportunity to develop new energy business and innovate manufacturing sectors," the statement said.

The Green Climate Fund (GCF) was designed "to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change" under the U.N. Framework Convention on Climate Change, and is located in South Korea, its website said. (www.gcfund.org)

The final target will be submitted to the U.N. on Tuesday, according to the joint statement.

In 2009, South Korea voluntarily set to cut greenhouse gas emissions in 2020 to 30 percent below BAU levels.

In line with its plan to limit climate-changing greenhouse gas emissions, South Korea in January started the world's second-biggest carbon emission market that imposes caps on emissions from 525 of the country's biggest companies.

But trading has been slow to pick up with industry participants urging the government to review its carbon emission reduction target for 2020 while also complaining of higher costs, saying permits handed out were less than what had been requested.

SOUTH AMERICA

75. Scania Signs Order for Natural Gas Buses in Cartagena

The Colombian city of Cartagena will use 147 Scania Euro VI natural gas buses on its new transport system as part of Scania's largest deal to date on Euro VI natural gas technology in South America. Cartagena has selected Scania as the exclusive provider for two trunk lines for the city's brand new Bus Rapid Transport (BRT) system, called Transcaribe. Scania will provide 147 Euro VI natural gas buses to the city as well as service and maintenance contracts. With these buses, Cartagena will become the first city in Colombia to use natural gas for urban transport.

Various companies have been chosen to operate the new BRT, including Sotramac and Transambiental. All the buses will utilize the Scania Fleet Management system which provides real time data from the vehicles on matters such as fuel-consumption, routes, service needs and driver behavior. Scania will be responsible for providing both operators with the buses as well as ongoing maintenance of the vehicles. The first gas buses will begin operating on Cartagena's BRT in the second half of 2015.

Heavy-duty engine emission standards in Colombia are set at Euro IV and Euro IV diesel fuel with 50 ppm sulfur has been available since 2013. Municipal governments in Columbia have the ability to require stricter emission standards for some buses used for public transportation in their jurisdictions.

76. Chile Declares Environmental Emergency in Capital, Santiago, Over Air Quality

Chilean authorities decreed the first environmental emergency in Santiago in more than 16 years on June 22nd as levels of breathable particulate material reached critical levels in parts of the city. To improve air quality, the head of the capital's regional government, Claudio Orrego, banned the use of wood stoves, ordered the closure of about 1,000 fixed sources of emissions, and removed from the roads 40 percent of vehicles with catalytic converters and 80 percent of those without, while reserving four key road arteries for public transport only.

"This is an extraordinary measure which reflects to the poor air quality, which put at risk the health of children and old people," he said.

The emergency action marks the first time authorities have declared an emergency over fine particulate matter (PM-2.5), which was incorporated into Chile's air quality system only last year. Orrego blamed the poor air quality on the lack of rains during this, its winter season, that he said

normally clean the atmosphere. Santiago is experiencing its driest June in more than 40 years, he said.

Orrego said the government is working on new air pollution plans for the Chilean capital that would meet the country's higher environmental standards. One step could be to encourage drivers to switch to electric and gas-powered vehicles.

77. U.S., Brazil Announce New Climate Initiatives; Seek Momentum before Paris Talks

President Barack Obama and Brazilian President Dilma Rousseff committed to get 20 percent of each nation's electricity in 2030 from non-hydropower renewable sources in an effort to build momentum for an international agreement on climate change later this year in Paris.

Brazil also committed to restore 12 million hectares of forests—an area approximately the size of Pennsylvania—and eliminate illegal deforestation by 2030, as the presidents released a joint statement June 30 vowing to pursue an “ambitious” climate accord. The actions are “new and significant,” senior White House advisers said.

“This is a big deal,” Brian Deese, senior adviser to the president on climate issues, told reporters June 30. “For the United States, it will require tripling the amount of renewable energy on our electricity grid. For Brazil, it will require more than doubling.”

The announcement, made while Rousseff visited the U.S., notably did not include a formal climate pledge, known as an Intended Nationally Determined Contribution (INDCs), from Brazil to address greenhouse gas emissions. The statement, however, said the nation of more than 200 million planned to put forth a “fair and ambitious” climate pledge that “represents its highest possible effort beyond its current actions.”

Obama and Rousseff's statement came on the same day as China formally pledged to cut the carbon intensity of its economy 60 percent to 65 percent from 2005 levels by 2030. The U.S. has previously pledged to cut greenhouse gases by 26 percent to 28 percent by 2025 from 2005 levels.

Deese said he had not seen China's pledge, but said the administration will continue to “encourage more nations to implement more ambitious measures to cut global emissions” through the Paris talks. The agreement with Brazil is the latest in a series of bilateral agreements with major emitters brokered by Obama, as he seeks to boost the chances of reaching a major international agreement later in 2015.

During a press conference, Obama said the new commitments from Brazil, as well as previous progress with China and India, showed the world's major emitters could come together and reach an agreement in Paris later in 2015.

“Following progress during my trips to China and India, this [announcement] shows that the world's major economies can begin to transcend some of the old divides and work together to confront the common challenge that we face, something that we have to work on for future generations,” Obama said. “I'm confident that this will lead to a strong outcome in Paris.”

The joint statement said key components of an ambitious global agreement would include strong and credible transparency to evaluate progress countries make toward pledges, regular updating

by countries to promote greater ambition over time and “periodic stocktaking” to evaluate the overall effectiveness of the agreement.

In addition, Obama and Rousseff said they would pursue an agreement using the principle of “common but differentiated responsibilities and respective capabilities” to distinguish between developed and developing nations.

Some major emitters, including China, have expressed significant reservations about international supervision of progress toward climate goals. Deese said U.S. negotiators continue to have “constructive conversations” about that point. He also said Brazil and the U.S. have “shared recognition of the value of having that type of mechanism and a shared commitment to keep working toward that.”

The progress by the Western Hemisphere's two biggest countries comes as top United Nations and other officials expressed concern June 29 that more than 190 nations are not negotiating with enough urgency toward a final climate accord.

Deese called the commitments on energy from both nations to ramp up their renewable energy usage an ambitious but achievable objective. “We believe that this is an ambitious target, but it's one that's actually achievable in a way that will actually create new, low-cost opportunities for the American economy,” he said. “But to achieve it, we're going to have to continue to hit our marks in implementing the regulations that we've identified to date and providing those long-term incentives.”

No new laws or regulations will be needed to achieve those renewable energy goals beyond efforts already announced by the Obama administration, according to Deese. Instead, the administration believes implementing regulatory efforts like the Environmental Protection Agency's carbon pollution limits for power plants and private sector forces will allow the U.S. to meet the renewable energy goals.

In addition, both nations agreed to form a high-level working group on climate change “aimed at enhancing bilateral cooperation on issues relating to land use, clean energy and adaptation, as well as policy dialogues on domestic and international climate issues.”

Obama and Rousseff also agreed to work multilaterally through the Montreal Protocol to consider proposals to phase out the use of hydrofluorocarbons (HFCs). Though HFCs, commonly used as refrigerants, are not ozone-depleting, they have a global-warming potential between 140 and 11,700 times that of carbon dioxide. The European Union has proposed that industrialized countries cut their average HFC production/consumption by 2035 to 15 percent from 2009 baseline levels.

