

ISSUE BRIEF

THE ROAD FROM PARIS: THE UNITED STATES PROGRESS TOWARD ITS CLIMATE PLEDGE

The United States pledged to reduce greenhouse gas emissions by 26 to 28 percent of 2005 levels by 2025 in its nationally determined contribution (NDC). However, the change in policy direction under the Trump administration has called into question whether this goal will be achieved. Durable existing policies, market forces, and enhanced subnational leadership will ensure the United States continues to reduce emissions; however, the likelihood of reaching the NDC target is unclear.

OVERVIEW OF NATIONAL CIRCUMSTANCES

The United States is the second-largest greenhouse gas (GHG) emitter in the world and has a great responsibility and opportunity to reduce its emissions. The United States accounted for 14 percent of global GHG emissions in 2012 and has contributed 27 percent of cumulative carbon dioxide emissions since 1850, the most of any country.¹

The United States is also the second-largest producer and consumer of energy after China. In the past decade, the discovery and recovery of vast domestic shale gas reserves have significantly altered the U.S.'s energy mix. In 2016, one-third of the nation's electricity was generated from natural gas, up from 18 percent a decade earlier.² Renewable energy generation also reached record highs in 2016, providing more than one-eighth of the U. S.'s electricity.

At the same time, coal-fired power generation has reached historic lows, producing only one-third of the U.S.'s electricity, down from half in 2005. These trends indicate the United States is on an irreversible path toward a low-carbon economy, independent of any changes in federal leadership. While the Trump administration continues to attempt to stall climate action, existing policies, market forces, and leadership at the subnational level will ensure national progress in reducing emissions.

U.S. STATUS IN THE PARIS AGREEMENT

On June 1, 2017, President Trump announced his intention to withdraw the United States from the Paris Agreement. The United States cannot formally exit the agreement until November 4, 2020—one day after the next presidential election. If President Trump does move to formally



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THE PARIS AGREEMENT

In late 2015, the 21st session of the Conference of the Parties (COP21) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) was held in Paris. The 196 nations that are part of the UNFCCC approved the Paris Agreement, which aims to limit global temperature rise to 2 degrees Celsius, and to make best efforts to keep it to 1.5 degrees. To that end, countries submitted intended nationally determined contributions (INDCs) detailing the level to which they planned to cut emissions and their plans to reach that goal. The Paris Agreement entered into force on November 4, 2016—and the INDCs are now formally enshrined as part of the Agreement—and hereafter referred to as nationally determined contributions (NDCs).

withdraw the United States from the agreement, a subsequent president could rejoin at any time after a 30-day waiting period.

CLIMATE MITIGATION POLICY

The U.S.'s NDC proposes to reduce economy-wide GHG emissions by 26 percent below 2005 levels by 2025 and to make best efforts to reduce emissions by 28 percent by 2025. The following is an overview of the various policies, regulations, and initiatives across the energy, energy-efficiency, transportation, and other sectors intended to help meet these targets and the status of these efforts in the current political climate.

Energy

Clean Power Plan

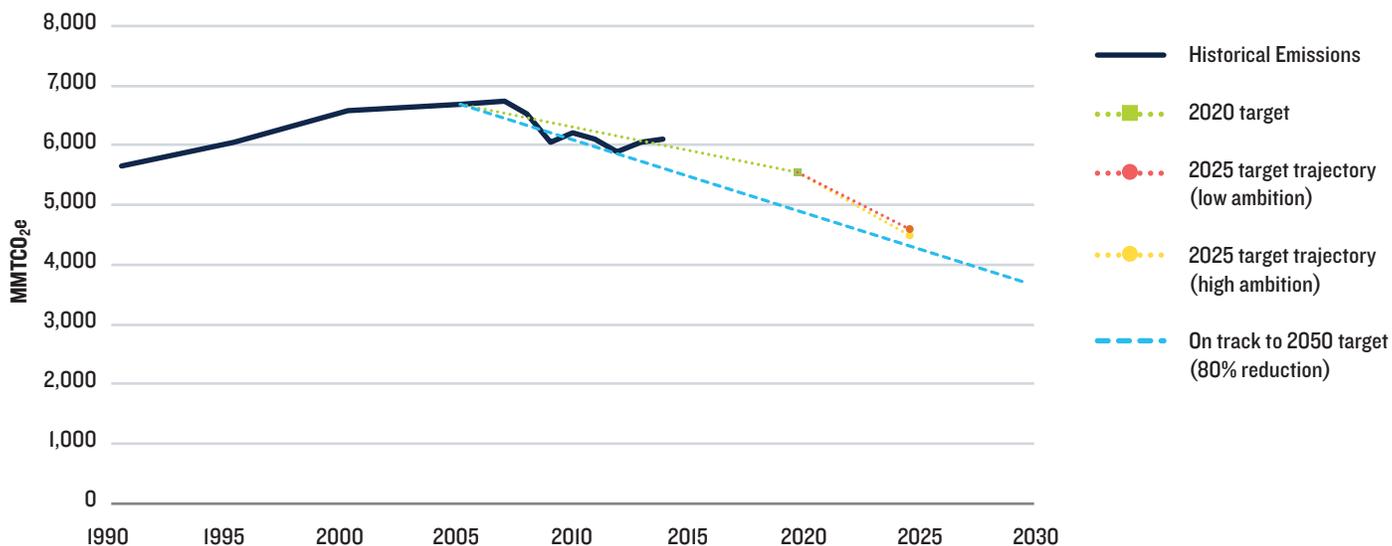
Unveiled in 2015, the Clean Power Plan (CPP) regulation established the first-ever limits on carbon pollution from U.S. power plants, one of the country's largest sources of climate pollution. The U.S. Environmental Protection Agency (EPA) issued the CPP under the Clean Air Act, which the U.S. Supreme Court has ruled provides the legal obligation to regulate carbon pollution from fossil fuel-burning power plants. Under this obligation, the CPP

