



U.S. DEPARTMENT OF
ENERGY

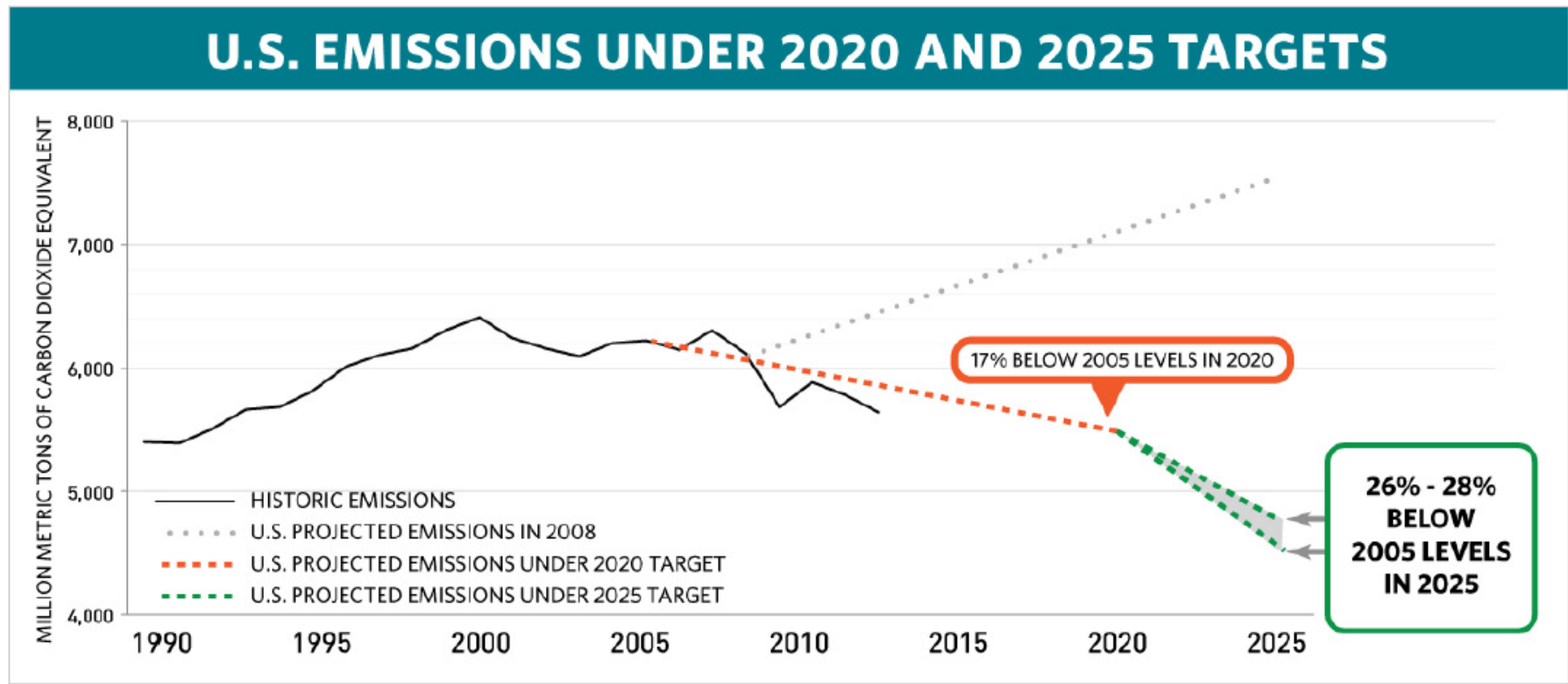
United States' Intended Nationally Determined Contribution (INDC)

September 29, 2015

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U.S. Department of Energy

US Intended Nationally Determined Contribution

- INDC (Submitted March 31, 2015): The United States intends to achieve an economy-wide target of reducing its greenhouse gas emissions by 26%-28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%.

