THE UNITED STATES AND CLIMATE CHANGE CONFERENCE (COP 21): CHALLENGES TO REDUCING GREENHOUSE GASES

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In his second inaugural address, President Barack Obama remarked: "We, the people, still believe that our obligations as Americans are not just to ourselves, but to all posterity. We will respond to the threat of climate change, knowing that the failure to do so would betray our children and future generations. Some may still deny the overwhelming judgment of science, but none can avoid the devastating impact of raging fires and crippling drought and more powerful storms."[1] It is with this foresighted commitment to take concrete action to reduce the impact of climate change that the United States is prepared to take a leading position in the runup to the U.N. Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 21). The aim of the COP 21, scheduled in December 2015 in Paris under the auspices of the United Nations, is to facilitate access to a low-carbon pathway and resilient sustainable development for all while keeping the global temperature from rising more than 2 degrees Celsius from its current level.

This commitment was made expressly at the COP 20 summit in Lima in December 2014, where it was agreed that each party to the convention would communicate to the UNFCCC secretariat its intended nationally determined contribution (INDC) toward achieving the objective of the convention as set out in Article 2.[2] The ultimate objective of the UNFCCC, as expressed in Article 2 is

> stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

At Lima, it was further agreed that each party's INDC toward achieving the objective of the convention will represent a progression beyond the current undertaking of that party. The INDC should incorporate mitigation and adaptation planning or mitigation and an adaptation component because it needs long term perspective. According to the Intergovernmental Panel on Climate Change (IPCC), the term "mitigation" means preventive responses that are meant to reduce the sources of greenhouse gases (GHG) or enhance the sinks (reservoirs that can contain carbon dioxide). "Adaptation" is defined as the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. In other words, mitigation includes all efforts to prevent or avoid climate change, and adaptation includes all efforts to reduce or adjust to the anticipated impacts of climate change.[3] These preventive responses and adjustments to the anticipated impacts of climate change need long-term perspective, because quick-fix solutions are short-lived. The INDC should further incorporate (1) quantifiable information on the base year as a reference point, time frames, and/or periods for implementation, (2) scope and coverage, (3) planning processes, and (4) assumptions and methodological approaches, including those for estimating and accounting for anthropogenic GHG. Such provisions in the INDC would lend credibility to the "intended contribution" determined by the member countries of the United Nations.

In preparation, countries have agreed to publicly outline what post-2020 climate actions they intend to take under a new international agreement, known as their INDCs. According to the World Resources Institute based in Washington, D.C., "The INDCs will largely determine whether the world achieves an ambitious 2015 agreement and is put on a path toward a low-carbon, climate-resilient future."[4]A number of countries and international institutions other than the United States have already submitted their INDCs, such as Russia, Japan, Mexico, China, South Korea, Australia, and the European Union.[5] Many other countries are expected to communicate their INDCs prior to the UNFCCC in December. Given these developments, it is interesting to examine here the INDC submitted by the United States and the challenges faced in its implementation with a view toward leading the climate conference negotiations ahead. The importance of this examination lies in the fact that this INDC contains ambitious targets to substantially cut emissions in a relatively short time frame.

INDC of the United States

When the United States submitted its INDC in March 2015, the U.S. secretary of state remarked:

> The U.S. is committed to cut emissions by 26 to 28% from 2005 levels by the year 2025—which would put us on the path to economy-wide reductions of around 80% by mid-century. Today, the United States took an important step towards its objective by formally submitting our commitment to the UNFCCC. Now, it's time for other nations to come forward with their own targets to help ensure we can reach a global agreement at the U.N. climate conference in Paris later this year.[6]

Before committing to reduce emissions in a target year, it is critical to prepare a GHG inventory at a federal level. A GHG inventory tracks total annual emissions and removals by source and economic sector. Furthermore, because progress is tracked against emissions in the base year, as long as sufficient data exist for calculating base-year emissions, it is simple to estimate allowable emissions in the target year, track progress during the goal period, and evaluate whether the goal has been achieved.[7] The United States intends to account for 100 percent of its GHG emissions and removals for the base year 2005 as published in the Inventory of U.S. Greenhouse Gas Emissions and Sinks.[8] This inventory has been prepared by the Environmental Protection Agency (EPA) every year for more than the last 20 years.