established a coordinated federal-state process to limit power plant pollution and shift the U.S.'s electricity system toward cleaner energy sources at a steady, achievable pace.

In October 2017, the EPA administrator submitted a proposal to repeal the CPP.³ However, the proposed change must go through the same lengthy process the original regulation went through before the original can be repealed or replaced. This means the EPA must issue a new proposed regulation, put the proposed regulation forward for extensive public comment, justify, with facts, any changes and address substantive comments. The final regulation would then be open to judicial review to ensure it complies with the Clean Air Act obligation.

Implementation of the CPP had already been "paused" by the Supreme Court in 2016 following a legal challenge by some states. This happened despite strong support for the CPP by a coalition of states, cities, companies, and nongovernmental organizations. The bottom line is that repealing or replacing the CPP is a multiyear process with significant legal, administrative, and public opinion hurdles to overcome, and many states are continuing to aggressively pursue clean energy deployment regardless of the plan's status. (See section below on state leadership.)

U.S. GHG EMISSIONS



Source: Natural Resources Defense Council, based on data from the US Greenhouse Gas Inventory (2016), Climate Action Report to the UN (2010) and US INDC submitted to the UNFCCC (2015).

In fact, the U.S. power sector is already well on its way to achieving the CPP's objectives. The CPP was projected to cut emissions 19 percent below 2012 levels by 2030. However, power sector emissions in 2016 in the United States had already fallen by more than 10 percent from that baseline.⁴ In other words, the power sector has already achieved more than half of the CPP's envisioned emissions reductions for 2030—in the past four years alone.

Clean Energy Deployment

Wind and solar technologies have contributed to decreasing emissions from the U.S. power sector, thanks to significantly reduced technology costs and state and federal government support. In fact, carbon dioxide emissions from U.S. power generation dropped below those of the transportation sector in 2015 for the first time in modern history, primarily as a result of soaring solar and wind power generation, energy efficiency gains, and the transition from coal to natural gas.⁵

In 2015, the U.S. Congress extended tax credits for solar and wind energy development. Congress extended the solar investment tax credit for residential, commercial, and utility-scale solar projects at its current level of 30 percent through 2019, with a phase-down of the tax credit to 2022 and a permanent 10 percent tax credit for large-scale projects. The wind production tax credit of 2.3 cents per kilowatt-hour was extended through the end of 2016 and will drop by 20 percent each year after that until 2019, after which it will expire. These incentives will help ensure continued growth in renewable energy despite political crosswinds.

The U.S. Department of Agriculture has also secured public- and private-sector commitments for solar power and energy efficiency and provided grants and guaranteed loans for renewable energy and efficiency projects in rural areas. In 2014 the U.S. Department of Energy (DOE) set aside up to \$4 billion in loan guarantees for innovative commercial renewable energy and energy-efficiency projects. In September 2017, the DOE announced that its SunShot Initiative target of reducing the 2020 cost of utility-scale solar by nearly 30 percent had already been met—three years ahead of schedule.⁶

Energy Efficiency

Efficiency Standards for Buildings and Equipment

Much of the U.S.'s energy transformation is being driven by energy efficiency, which is currently the cheapest and most effective way to meet the nation's energy and climate goals. Until the mid-2000s, electricity-related GHG emissions and electricity demand grew in line with economic growth. From 2005 to 2016, U.S. carbon dioxide emissions fell by 14 percent and energy use remained flat,⁷ even though the U.S. economy grew by 17 percent during the same time period.⁸

Energy efficiency standards have long enjoyed bipartisan support. In 1987, President Reagan signed the first federal law establishing energy efficiency standards, and President George W. Bush signed legislation strengthening the program in 2005 and 2007. President Obama made

efficiency standards one of the cornerstones of his energy strategy. These standards also have strong business and consumer support because they reduce utility bills.