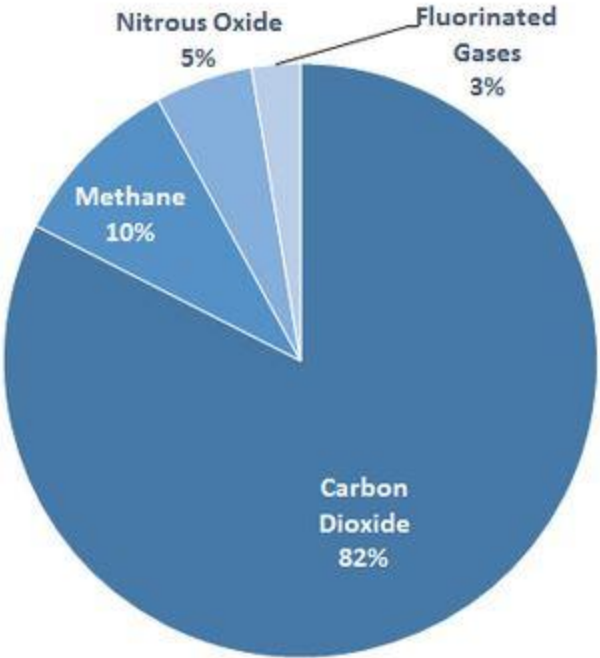


- The US does not intend to use international market mechanisms

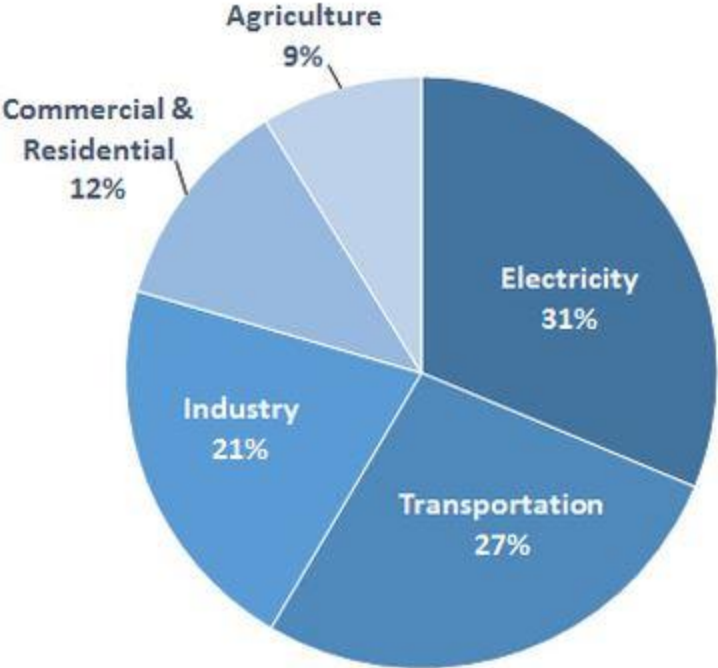
U.S. Emissions by Greenhouse Gas and Sector