MIDDLE EAST

78. Israel's Comptroller Slams Environment Ministry on Industrial Air Pollution

The Environmental Protection Ministry has failed to monitor or address industrial air pollution even though it has the legislative means to do so, Israel's State Comptroller Yosef Shapira charged in his 2015 annual report. The report examined industrial compliance with air pollution standards across Israel, including in the Haifa Bay area, home to Israel's largest port and petrochemical industries. Its findings, released on May 5th, follow claims of government inaction by environmental groups and local residents.

Shapira criticized the ministry for failing to update air pollution regulations or complete the process of classifying factories according to their polluting potential. By the audit's conclusion in October 2014, almost four years after the 2011 Clean Air Law took effect in Israel, the ministry had yet to seek Knesset approval for new air pollution prevention regulations, as the law envisioned, the comptroller said.

In addition, no punitive steps were taken against factories that failed to submit their own emission samples, the report noted. "Thus, the Environmental Protection Ministry's ability to maintain proper control over periodic samplings of local emissions of pollution caused by factories was highly impaired," Shapira wrote.

The ministry should "act to correct the deficiencies" noted in the report, "streamline its supervisory system, and, optimally, use the enforcement measures granted to it against violators of the law and its provisions—and the sooner the better," Shapira wrote.

The ministry said it had prepared a National Program to Prevent Air Pollution at a cost of 680 million shekels (\$176 million), but that the Treasury provided only 140 million shekels for its implementation. The report demonstrates "where cutback policies in the struggle against air pollution are leading, "the ministry said, charging that environmental budget cuts were "endangering the lives of thousands of Israelis."

Nevertheless, the ministry said it has succeeded in reducing industrial pollution "by dozens of percentage points," including a 70 percent reduction in industrial pollution in the Haifa Bay area.

79. Israel Environment Ministry Releases Plan for Haifa Bay Cleanup Efforts

Israel's Environment Ministry released the main points of a plan to combat air pollution and other environmental risks in the Haifa Bay area, just two weeks after it convened a task force to examine the issue. Haifa Mayor Yona Yahav welcomed the ministry's stepped up efforts, but stressed that adherence to strict timetables and coordination among relevant ministries will be crucial moving forward.

The task force said it also will formulate a comprehensive bill on the subject for government approval.

The plan, announced June 14, includes stricter factory emission standards aimed at reducing the use of highly polluting fuels, and programs encouraging the use of cleaner fuels, such as natural gas. It also includes a ban on new diesel-operating engines and installation of particle filters on existing diesel vehicles and calls for removing a controversial ammonia storage tank from the area and conducting more spot checks of industrial smokestacks.

Israel's northern port city saw anti-business protests in April after reports linked a high rate of cancer, especially among children, to local air pollution levels. "The situation in the Haifa Bay must change," Environmental Protection Minister Avi Gabbay said. "The hundreds of thousands of citizens of the Haifa metropolitan region have a right to quality air and quality life. The ideas in the work plan, through cooperation among all the parties, will bring about a significant change."

The plan will be implemented by the Environmental Protection Ministry, the Haifa municipality and the Haifa District Municipal Association for Environmental Protection.

AFRICA

80. BMW, Nissan to Expand Green Cars Plug-In Network in South Africa

The South African units of BMW and Nissan will build a national grid for electric and hybrid cars to expand sales of vehicles that could reduce pollution in Africa's top auto market. The two companies will roll out fast-charging stations from now until 2017 which BMW and Nissan cars can use to power up. Nissan introduced its all-electric Leaf in South Africa in 2013, while BMW launched its i3 and i8 models in March.

Consumers would charge all-electric cars such as Nissan's Leaf by plugging into an outlet, while hybrid versions such as BMW's i8, also has a gasoline engine.

The firms said although South Africa is experiencing severe power supply shortages, their plans would not be affected. State-owned power utility Eskom has been forced to frequently curtail electricity to residents and businesses in a bid to preserve the national power grid. "It is not expected that the country's power crisis will affect this initiative in any way. The companies are also exploring renewable energy sources to power their charging grid," said Nissan spokeswoman, Veralda Schmidt.

Battery-powered cars have failed to live up to their initial hype globally, with drivers put off by the slow roll out of recharging stations, and limited range - despite generous sales incentives in some markets. Because the batteries, cabling and cooling systems for electric cars cost more than a conventional combustion engine, electric vehicles have struggled to gain widespread acceptance among price-sensitive customers, particularly if the same model is available cheaper with a more conventional powertrain.

Some electric cars require lengthy charging, reducing their attractiveness for customers planning to drive longer distances frequently.

BMW and Nissan said their national network of stations where vehicles can charge their batteries will also include smaller vehicle chargers using alternating current in some regions.

"In order for the introduction and expansion of electric vehicles as well as plug-in hybrid electric vehicles to be successful in this market, we need to work together," Tim Abbott, managing director of BMW South Africa said in a statement.

81. Energy Report Says Most Africans Live Without Regular Source of Electricity

More than 60 percent of the people in Africa lack reliable sources of electricity, many are still burning wood or dung for fuel, and the prospects for changing that differ markedly by country, the African Development Bank said in a recent report. While the north has an abundance of oil, sub-Saharan Africa is facing major challenges with its heavy dependence on traditional biomass, very limited access to modern energy and rapid urbanization, according to the report released in May.

Even those African households with electricity often continue to use wood or dung for cooking because of the high price of appliances and the lack of reliable and affordable power, it said. Across sub-Saharan Africa, the rural electrification rates are said to be just 10 percent.

The report estimated that reliance on traditional stoves or open fires causes indoor air pollution that in 2013 accounted for some 600,000 deaths in Africa.

Landlocked countries on the continent are experiencing delays in receiving imported energy and are hampered by inadequate reserves. They are heavily reliant on imported oil and have seen the cost of energy supply soar, the report said.

Even South Africa is struggling to keep the lights on and has instituted a “load-shedding” system of planned cutoffs throughout the country, expected to be in place for the next two years.

But there is also a lot of untapped potential, according to the bank. “Energy is also a field of opportunity for Africa,” said Solomon Asamoah, a vice president in charge of infrastructure at African Development Bank. “The continent has significant share of the world's renewable energy sources, of which only a fraction is under development. Africa has the potential to leapfrog over carbon-intensive technologies and meet most of its future energy needs from renewable sources, putting it firmly on the path to green and inclusive growth.”

But such changes won't come cheaply. Overcoming Africa's energy deficits would require investments of more than \$60 billion a year until 2040, said Asamoah. “As this amount is far beyond the capacity of any single institution, we are working to leverage other sources of finance and establish strategic partnerships with other development partners,” he added.

Jacob Maroga, former chief executive officer of South Africa's troubled state power utility Eskom, said challenges differ by country on the continent. “Access to electricity is a problem on the continent. It does not seem as if there is a shortage of funds to deal with the issues, but whether there is enough capacity and the legislative environment to enable development,” said Maroga.

GENERAL

82. New Study Links Weather Extremes to Global Warming

The moderate global warming that has already occurred as a result of human emissions has quadrupled the frequency of certain heat extremes since the Industrial Revolution, scientists have reported, and they warned that a failure to bring greenhouse gases under control could eventually lead to a 62-fold increase in such heat blasts.

The planetary warming has had a more moderate effect on intense rainstorms, the scientists said, driving up their frequency by 22 percent since the 19th century. Yet such heavy rains could more than double later this century if emissions continue at a high level, they said.

“People can argue that we had these kinds of extremes well before human influence on the climate — we had them centuries ago,” said Erich M. Fischer, lead author of a study published recently by the journal *Nature Climate Change*. “And that’s correct. But the odds have changed, and we get more of them.”

