



CLEAN POWER PLAN OPPORTUNITIES AND CHALLENGES FOR INTELLIGENT EFFICIENCY

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Matt Stanberry, VP Market Development, AEE



Since 2007 EPA has been developing carbon regs for all sectors - power sector is up now

2007	▶	Supreme Court (SC)'s <i>Mass. v. EPA</i> finds CO ₂ is pollutant, and President Bush directs EPA to create mobile source standards
2009	▶	EPA finds that 6 GHGs threaten public health & welfare and proposes first* light-duty vehicle standards
2010	▶	EPA finalizes first light-duty vehicle standards
2011	▶	SC's <i>AEP v. CT</i> affirms EPA's CO ₂ role
2012	▶	EPA proposes standards for new power plants; DC Circuit Court (DCC) upholds endangerment finding, light-duty vehicle standards, and tailoring rule
2014	▶	SC's <i>UARG v. EPA</i> nixes tailoring but affirms EPA's CO ₂ role; EPA proposes existing power plants rule (CPP)
2015	▶	EPA finalizes CPP and new plant rule while proposing CPP Federal Plan, heavy-duty vehicle, & oil/gas methane standards



* Note: The timeline only includes the first mobile standard for brevity, but EPA has been rolled out two additional mobile standards since the first.

The Clean Power Plan is divided into two parts

Front End –Targets and Timelines

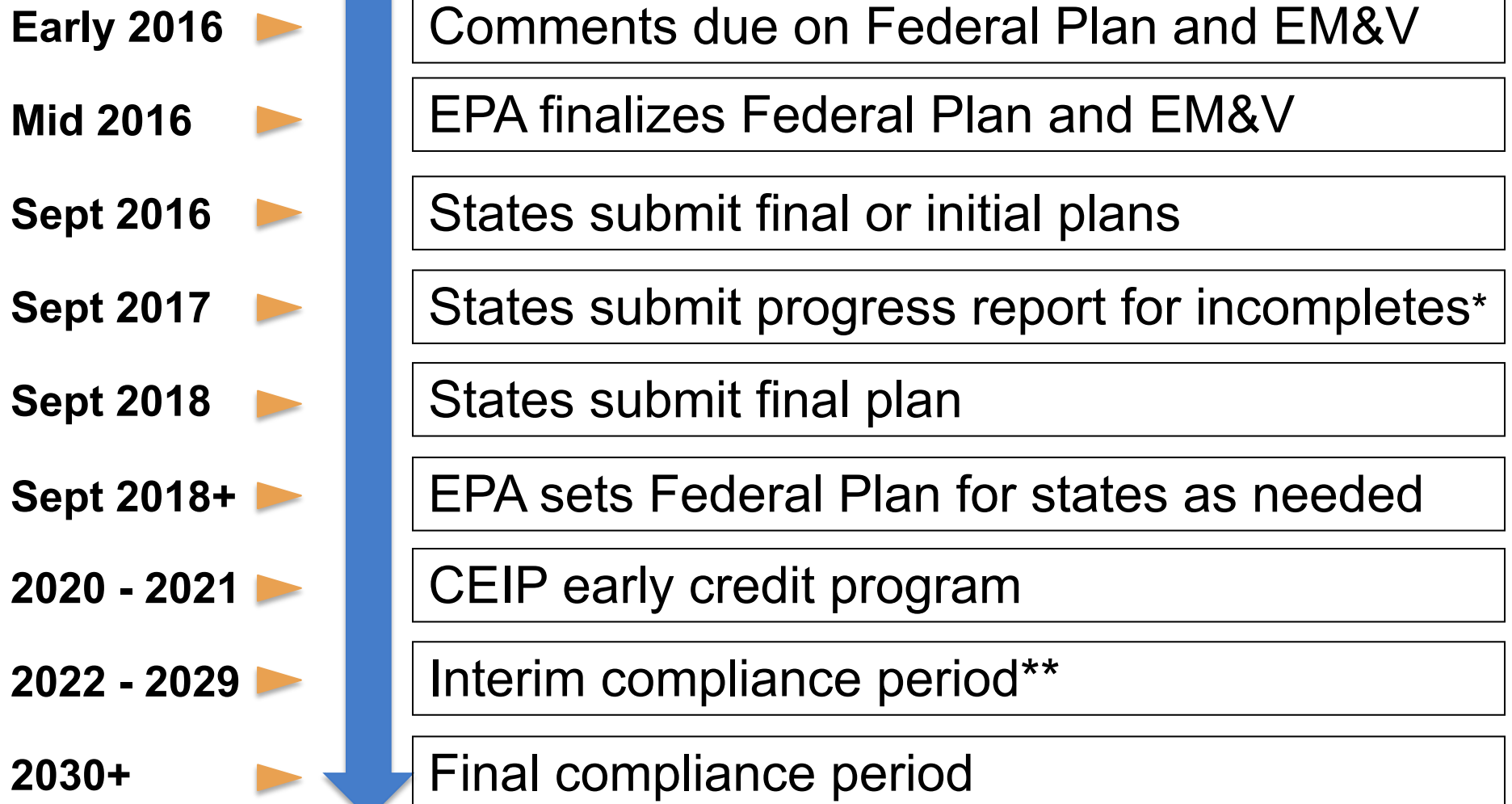
- Best System of Emissions Reduction sets rate (lbs CO₂/MWh) and mass (short tons CO₂) goals for interim (2022-2029) and final (2030-) periods
- EPA projects national emissions fall 32% from 2005 to 2030 (not enforceable)