~85% of emissions tied to energy

Emissions by Gas



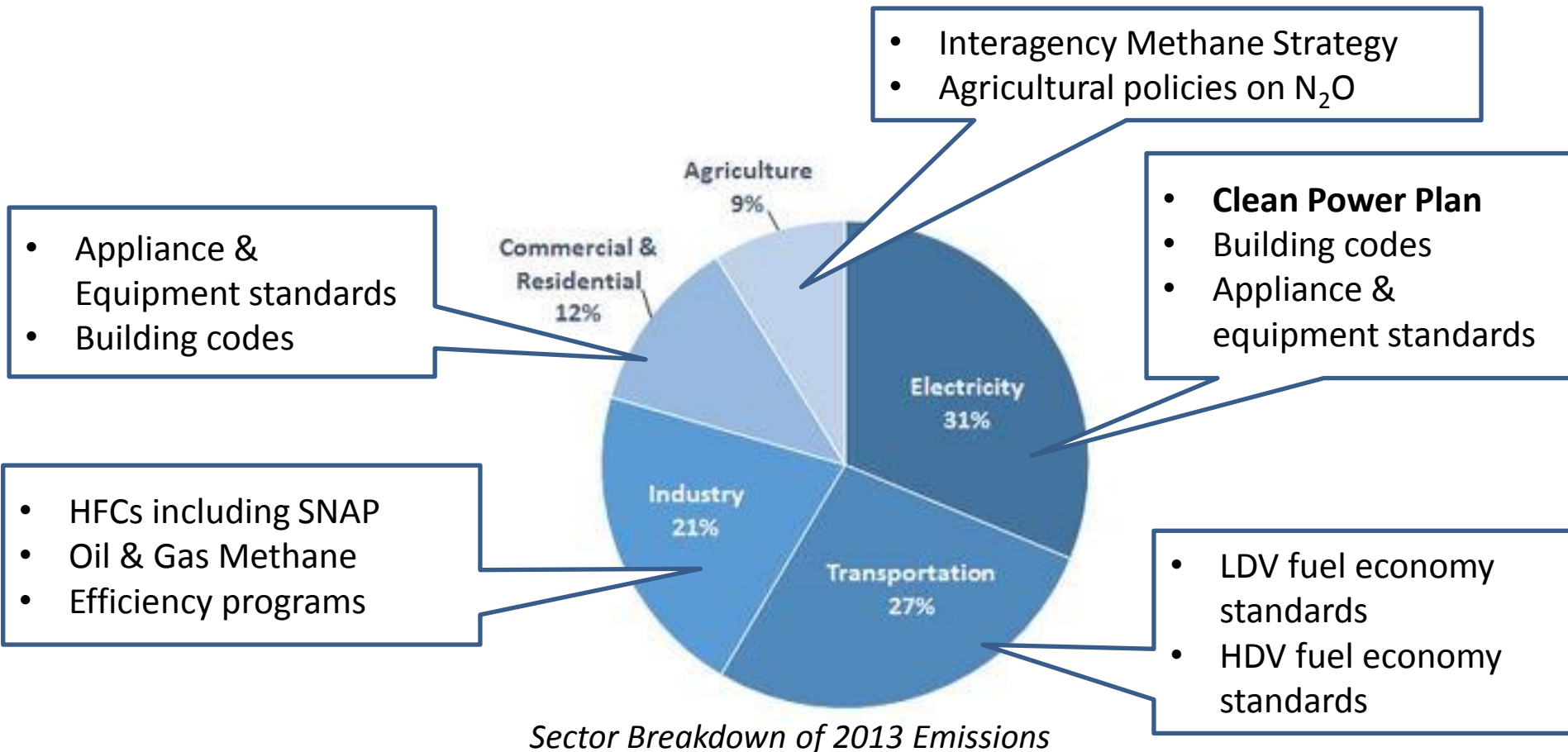
Emissions by Sector



Source: EPA, 2015, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2013

Examples of Policies Addressing All Sectors and Gases

17% reduction below 2005 levels by 2020 and
26-28% reduction below 2005 levels by 2025



US Intended Nationally Determined Contribution

Since 2009, the US has completed the following regulatory actions:

- Adopted fuel economy standards for model year 2012-2025 light-duty vehicles and model year 2014-2018 heavy-duty vehicles.
- Finalized multiple measures addressing buildings sector emissions including energy conservation standards and building codes for commercial buildings.
- Prohibited certain uses of high-GWP HFCs and approved new alternatives.
- Finalized regulations to cut carbon pollution from new and existing power plants.

At this time the US is working on:

- Post-2018 fuel economy standards for heavy-duty vehicles.
- Standards to address methane emissions from landfills and the oil and gas sector.
- Reducing the use and emissions of high-GWP hydrofluorocarbons (HFCs).
- Reducing buildings sector emissions through energy conservation standards for appliances and equipment, as well as residential buildings codes.

In addition, the US has reduced emissions from Federal Government operations by 17 percent and has set a new target to reduce these emissions 40 percent below 2005 levels by 2025.