The study by Dr. Fischer and his colleague Reto Knutti, of the Swiss Federal Institute of Technology in Zurich, is not the first to attribute large-scale changes in extreme weather to human influence on the climate. But it is among the first to forecast, on a global scale, how those extremes might change with continued global warming. The question is important because while a gradual increase in average temperatures can have profound ecological consequences, it is weather extremes that have the greatest effect on human society. A 1995 heat wave in Chicago killed hundreds of people, and a 2003 heat wave in Europe killed an estimated 70,000.

Scientists believe both were made more likely by the human emissions that are warming the planet, and heat on that scale will become commonplace if emissions are allowed to continue unabated. For now, though, such heat extremes — Chicago temperatures were near or above 100 degrees for four days running that July — are still rare, which makes them difficult to study in a statistical sense.

For their paper, Dr. Fischer and Dr. Knutti focused on more common heat and precipitation extremes. Using computer analyses of what the climate would be like if the Industrial Revolution had never happened, they focused on the sort of weather extremes that would be likely to occur in any given location on the earth about once in 1,000 days, or a little less than three years.

What constitutes a one-in-1,000-day extreme varies from place to place; after all, a hot day in North Dakota might seem pretty routine in Texas. But such extremes can be damaging wherever they occur — especially hot days, which can cut farm yields and drive up food prices.

Since the 19th century, the earth has warmed by about 1.5 degrees Fahrenheit. Computer models suggest that has driven up heat extremes four- to fivefold, according to the new study. If global warming can be brought under control as rapidly as many environmental activists would like, keeping global warming below three degrees Fahrenheit, the new study found that heat extremes might increase only 14-fold later this century, compared with their frequency in the preindustrial world.

But runaway emissions, causing the planet to warm by more than five degrees Fahrenheit, would lead to a 62-fold increase in heat extremes, the researchers found. Other studies have forecast levels of heat and humidity by late this century that could make it dangerous for people to work and play outside, possibly for weeks on end.

While it might seem obvious that global warming would lead to more heat extremes, changes in heavy precipitation can seem less intuitive. Yet scientists predicted them decades ago, based on the principle that warmer air can take up more moisture from the surface of the ocean. The increase is leading to heavier rainstorms across large parts of the United States, with the biggest effect in the Northeast, previous research found. At the same time, higher temperatures are drying out the soil and worsening the effects of droughts when they do occur, as in California over the last few years.

“The bottom line is that things are not that complicated,” Dr. Knutti said. “You make the world a degree or two warmer, and there will be more hot days. There will be more moisture in the atmosphere, so that must come down somewhere.”

Myles R. Allen, a climate scientist at the University of Oxford who was not involved in the new paper, said in an interview that “the method they use to add up risk on a global scale is spot on.” While previous research focused on particular disasters like the European heat wave, he added, the new approach does a better job of capturing the influence of greenhouse gases on more common types of weather extremes. “We keep asking people to do something about climate change,” Dr. Allen said. “They deserve to know what climate change is doing to them.”

83. CCAC High-Level Assembly Endorses Framework for Five-Year Strategic Plan

The sixth High-Level Assembly of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC) has initiated the development of a detailed implementing and planning instrument, the 'CCAC Five-Year Strategic Plan.' The Assembly endorsed a framework for the

Plan with a view to launching it at the next High-Level Assembly, which will be held on the margins of the Paris Climate Change Conference in December 2015.

Jane Nishida, Co-Chair for the CCAC Task Force on the Plan, described the elements of the framework, emphasizing the need for: a strategic focus on policies, regulations and practices of partners and stakeholders to deliver substantial short-lived climate pollutant (SLCP) reductions in the near- and medium-term; using peer-to-peer cooperation to catalyze ambitious action and CCAC participation in key forums and increasing visibility of SLCPs in the media to mobilize support; and leveraging finance at scale by working with national development agencies and development banks to mainstream SLCPs into development planning and connecting project proponents and financiers to demonstrate that SLCP projects are bankable. In endorsing the framework, the Assembly also agreed the implementation plan would include methods for demonstrating impact.

At the opening of the Assembly, UN Secretary-General Ban Ki-moon and Maria Neira, Director, Public Health and Environment, World Health Organization (WHO), highlighted linkages between CCAC's work and climate change and public health. Ban emphasized the important contribution CCAC can make toward the anticipated 2015 global climate change agreement, noting the practical solutions CCAC has advanced. Neira stressed that an estimated 4.3 million deaths are caused by indoor air pollution and 3.7 million are attributed to outdoor air pollution annually. The Assembly took place on the margins of the World Health Assembly, which Neira highlighted is anticipated to adopt a resolution on air quality and health.

During a discussion on the Lima-Paris Action Agenda and the "Road to Paris" strategy prepared by the CCAC Working Group, delegates discussed concrete actions that individual partners, as well as the Coalition, are taking to engage in the international community's efforts against climate change. A number of objectives for CCAC's participation in the Paris Climate Change Conference were named, including: launching the Five-Year Strategic Plan; ensuring every COP 21 participant leaves with a better understanding of SLCPs; demonstrating commitment to increasing pre-2020 ambition by showcasing results; increasing engagement of key countries and private sector actors through targeted outreach; and encouraging countries to include SLCPs in their intended nationally determined contributions (INDCs) and statements.

The Assembly also heard updates from partners on their progress mitigating SLCPs. The Black Carbon Finance Study Group launched the 'Black Carbon Finance Study Group Report 2015,' which outlines strategies to increase funding for black carbon reduction. (See below) Delegates also welcomed the Philippines as CCAC's 104th partner during the meeting. The sixth High-Level Assembly of the CCAC took place on 20 May 2015, in Geneva, Switzerland.

84. New Report Outlines Strategies to Increase Funding for Black Carbon Reduction

Reducing black carbon emissions could prevent millions of premature deaths annually and play an important role in the global fight against climate change. Yet despite these benefits, an array of black carbon abatement measures that are technically within reach have not yet been financed and deployed to their full potential.

A report released by the Climate and Clean Air Coalition (CCAC) finds that existing funds are already in a position to finance businesses, activities, technologies, and policies that will contribute to cutting black carbon emissions, and that several black carbon-rich sectors are sufficiently mature to absorb finance. The report also outlines key strategies and steps needed to

scale up black carbon finance over time. The work was led by the World Bank Group, a co-leader of CCAC's Finance Initiative.

At the launch of the 'Black Carbon Finance Study Group Report' Christian Grossman, Director of the World Bank's Climate Business Department, Climate Change Group, said the rapid implementation of measures to reduce black carbon in a range of sectors would deliver multiple benefits and near term results in health, climate and other areas. "We need to urgently find ways to reduce emissions of black carbon and other short-lived climate pollutants on a wide scale," Mr. Grossman said. "Public and private financiers can and need to adopt black carbon performance measurements to direct new and existing financial flows toward technology that can lower these emissions."

"This shift can start today in sectors like municipal transport and residential clean cooking spaces where investment already exists and performance management tools are nearly or already in place. We should also increase our efforts to strengthen these tools in other sectors to create an environment where finance for black carbon can be made available on a much wider scale."

Helena Molin Valdes, Head of the Climate and Clean Air Coalition Secretariat, welcomed the report and said Coalition partners were active in numerous black carbon mitigation initiatives across multiple sectors.

