



## The United States and the Road to 2025: The Trump Effect

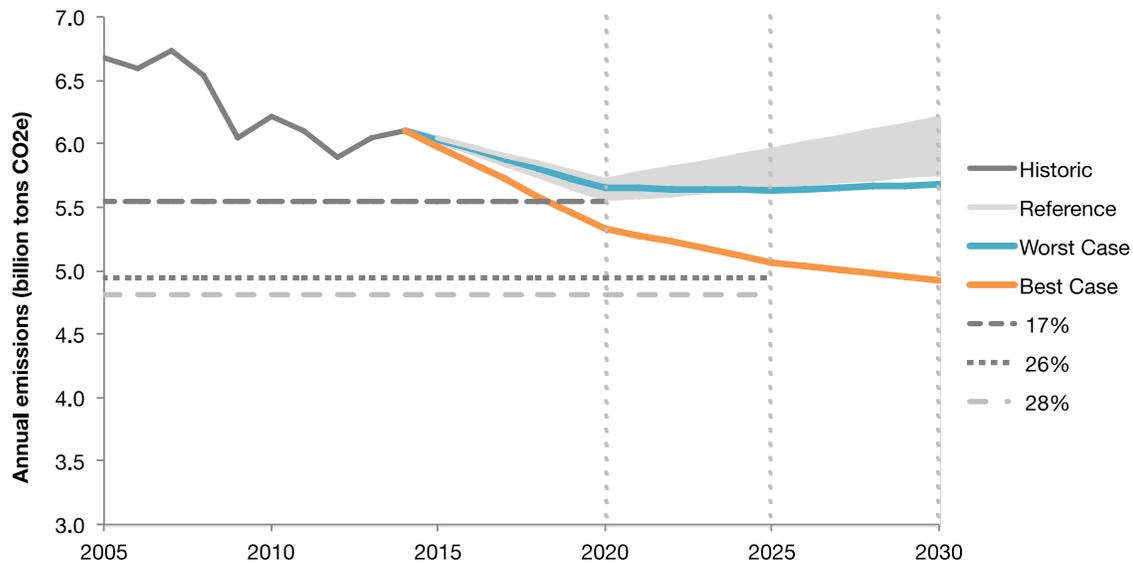
The November 2016 election of Donald Trump to the Presidency of the United States will have a profound impact on President Obama's domestic climate legacy. Since issuing the *Climate Action Plan* in 2013, the Obama Administration has crafted rules to curb greenhouse gas (GHG) emissions from some of the largest domestic sources, including power plants, oil and gas production facilities, light and heavy vehicles, and a range of residential and commercial appliances. This suite of policies would reduce the energy intensity of the U.S. economy and help achieve the 26-28 percent emissions reduction pledge made in support of the 2015 Paris Agreement.

While enjoying enormous executive support, President Obama's regulatory agenda was also met with ever-increasing hostility from Republican policymakers, who have regularly attempted to block, roll back, and otherwise defund many of Obama's climate initiatives. With President Trump in the White House, these efforts are expected to bear fruit. This section explores the vulnerability of some of Obama's key climate priorities and updates the U.S. emissions trajectory with the "Trump Effect". Given stalled action on climate change—at least for the next four years—*how close will the United States realistically remain to achieving its domestic emissions targets?*

### The Obama Emissions Pathway

President Obama leaves behind a rich climate legacy. The suite of policies put forward during his administration place the United States on the path to meet both its 2020 and 2025 emissions targets (Figure 1). In the "best case" scenario—this includes high land sinks and achievement of the Obama Administration's goal to reduce methane emissions from oil and gas by 40-45 percent between 2012 and 2030—**emissions decrease by up to 24 percent from 2005 levels by 2025**. In the "worst-case" scenario, based on low natural land sinks and little future action on methane, the United States achieves just 16 percent emissions reductions, a little over half of the pledged total.

**Figure 1. Projected Emissions under Obama Policies Relative to Targets**



Full attainment of the U.S. nationally determined contribution (NDC) has always rested on the ability and will of the incoming administration to pick up Obama’s mantle and push forward additional climate measures. With Republicans fully in control of Congress and the White House, additional action is entirely off the table. In fact, the Trump administration is expected to roll back or entirely eliminate much of Obama’s recent climate policies. The following sections describe the mechanisms that are available to Republican lawmakers to undo Obama’s regulatory agenda and anticipated impact of these reversals on the U.S. emissions trajectory.