Power sector reductions: the Clean Power Plan

Step 1: Establish stringency

US government [EPA] sets national technology-specific standards and provides additional options for state-level standards for power sector - both emissions per kwh (**rate-based**) & total emissions (**mass-based**)

Standards based on “best system of emissions reduction adequately demonstrated” which considers analysis of multiple factors, including costs

Step 2: Compliance

Each state formulates its **own plan** to meet its prescribed goal

States can choose to comply on a **rate** basis or on a **mass** basis

States can choose to go it **alone, use emissions/credit trading** or **cooperate**

If State does not act, US EPA imposes “Federal plan”

Clean Power Plan: Compliance Options

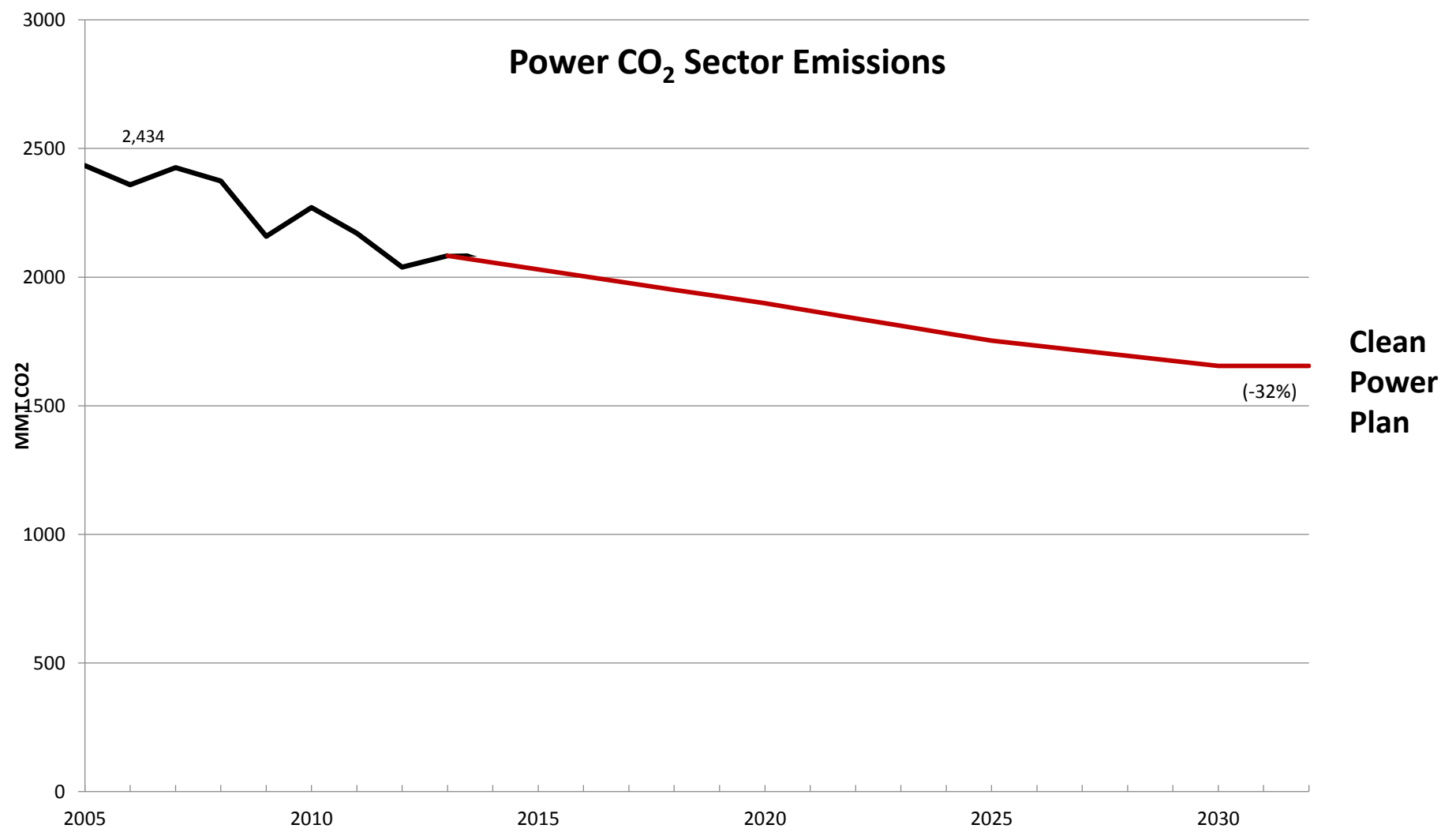
States Choose How to Meet the Goals (illustrative strategies)