In 2015, Congress passed the Energy Efficiency Improvement Act, which ushered in a novel mechanism for identifying high-efficiency spaces. The Tenant Star labeling program recognizes the design and construction of efficient tenant spaces and rewards top energy performance in those spaces. By boosting market demand for building upgrades, the Tenant Star program is expected to cut utility bills by up to \$2 billion by 2030 and reduce carbon emissions by almost 12 million metric tons.

In 2016, the DOE issued 11 new and revised energy efficiency standards for products ranging from battery chargers and pool pumps to ceiling fans and portable air conditioners. Together, these new standards will save consumers nearly \$75 billion on their utility bills and avoid the need to generate 1.4 trillion kilowatt-hours of electricity over the next 30 years—more than all of the electricity used in U.S. homes in a year. An additional standard negotiated in 2015 for rooftop air conditioners and furnaces is supported by both industry stakeholders and efficiency advocates. These consensus standards will save almost as much energy by 2030 as all the coal burned to generate electricity in a year in the United States, and avoid 815 million metric tons of carbon emissions over the lifetime of the regulation. This is equivalent to the amount of carbon emitted in a year from 233 coal-fired power plants.⁹

Building Codes

Building codes are an important mechanism for reducing emissions given that it is much easier and less expensive to make a building energy efficient when it is initially being constructed. The International Energy Conservation Code (the national model energy code recognized by the DOE and cited in federal law) is updated every three years by the International Code Council. The code is used by more than 40 U.S. states, though the modernization of the codes varies by jurisdiction. New energy codes at the state and municipal levels have the potential to save 160 million metric tons of greenhouse gases in 2030, if jurisdictions adopt them.¹⁰

Transportation

Fuel Economy Standards

Despite projected growth in transportation demand, the United States is on a path to reduce the transportation sector's carbon pollution. For example, in 2015, oil consumption from transportation was 12 percent below its 2005 peak. In addition, automobile fuel economy reached a record high for model year 2015, while new vehicle emissions reached a record low. The United States relies on a combination of federal and state standards to decarbonize the transportation sector.

The U.S. EPA and the Department of Transportation (DOT) have primary authority to set pollution standards for vehicles. In 2012, the EPA and the DOT issued fuel economy standards that required 2025 models of passenger cars and

light trucks to reach an efficiency of 54.5 miles per gallon. In 2016, the EPA and the DOT issued similar standards to cut fuel use and emissions from medium- and heavy-duty vehicles through 2027.¹¹

Since the 1960s, California has been granted a waiver under the Clean Air Act to set its own standards for vehicle air pollution. Twelve other states representing more than one-third of the U.S. vehicle market have opted to adopt California's standards. Because its car market is so large and its standards are usually more stringent, California can strongly influence progress at the national level.

In March 2017, the Trump administration directed the EPA and the DOT to take an initial step to revise federal fuel economy standards. There is also speculation that the Trump administration may try to revoke a waiver that currently allows California to set higher standards. However, California's clean car standards cannot simply be altered by an executive directive. If the waiver can be revoked at all, it could only happen through rulemaking by the EPA that includes a notice and comment period in compliance with the Clean Air Act and federal administrative law. Any decision to revoke the waiver is also certain to be met with litigation. In sum, revoking California's leading clean car standard is a highly uncertain multiyear process that would fly in the face of 50 years of established federal government precedent.

Electrification of Transport

Federal and state funding has supported local expansion of hybrid, electric, and natural gas transit buses and the development of electric vehicles and supporting infrastructure. In part because of these efforts, the United States is the largest global market for electric vehicles. In addition, as the electric grid becomes cleaner (as previously described), electric vehicles are increasingly being charged with decarbonized electric power.

Limiting Other Potent Greenhouse Gases

Methane Venting and Leakage

The oil and gas sector is the largest industrial emitter of methane in the United States – the second most potent greenhouse gas. The majority of the sector's methane pollution comes from intentional venting – that costs it \$2 billion annually in potential profits – and leaks that can be identified and curbed with existing, low-cost technology and better maintenance practices.