## The Trump Effect

### *Mechanisms to Roll Back Regulations*

Republican control of the White House and Congress allows policymakers to reverse Obama Administration regulations that are either in effect or still in the rulemaking process. There are a number of processes available to undo these regulations, including:

**Not finalize proposed rulemakings:** The Obama Administration made efforts to issue final rules for all proposed regulations before leaving office. However, several remain outstanding. The most important are energy conservation standards for appliances and equipment, ranging from residential cookers, service lamps, commercial water heaters, and residential furnaces proposed by the Department of Energy (DOE).

**Utilize the Congressional Review Act (CRA) to disapprove newer policies:** For policies that recently came into effect, the CRA offers the legislature the chance to invalidate federal rules that were

finalized as far back as June 13, 2016. This could include other energy efficiency standards adopted by DOE and Department of Interior rules aimed at protecting streams from the effects of coal mining.

**Reverse older rules through court settlement:** Many regulations from the Obama administration are the subject of ongoing litigation in the courts. The change in administration means that, for some rules, the government may be sympathetic to the litigants. In such cases, the Trump administration may wish to settle the ongoing case as something that is not any more “a case in controversy”. Should the court agree, the legal action will cease. EPA climate rules, such as the Clean Power Plan (CPP) and the new source performance standards (NSPS) for methane emissions at oil and gas production facilities, are particularly vulnerable to this. Nevertheless, the EPA would still be obligated to regulate greenhouse gas emissions in accordance with the *Massachusetts vs. EPA (2007)* Supreme Court ruling and subsequent endangerment findings by the EPA.

**Lax enforcement:** In some instances, such as the mileage standards for heavy-duty vehicles, the government may not actively oppose a ruling by suing in court to block the regulation taking effect. However, they may instead exact lax enforcement of the rules by failing to collect penalties or offering additional time to industry to meet standards.

**Deter future rulemaking through new legislation:** Congress could also seek a more proactive role to prevent future administrations from putting in place similar regulations. Using the REINS Act, Congress could also amend existing legislation to remove regulatory authority from the executive branch. For example, the Clean Air Act would be amended to exclude regulation of greenhouse gas emissions. However, this would likely be taken to court by environmental groups, and would increase pressure for a legislative approach to control greenhouse gases.

### *Vulnerability of Obama Regulations*

The vast majority of Obama-era regulations are vulnerable to rollback through one or more mechanisms listed above. Table 1 identifies these regulations and assigns vulnerability levels to each in the following manner:

- **Highly Vulnerable:** These include well-known and controversial rules such as the Clean Power Plan (CPP) and the new source performance standards to limit methane emission for new oil and gas facilities.
- **Moderately Vulnerable:** This category comprises the majority of all existing climate policies, especially those that are eligible for disapproval under the CRA. Here, we also include HFC

emissions reductions mandated by the recently concluded amendment to the Montreal Protocol. Although the amendment is not as visible and contentious as the Paris Agreement—and increased reliance on HFC alternatives could be a boon for the U.S. companies that manufacture them—participation in any international body, especially one that requires a contribution of funds, will come under scrutiny in the Republican administration.

- **Vulnerable:** Regulations that are likely safe are those that cannot be easily reversed through the CRA and/or those that were concluded as a result of negotiated rulemaking (i.e., in partnership with multiple stakeholders, including industry, government and civil society).