- Efficiency improvements at higher emitting plants*
- Expanding use of existing natural gas combined cycle (NGCC) units*
- New renewable energy, including wind, solar (utility and distributed), geothermal, wave and tidal, hydropower*
- New nuclear power (including under construction)
- Nuclear uprates
- Carbon capture and storage (CCS) for existing EGUs
- Demand-side energy efficiency programs
- Combined heat and power (CHP)
- Waste heat to power (WHP)
- Transmission and distribution efficiency improvements
- Water system efficiency
- Use of certain biomass
- Co-firing or switching to natural gas
- Dispatch changes
- Working with utilities to consider retiring units that are high emitting
- Energy conservation programs
- Market-based trading programs

Clean Power Plan: Compliance is flexible

- Credit trading:
 - Rate-based states can trade **emissions rate credits (ERCs)** with **rate-based** states
 - Mass-based states can trade **CO₂ allowances** with **mass-based** states
- Early Action: Wind, solar, and low-income energy efficiency deployed in 2020 – 2021 can receive **ERCs** or allowances for use in compliance period (both rate-based and mass-based)
- Eight-year interim compliance from 2022 to 2029; final compliance 2030-2031, and every two years thereafter

Clean Power Plan: power sector CO₂ emissions below 2005 levels: 32% in 2030



Transportation: Fuel Economy Standards

- Light-duty Vehicle Fuel Economy Standards: Minimum standards for model years 2012-2025 cars and trucks will double new car fuel economy by 2025 and reduce emissions by at least 6 B metric tons of CO₂ over the life of the program.
- Heavy-duty Vehicle Fuel Economy Standards: Proposed standards for post-2018 model year medium and heavy duty vehicles would reduce emissions by approximately 1 BMT CO₂e.
- Developing and Deploying Advanced Transportation Technologies: Support continues for development and deployment of a broad range of new automotive fuels and batteries, as well as advanced engine and drivetrain technologies.

Appliance & Equipment Efficiency Standards

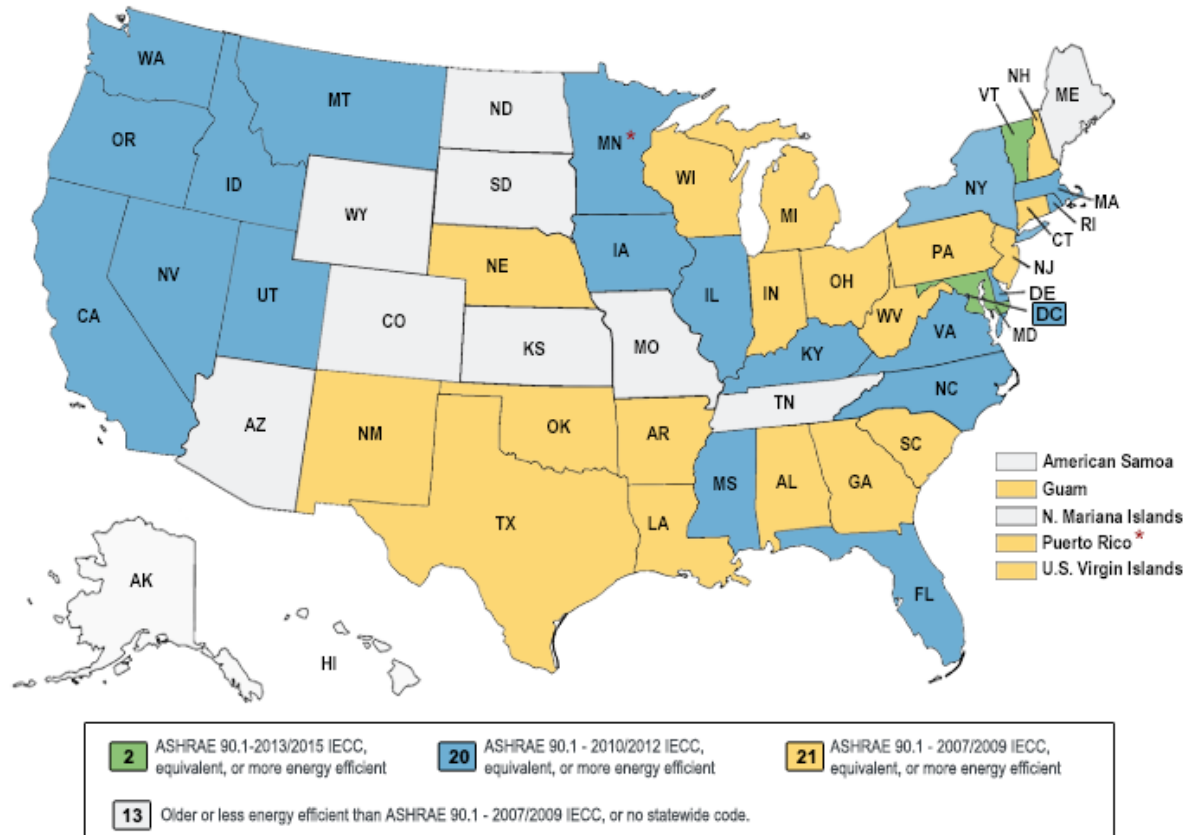
- Over 60 covered products
 - 90% of residential energy use covered
 - 60% of commercial energy use covered
 - 30% of industrial energy use covered
- President's goal of 3 BMT CO₂ savings by 2030 – on track
 - 31 new or updated appliance standards across more than 40 products
 - 2.2 BMT emissions reductions from final standards to date
- In 2014 alone, DOE finalized 10 appliance and equipment standards – the most ever in a calendar year.
 - Cumulative savings of 336 MMT CO₂e and \$67 B by 2030.