This GHG inventory has been prepared according to the 2006 IPCC guidelines, which recommend the inclusion of following gases: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3), and three other gases. The U.S. target covers the first seven GHG included in the 2014 Inventory of U.S. Greenhouse Gas Emissions and Sinks (those named above). Apart from the gases, the IPCC guidelines classify GHG sources and sinks into the following sectors: energy; industrial processes and product use; agriculture, forestry, and other land use; waste; and indirect emissions from nitrogen deposition from non-agriculture sources. The U.S. target, therefore, as laid down in the INDC covers all IPCC sectors.

Several U.S. laws, as well as rules and regulations thereunder, are relevant to the implementation of the given target to reduce GHGs by 2025, including the Clean Air Act (42 U.S.C. 7401 et seq.),[9] the Energy Policy Act (42 U.S.C. 13201 et seq.),[10] and the Energy Inde-

pendence and Security Act (42 U.S.C. 17001 et seq.)[11]. The Clean Air Act (CAA) has important norms laid down for air pollution control and emission standards for moving sources, which have enabled the EPA to formulate rules and regulations at a federal level. Similarly, the Energy Policy Act and the Energy Independence and Security Act require the Department of Energy to finalize multiple measures addressing building sector emissions, building code determination for commercial buildings, and energy conservation standards for appliances. Apart from these laws, rules, and regulations, some significant plans are also formulated by the executive branch. In 2013, the Climate Action Plan was announced by the president to increase fuel economy standards and curb emissions of HFCs. In 2015, the Clean Power Plan was announced with a view toward reducing carbon pollution from power plants.

Activities of EPA To Regulate CO2

No analysis of the rules, regulations, and plans mentioned above could be complete without making a brief note of recent efforts of the EPA[12] to fulfill the congressional and executive mandates. In the face of congressional gridlock preventing the passage of comprehensive climate-change legislation, the EPA pursued climate-change regulation under existing authority provided by the CAA.[13] Due to EPA's proactive efforts to regulate climate-change law and regulations, its powers have been subject to judicial scrutiny.

Two years after the U.S. Supreme Court's landmark decision in *Massachusetts v. EPA* (2007),[14] in which the Court clarified that the GHGs are an "air pollutant" subject to regulation under the CAA, the EPA issued an endangerment finding, in which it determined that GHG may "reasonably be anticipated to endanger public health or welfare."[15] Next, it proposed to issue three rules in 2009 to regulate CO2 emissions directly under the CAA and granted California a waiver required under the CAA to approve that state's emissions standards for automobiles. The CAA regulatory scheme distinguishes between "mobile sources" and "stationary sources." Accordingly, one new rule, made jointly with the National Highway Traffic and Safety Administration (NHTSA) responded to *Massachusetts v. EPA* and addressed GHG emissions from mobile sources. Another rule addressed emissions from "major stationary sources" that emit more than specified amounts of GHGs. A third rule addressed reporting of GHG emissions. The EPA also granted California's waiver to implement its own auto GHG emissions standards.

Vehicle Emission Standards: CAA Section 202 (A) and California Waiver

In April 2009, the EPA took the initial step, called the Tailpipe Rule, toward the first ever federal rule to regulate GHG emissions from automobiles. It responded to *Massachusetts* with two findings that are the prerequisites to regulating GHG emissions from vehicles under CAA § 202 (a) (1).[16] In the endangerment finding, the EPA administrator found that the GHGs in the atmosphere endanger the public health and welfare. In the "cause and contribute" finding, the administrator found that the combined emissions of GHG emissions from new motor vehicles and new motor-vehicle engines contribute to the atmospheric concentrations of GHGs and hence contribute to the threat of climate change.[17] The endangerment finding defined "air pollutant" as an aggregate group of six long-lived and directly emitted GHGs that are "well mixed" together in the atmosphere and cause global climate change.[18] EPA measured the impact of these gases on a "carbon dioxide equivalent basis, (CO2e) which is based on the gases' warming effect relative to CO2 … over a specified time frame."[19] After compiling and considering a considerable body of scientific evidence, EPA concluded that motor-vehicle emissions of these six well-mixed gases "contribute to the total GHG air pollution, and thus to the climate change problem, which is reasonably anticipated to endanger public health and welfare."[20]

Next, and pursuant to the CAA's requirement that EPA establish motor-vehicle emissions standards for "any air pollutant … which may reasonably be anticipated to endanger public health or welfare," the EPA promulgated its Tailpipe Rule for GHGs, called *Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*.[21] The new standards were applied for model years 2012 through 2016. Like other federal vehicle emissions standards, the new standards are expressed in grams per mile of CO2 emissions. However, because the agencies expected that automakers would meet the new targets largely by making higher-mileage cars and trucks, the targets would also translate to a miles-per-gallon equivalent. The combined standard would require vehicles to meet an estimated combined average emissions level of 250 grams of CO2 per mile in 2016, or the equivalent of 35.5 mpg if automakers met the standard solely through fuel-economy improvements. The new target of 35.5 mpg represents a small increase in and acceleration of the Energy Independence and Security Act's requirement of an average of 35 mpg by 2020.