**Table 1. Obama-Era Regulations, by Vulnerability**

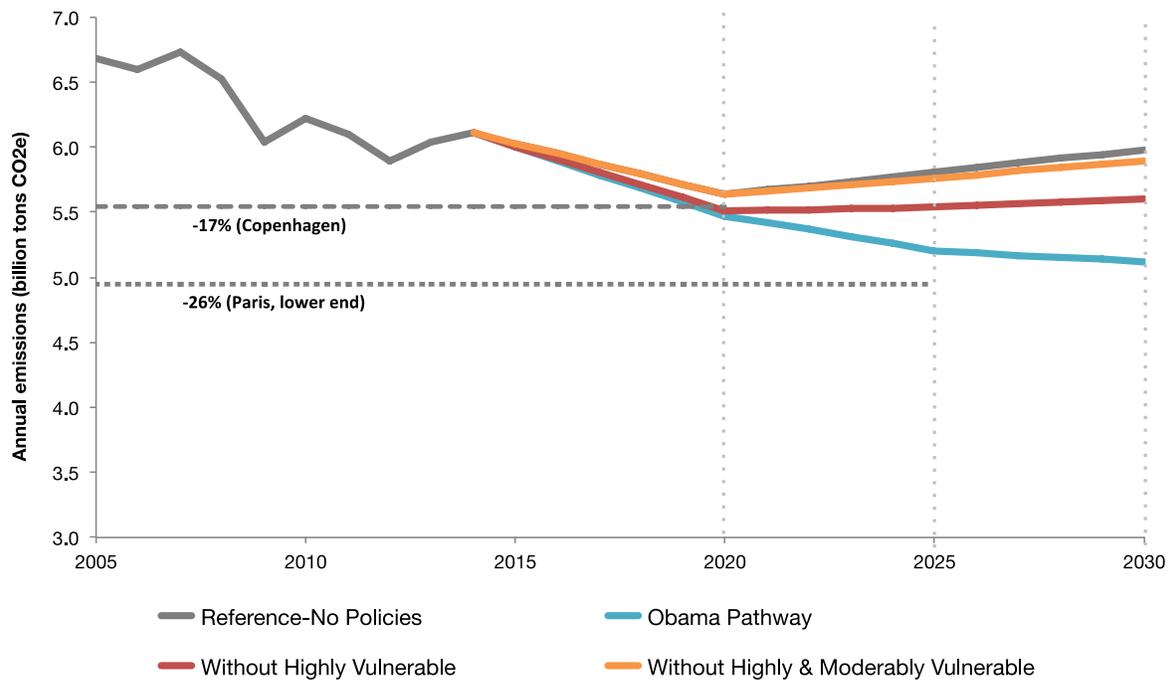
Regulation	Vulnerability
<b>Power</b>	
Clean Power Plan	- Not eligible for CRA - Very vulnerable to roll-back through court settlement
<b>Transport</b>	
CAFE standards for heavy vehicles post-MY2018	- Not eligible for CRA - Some industry support, likely safe
<b>Buildings and Appliances (Energy Efficiency Standards)</b>	
Hearth products	- Proposed rule, will not be finalized
Residential furnaces	- Proposed rule, will not be finalized
Residential conventional cooking products	- Proposed rule, will not be finalized
General service lamps	- Proposed rule, will not be finalized
Commercial water heaters	- Proposed rule, will not be finalized
Ceiling fans	- Eligible for disapproval under CRA - Rider in FY2016/2017 appropriations legislation introduced to block implementation (did not pass)
Ceiling fan light kits	- Not eligible for CRA - Rider in FY2016/2017 appropriations legislation introduced to block implementation (did not pass)
Battery chargers	- Eligible for disapproval under CRA
Residential dehumidifiers	- Eligible for disapproval under CRA
Portable air-conditioners	- Will be eligible for disapproval under CRA - Final rule halted before publication in the Federal Register
Commercial boilers	- Will be eligible for disapproval under CRA

	- Final rule halted before publication in the Federal Register
Backup power supplies	- Will be eligible for disapproval under CRA - Final rule halted before publication in the Federal Register
Commercial clothes washers	- Not eligible for CRA - Not controversial, likely safe
Wine chillers & other beverage coolers	- Negotiated rulemaking, likely safe
Central air-conditioners & heat pumps	- Negotiated rulemaking, likely safe
Pool pumps	- Negotiated rulemaking, likely safe
Walk-in coolers and freezers	- Negotiated rulemaking, likely safe - Final rule halted before publication in the Federal Register
<b>Methane</b>	
<b><i>Oil and Gas</i></b>	
Targeted (-12% between 2012 and 2030)	- Target, likely to be thrown out
NSPS for new oil & gas production facilities	- Possibly eligible for disapproval under CRA (depending on whether 6/2 of 6/13 is the cut-off date)
Standards to reduce venting and flaring from oil & gas production on public lands	- Eligible for disapproval under CRA
<b><i>Landfills</i></b>	
Updated Performance Standards for Municipal Solid Waste Landfills	- Eligible for disapproval under CRA; unlikely first target
<b>HFCs</b>	
Montreal Protocol Phasedown	- Already some discussion about submitting the amendment to the Senate for approval - Unlikely first target
Refrigerant Management Requirements	- Eligible for disapproval under CRA - Unlikely first target
SNAP Status Change Rule 21	- Eligible for disapproval under CRA - Unlikely first target

### *New Emissions Trajectory*

Reversal of all highly vulnerable rules and targets will substantially reduce the United States' ability to meet its Paris commitment. If the reference case emissions trajectory continues as currently projected by the Energy Information Administration (EIA), with flat energy sector emissions and modest increases in emissions from transport and industry, **2025 emissions will be just 17 percent below 2005 levels** (red line, Figure 2). Accounting for all moderately vulnerable programs, **2025 emissions fall to roughly 14 percent below 2005 levels**—essentially matching current levels. There is very little difference between this latter scenario and the reference case (gray line, Figure 2) because less vulnerable policies do not represent very large mitigation potential.