The report recommends funding the development of black carbon performance standards so that investors can screen potential projects to ensure that activities are reducing emissions and achieving climate and health benefits. However, practical steps can be taken immediately in the diesel transportation and residential cooking sectors.

According to the World Health Organization indoor air pollution, of which cooking is leading contributor, causes approximately 4.3 million premature deaths a year. Programs to improve cookstoves are underway in many parts of the world. Mrs. Bahijjatu Abubakar National Coordinator, Renewable Energy Programme, at the Federal Ministry of Environment, Nigeria, says that their cookstove program has created a range of benefits in her country.

In the transportation sector, the suggestion is for development finance institutions to use concessional loans and grants to incentivize diesel vehicle owners to transition to lower-soot or soot-free engines. Results-based finance instruments can be used to incentivize the adoption and continued maintenance of diesel abatement technology. In practice, funds could flow through designated national authorities to municipalities, private fleet owners, and other beneficiaries.

The report also identified four additional black carbon-rich sectors that offer strong potential for impact and action in the near to medium term. These include: Brick kiln efficiency and the adoption of alternative materials, replacing kerosene lanterns, adopting alternative of agricultural residues to avert burning, and reducing emissions from oil and gas flaring.

Over the longer term the report recommends cross-cutting strategies like including black carbon in development finance investment decision making. Such a step could see development banks offer sovereign borrowers more concessional loan terms if they choose to follow a low carbon pathway, or offer loans and grants to finance transformation of a particular sector.

Black carbon is a byproduct of burning diesel, coal, firewood, and crop residue and its negative impacts are both fast-acting and extensive. Black carbon particles absorb light and re-radiate it as heat in the atmosphere and act much more intensely than carbon dioxide albeit for a much

shorter time. Recent studies show that black carbon may be responsible for close to 20% of the planet's warming, making it the second highest contributor to climate change after carbon dioxide.

Black carbon is also a component of fine particulate matter (PM 2.5). Exposure to fine particulate pollution has a significant impact on human health. Indoor and outdoor air pollution causes close to 7 million premature deaths a year. Tens of millions more suffer from related, preventable diseases, including cardiovascular diseases, pneumonia, stroke, lung cancer, and chronic obstructive pulmonary disease.

85. Arctic Sea Ice Reaches Its Record Low Winter Maximum

Arctic sea ice this year is the smallest in winter since satellite records began in 1979, in a new sign of long-term climate change, U.S. data showed. The ice floating on the Arctic Ocean around the North Pole reached its maximum annual extent of just 14.54 million square kms on Feb. 25 – slightly bigger than Canada – and is now expected to shrink with a spring thaw. The ice was 1.1 million sq. kms smaller than the 1981-2010 average, and below the previous lowest maximum in 2011. With the return of the sun to the Arctic after months of winter darkness, the ice shrinks to a minimum in September.

The U.N. panel of climate scientists links the long-term shrinkage of the ice, by 3.8 percent a decade since 1979, to global warming and says Arctic summertime sea ice could vanish in the second half of the century.

The U.N.'s World Meteorological Organization says 2014 was the warmest year since records began in the 19th century. Almost 200 nations have agreed to work out a deal in December in Paris to slow global warming.

86. Pope's Climate Change Aide Urges Business to Favor Planet over Profit

Pope Francis' top aide on climate change urged businesses not to let the pursuit of profit get in the way of protecting the planet. The remarks came as the Vatican is due to release a papal encyclical, or formal letter, on the issue. Cardinal Peter Turkson, who helped draft the encyclical, said the paper would be presented in the second half of June, two months before the pope is due to address the U.S. Congress and a United Nations meeting on sustainable development.

"Our lives must become more sustainable," Turkson told a conference on economic growth and sustainability organized by the Vatican and the Netherlands. "This is not just about business and profits." Turkson said business had a responsibility to produce "goods that are good and services that truly serve... and provide a benefit for others and not just for themselves." He cited the United States, where now "there are more jobs in solar energy than in the coal sector."

Pope Francis has said he believes man is primarily responsible for climate change. Though previous pontiffs have addressed environmental issues, the encyclical is expected to be the most thorough papal teaching yet on links between economic development, poverty reduction and environmental protection. The pope hopes the encyclical will influence world leaders to enact sweeping climate change policies at a summit in December.

The Vatican's recent warnings against climate change have been criticized by some who say the pontiff risks confusing people by making it seem that climate change is part of Catholic faith. They say the pontiff should not wade into highly-politicized scientific debates.

Turkson defended the pope's activity. He said the point was not politics, which was a reality of everyday life. "The issue is how much people are aware of scientific data that the climate is changing."

87. World's Energy Giants Responsible For 31% Of CO2

A third of annual greenhouse gas emissions globally were caused by just 32 energy companies, including France's Total, Royal Dutch Shell and Germany's RWE, a new study has shown. The data compiled by Thomson Reuters and BSD Consulting included both greenhouse gases emitted directly by the companies and those resulting from the use of their products.

Other Europe-based companies on the list, a key subset of the world's largest publically traded businesses, include Spain's Repsol, Italy's Eni and the UK's BP.

The greenhouse gas emissions from the companies and use of their products increased by 1.3% in the period 2010-2013, the report said. By contrast, they should have been decreasing by 1.4% per year to avoid dangerous climate change in line with the recommendations of the UN Environment Program's emissions gap report.

"If we are to balance our needs for energy with our harmful effects on our environment and subsequent generations, it is critically important for energy consumers and producers alike to reduce total fossil fuel consumption, particularly in its most carbon intensive forms," said John Moorhead of BSD Consulting, co-author of the report.

The report comes ahead of the next round of UN climate talks in Bonn next month where negotiators will attempt to narrow down the options for inclusion in a new climate deal to be agreed in Paris in December.

88. International Maritime Organization Adopts Polar Code's Environmental Provisions

The International Maritime Organization has adopted the environmental provisions of the Polar Code that will require new ships operating in Arctic and Antarctic waters to follow strict pollution-prevention rules beginning in 2017, the United Nations agency said on May 18th. The IMO said newly adopted environmental provisions will apply to ships built after Jan. 1, 2017. The Polar Code will ban discharge of oil or oily mixtures, noxious liquid substances, and sewage and will restrict discharge of garbage into polar waters.

Simon Walmsley, marine manager at the environmental activist group World Wildlife Fund UK, told reporters that the provisions "don't go far enough." He said, "Protective measures to restrict carriage and phase out" the use of heavy fuel oil, which he called "the biggest threat to polar waters," were omitted from the code.

The IMO's Marine Environmental Protection Committee also announced after a week of meetings that it has made progress on the system ships operating worldwide should use to report their individual carbon dioxide emissions. International shipping emitted 796 million metric tons of carbon dioxide in 2012, 2.2 percent of the world's total carbon dioxide, according to IMO statistics.

The organization said Marine Environmental Protection Committee members provisionally agreed that ships of more than 5,000 gross tons should include in an annual carbon dioxide data

collection system details such as ship identification number, technical characteristics, and total annual fuel consumption by fuel type and in metric tons.

The shipping industry and environmentalists have called for the creation of a global system of monitoring, reporting and verifying emissions from ships.

The London-based International Chamber of Shipping, which represents more than 80 percent of the world's merchant fleet, said it was "pleased" that "commercially sensitive data about individual ships" would not be included in the proposed data collection system. By contrast, the European Commission has included commercial data in its separate reporting requirements that it plans to introduce beginning in 2018.