The new federal standards are based on the existing EPA test procedure, which is weighed by 55 percent city driving and 45 percent highway driving. These standards establish different targets for cars and light-duty trucks based on each vehicle's footprint. Generally, the larger the vehicle, the higher the CO2 emission target. Footprint systems also encourage improvements in efficiency, regardless of a vehicle's size.[22] Engines can be improved with gasoline direct injection. Engines can be downsized with turbo-chargers to provide performance similar to that of larger engines. Various other methods, such as use of advanced transmissions, increased use of start-stop technology, improvements in tire performance, reductions in vehicle weight, increased use of hybrid and other advanced technologies, and the initial commercialization of electric vehicles and plug-in hybrids, are available in the market to enhance fuel economy.[23] These rules to reduce GHG emissions from cars and light-duty trucks marked a significant regulatory intervention at the federal level.

Major Stationary Sources: CAA Title I

In June 2010, the EPA announced a final rule that applies to major stationary sources emitting more than 100,000 tons per year of GHGs beginning July 1, 2011. That number itself was significant. Before the announcement of this rule, the regulatory thresholds for criteria pollutants such as lead, sulfur dioxide and nitrogen dioxide were 100 and 250 tons per year. The much higher limit for CO2 recognized that it is emitted in much greater quantities than most other pollutants, but also that the EPA did not intend for minor emitters, such as small retailers, farms, restaurants, or churches, to face government regulation. Even so, the EPA believed the 100,000-tons-per-year threshold would cover major GHG emissions from stationary sources, including those from the largest emitters (such as power plants, refineries, and cement production facilities).

The new thresholds for GHG emissions are applied to determine two separate situations: (1) when permits would be required under

New Source Review, including prevention of significant deterioration (PSD) permits, and (2) when Title V operating permit programs would be required for new or existing industrial facilities. Under the Title V operating permit program, existing industrial facilities with GHG emissions below 100,000 tons per year would not be required to obtain operating permits (tailoring rule).[24] Under the new PSD permit program, a permit is required if a new facility or a major modification at an existing facility would emit 100,000 tons per year of CO2. Additionally, any physical change or change in the method of operation at a major source resulting in a net GHG emissions increase of 75,000 tons per year or more of CO2 will be subject to PSD review. New or modified facilities triggering PSD permitting requirements would need to implement Best Available Control Technology (BACT) and energy-efficiency measures to minimize GHG emissions. These controls would be determined on a case-by-case basis during the PSD process.

GHG Reporting Requirement

In September 2009, the EPA announced its final rule for mandatory reporting of GHG emissions. The reporting rule requires certain direct GHG emitters, fossil fuel and industrial gas suppliers, and manufacturers of vehicles and engines to collect and report information about GHG emissions of their operations and/or products. The EPA estimates that about 10,000 facilities will be required to report, covering about 85 percent of the nation's GHG emissions. Regulating facilities needed to begin collecting emissions data on Jan. 1, 2010. Under the EPA's CAA authority, companies that fail to monitor or report their emissions can face fines of up to $37,500 per day per violation.

While the vehicle and stationary source rules have attracted the most attention, the reporting rule might be no less important. As one article notes, "This registry could become one of the most anticipated and broadly used environmental data sets ever collected by the government."[25] The rule drew favorable comparison with another disclosure scheme, the Toxics Release Inventory (TRI) created in Section 313 of the Emergency Planning and Community Right To Know Act of 1986. As in the case of TRI, information generated by a GHG registry will have numerous benefits, such as transparency and availability of data allowing the public to hold polluters accountable for the cost of the pollution.[26] The most important short-term use of the data was expected to be the identification of companies and industries that will need to control emissions under the stationary source rule.

On the whole, these rules promulgated by the EPA have potentially significant ramifications. For example, these rules on GHG reporting obligation and obtaining permits for stationary sources, which are major CO2 emitters, have created a mechanism to collect a federal-level data inventory on GHG emissions and to discourage major stationary sources from emitting more than a certain amount of GHG.