Because the trends, policies, and programs that will impact 2020 emissions are long in place and are therefore less likely to be influenced by the new administration, the difference between the Obama and Trump administrations emissions pathways through 2020 is small.

**Figure 2: Projected Emissions under Trump Administration Relative to Targets**

*Note: The reference pathway is the midpoint of the range presented in Figure 1, above, reflecting the average of low and high land sink projections. The Obama pathway reflects the “best case scenario” from our earlier analysis, including full phasedown of HFCs in line with the schedule presented in the North American Amendment Proposal and achievement of the targeted reductions in methane emissions from the oil and gas sector.*

Several lessons can be gleaned from this exercise.

**First**, the impact of the Trump administration is much more likely to be felt in 2025 than 2020, given that many of the factors influencing today’s emissions trajectory (e.g., the move away from coal and adoption of renewables in the power sector) cannot be quickly reversed.

**Second**, the roll back of existing programs will have a sizable impact on future emissions: the “Trump Effect” in 2025 could be as high as half a gigaton of CO<sub>2</sub>e.

**Finally**, although the new administration will severely handicap U.S. climate action, it will not be able to reverse existing market trends that favor a low-carbon economy. At worst, U.S. emissions will remain flat through 2025 and toward 2030. Furthermore, a Democratic administration taking office in 2020 can resume the Obama administration agenda and once again promote policies that place U.S. emissions on a downward trajectory. How close a new administration’s initiatives would be able to

bring the country to its Paris targets will heavily depend on the market headwinds blowing in the same direction. Given continued and rapid deployment of renewables and efficiency improvements in our power plants, buildings, and appliances – many driven by state-level mandates and incentives – renewed climate action at the federal level could bring about steeper emissions reductions than those that were possible during Obama's presidency.

## Annex A: Calculating Reference Case Emissions

U.S. BAU emissions include the projected release of six gases: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF<sub>6</sub>), as well as CO<sub>2</sub> natural carbon sinks. BAU is measured taking 2014 as the base year. The high and low BAU scenarios, in million metric tons of CO<sub>2</sub> equivalent (MMTCO<sub>2</sub>-eq), are provided in Table 2.

**Table 2. Projected Greenhouse Gas Emissions Through 2030 (MMTCO<sub>2</sub>-eq)**

	2005	2014	2020	2025	2030
CO <sub>2</sub>	6,123	5,556	5,477	5,525	5,531
CH <sub>4</sub>	717	731	670	674	682
N <sub>2</sub> O	398	404	338	335	334
HFC	120	167	255	311	324
PFC	7	6	5	5	7
SF <sub>6</sub>	14	7	9	9	10
NF <sub>3</sub>	0.5	0.5			
Sinks - low			-1,044	-908	-689
Sinks - high	-699	-762	-1,191	-1,201	-1,118
Net GHG - low			5,563	5,658	5,770
Net GHGs - high	6,680	6,108	5,710	5,951	6,199

*Note: Historic emissions obtained from EPA's Greenhouse Gas Inventory 1990-2014.*

**Carbon Dioxide:** Future U.S. carbon dioxide emissions are estimated based on the U.S. Energy Information Administration's 2016 Annual Energy Outlook (2016 AEO), using the "reference" scenario without the Clean Power Plan.<sup>i</sup> The projections account for all federal and state regulations implemented as of the end of February 2016. The energy-related CO<sub>2</sub> emissions figures obtained from the 2016 AEO are adjusted upward to obtain a rough estimate of total CO<sub>2</sub> emissions. We use a 1.03 adjustment factor, which roughly represents the historic ratio between total and energy-related CO<sub>2</sub> emissions in the United States.

**CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>:** Projected U.S. emissions of the remaining five gases are taken from the Second U.S. Biennial Report to the UNFCCC and represent the “current policies” scenario.<sup>ii</sup> These estimates have been developed by the U.S. Environmental Protection Agency and take into account policies under implementation as of mid-2015.

**Land sinks:** The volume of CO<sub>2</sub> removals by U.S. land sinks, particularly forests, is the largest source of uncertainty in future GHG emissions. Historically, this figure has been significant—for example, land sinks offset approximately 15% of total emissions in each of the past five years. Although it is possible that U.S. forests will continue this high rate of carbon sequestration through 2025 and beyond, some studies now indicate that the CO<sub>2</sub> absorption rate may begin to decline due to increased forest disturbances (e.g., drought, wildfires and the spread of diseases), slower forest growth, and other factors.<sup>iii</sup> To account for this variability, the Second Biennial Report provides both a low and high carbon sequestration figure. Both are including in our calculations.