In addition, the committee inched closer to putting into force rules that would require ships to treat and manage ballast water to minimize damage caused by aquatic invasive species. The action came during the IMO's 68th meeting, which ended May 15th in London. The Marine Environmental Protection Committee provisionally agreed that ships that have "first-generation" ballast water management systems that follow the current IMO guidelines would not be penalized once tougher requirements are in place.

Stricter rules on how ships treat and manage ballast water to kill off aquatic organisms and pathogens that can cause damage when released into a non-native environment, could come into force once the so-called Ballast Water Convention is ratified by at least 30 countries that collectively represent 35 percent of the world's merchant shipping tonnage.

The IMO said 44 countries have ratified the convention and they account for 32.8 percent of the global merchant shipping tonnage.

The committee said it considered a call from the Marshall Islands—the world's third biggest shipping registry—to reduce emissions from international shipping, but decided to postpone debate to a future session. "We are in for a very slow process that amounts to, too little too late for small-island developing states," said Walmsley, noting that the low-lying Marshall Islands face direct damage from rising sea levels caused by global warming.

The committee adopted a resolution to extend the special protection-known as a Particularly Sensitive Sea Area (PSSA) in place for the eastern limit of the Great Barrier Reef and Torres Strait, to include the southwest part of the Coral Sea, part of Australia's Coral Sea Commonwealth Marine Reserve, a remote ocean ecosystem that provides refuge for a range of threatened, migratory and commercially valuable species.

89. U.N. Climate Chief Says Governments Certain To Seal Paris Climate Deal

Governments are certain to sign a global climate deal in Paris in six months' time even though most countries have yet to outline how they plan to cut emissions, the United Nations' climate chief said recently. Almost 200 governments are due to meet at a conference in Paris from Nov. 30 to Dec. 11 to agree on a deal to slow global warming. "Governments are actually very well on track...there is no doubt that this agreement will be forged in Paris," Christiana Figueres, head of the U.N. climate change secretariat, said in an interview at a carbon market event in Barcelona.

Figueres' comments come just a week after French President Francois Hollande said he was worried about a lack of progress towards a climate deal in the French capital. So far, just 37 of

196 U.N. member states have submitted plans to the United Nations, outlining their actions to slow global warming beyond 2020.

The plans, known as Intended Nationally Determined Contributions (INDCs) in U.N. jargon, are meant to be the building blocks for a deal in Paris. We expect many more critical ones to come in over the next few weeks and months and then we expect another large crop of INDCs to be coming in the third quarter (ahead of Paris)," Figueres said.

A draft negotiating text to work towards the Paris deal was agreed in February but Figueres said negotiators would, at the U.N. climate meeting starting next week in Bonn, trim down the 86-page document to a more manageable size. "We will first look through the duplications and how can the ideas and the solutions in the text be crystallized - expect a much more manageable product to emerge at the end of June," she said.

The United Nations was confident of a deal up to the last moment in 2009, when a summit in Copenhagen collapsed because of objections from a handful of countries that rich nations were failing to promise deep cuts in emissions.

90. IMF Says Energy Subsidized By \$5.3 Trillion Worldwide

Governments around the world charge prices for energy that do not account for its harmful environmental, health and other side effects, amounting to a \$5.3 trillion "post-tax" subsidy this year, the International Monetary Fund said in a new report.

The IMF said China in particular failed to charge its more than 1 billion consumers for the pollution that comes from heavy use of fossil fuels, adding up to a \$2.3 trillion subsidy this year. The United States was the second-biggest offender, with an estimated \$699 billion subsidy, followed by Russia, the European Union, India and Japan.

The report comes as almost 200 nations are trying to work out a deal to combat global warming ahead of a summit in Paris in December. Getting rid of fossil fuel subsidies and setting policies to price carbon pollution are seen as key international measures that would help keep temperatures from rising.

The IMF has long urged governments to get rid of "pretax subsidies" that allow firms and households to buy coal, gasoline or other fuel sources below their cost of supply. Many governments, including Egypt, India, Indonesia and Jordan, have recently raised domestic prices to match those internationally, said the Washington-based institution charged with policing global economic and financial stability.

But the Fund said it had turned its focus to the post-tax subsidies that mean prices fail to reflect costs like unfair tax advantages and deaths from pollution.

In its last study on the subject in 2013, the IMF estimated these post-tax subsidies amounted to \$2 trillion in 2011, or 2.9 percent of the world's gross domestic product.

With new data about the extent of environmental damage, the IMF says these subsidies totaled \$4.9 trillion in 2013 and should rise to \$5.3 trillion this year, or 6.5 percent of global GDP. "The fiscal implications are mammoth: At \$5.3 trillion, energy subsidies exceed the estimated public health spending for the entire globe," IMF economists Benedict Clements and Vitor Gaspar wrote in a blog post accompanying the report.

The IMF said about three-quarters of the damages from energy affect domestic consumers, meaning it is in countries' own interests to get rid of these subsidies.

91. World Health Assembly Tackles Air Pollution

The World Health Assembly approved the first international resolution aimed at combatting air pollution among the 194 member states of the World Health Organization (WHO) on May 26th. Eight million deaths globally are attributed to air pollution annually, a number that is only increasing, says Dr. Maria Neira, director of the WHO's Public Health and the Environment Department. "Air pollution represents, today, if not the biggest, then one of the biggest health challenges that we have in front of us, and we are very much committed in WHO to take all the action needed."

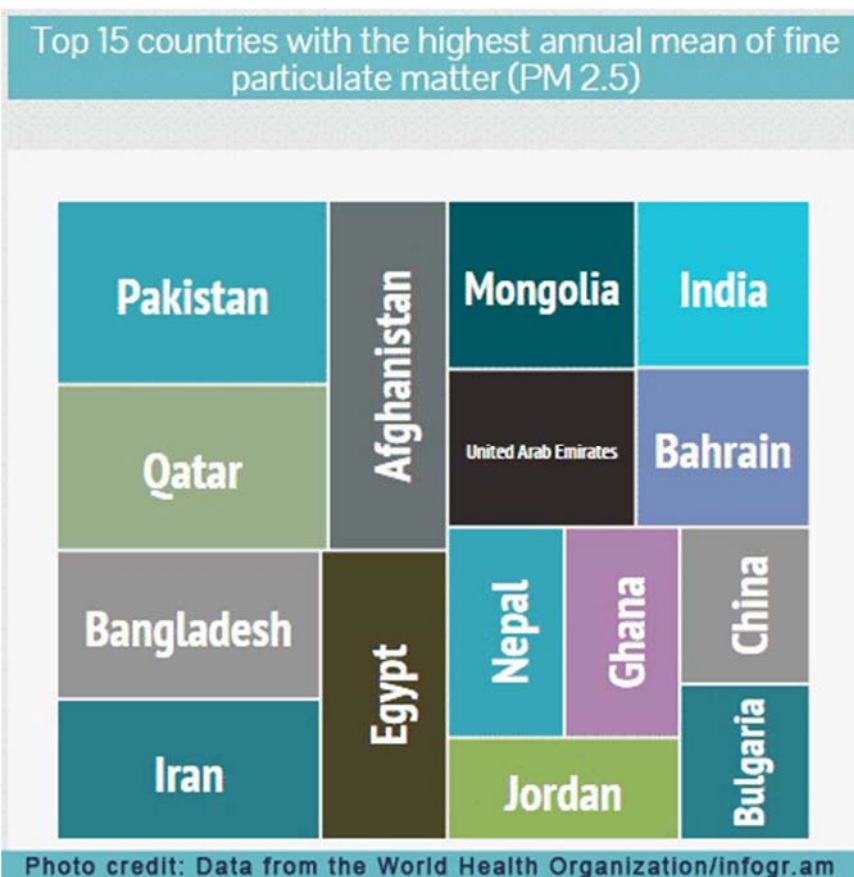
Much of that action will focus on high levels of fine particulate matter that comes from burning fossil fuels, mainly in motor vehicles, but also in factories and power plants. When inhaled, fine

particulate matter is small enough to enter the bloodstream through the lung's alveoli. Of deaths due to outdoor air pollution, 80% are attributed to heart disease and stroke, and 20% to respiratory illnesses and cancers, according to a document released by the WHO on April 10th.