EPA Rules Challenged in Federal Courts

Given the significance of the rules, it may then come as no surprise that such rules have been challenged in the federal courts. In *Coalition for Responsible Regulation Inc. v EPA*,[27] the coalition, along with various states and industry groups, challenged all the above-mentioned rules in the Court of Appeals for the D.C. Circuit, arguing that they were based on improper constructions of the CAA. Reaffirming the position taken by the Supreme Court in *Massachusetts* that "[i]f EPA makes a finding of endangerment, the Clean Air Act requires the agency to regulate emissions of the deleterious pollutant from new motor vehicles," the D.C. Circuit noted that EPA could "avoid taking further action *only if* it determines that GHGs do not contribute to climate change *or if* it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do."[28] In the endangerment finding, EPA determined that motor-vehicle emissions contribute to GHG emissions that, in turn, endanger the public health and welfare; the agency therefore was in no position to "avoid taking further action" by deferring promulgation of the Tailpipe Rule.

The court also rejected the petitioners' contention that EPA had discretion to defer the Tailpipe Rule on the basis of NHTSA's authority to regulate fuel economy. On the EPA's power to regulate stationary source regulations, the court held that once the Tailpipe Rule took effect and made GHGs regulated pollutants, the PSD program under Sections 165(a) and 169(1) of the CAA automatically applied to facilities emitting more than 100/250 tons per year of GHG. It seemed quite clear to the court that the PSD program was intended to protect against precisely the types of harms caused by GHGs. A source must, therefore, obtain a permit if it emits major amounts of any regulated pollutant and is located in an area that is in attainment or unclassifiable for any National Ambient Air Quality Standard (NAAQS) pollutant.[29]

Just two years after the judgment, it seemed as if the issues were not yet settled. In *Utility Air Regulatory Group v. EPA*,[30] the Supreme Court's opinion on the authority of EPA to regulate GHG emissions from stationary sources under the CAA was deeply divided in a 5-4 decision. In this case, the Court examined the EPA's permitting requirements for stationary sources that emitted, or potentially would emit, GHGs.[31] The majority determined that the EPA is not authorized to regulate a stationary source based on its potential to emit GHGs and that stationary sources' emissions of GHG cannot alone trigger the CAA's PSD program or Title V permitting requirements. However, the Court held that the CAA does allow the application of the PSD program's BACT requirement to the emission of GHGs from those sources that emit sufficient quantities of other pollutants that they would be subject to the PSD program "anyway."

The Court based this determination upon its interpretation of the term "any air pollutant" and whether that term should be inclusive of GHGs under the PSD provision and Title V permitting requirements. The Court further held that the EPA acted impermissibly in promulgating the Tailoring Rule,[32] which adjusted numerical threshold limitations to provide more practical limits for GHG emissions.[33] In its analysis, the Court examined the bounds of the EPA's authority under the CAA based upon the statutory language and the EPA's regulatory history under the CAA.

The Court used alternative reasoning divorced from the plain meaning of "any air pollutant" and held that this term is not inclusive of GHGs for the purposes of the PSD provision and Title V. Moreover, the Court, by invalidating the Tailoring Rule, effectively stated that the EPA is limited in its authority to regulate GHGs under the CAA, despite knowledge of the dangers of GHG emissions to public health and welfare.

Various scholars are also divided in their opinion after this judgment. On one hand, Professor Jody Freeman of Harvard Law School sees in the *Utility Air* judgment a warning to the EPA that it should be careful not to exceed its congressionally delegated regulato-

ry authority with respect to GHG regulation.[34] On the other hand, William W. Buzbee of Georgetown Law Center finds that the *Utility Air* majority opinion is laden with judicial policymaking that goes against the textualism traditionally espoused by Justice John Roberts' court, which may cut away at EPA's authority to regulate GHGs in the future.[35] By first commanding the EPA to regulate (as in *Massachusetts*) and then prohibiting meaningful regulation of stationary sources for PSD purposes (as in *Utility Air*), the Supreme Court provided the EPA with conflicting law that will likely result in continued litigation depending upon case-by-case determinations as to which CAA provisions are applicable to GHGs.[36] The Court's previous determinations that the EPA is obligated to promulgate regulations to prevent harms associated with global warming that are both "actual" and imminent were undercut by its determination in *Utility Air*.[37] In *Massachusetts,* the Court had upheld EPA's endangerment finding and acknowledged that the EPA must regulate GHGs as air pollutants under the CAA. However, the Court in *Utility Air* narrowed the definition of "air pollutant" and the resulting authority of EPA to promulgate rules for the purposes of PSD provision and Title V.