In 2016, the EPA adopted standards to limit methane pollution from new oil and gas production, processing, and transmission equipment nationwide.¹² In May 2017, President Trump's EPA attempted to delay the standard's taking effect for two years without any opportunity for public comment. A number of nongovernmental organizations mounted a legal challenge, and in July 2017, the federal appeals court found that the EPA had acted illegally.

Hydrofluorocarbon Alternatives

In 2015, the EPA prohibited certain uses of hydrofluorocarbons (HFCs) through a program under the Clean Air Act. The program set deadlines to replace some of the most harmful HFCs where better alternatives are available. Several laggard companies challenged the rule in court, claiming the EPA cannot set such deadlines, and in August 2017, a federal court ruled in their favor. That decision is being appealed. However, the EPA has continued to support the phasedown of HFCs under the Trump administration, as have American producers and users of these chemicals. In addition, several legal and administrative options exist, including action by U.S. states, to continue to move forward with HFC alternatives.

Subnational Leadership

State Leadership

In response to the Trump administration's attempts to stall progress on climate change, many U.S. states, regions, and cities are stepping up their climate leadership to compensate for federal inaction. Following the announcement of President Trump's intention to withdraw from the Paris Agreement, 14 states and one territory have joined the U.S. Climate Alliance to assert their commitment to meet the goals of the Paris Agreement. The U.S. Climate Alliance now represents more than one-third of the U.S. population and more than \$7 trillion in gross domestic product. States are also backing up their commitments to align with the Paris Agreement with concrete policy actions. Twenty-nine states have renewable portfolio standards (RPS) requiring them to achieve specified renewable energy targets. For example, both California and New York recently enacted aggressive standards that require 50 percent renewable energy by 2030. Several other states, including Oregon, Illinois, Maryland, Massachusetts, and New Hampshire, also made recent updates to their targets to be more ambitious.¹³ Because of these policies, and because wind energy prices are now competitive with fossil generation, wind energy accounted for the largest source of new energy capacity last year.

California, which if independent would rank as the world's sixth-largest economy, continues to push the climate leadership bar higher. In 2016, California enshrined North America's most aggressive emissions reduction target in a law mandating that it reduces GHG emissions by at least 40 percent below 1990 levels by 2030. In July 2017, California extended its pioneering cap-and-trade program to 2030 to help achieve that goal.

New York State also continues to step up measures to implement its Clean Energy Standard requiring the state to obtain 50 percent of its electricity from renewable sources by 2030. New York plans to acquire 2.4 gigawatts of offshore wind energy by 2030, and Governor Andrew Cuomo continues to implement his \$1 billion NY-Sun Initiative to deploy over 3 gigawatts of residential, commercial, industrial, and community solar projects by 2023.

States are also banding together to advance the adoption of electric vehicles. A coalition of eight states has signed a memorandum of understanding to put 3.3 million zero-emission vehicles on the roads by 2025. In addition, the states are promoting electric vehicle sales through purchase rebates and reduced-cost charging programs.

Nine U.S. states are members of the Regional Greenhouse Gas Initiative (RGGI). The cap-and-invest program requires power plants to purchase allowances for every ton of carbon they release, and lowers emissions by reducing the number of allowances sold each year. States then invest revenue from the allowances sales in energy efficiency and clean energy measures. RGGI states have cut power plant emissions 40 percent since 2008 while achieving faster economic growth than the rest of the country. In August 2017, the RGGI states agreed to cut power plant pollution by at least another 30 percent by 2030. Additional states, including New Jersey and Virginia, are considering joining the initiative in the near future.

City Leadership

City and local leaders are increasingly at the forefront of the U.S.'s transition to clean energy, energy efficiency, and sustainable transport. Some 377 mayors representing 67 million Americans have committed to uphold the Paris Agreement since President Trump's announcement of his intention to withdraw. And many of these cities are formulating emissions reduction plans and taking concrete actions to tackle climate change. Thirty-nine of the most populated U.S. cities have committed to set a quantified emissions reduction target and report on their progress as part of the Global Covenant of Mayors for Climate & Energy initiative.

Building on years of climate leadership, New York City, by far the most populous U.S. city released the first city plan in October 2017 to ensure that its climate-related actions over the next three years are consistent with meeting the 1.5-degree Celsius temperature goal established by the Paris Agreement.

And Los Angeles, the second most populous city in the United States, has reduced its GHG emissions by more than 20 percent since 1990 and is on track to be completely divested from coal-fired power plants by 2025.

THE ROAD AHEAD

The United States has made and will continue to make progress in reducing emissions across key sectors. While the Trump administration is attempting to roll back many Obama-era policies, the majority of these policies cannot be quickly discarded and must undergo a formal procedural or administrative process in order to be revised.