The WHO guideline for fine particulate matter, which was set a decade ago, is a mean of 10 µg/m³ annually. However, low-income countries are nowhere near meeting these standards.

The top 15 countries with the highest annual mean of fine particulate matter (PM 2.5)

About two decades ago, high-income countries,



including Canada and the United States, noted the effect industrialization had on air quality and began looking for better ways to continue to develop economically, without putting the population's health at risk.

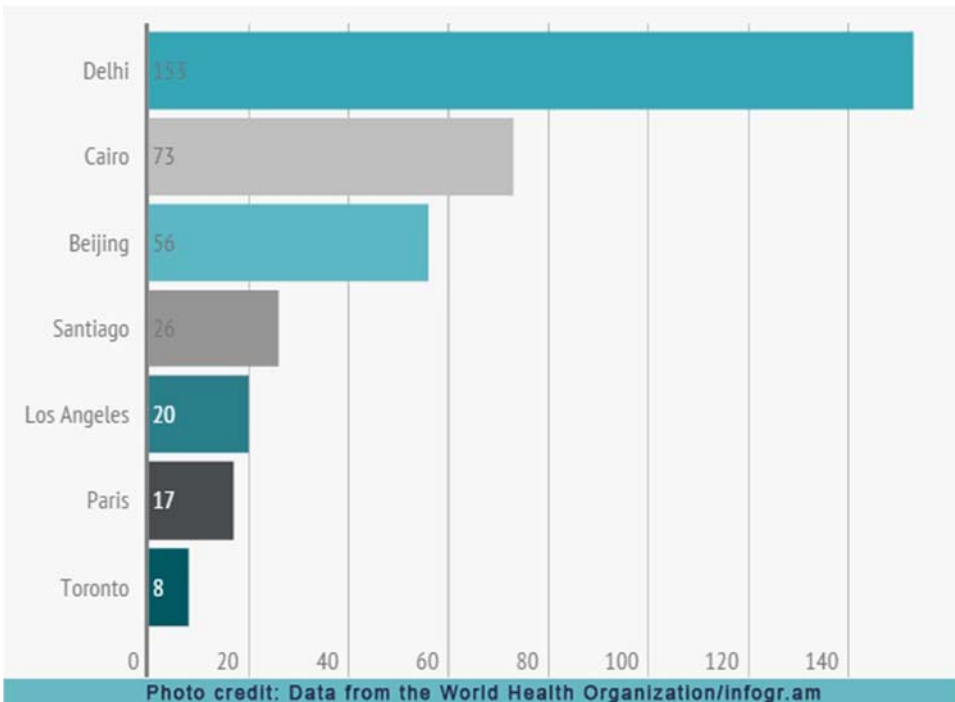
In Ontario, levels of fine particulate matter have dropped 30% since 2004, according to the province's annual air quality report. One of the main reasons for this decline was the closure of coal-fueled electrical generation plants in favor of alternative sources, such as nuclear power and natural gas.

Recently, China "declared war" on air pollution, and in India, Prime Minister Narendra Modi launched the country's first air-quality index in April. These two countries have some of the highest levels of air pollution in the world.

According to the WHO, Delhi is the most polluted city in the world, with an annual mean of fine particulate matter of 153 µg/m³; by comparison, Toronto levels hover around 8 µg/m³.

The World Health Assembly's resolution was prepared by a number of countries, including Chile, Colombia, France, Norway, Ukraine, the US and Zambia.

The resolution highlights strategies such as better policies to promote cleaner public transit and



clean-energy sources, like solar and wind power, and reducing emissions of carbon dioxide, methane and black carbon. The resolution calls for health ministers to take a larger role in the environment debate.

Comparing air quality in cities by their annual mean of fine particulate matter (PM 2.5)

"We expect member states to agree on doing more data collecting and more monitoring of the trends of how air pollution is impacting the health of the population," Neira says.

At the May 18–26 assembly in Geneva, Switzerland, Marcelo Mena-Carrasco, Chile's vice-minister of environment, said he is pushing for environment ministries to join the health community to "put a human face on climate mitigation."

At the end of 2014, Chile introduced a plan to reduce emissions by over 70% by 2025. It includes a new carbon tax on power plants geared to the amount of air pollution emitted, and a tax on new cars based on the fuel efficiency of the vehicle. Diesel car sales have already declined by 25%, said Mena-Carrasco.

"What we're trying to do is harness the market forces to make clean energy, clean vehicles, cheaper and easier to buy." Mena-Carrasco says he bikes to work every day, despite having his own chauffeur.

Member states have proposed that next year, the World Health Assembly discuss creating a road map to guide the global response to the harmful effects of air pollution on health.

92. Pope Francis Stresses Moral Dimension of Climate Change Cause

Pope Francis's much-anticipated encyclical on climate change and the environment unequivocally puts the Catholic Church in the camp of those advocating a strong response to rising temperatures. The ambitious 183-page document, released simultaneously in nine languages on June 18th, casts the debate over climate change and environmental protection in a moral light, calling for humans to better protect what Francis called “our common house” and highlighting the issue as a key part of the effort to lift the world's least fortunate citizens out of poverty.

It is too early to know the impacts the document will have. Popes have issued more than 300 encyclicals in the past three centuries and they have occasionally changed the course of church history, though sometimes that is not clear for years or decades.

But Francis is leader of the world's 1.2 billion Catholics and his words are considered to be especially influential in parts of the developing world with large Catholic populations.

Within the church, bishops around the world received the document a few days ahead of its formal release to give them time to study it and to prepare their dioceses.

But the church is far from unified on this topic and many conservative Catholics—particularly in the U.S.—have been outspoken in their opposition. Vatican officials told reporters that clergy with opposing views would be allowed to voice their opposition.

In the United Nations climate negotiations process, delegates, UN officials and environmentalists have all expressed hope that Francis's stand on the issue would cast new light on the topic and have an impact on public opinion as negotiations enter the homestretch in trying to hammer out the world's first global climate change agreement by the end of the year.

The encyclical on climate change and the environment was praised by figures ranging from UN Secretary-General Ban Ki-moon, who called it “monumental,” to U.S. President Barack Obama, who said in a statement: “As Pope Francis so eloquently stated this morning, we have a profound responsibility to protect our children, and our children's children, from the damaging impacts of climate change.”

Heading up to the release of the encyclical, Vatican officials warned not to expect a detailed analysis of the climate change debate but rather the pontiff's reflections on the moral responsibility of people to act as effective custodians of the environment.

But the document included plenty of detail, particularly in Chapter 5, “Lines of Approach & Action,” reflecting the pontiff's views on solutions to the climate crisis. “We know that technology based on the use of highly polluting fossil fuels—especially coal, but also oil, and, to a lesser degree, gas—needs to be progressively replaced without delay,” the pope wrote. He stopped short of calling for an immediate phase-out, saying it is “legitimate to choose between the lesser of two evils” until renewable energy sources are more viable.