## Annex B: Obama's Climate Policies

Below, we describe new and recently finalized policies—those that have been proposed, updated, or had their status changed since the [January 2016 Report](#)<sup>iv</sup>—in the transport sector, buildings and appliances, methane sources, and hydrofluorocarbons as of the end of the Obama Administration. Each description is accompanied by the expected mitigation of the action, as estimated by the EPA, DOE or another relevant agency, through 2030.

Overall, policies proposed and finalized since January 2016 make a relatively small—though not insignificant—contribution to the U.S.'s ability to meet its international climate targets, abating about 16 and 62 million metric tons of CO<sub>2</sub>-equivalent (MMtCO<sub>2</sub>e) in 2020 and 2025, respectively. In 2025, this represents about 13 percent of the mitigation needed to achieve the lower end of the U.S. Paris target based on current reference case projections. By comparison, full implementation of the Clean Power Plan alone is expected to achieve as much as half of the necessary emissions reductions in 2025.

**Table 2. New and Proposed Policies and Their Potential GHG Impact** <sup>(a)(c)</sup>

Key to changes since January 2016 report:

Rule incorporated into reference case; rule finalized; rule proposed; no change

	Status	2020	2025	2030
<b>Electricity production</b>				
Clean Power Plan	Finalized	-25	-233	-383
<b>Transport</b>				
CAFE standards for medium/heavy-duty trucks post-MY2018	Finalized	0	-36	-70
Tier 3 vehicle emissions and fuel standards (GHG co-benefits)	Finalized	-0.8	-1.7	-2.7
<b>Buildings and appliances (efficiency standards)</b>				
Strengthened commercial building codes	Finalized	-10	-19	-27
Federal buildings	Finalized	-0.3	-0.5	-0.8
Electric motors	Finalized	-4	-8	-12
Florescent and incandescent lamps	Finalized	-4	-9	-13
Automatic commercial ice makers	Finalized	-0.2	-0.4	-0.6

Commercial air conditioners/furnaces	Finalized	-2	-8	-13
Water pumps	Finalized	-0.05	-0.3	-0.5
Commercial clothes washers	Finalized	-0.05	-0.12	-0.2
Ceiling fan light kits	Finalized	-0.1	-0.3	-0.5
Battery chargers	Finalized	-0.2	-0.4	-0.7
Residential dehumidifiers	Finalized	-0.2	-0.5	-1
Wine chillers and other beverage coolers	Finalized	-0.6	-1.4	-2.3
Ceiling fans	Finalized	-0.6	-1.8	-3.1
Residential central air-conditioners and heat pumps	Finalized		-1.3	-2.7
Portable air conditioners	Finalized		-0.7	-1.3
Pool pumps	Finalized		-4.9	-9.7
Commercial boilers	Finalized	-0.1	-0.2	-0.3
Walk-in coolers and freezers	Finalized	-0.1	-0.8	-1.4
Back-up power supplies	Finalized	-0.3	-1.2	-2.1
Efficiency standards for hearth products	Proposed		-1	-3
Efficiency standards for residential conventional ovens	Proposed	-0.3	-0.9	-1.6
Efficiency standards for general service lamps	Proposed	-0.2	-1.5	-2.7
Efficiency standards for commercial water heaters	Proposed	-0.6	-2	-3.5
Efficiency standards for residential furnaces	Proposed		-0.6	-1.2
Efficiency standards for residential dishwashers	Proposed	Determination: an update is not warranted		
<b>Methane emissions</b>				
<b><i>Oil and Gas:</i></b>				
<i>Low:</i> Performance standards for new oil and gas facilities	Finalized	-6.8	-11.6	-11.6
Standards to reduce venting/flaring on public lands	Finalized	-4.0	-4.0	-4.0
<i>High:</i> Targeted (40-45% below 2012 levels) <sup>(b)</sup>	Discussed		-91	-91
<b><i>Landfills:</i></b>				
Updated Standards for Municipal Solid Waste Landfills	Proposed	-9	-8.3	-8.7
<b>HFCs</b>				
<i>Low:</i> SNAP Status Change Rule 20	Finalized	-29	-60	-92
SNAP Status Change Rule 21	Finalized	-3	-6	-11

Refrigerant Management Requirements	Finalized	-8	-8	-8
<i>High</i> : Amendment to the Montreal Protocol	Discussed	-114	-209	-277
<b>Total - low</b>		-59	-326	-532
<b>Total - high</b>		-163	-597	-866

(a) All figures reflect potential reductions of GHG emissions below BAU in MMTCO<sub>2</sub>-eq.