Source: DOE Office of Energy Efficiency & Renewable Energy

Commercial and Residential Building Codes

Building Energy Codes Program -

- 1992-2012: reduced cumulative emissions by 300 MMT CO₂e
- Commercial target: reduce annual CO₂ emissions by 50 MMT below 2005 levels by 2025
- Residential target: reduce annual CO₂ emissions by 34 MMT below 2005 levels by 2025



* Adopted new Code to be effective at a later date

As of August 2015

Current Commercial Building Energy Code Adoption Status

Reducing HFC and Methane Emissions

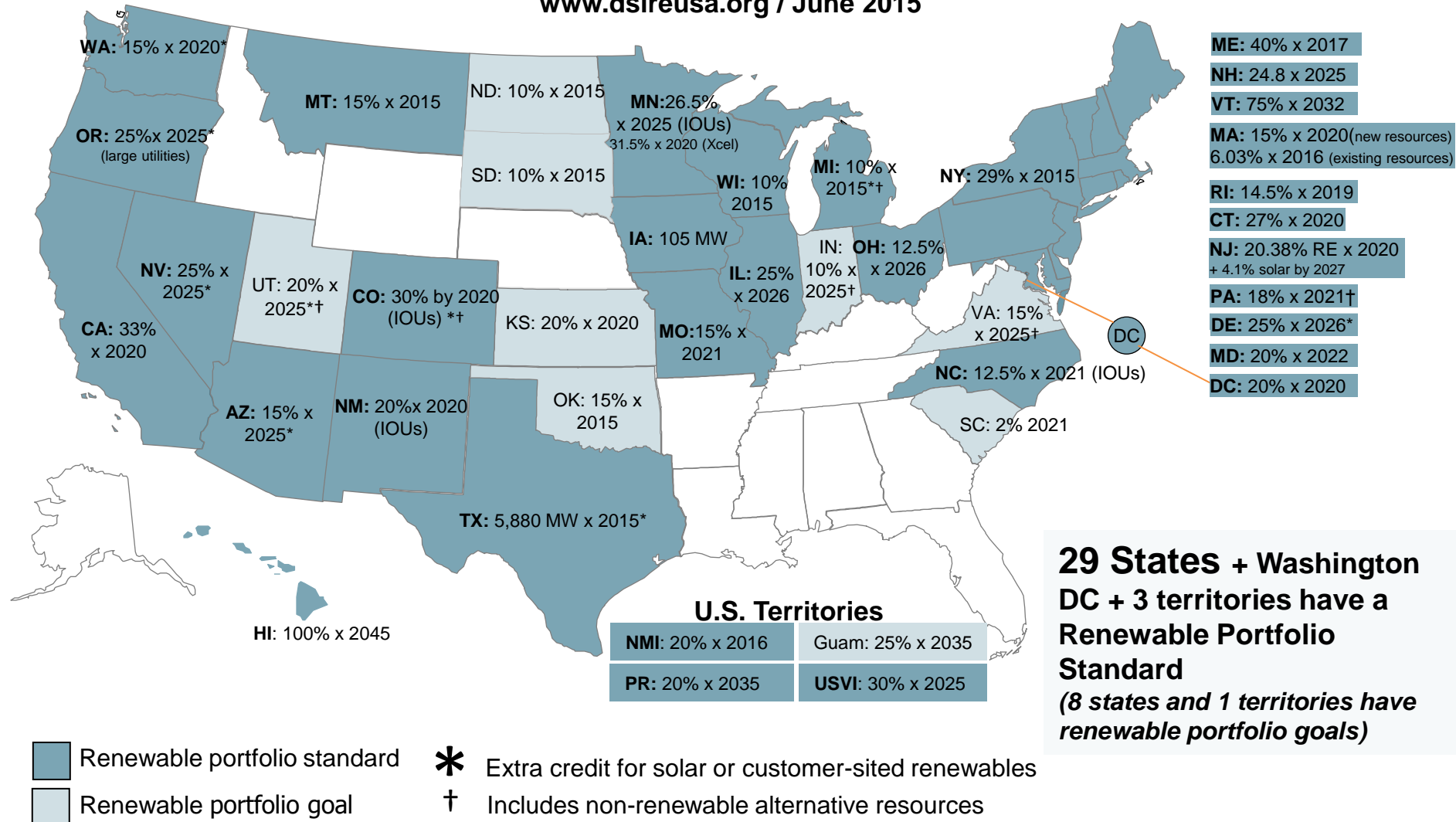
- Domestic actions to reduce HFCs & Methane
 - September 2014: new executive actions and private sector commitments to reduce cumulative global consumption of HFCs by the equivalent of 700 million metric tons of CO₂e through 2025, or 1.5% of the world's 2010 GHG emissions
 - July 2015: Finalized rule under the Significant New Alternatives Policy program to expand the list of climate-friendly alternatives to HFCs and prohibit the use of certain HFCs for specific applications, which would reduce about 54-64 million metric tons of CO₂e in 2025.
 - August 2015: Proposed regulations to cut oil and gas industry methane as part of overall plan to cut oil and gas methane emissions by 40-45%