Francis also expressed support for a carbon tax, referring to the “obligation of those who cause pollution to assume its costs,” but he opposed the use of carbon credits and offsets, which he said, “can lead to a new form of speculation, which would not help reduce the emission of polluting gases worldwide.”

Referring to negotiations to reduce climate change, Francis said large, developed countries like the U.S. should do more: “Reducing greenhouse gases requires honesty, courage and responsibility, above all on the part of those countries which are more powerful and pollute the most,” wrote Francis, an Argentine, who is the first pope from the developing world and repeatedly noted the inordinate harm to the world's poor from a changing climate.

In another section, he added that “enforceable international agreements are urgently needed, since local authorities are not always capable of effective intervention.”

The pontiff supported the development of new technologies but warned against relying on them too much in efforts to reach a solution to the climate crisis. He said rising levels of greenhouse gases were a problem of too much consumerism, and he highlighted solar energy as the renewable energy source with the greatest potential.

“Everything in the encyclical is in line with the latest science,” said Hans Joachim Schellnhuber, the founding director of the Potsdam Institute for Climate Impact Research, who was on a special panel appointed by the Vatican for the rollout of the encyclical.

Environmental lobby groups were almost universally supportive of the document, which many said could help jump-start the negotiations process ahead of the Nov. 30–Dec. 11 climate summit in Paris, where the world's first global agreement to fight climate change could be signed. “We hope that politicians and decision-makers will take the strong messages of the encyclical on board and that the outcomes of these international meetings will put the common interest first and be able to make the difference,” said Bernd Nilles, secretary general of CIDSE, a Catholic climate advocacy group.

In his statement, Obama said he was “committed to taking bold actions at home and abroad to cut carbon pollution,” and added: “As we prepare for global climate negotiations in Paris this December, it is my hope that all world leaders—and all God's children—will reflect on Pope Francis's call to come together to care for our common home.”

But in the U.S., some Republicans who have questioned the role of humans in climate change expressed concern about the encyclical. (See story above.) “I disagree with the pope's philosophy on global warming,” Sen. Jim Inhofe (R-Okla.), chairman of the Senate Environment and Public Works Committee, said in a statement. “I am concerned that his encyclical will be used by global warming alarmists to advocate for policies that will equate to the largest, most regressive tax increase in our nation's history. It's the poor that spend the largest portion of their expendable income to heat their homes, and they will be the ones to carry the heaviest burden of such onerous policies.”

93. May Has Been a Month of Extreme Weather around the World

Even for a world getting used to wild weather, May seems stuck on strange:

- Torrential downpours in Texas that have whiplashed the region from drought to flooding.
- A heat wave that has killed more than 1,800 people in India.
- Record 91-degree readings in Alaska, of all places.
- A pair of top-of-the-scale typhoons in the Northwest Pacific. And a drought taking hold in the East.

"Mother Nature keeps throwing us crazy stuff," Rutgers University climate scientist Jennifer Francis says. "It's just been one thing after another."

Jerry Meehl, an extreme-weather expert at the National Center for Atmospheric Research, points out that May is usually a pretty extreme month, with lots of tornadoes and downpours. Even so, he says, this has been "kind of unusually intense."

The word "stuck" provides one possible explanation.

Francis, Meehl and some other meteorologists say the jet stream is in a rut, not moving nasty weather along. The high-speed, constantly shifting river of air 30,000 feet above Earth normally guides storms around the globe, but sometimes splits and comes back together somewhere else.

A stuck jet stream, with a bit of a split, explains the extremes in Texas, India, Alaska and the U.S. East, but not the typhoons, Francis says.

Other possible factors contributing to May's wild weather: the periodic warming of the central Pacific known as El Nino, climate change and natural variability, scientists say.

Texas this month has received a record statewide average of 8 inches of rain and counting. Some parts of the Lone Star State and Oklahoma have gotten more than a foot and a half since May 1. The two states have gone from exceptional drought to flooding in just four weeks.

Texas state climatologist John Nielsen-Gammon attributes the heavy rainfall to an unusually southern fork in the jet stream, a stuck stationary front and El Nino, and says the downpours have probably been made slightly worse by climate change. For every degree Celsius the air is warmer, it can hold 7 percent more moisture. That, Nielsen-Gammon says, "is supplying more juice to the event."

While it is too early to connect one single event to man-made warming, scientific literature shows "that when it rains hard, it rains harder than it did 20 to 30 years ago," says University of Georgia meteorology professor Marshall Shepherd.

As bad as the Texas flooding has been, the heat wave in India has been far worse - in fact, the world's fifth-deadliest since 1900, with reports of the 100-degree-plus heat even buckling roads. And it's a consequence of the stuck jet stream, according to Francis and Weather Underground meteorology director Jeff Masters.

When climate scientists look at what caused extreme events - a complex and time-consuming process that hasn't been done yet - heat waves are the ones most definitely connected to global warming, Shepherd says.

The stuck jet stream has kept Alaska on bake, with the town of Eagle hitting 91, the earliest Alaska has had a temperature pushing past 90, Masters says.

And on the other end of the country, New York; Boston; Hartford, Connecticut; Albany, New York; Providence, Rhode Island; and Concord, New Hampshire, all have received less than an inch of rain in May and are flirting with setting monthly records for drought, he says.

El Nino is known to change the weather worldwide, often making things more extreme. This El Nino is itself weird. It was long predicted but came far later and weaker than expected. So experts dialed back their forecasts. Then El Nino got stronger quickly.

Some scientists have theorized that the jet stream has been changing in recent years because of shrinking Arctic sea ice, an idea that has not totally been accepted but is gaining ground, Shepherd says.

Katharine Hayhoe, a climate scientist at Texas Tech University, likens what's happening to a stewpot: Natural climate fluctuations such as El Nino go into it. So do jet stream meanderings, random chance, May being a transition month, and local variability. Then throw in the direct and indirect effects of climate change. "We know that the stew has an extra ingredient," Hayhoe says, referring to climate change. "That ingredient is very strong. Sometimes you add one teaspoon of the wrong ingredient and boy, it can take your head off."

94. IMO Effort to Curb Ship Fires Seen as Possible Boost to Cleaner Fuels at Sea

The International Maritime Organization's adoption of a mandatory code for ships fueled by gases or other low-flashpoint fuels—a step taken to minimize the risk of onboard fires or explosions—could incidentally promote a quicker transition to cleaner global shipping, according to an industry official.

The International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF code) recently adopted in London is aimed at the growing number of ships that are using liquefied natural gas (LNG) or other gases in lieu of conventional fuel oil or marine diesel oil, the United Nations agency said in a June 16 briefing. But shipping officials said by making LNG-fueled ships safer, the directive could indirectly boost a speedier transition away from the relatively dirty fuel oil and marine diesel fuel, which are major contributors to the greenhouse gas emissions linked to shipping.

"It does help with the future rollout of LNG as an environmentally friendly fuel for ships," said Simon Bennett, director of policy and external relations at the International Chamber of Shipping (ICS) in London.

Ships are under growing pressure to reduce emissions of sulfur oxide, which cause serious respiratory diseases, and the IMO agreed in 2008 to progressive reductions in both sulfur oxide and nitrogen oxide emissions from marine engines until 2020.