(b) For methane released from the oil and gas sector, the 2020 estimate is based on the White House strategy to reduce methane emissions while the 2025 estimate is based on the U.S. goal to reduce emissions by 45 percent below 2012 levels by 2025. More accurate potential reductions from policy will be included once specific regulations are proposed and finalized.

(c) These calculations are simplified and do not account for interdependencies and feedback loops between sectors.

### *Transportation*

**GHG and fuel efficiency standards for medium- and heavy-duty vehicles (Phase II):** In August of this year, the EPA and the National Highway Traffic Safety Administration (NHTSA) finalized new greenhouse gas and fuel efficiency standards for medium- and heavy-duty vehicles representing model years 2019-2027. The move builds on the first phase fuel efficiency requirements issued in 2011, covering MY2014-2018, and for the first time sets GHG and efficiency standards for tractor trailers, which were exempt from Phase I of the rulemaking. Phase II is expected to reduce carbon pollution by 1.1 billion metric tons over the lifetime of the vehicles sold under the program<sup>v</sup> and, together with Phase I, reduce fuel consumption by 25-48 percent, depending on the vehicle type.<sup>vi</sup> The final rule is stricter than the proposal, released in June 2015, due to expectations that fuel saving technologies will be market ready sooner than originally anticipated.

We estimate possible emissions reductions from the rule by plotting the total reduction figures provided in the *Regulatory Impact Analysis* for 2025, 2040, and 2050<sup>vii</sup> and fitting a trendline through the points. The resulting emissions savings amount to 36 MMTCO<sub>2</sub>-eq in 2025 and 70 MMTCO<sub>2</sub>-eq in 2030. Because the regulation applies to trucks manufactured in 2019 and beyond, its impact on 2020 emissions is negligible.

### *Buildings and Appliances*

**Efficiency standards for residential dehumidifiers:** This summer, DOE finalized new energy conservation standards for residential dehumidifiers, used in about 14 percent of U.S. homes, sold

after 2019. The rule is expected to reduce CO<sub>2</sub> emissions by nearly 5.3 million metric tons through 2030 and result in small additional decreases in CH<sub>4</sub> and N<sub>2</sub>O.<sup>viii</sup>

**Efficiency standards for battery chargers:** Together with dehumidifiers, DOE also finalized revised energy conservation standards for battery chargers sold beginning in 2018. The rule is expected to reduce CO<sub>2</sub> emissions by 4.4 million metric tons through 2030 and bring down CH<sub>4</sub> and N<sub>2</sub>O emissions by a small sum.<sup>ix</sup>

**Efficiency standards for general service lamps:** In February of this year, DOE rolled out new energy conservation standards for general service lamps—these include incandescent, compact fluorescent and LED lamps—sold after 2020. If finalized as proposed, the rule will avoid 14.5 million metric tons of CO<sub>2</sub> emissions through 2030 and effectively phase out incandescent bulbs in favor of LEDs.<sup>x</sup>

**Efficiency standards for commercial boilers:** Also in February, DOE issued proposed energy conservation standards for commercial boilers. If finalized as proposed, the rule is expected to reduce CO<sub>2</sub> emissions by 2.8 million metric tons through 2030.<sup>xi</sup>

**Efficiency standards for commercial water heaters:** DOE continued its rulemaking in May, when it published a proposal for updated energy conservation standards for commercial water heaters. The rule, which will impact products sold in 2019 and later, is expected to avoid 15 million metric tons of CO<sub>2</sub> emissions by 2030.<sup>xii</sup> If finalized as proposed, the rule will be one of the most impactful appliance standards (in terms of avoided emissions) to be issued this year.

**Efficiency standards for portable air conditioners:** Also in May, DOE released a proposal for first-ever energy conservation standards for portable air conditioners sold in 2021 and later. The rule, which is scheduled to be finalized later this year, is expected to avoid just under 7 million tons of carbon dioxide emissions through 2030.<sup>xiii</sup> Groups familiar with the rulemaking have spoken out in favor of more stringent standards, noting that the proposal leaves substantial additional energy savings on the table.

**Efficiency standards for backup power supplies:** In July, DOE published proposed new efficiency standards for uninterruptible power supplies manufactured in 2019 and later. If finalized as proposed, these standards will avoid over 19 million tons of CO<sub>2</sub> emissions through 2030.<sup>xiv</sup>

**Efficiency standards for residential furnaces:** Just this past September, DOE revised its proposal to update energy conservation standards for residential gas furnaces, first issued last year. The revision tightens the efficiency requirements for most large furnaces to 92 percent while capping the required

efficiency of smaller furnaces at 80 percent. The two-tiered system was created to avoid a big cost increase for small households located in warmer climates.