Federal Plans To Combat Climate Change

As previously mentioned, the federal government has also initiated some plans to combat climate change, such as Climate Action Plan (2013) and the recently announced Clean Power Plan (2015). The federal Climate Action Plan had three key pillars: cutting carbon pollution, preparing the United States for the impacts of climate change, and leading international efforts to address global climate change. To cut carbon pollution, the action plan focuses on power plants. Accounting for roughly one-third of all domestic GHG emissions, power plants are considered the largest concentrated source of emissions, and no federal standards had been in place to reduce carbon pollution from power plants. The plan set a goal to double renewable electricity generation by 2020. However, Congress—specifically the Senate—has been involved in an intense debate over this plan. Many federal litigators in subcommittee hearings are expressing doubt about whether climate change is even occurring.[38] They are primarily concerned about the EPA's proposals to limit CO2 emissions from new power plants fueled by coal and natural gas. They are pointing to already-closed coal mines and power plants in the country and expressing concern regarding economic uncertainty coupled with increased regulations looming large over utilities and related communities. The EPA, however, has moved toward the regulation of power plants.

Clean Power Plan 2015: An Improvement Upon the Clean Air Act

Despite debates over EPA proposals to regulate coal power plants in the House of Representatives, Obama and EPA Administrator Gina McCarthy released the final Clean Power Plan, a remarkable, 1,560-page document, on Aug. 3. It is regarded as a historic step in the Obama administration's fight against climate change, as it establishes the first-ever national standards to limit carbon pollution from power plants[39] and will provide an economic opportunity for every state to invest in renewable energy and energy efficiency. According to the Democratic leader Rep. Nancy Pelosi, such regulation is necessary because carbon pollution has increased asthma rates and threatens the health of the communities.[40]

This plan, to be implemented by EPA, sets flexible and achievable standards to reduce carbon dioxide emissions by 32 percent from 2005 levels by 2030.[41] By setting carbon pollution reduction goals for power plants and enabling states to develop tailored implementation plans to meet those goals, the Clean Power Plan is a strong, flexible framework that is anticipated to (1) provide significant public health benefits, (2) create more employment, (3) drive investment in clean energy technologies, (4) save money on the average family's annual energy bill, (5) give a head start to wind and solar deployment and prioritize the deployment of energy efficiency improvements in low-income communities, and (6) achieve the goal of reducing emissions to 17 percent below 2005 levels by 2020 and 26 to 28 percent below 2005 levels by 2025.[42]

When the Clean Power Plan is fully in place in 2030, carbon pollution from the power sector will be 32 percent below 2005 levels. By 2030, emissions of sulfur dioxide from power plants will be 90 percent lower compared with 2005 levels, and emissions of nitrogen oxides will be 72 percent lower. The transition to cleaner sources of energy will protect Americans from other harmful air pollution too.[43]

According to the EPA, the Clean Power Plan is based upon § 111(d) of the CAA. This section creates a partnership among EPA, states, tribes, and U.S. territories, with EPA setting a goal and states and tribes choosing how they will meet it. EPA lays down interim and final carbon pollution standards for two subcategories of fossil fuel-fired electric generating units: fossil fuel-fired electric steam generating units (generally, coal- and- oil- fired power plants), and natural gas-fired combined-cycle generating units. To maximize the range of choices available to states in implementing the standards and to utilities in meeting them, EPA lays down interim and final statewide goals in three forms: (1) a rate-based state goal measured in pounds per megawatt hour (lb/MWh), (2) a mass-based state goal measured in total short tons of CO2, and (3) a mass-based state goal with a new source complement measured in total short tons of CO2.[44] Each state has a different goal based upon its own particular mix of affected sources.

Also under this section, EPA determines the best system of emissions reduction (BSER) that has been demonstrated for a particular pollutant and a particular group of sources by examining technologies and measures already being used. Consistent with previous best-system determinations in 111(d) rulemakings, the agency considered the types of strategies, technologies, and measures that states and utilities are already using to reduce CO2 from fossil fuel-fired power plants.