 - August 2015: Proposed regulations to cut methane emissions from new and existing municipal solid waste landfills by 487,000 metric tons of methane, or 12.2 MMT of CO₂e, in 2025.

Examples of State Actions

- **Renewable Energy**
 - 29 states + DC have a Renewable Portfolio Standard or Alternative Energy Standard.
 - 8 states have a Renewable or Alternative Energy Goal.
- **Market-based policies**
 - California AB 32 requires CA to reduce greenhouse emissions to 1990 levels by 2020, with a goal of 80% reduction by 2050.
 - Regional Greenhouse Gas Initiative (RGGI) (9 states in Northeast and mid-Atlantic) aims to reduce greenhouse gas emissions to 10% below 1990 levels by 2020.
- **Low Carbon Fuel Standards (LCFS)**
 - CA LCFS aims to reduce carbon intensity of transportation fuels by 10% by 2020.
 - Oregon and Washington are working on their own LCFS.

State Renewable Portfolio Standards

www.dsireusa.org / June 2015



This Administration:

- Set strong car and truck fuel economy standards
- Cut carbon pollution from new and existing power plants
- Set 31 new or updated appliance & equipment efficiency standards
- Is reducing domestic emissions of HFCs
- Is proposing regulations to cut methane emissions from energy and waste

Questions?

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**Office of Energy Policy and Systems Analysis
U.S. Department of Energy**

<http://www.energy.gov/epsa>