Industry has already threatened a lawsuit over the standard, which they claim would perversely incentivize repairmen to keep old furnaces in place longer than recommended and potentially lead to dangerous consequences. The rule's fate may be decided in an energy reform package now being debated in Congress. If finalized as proposed, the rule will avoid 4 million metric tons of CO<sub>2</sub> emissions through 2030.<sup>xv</sup>

### *Methane*

**Emissions standards for new oil and gas production facilities:** In May of this year, the U.S. Environmental Protection Agency (EPA) finalized a long-awaited rule to limit methane emissions from new oil and gas production facilities, including drilling and pipeline infrastructure. The final regulation, which extends a 2012 rule requiring emissions capture at natural gas production facilities to hydraulically fractured oil wells and requires additional downstream emissions reductions, is stronger than the proposal issued by the agency last year, in part because it eliminates an exemption for low-producing wells—those that generate less than 15 barrels of oil equivalent per day.

The rule, which will apply to facilities constructed or modified after August 2011, is expected to avoid 520,000 tons of methane (or 11.5 million metric tons of CO<sub>2</sub> equivalent) in 2025 and contribute about a tenth of the necessary emissions to reach the Obama administration's goal to reduce oil and gas emissions by 40-45 percent in 2025 compared to 2012.<sup>xvi</sup>

**Standards to reduce venting and flaring from oil and gas on public land:** In January of this year, the Bureau of Land Management (BLM) issued a long-awaited proposal to limit natural gas venting and flaring on public land. Although only a small portion of total U.S. production occurs on public land, it results in significant methane emissions. A recent study commissioned by the Environmental Defense Fund found that, in 2013, natural gas losses from oil and gas operations on federal and tribal lands resulted in methane emissions of 25 million metric tons of CO<sub>2</sub>-equivalent,<sup>27</sup> enough to power 2.2 million homes for a year. If finalized as proposed—this is a big "if" as the rule is sure to meet fierce opposition from industry—it will reduce methane emissions by about 3.8 million tonnes of CO<sub>2</sub>e through 2026 (the end year of the regulation's environmental impact assessment).<sup>xvii</sup>

**Emissions standards for landfills:** In July of this year, EPA finalized updated emissions guidelines and new source performance standards (NSPS) for municipal solid waste landfills—these are responsible for about a fifth of the U.S. total methane emissions. The updated guidelines and the NSPS are expected to avoid 90 and 13 million tons of CO<sub>2</sub>-equivalent methane emissions through 2030,<sup>xviii</sup> a significant contribution from an often-forgotten source of methane pollution.

### *Hydrofluorocarbons*

**Significant New Alternatives Policy (SNAP) Program:** Following last year's SNAP status change rule (SNAP rule #20), which prohibited the use of certain high-GWP HFCs as alternatives to ozone-depleting substances, EPA issued the 21<sup>st</sup> rule under the program. The regulation, which was proposed in April and finalized this month, prohibits the use of several additional substitutes and expands the list of available alternatives. The rule is expected to reduce future HFC emissions by up to 7 and 11 MMTCO<sub>2</sub>e in 2025 and 2030, respectively.

**Updated Refrigerant Management Requirements:** Also this month, EPA finalized an update to existing refrigerant management requirements under Section 608 of the Clean Air Act, which described the National Recycling and Emission Reduction Program. Among other requirements, the update a) extends the Refrigerant Management Program requirements to substitute refrigerants such as HFCs, b) lowers the thresholds at which a leak requires repairs, and c) requires more regular leak inspections of refrigeration and air-conditioning equipment. EPA estimates that the update will avoid 7-8 MMTCO<sub>2</sub>e emissions annually.<sup>xix</sup>

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<sup>i</sup> U.S. Energy Information Administration, 2016. Annual Energy Outlook 2016.

<sup>ii</sup> U.S. Department of State, 2016. U.S. Second Biennial Report. Available at: [http://unfccc.int/files/national\\_reports/biennial\\_reports\\_and\\_jar/submitted\\_biennial\\_reports/application/pdf/2016\\_second\\_biennial\\_report\\_of\\_the\\_united\\_states\\_.pdf](http://unfccc.int/files/national_reports/biennial_reports_and_jar/submitted_biennial_reports/application/pdf/2016_second_biennial_report_of_the_united_states_.pdf).

<sup>iii</sup> Tang, J., et al. (2014). Steeper declines in forest photosynthesis than respiration explain age-driven decreases in forest growth. *Proceedings of the National Academy of Sciences*, 201320761.