The EPA is also setting emissions performance standards for tribes with affected electric generating units: Navajo, Fort Mojave, and Ute (Uintah and Ouray). In 2015, the EPA has not set CO2 emission performance goals for Alaska, Hawaii, Guam, or Puerto Rico; the agency will continue to collect data to form the basis of standards for power plants there in the future.

Emissions trading is permissible under the plan.[45] Power plants in a particular state may meet their emissions standards by using market mechanisms, such as a cap-and-trade program, a carbon tax, and sale of efficiency certificates. For the first time at the federal level, the concept of cap-and-trade has been accepted with this plan, which puts a mandatory cap on emissions and at the same time allows states to devise market instruments that can be traded. If a GHG-emitting facility is able to cut its pollution significantly, it can end up with extra allowances. It can then sell its extra allowances

to other business entities. EPA is also supporting states in tracking emissions, as well as tracking allowances and credits and in helping implement multistate trading or other approaches.

States are required to submit a final plan, or an initial submittal with an extension request, by Sept. 6, 2016. Final, complete state plans must be submitted no later than Sept. 6, 2018. Each state plan must include provisions for the state to demonstrate that it is making progress toward meeting the 2030 goal. The Clean Power Plan offers several options for states to show their progress for meeting interim CO2 emissions performance rates or state CO2 emissions interim step goals.

According to Professor Laurence H. Tribe of Harvard Law School, this plan is unconstitutional, because the EPA would be asserting executive power far beyond its lawful authority.[46] He asserts that the agency would effectively dictate the energy mix used in each state and leave the state with essentially no choice in implementing its plan. He cites Supreme Court precedent settled more than two decades ago in *New York v. United States* (1992) and reaffirmed by a 7-2 vote as recently as 2012 in *National Federation of Independent Business v. Sebelius* for the proposition that such federal commandeering of state governments defeats political accountability and violates principles of federalism that are basic to constitutional order.

Promotion of Renewable Energy at the Federal Level

The Climate Action Plan, mentioned earlier, had set a goal to double renewable electricity generation by 2020. One of the significant ways of decreasing emissions of GHGs is through the use of renewable energy. According to the Database of State Incentives for Renewables and Efficiency, many states have been implementing various schemes for the promotion of renewable energy, including renewable portfolio standards (RPS). At the same time, though, these promotional schemes widely vary in fixing the target for renewable energy portfolios. On the one hand, California expressly set an RPS target of 25 percent of energy by Dec. 31, 2016, from renewable sources; on the other hand, Pennsylvania has set the target at 8.5 percent by 2020.[47] Many states offer financial incentives for the promotion of photovoltaic, hydro, and wind systems. Some states have solar-power-specific targets, such as the New Jersey Solar Renewable Energy Certificates program's 4.1 percent.

Many experts debate whether this patchwork of state RPS should be replaced with a single federal RPS. Some argue that state policies alone simply have not prompted enough renewable energy projects. With the total share of the nation's nonhydroelectricity and biomass coming from renewables still less than 4 percent, "[s]tates alone cannot adequately address the need for increased renewable energy."[48] Others argue that a streamlined national market would not promote renewable energy deployment more than state RPS.[49] Still others argue against the federal RPS on the basis of transmission issues.[50]

At the international level, a number of countries, especially in Europe, have already had considerable success getting national targets for renewables. Germany's Renewable Energy Sources Act of 2000, amended in 2014, aims to constantly and cost-effectively increase the share of renewable energy sources in the national electric supply and has set the target of 55 to 60 percent renewable energy by 2035 and 80 percent by 2050.[51] China's Renewable Energy Law was also enacted in 2006 at the national level to encourage uniformity in state policies. Germany and China have adopted feed-in-tariff (FIT), a guaranteed price for clean electricity, as an effective supplement to an RPS policy.

Under the typical FIT structure, renewable energy products are guaranteed interconnection with the electricity grid, and project owners are paid an above-market rate that is locked in for a specific term of years (20 in Germany). In the United States, FIT is being embraced by state governments at a snail's pace. The FIT is different from previous approaches for promoting renewables, because it is a fixed amount paid to the electricity generator, determined up front on the basis of the generator's cost and profit expectations. This stands in contrast to the avoided cost approach of the Public Utilities Regulatory Policies Act, which fixes payments based on utilities' costs. As a result of these differing approaches, only six states (California, Hawaii, Maine, Oregon, Vermont, and Washington) have adopted FIT policies and regulations to promote renewable energy.