Tax credits for wind and solar power extended by Congress in 2015 will continue to provide strong incentives for clean energy in the coming years. Clean energy deployment has also benefited from falling technology costs and state renewable energy standards. Consensus standards for air conditioners and furnaces will continue to slash commercial emissions. Energy efficiency labeling laws for tenant spaces and the adoption of new building codes will continue to spur improvements in building energy use. California's progressive effect on standards for light-duty vehicles will continue, while the electrification of vehicles will drive even deeper emissions cuts. Market forces and the prospect of future regulation will continue to push companies to reduce emissions of potent GHGs, including methane and HFCs. And the groundswell of state-level climate leadership—with California and New York at the forefront—will only increase in breadth and depth in the years ahead.

The U.S. economy is in the midst of a fundamental transition across energy, transportation, and other key sectors. These trends, which have been apparent for more than a decade, are due to the interplay of progressive state and federal policy harmonized with potent economic forces and technological advances. The U.S.'s progress in reducing harmful GHG emissions will only bring more sharply into relief the associated benefits of improving the nation's energy security, financial wellbeing, and community health. These trends will continue to accelerate the U.S.'s transition to a clean energy economy—regardless of what the Trump administration attempts.

ENDNOTES

- 1 World Resources Institute, *6 Graphs Explain the World's Top 10 Emitters*, 2014, <https://wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters>.
- 2 Ralph Cavanaugh and Kala Viswanthan, *NRDC's Fourth Annual Energy Report: Accelerating into a Clean Energy Future* (Natural Resources Defense Council, 2016). <https://www.nrdc.org/sites/default/files/energy-environment-report-2016.pdf>.
- 3 Natural Resources Defense Council, *Why We Need the Clean Power Plan to Fight Climate Change*, 2017, <https://www.nrdc.org/experts/rhea-suh/why-we-need-clean-power-plan-fight-climate-change>.
- 4 U.S. Energy Information Administration, *U.S. Carbon Dioxide Emissions from Energy Consumption (from 1973)*, (2017). <https://www.eia.gov/environment/data.php#summary>.
- 5 U.S. Energy Information Administration, *Power Sector Carbon Dioxide Emissions Fall Below Transportation Sector Emissions*, Today in Energy, January 19, 2017. <https://www.eia.gov/todayinenergy/detail.php?id=296>.
- 6 Natural Resources Defense Council, *Sunshot Target Achieved Three Years Early, But Clouds Linger*, 2017, <https://www.nrdc.org/experts/kevin-steinberger/sunshot-target-met-three-years-early-clouds-linger>.
- 7 U.S. Energy Information Administration, *U.S. Carbon Dioxide Emissions from Energy Consumption (from 1973)*, (2017). <https://www.eia.gov/environment/data.php#summary>.
- 8 Ibid. and U.S. Bureau of Economic Analysis, "National Data," See Section I, "Domestic Product and Income," Table I.1.6, "Gross Domestic Product, Chained Dollars," (May 1, 2017). Figures adjusted for inflation.
- 9 Natural Resources Defense Council, *Major Agreement for Rooftop Air Conditioners Will Lead to Biggest Energy Savings Yet*, 2015, http://switchboard.nrdc.org/blogs/mwaltner/major_agreement_for_rooftop_ai.html.
- 10 Natural Resources Defense Council, *Building Energy Codes in 2015: A Foundation of Cutting Climate Pollution*, 2015, <https://www.nrdc.org/experts/david-b-goldstein/building-energy-codes-2015-foundation-cutting-climate-pollution>.
- 11 U.S. Environmental Protection Agency, *Proposed Rulemaking: Phase 2 Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*, https://search.epa.gov/epasearch/epasearch?querytext=Proposed+Rulemaking%3A+Phase+2+Greenhouse+Gas+Emissions+Standards+and+Fuel+Efficiency+Standards+for+Medium+and+Heavy-Duty+Engines+and+Vehicles&site=archive&typeofsearch=epa&result_template=archive.ftl&inmeta=gsaentity_collection%3DEPA+Archive (Originally accessed October 19, 2015).
- 12 The White House, "Fact Sheet: President Obama to Announce Historic Carbon Pollution Standards for Power Plants," press release, 3 August 2015. <https://obamawhitehouse.archives.gov/the-press-office/2015/08/03/fact-sheet-president-obama-announce-historic-carbon-pollution-standards>.
- 13 Ralph Cavanaugh and Kala Viswanthan, *NRDC's Fourth Annual Energy Report: Accelerating into a Clean Energy Future* (Natural Resources Defense Council, 2016). <https://www.nrdc.org/sites/default/files/energy-environment-report-2016.pdf>.