Back End – Rules for State Compliance Plans

- States submit initial plans in 2016 and final in 2018
- States have many options from plan types to measures
- EGUs are ultimately the responsible parties



State plans start arriving in 2016 with finals due in 2018



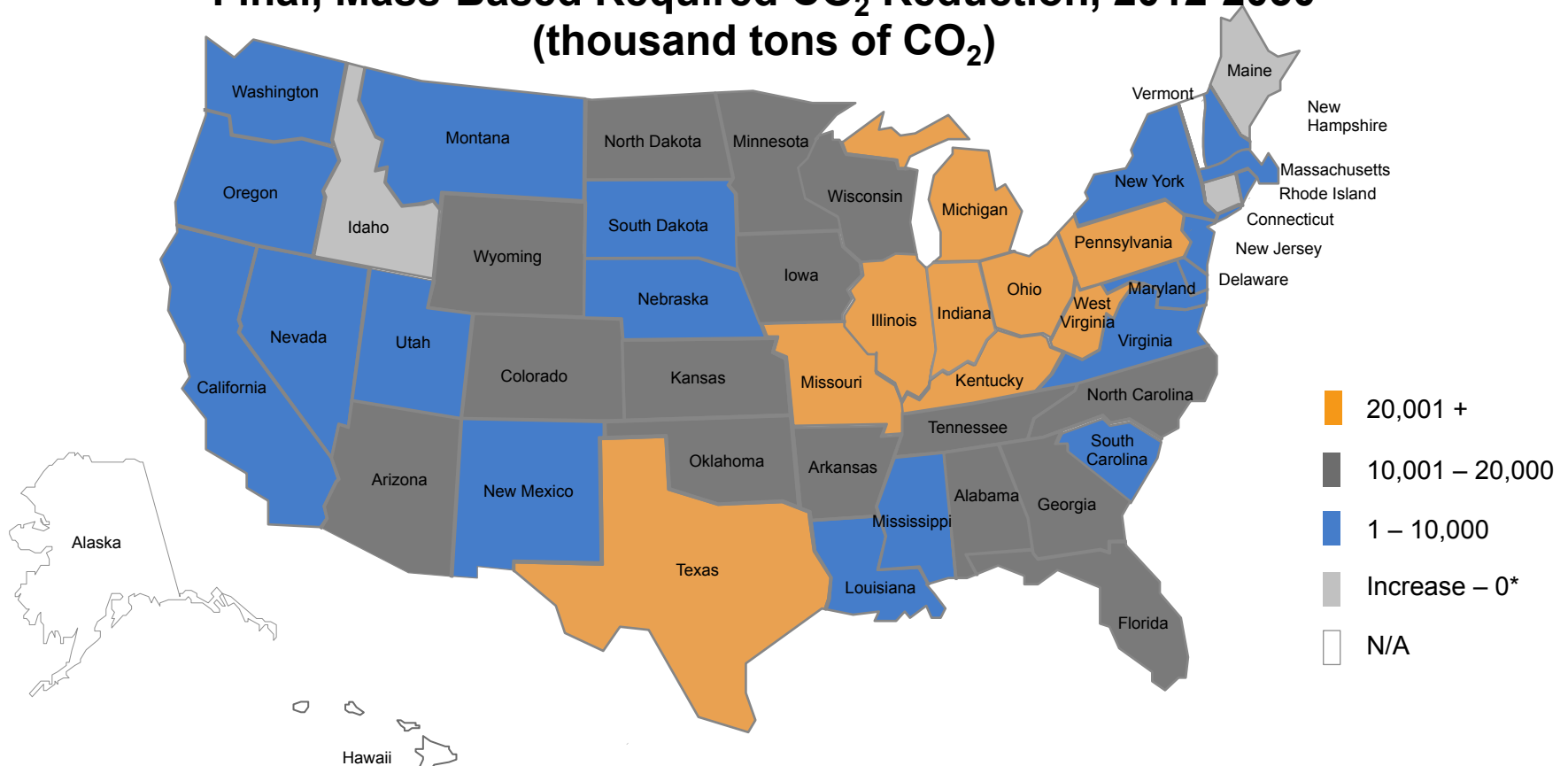
*States do not have to submit progress reports if final plans are submitted in 2016.

**There are three interim step periods, each last a period of 2 or 3 years: 2022 – 2024, 2025 – 2027 and 2028 – 2029.



Required reductions differ, but TX and parts of PJM have the most to do

**Final, Mass-Based Required CO₂ Reduction, 2012-2030
(thousand tons of CO₂)**



*Because the emission targets were set as rate-based lbs CO₂/MWh, three states are allowed a net increase in total tons CO₂ emissions under the Final CPP.

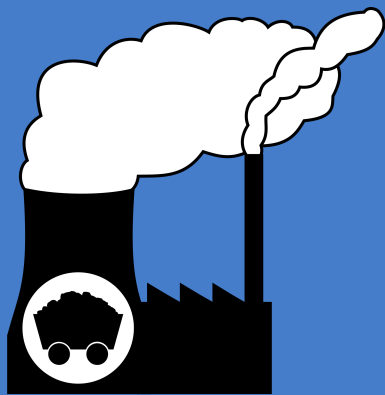
Source: <http://www.epa.gov/airquality/cpp/tsd-cpp-emission-performance-rate-goal-computation-appendix-1-5.xlsx>

Analysis by Advanced Energy Economy



EPA provides two basic approaches to compliance: rate and mass

Rate



$$\text{Target} = \frac{\text{CO}_2 \text{ emitted (lbs)}}{\text{ERCs} + \text{Generation (MWh)}}$$

*EGUs can purchase Emission Rate Credits (ERCs).**

Mass



$$\text{Target} = \text{CO}_2 \text{ emitted (lbs)}$$

EGUs can purchase Allowances to ensure actual emissions are covered by allowances.,***

**Availability of ERCs or allowances depends on state plan design.*

***Total allowances across EGUs must not exceed state's CPP mass target.*




A number of technologies can be used for compliance—how depends on plan type

OTHER OPTIONS


Carbon capture and sequestration

Demand response*

BSER


Other grid-connected renewables
(offshore wind, DG, biomass, wave and tidal power) 