In addition to the state efforts to adopt FIT, significant efforts have been made to move FIT legislation forward at the federal level. In May 2008, then-Rep. Jay Inslee (D-Wash.) introduced a national FIT bill. The bill included three main design elements that were modeled on the most successful national policies in Europe: (1) guaranteed interconnection through uniform minimum standards, (2) a mandatory purchase requirement through fixed-rate, 20-year contracts, and (3) rate recovery through a regionally partitioned national benefits charge. Under the proposed law, the Federal Energy Regulatory Commission (FERC) would set standards for the priority interconnection and transmission of power from new "renewable energy facilities," which include renewable energy facilities of 20 megawatts or less. This bill could not be passed in the House of Representatives. Inslee reintroduced similar legislation—the Renewable Energy Jobs and Security Act—in 2010. However, FIT legislation faces opposition from conventional energy producers,[52] who believe that a higher price paid to the renewable energy producers by the electric utilities to buy renewable power puts them on an unequal footing, which they say is not just.

International Cooperation

While the Climate Action Plan of 2013 recognized the vital role of renewable energy at the domestic level, it did not underestimate the significance of international cooperation to deal with the climate change. A successful outcome at COP 21 in Paris depends on the active role of the United States to engage the global community in the goal of halting climate change. Because of Obama's announcement of the Climate Action Plan in 2013, the Department of Energy (DOE) moved forward to lead initiatives to strengthen international partnerships addressing the issue. The DOE participates in the Energy and Climate Partnership of the Americas—a key, multilateral mechanism to advance clean-energy deployment and reduce the climate-change impacts of energy technologies on the American continent. The DOE has also taken initiatives to engage Africa and Asia in the goal to reduce GHGs.

In November 2014, the United States and China announced a landmark bilateral agreement to increase cooperation on climate-change matters. The announcement of the U.S.-China agreement is regarded as "monumental," as China is the top GHG-emitter in the world. The centerpiece of the agreement is each country's preliminary post-2020 GHG emissions-reductions goal, which may frame COP 21 in Paris. This is because, at the previous COP sum-

mits, positive commitments were sought from China to reduce its GHG emissions, as the international community estimates that by 2030, China's share of GHG emissions would be 50 percent of the total. China has committed to peaking its emissions by 2030. By that year, the country hopes to see a nearly two-thirds reduction in its carbon intensity—a measure of the amount of carbon emissions per unit gross domestic product—compared with 2005 levels. However, it does not provide for the targets to be achieved between 2015 and 2030. This commitment by China, if acted upon with sincerity, would go a long way toward managing climate change at a global level. For example, in the INDC document submitted by China in June, China announced a cut of $C0_2$ emissions per unit of gross domestic product by 60 to 65 percent from the 2005 level by 2030. This declaration has prompted other big GHG-emitter nations, such as India, to come forward and declare their own INDC.

India's role in GHG reduction is also important, as it is the fourth largest emitter of GHG after China, the United States, and the European Union.[53] Within the next 20 years, its emissions will likely surpass in both population and energy use.[54] According to an analyst at the Natural Resources Defense Council in New York City, "India is hugely important. You don't get a global climate deal without them." India has not yet made any announcement of a peaking year, like China, because the vast amount of infrastructure and housing are yet to be completed. The major part of the population of India needs access to energy—quality energy. Even then, India has made a made a lot of efforts to promote energy efficiency, conservation and renewable energy. It has been trying to stand true to the commitments made at Copenhagen Conference to reduce its carbon intensity by 20 to 25 percent by 2020 compared with 2005 levels. According to the data released by Climate Action Tracker, the target is in line with currently implemented policies.[55] The DOE and the Indian government have each committed $25 million (subject to appropriations) over five years to support work by the Partnership to Advance Clean Energy.[56]

Apart from China and India, engagement with African nations is also considered crucial to mitigate climate change. According to the DOE, South Africa, Egypt, Algeria, Libya, and Morocco emit the largest amount of GHGs on African continent. Most of the countries in Africa lack a GHG inventory, which is an essential first step toward managing emissions. The EPA helps African nations improve their ability to estimate and track their GHG emissions. In the last U.S.–Africa Energy Ministerial in 2014, deliverables and commitments were made in the areas of developing off-grids, mini-grids, and capacity-building training programs.