The London-based ICS comprises national ship owners' associations in Asia, Europe and the Americas whose member shipping companies operate more than 80 percent of the world's merchant tonnage.

The IMO's adoption of the IGF code came at the end of the Maritime Safety Committee's meeting in London from June 3–12 and included agreements on cybersecurity issues and new ships' routing.

The IGF code will apply to new and existing ships once the necessary amendments are made under the International Convention for the Safety of Life at Sea, which the IMO said it expected to be Jan. 1, 2017. The code contains mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing initially on LNG, the IMO said.

The measures are aimed at preventing the exposures of vapors with a flashpoint of less than 60 degrees Celsius (140 degrees Fahrenheit) to ignition, the ICS said. Flashpoint refers to the temperature at which a fuel can vaporize to form an ignitable mixture in air, according to Norway's DNV GL-Maritime, a service provider for managing risk in shipping and other industries.

The U.S., which has an abundant supply of natural gas, pushed for the adoption of the IGF code and for lowering the flashpoint, which currently is set at 60 degrees C, to 50 degrees C, to help reduce sulfur emissions, according to Bennett.

The 60-degree flashpoint remains, "although discussions about lowering it at a future point continue," IMO spokeswoman Natasha Brown said June 18.

At a June 4 meeting, the U.S. Federal Maritime Commission said, "natural gas, as a marine fuel, is strongly supported and endorsed by the Obama administration" and as this "fuel source is taking hold in the commercial U.S. domestic coastwise trade, it is now gaining traction in the inland waterway system and the international container trade."

95. Energy Subsidies at 16 Times Carbon Prices Stymie Pollution Curbs

Subsidies for fossil fuels are overwhelming efforts to curb pollution, the International Energy Agency said. Tax breaks, subsidized fuel prices and other government support amount to an incentive to pollute worth \$115 per metric ton of carbon dioxide, the agency said June 15th in its Energy and Climate Change report. That compares with an average \$7 cost to buy emission permits in carbon markets, according to the Paris-based group.

While Europe has moved to boost its emissions price and nations including India and Indonesia are cutting subsidies, countries have to make more ambitious pledges to limit heat-trapping gases, the IEA said. Fossil fuel support systems represent 13 percent of global emissions, compared with the 11 percent governed by carbon markets, according to the group.

"The price of fossil fuels are heavily subsidized around the world," Fatih Birol, IEA chief economist, said June 15th at a press conference in London. Group of 20 nations will likely reconsider curbing those incentives leading up to the Paris climate summit in December, he said.

Carbon dioxide emissions from energy use rose 0.5 percent to a record 35.5 billion tons last year, according to BP Plc data. Still, growth was the slowest since a drop in 2009, as Chinese coal consumption held steady. Under climate pledges delivered so far, the world's estimated remaining budget for curbing emissions will be consumed by about 2040, the IEA said.

That limit is consistent with a 50 percent chance of keeping the rise in temperature below 2 degrees, the agency said.

The test of success of climate talks in Paris Nov. 30–Dec. 11 will be "the conviction it conveys that governments are determined to act to the full extent necessary" to achieve the goal of keeping the rise in temperatures below 2 degrees Celsius (3.6 Fahrenheit) compared with a pre-industrial average, the IEA said.

Energy-related greenhouse gases will likely continue to rise after 2030 under a scenario that covers climate pledges made so far, said the adviser to 29 nations from the U.S. to Turkey.

Without stronger action before or after 2030, the world's path would be consistent with an average temperature increase of about 2.6 degrees by 2100 and 3.5 degrees after 2200, it said.

The global economy will likely expand by 88 percent from 2013 to 2030 and energy-related carbon dioxide emissions by 8 percent, according to the IEA. In North America, carbon prices and subsidies each cover about 4 percent of emissions, the agency said. The subsidies amount to \$36 a ton on average, while the carbon price is \$9 a ton. Latin American subsidies are \$208 a ton compared with \$173 a ton in the Middle East, \$168 in Africa, \$104 in India and \$29 in China.

The subsidies are calculated as the ratio of the economic value of those fees to the carbon dioxide emissions released from the subsidized energy consumption, it said.

96. Emissions from Energy Show Slowest Gain since 2009 Drop, BP Says in Annual Review

Carbon dioxide emissions from energy use showed the slowest growth last year since a drop in 2009 as Chinese consumption of coal flattened, according to BP Plc. Output of the greenhouse gas from burning fossil fuels rose 0.5 percent from the previous year, London-based BP said June 10 in its annual Statistical Review of World Energy. That was the smallest increase for any year since 1998, with the exception of 2009, when emissions fell 1.5 percent, it said.

Chinese energy consumption rose 2.6 percent, the least since 1998, while nations in the Organization for Economic Cooperation and Development had a larger-than-average decline.

United Nations climate envoys meeting in Bonn June 1–11 sought to hone down a negotiation text for the world's first global climate accord to limit emissions. Repsol SA joined six other European oil companies June 9 in calling for governments to reach agreement on carbon pricing at a summit planned for later this year in Paris.

The slower growth of heat-trapping gases last year relative to the 10-year average stemmed largely from the changing pace and pattern of economic expansion in China, BP said in an e-mailed statement.

Renewable energy sources, in power generation and transportation, continued to increase in 2014 and reached a record 3 percent of global energy consumption, up from 0.9 percent a decade ago.

97. Solar-Powered Plane Due To Land in Hawaii after 5-Day Flight

An airplane powered by the sun is scheduled to land in Hawaii Friday after a five-day journey across the Pacific from Japan.

The flight is the longest leg of an around-the-world voyage planned by two Swiss pilots who have been taking turns flying the single-seat airplane. It is also the riskiest because the plane has nowhere to land in an emergency.

One of the pilots, Andre Borschberg, broke the record for the longest nonstop solo flight on the way to Hawaii, the team organizing the trip said. He shattered the previous record set by the late U.S. adventurer Steve Fossett, who flew around the world in 76 hours in a specially designed jet in 2006.

"Can you imagine that a solar-powered airplane without fuel can now fly longer than a jet plane?" Bertrand Piccard, the aircraft's other pilot, said in a statement. "This is a clear message that clean technologies can achieve impossible goals."

The plane is visiting Hawaii just as the state has embarked on its own ambitious clean energy project. Gov. David Ige last month signed legislation directing the state's utilities to generate 100 percent of their electricity from renewable energy resources by 2045. Hawaii's utilities currently get 21 percent of their power from renewable sources.

The aircraft is scheduled to land at a small airport outside Honolulu about 6 a.m. (9 a.m. PDT) Friday. Flight officials said the aircraft was arriving in the Hawaii area earlier but would fly in a holding pattern until the scheduled landing time.

Its next destination after leaving the islands is Phoenix, but the departure date hasn't been announced.

The plane began its global voyage in Abu Dhabi in March. It has stopped in Oman, India, Myanmar, China and Japan in the months since.

The wings of the carbon fiber aircraft have more than 17,000 solar cells. The plane flies up to about 28,000 feet during the day to recharge its batteries while descending to under 10,000 feet at night to minimize power consumption.

Bad weather is a challenge because the plane isn't designed to withstand rain, turbulence and heavy winds. Diverting around clouds takes extra energy.

The aircraft travels at about the same speeds as an automobile.

The pilots aim to demonstrate the potential of energy efficiency and renewable power with the project. Solar-powered air travel is not yet commercially practical though, given the slow travel time, weather and weight constraints of the aircraft.