Energy storage**

Renewables
(onshore wind, utility-scale solar PV and CSP, geothermal, hydro) 

Coal-to-existing NGCC switching 

Zero-emitting fuel cells

End-use energy efficiency
ESCOs, behavioral programs, appliance replacement, building energy codes, appliance codes 

 **Heat rate improvements**



CHP, WHP, and cogeneration

New and incremental nuclear 



T&D efficiency
(VVO, CVR, smart grid)



*Eligible to the extent it reduces net MWh end-use.

**Cannot receive credit but benefits can be recognized.

EE receives credit differently—mass based states will have specifically allocate credit

Contribution to Compliance

ERCs

Contributes implicitly (default)

Set-aside Allowances (optional)

Allowance Allocation (optional)

Rate

- EE is an eligible resource which can earn ERCs.
- Project provider applies for project to be qualified, including EM&V plan and independent verification, and awarded ERCs
- State regulator or administrator (or designated agent) accepts project

Mass

- By reducing generation from fossil units, EE contributes to emission reductions implicitly.
- State may opt to give set-aside allowances to EE to address leakage.
- State can choose how to allocate allowances and may allocate to EE



IE faces additional hurdles, but CPP is ultimately an opportunity

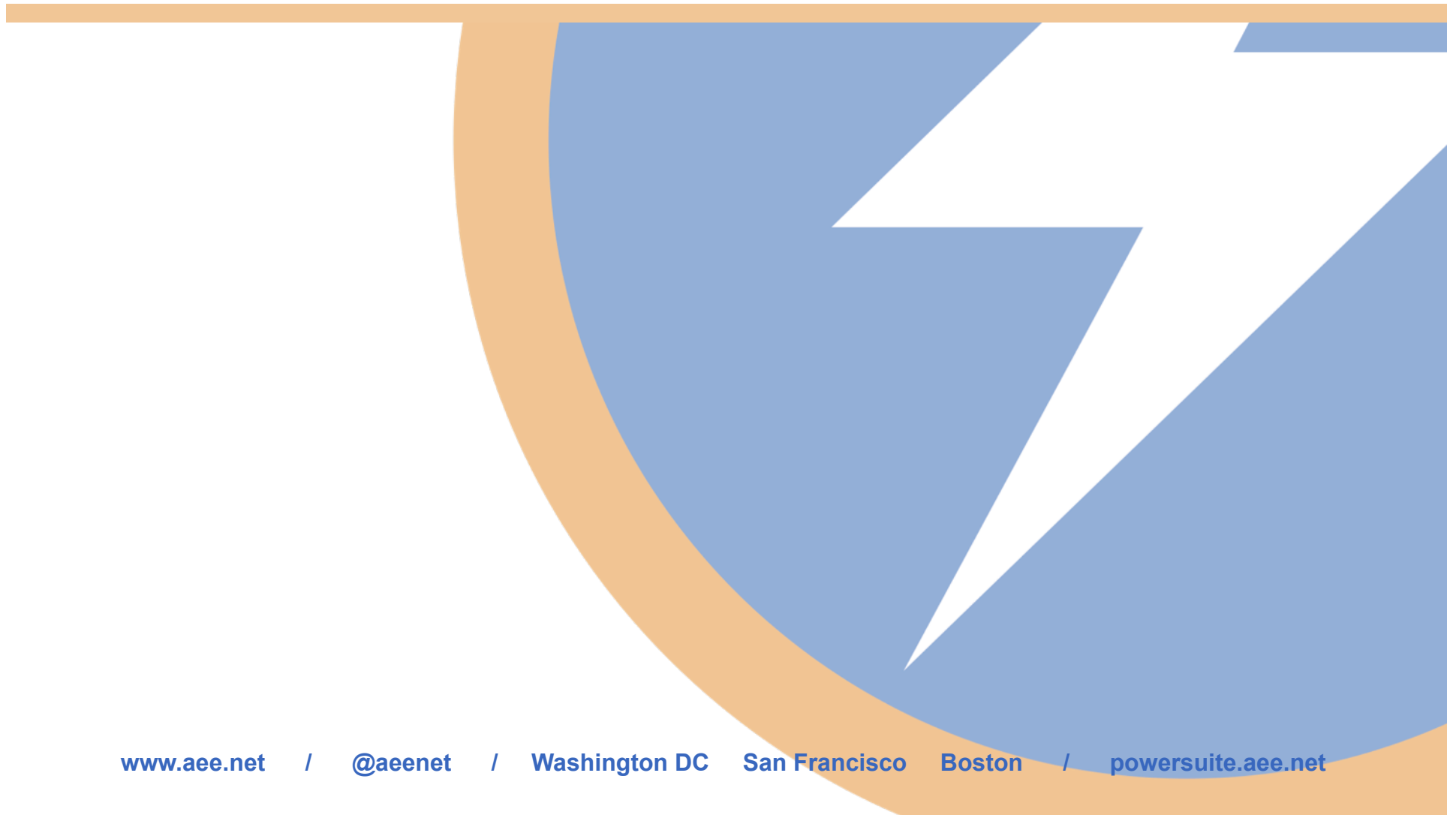
- Intelligent efficiency is rapidly evolving—new ICT capabilities are bringing ever more energy savings opportunities
- States must first decide to use EE in their plans (especially mass-based states)
- There needs to be enough room in EPA's EM&V Guidance to allow for the acceptance of new protocols over time.