Often, developing countries of the world demand proper funding for mitigation and adaptation needs from developed nations, which many consider responsible for today's problem of climate change, since the developed world, historically, has contributed much more significantly to the problem than the developing world. At the international level, a consensus has been reached on the principle of "common but differentiated responsibilities," which recognizes the culpability of developed nations having already exploited the global commons and now owning the responsibility to carry out actions that remedy or mitigate the consequences of such exploitation. As a result of this recognition during Earth Summit in Rio in 1992, developed nations have agreed to create a Green Climate Fund to finance climate-change mitigation and adaptation needs of the developing countries under Article 11 of the UNFCC. This fund has the potential to restore the trust between the developed and the developing countries on reaching a legally binding outcome on the contentious issue of mitigation.[57]

The fund can administer up to $100 billion to be mobilized by the developed countries jointly per year to address the mitigation needs of the developing countries. Every year, developed countries have pledged $10 billion toward this fund until 2020, and, by then, the fund should be valued at $100 billion. The United States pledged (not yet deposited) a sizeable $3 billion contribution over four years to this fund at the last G20 summit in Brisbane, Australia.[58] The U.S. funding is regarded as a significant to kick-start to the financing obligations of the Green Climate Fund. The executive director of the fund, Hela Cheikhrouhou, has urged the pledging governments to "urgently" sign funding agreements before COP 21 so that the Green Climate Fund can start allocating money to the pending project proposals.[59]

Conclusion

The Paris climate change negotiations are imminent, and the United States has been successful in taking a clear position on how to deal with carbon emissions post-2020. Its INDC lays out a definite strategy to substantially reduce the carbon emissions by 2025. The determinants of this success, however, are dependent upon at least four factors: (1) clear authority to EPA to implement federal policies and plans; (2) A well-defined pattern of states' actions to reduce carbon emissions; (3) promotion of renewable energy; and (4) improved international cooperation. In the brief analysis above, it is clear that EPA's authority to accomplish these goals been challenged. The judiciary sometimes blows hot and sometimes cold on the issue of EPA's powers to regulate GHG. States' actions are not uniform, and the future of the Clean Power Plan unveiled in August rests with the cooperation of states. Every state has been assigned emissions targets to achieve in a flexible manner. Some of these states have, however, requested that the EPA stay the application of rules until those are judicially upheld.[60] At an international level, the developing countries have not been able to match their footsteps with those of the United States and other developed nations, because they have less financial capability to adapt and to take appropriate mitigation measures. To conclude, the challenges before the federal government to reduce GHG emissions, as laid down in its INDC, have diminished the pace of several action plans of the federal government and initiatives of the EPA. At the COP 21, the leadership role of the United States hinges on addressing these challenges successfully. ⊙

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Endnotes

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[8]INDC as Communicated by Parties, *available at* http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx (last visited May 8, 2015).

[9]These provisions of the Act deal with air quality and emission limitations.

[10]This Act of 2005 addresses the following areas of energy: energy efficiency, renewable energy, oil and gas, coal, tribal energy, nuclear matters and security, vehicles and motor fuels (including ethanol), hydrogen, electricity, energy tax incentives, hydropower and geothermal energy, and climate-change technology.

[11]This Act of 2007 addresses the following areas of energy: improved vehicle fuel economy, improved vehicle technology, federal vehicle fleets, renewable fuel standard, biofuels, appliance efficiency, and energy savings in buildings and industry.

[12]The EPA is the expert agency delegated by Congress with the authority to regulate air pollution under the CAA.

[13]Case Note by Editors, *Clean Air Act — Stationary Source GHG Regulation — Utility Air Regulatory Group v. EPA*, 128 Harv. L. Rev. (2014-15) 341.

[14]549 U.S. 497 (2007).

[15]42 U.S.C. § 7521(a)(1).

[16]Sec. 201(a)(1) provides: "The Administrator shall by regulation prescribe … standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1).

[17]*Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202 (a) of the Clean Air Act*, 74 C.F.R. 18,886 (Apr. 24, 2009).

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[19]*Id.* at 66,519.

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[25]OMB Watch, Sept. 29, 2009, http://ombwatch.org. (OMB Watch has been renamed to Centre for Effective Government.).

[26]*Id.*

[27]No. 09-1322 (Jun 26, 2012).

[28]*Supra* n. 29, p. 41.

[29]The Clean Air Act directs EPA to set National Air Quality Standards at levels "requisite to protect the public health," establishing maximum allowable concentrations of several air pollutants that are emitted by numerous and diverse sources.

[30]134 S.Ct. 2427 (2014).

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