<sup>iv</sup> Belenky, M, 2016. Achieving the U.S. 2025 Emissions Mitigation Target. January 2016 Update. Climate Advisers. Available at: [http://www.climateadvisers.com/wp-content/uploads/2016/02/US-Achieving-2025-Target\\_Jan-2015-final.pdf](http://www.climateadvisers.com/wp-content/uploads/2016/02/US-Achieving-2025-Target_Jan-2015-final.pdf).

<sup>v</sup> EPA, 2016. *EPA and NHTSA Adopt Standards to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond*. Available at: <https://www3.epa.gov/otaq/climate/documents/420f16044.pdf>.

<sup>vi</sup> Khan, S., 2016. *The good, better, and best of the Phase 2 heavy-duty vehicle standards*. ACEEE. Available at: <http://aceee.org/blog/2016/09/good-better-and-best-phase-2-heavy>.

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- vii EPA and NHTSA, 2016. *Final Rulemaking for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles: Phase 2*. Regulatory Impact Analysis. Available at: <https://www3.epa.gov/otaq/climate/documents/420r16900.pdf>.
- viii DOE, 2016. *Energy Conservation Standards for Residential Dehumidifiers*. Available at: <https://www.federalregister.gov/articles/2016/06/13/2016-12881/energy-conservation-program-energy-conservation-standards-for-dehumidifiers#h-98>.
- ix DOE, 2016. *Energy Conservation Standards for Battery Chargers*. Available at: <http://energy.gov/sites/prod/files/2016/05/f31/Battery%20Chargers%20Final%20Rule.pdf>.
- x DOE, 2016. *Energy Conservation Standards for General Service Lamps*. Available at: [http://energy.gov/sites/prod/files/2016/02/f29/General%20Service%20Lamp%20NOPR\\_1.pdf](http://energy.gov/sites/prod/files/2016/02/f29/General%20Service%20Lamp%20NOPR_1.pdf).
- xi DOE, 2016. *Energy Conservation Standards for Commercial Packaged Boilers*. Available at: [http://energy.gov/sites/prod/files/2016/03/f30/Commercial%20Packaged%20Boilers\\_NOPR\\_0.pdf](http://energy.gov/sites/prod/files/2016/03/f30/Commercial%20Packaged%20Boilers_NOPR_0.pdf).
- xii DOE, 2016. *Energy Conservation Standards for Commercial Water Heaters*. Available at: <http://energy.gov/sites/prod/files/2016/04/f30/Commercial%20Water%20Heating%20Equipment%20ECS%20NOPR.pdf>.
- xiii DOE, 2016. *Energy Conservation Standards for Portable Air Conditioners*. Available at: <http://energy.gov/sites/prod/files/2016/04/f30/Portable%20AC%20Standards%20NOPR.pdf>.
- xiv DOE, 2016. *Energy Conservation Standards for Uninterruptible Power Supplies*. Available at: <http://energy.gov/sites/prod/files/2016/07/f33/Energy%20Conservation%20Standards%20for%20Uninterruptible%20Power%20Supplies%20NOPR.pdf>.
- xv DOE, 2016. *Energy Conservation Standards for Residential Furnaces*. Available at: <http://energy.gov/sites/prod/files/2016/09/f33/Residential%20Furnaces%20SNOPR.pdf>.
- xvi EPA, 2016. *Regulatory Impact Analysis of the Final Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources*. Available at: <https://www3.epa.gov/airquality/oilandgas/may2016/nsps-ria.pdf>.
- xvii BLM, 2016. *Environmental Assessment: Waste Prevention, Production Subject to Royalties, and Resource Conservation*. Available at: <file:///Users/Belenky/Downloads/BLM-2016-0001-0003.pdf>.
- xviii EPA, 2016. *Regulatory Impact Analysis for the Final Revisions to the Emission Guidelines for Existing Sources and Supplemental New Source Performance Standards in the Municipal Solid Waste Landfills Sector*. Available at: [https://www3.epa.gov/ttn/ecas/docs/ria/landfills\\_ria\\_final-eg-nsps\\_2016-07.pdf](https://www3.epa.gov/ttn/ecas/docs/ria/landfills_ria_final-eg-nsps_2016-07.pdf).
- xix EPA, 2016. *Protection of Stratospheric Ozone: Update to the Refrigerant Management Requirements under the Clean Air Act*. Available at: [https://www.epa.gov/sites/production/files/2016-09/documents/608\\_final\\_rule\\_pre-publication\\_copy.pdf](https://www.epa.gov/sites/production/files/2016-09/documents/608_final_rule_pre-publication_copy.pdf).