Further Questions?

Matthew Stanberry
VP, Market Development
mstanberry@aee.net
(919) 423-8897

Appendix



EE can also participate in the Clean Energy Incentive Program

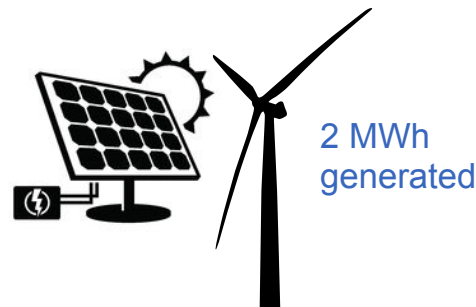
Eligible projects:

- Are metered wind/solar & EE in low income communities
- Are located in or benefit a state partaking in CEIP
- Commenced construction (RE) or operation (EE) after final plan submission or Sept. 6, 2018
- Generated MWh or saved MWh in 2020 and/or 2021

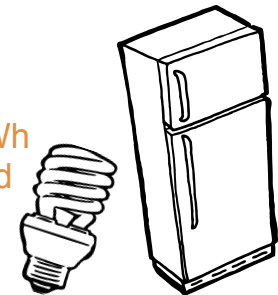
State voluntarily participating in CEIP sets aside early allowances or generates early ERCs

1 ERC or equivalent allowance

2 ERCs or equivalent allowance



2 MWh saved



1 ERC or equivalent allowance

2 ERCs or equivalent allowance

EPA matches from fund equivalent to ERCs and allowances totaling 300 M short tons CO₂

Clean Energy Incentive Program



The Federal Plan proposal contains more opportunities and challenges for EE

- On Aug. 3, EPA released a proposed Federal Plan for the CPP, covering:
 - Federal Plan Requirements for states that do not submit satisfactory state plans
 - Model Trading Rules to guide states as they plan for compliance
 - Amendments to §111(d), particularly relating to the timing and process of state plan submission and EPA actions
- The proposal will also be used to finalize some elements that were left undecided in the final CPP

The Proposed Federal Plan is up for comment. Stakeholders will have 90 days to submit comments from the date that the proposal is published to the Federal Register.

