



# THE CLEAN POWER PLAN

[epa.gov/cleanpowerplan](http://epa.gov/cleanpowerplan)

#ActOnClimate #CleanPowerPlan

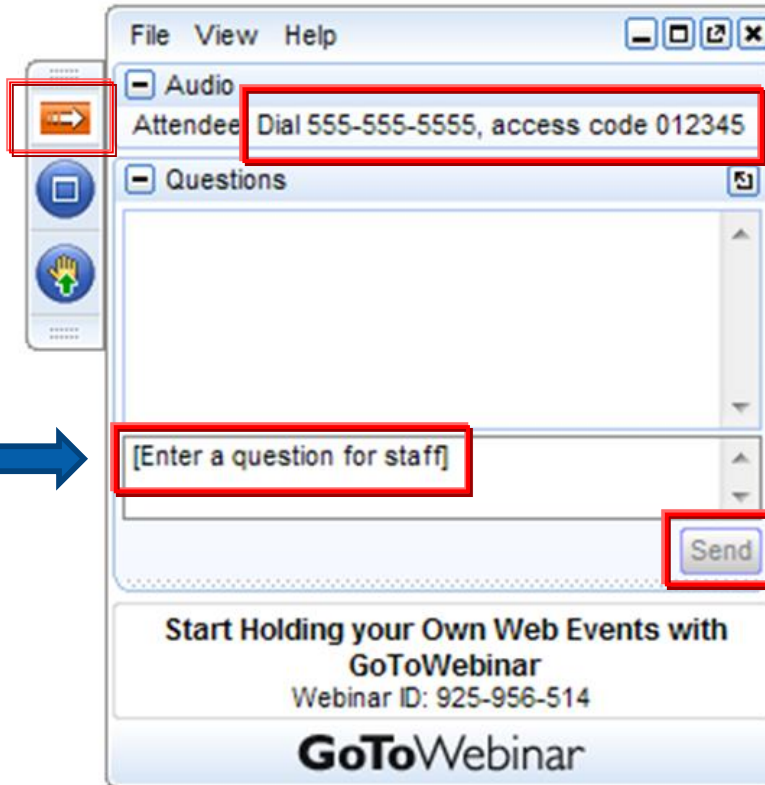
## Energy Efficiency and Evaluation, Measurement and Verification in State Plans

January 14, 2016



# How to Participate Today

Open and close  
your control  
panel



Audio is available  
your computer's  
microphone and  
speakers (VoIP) or  
telephone:

**(631) 992-3221**  
**ID: 430-969-200**

Participants are on mute  
Type in your questions



Hit "send" to  
submit your  
questions

If you experience technical difficulties, please contact  
Lauren Marti at: [Lauren.Marti@icfi.com](mailto:Lauren.Marti@icfi.com)



# States and Affected Electric Generating Units Can Use Many Measures to Lower CO<sub>2</sub> Under the Clean Power Plan

Measures include but are not limited to:

- Heat rate improvements
- Fuel switching to a lower carbon content fuel
- Carbon capture and utilization for existing sources
- Carbon capture and sequestration for existing sources
- Integration of renewable energy into EGU operations
- Combined heat and power
- Qualified biomass co-firing and repowering
- Renewable energy (new & capacity uprates)
  - Wind, solar, hydro, waste-to-energy, wave and tidal power
- Nuclear generation (new & capacity uprates)
- Demand-side Energy Efficiency programs and policies, including water system efficiency
- Demand-side management measures
- Electricity transmission and distribution improvements (e.g. conservation voltage reduction)
- Others

*Today's Focus*



# The Clean Power Plan Provides Many Opportunities for Energy Efficiency

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- “Energy efficiency means using less energy to provide the same or greater level of service.”
- The Clean Power Plan (CPP) puts energy efficiency (EE) front and center as a compliance option that avoids or reduces carbon dioxide (CO<sub>2</sub>) from affected electric generating units (EGUs) and can help states meet their CPP goal for affected EGUs.
- It is an important, proven strategy widely used by states that can substantially and cost-effectively lower CO<sub>2</sub> emissions from the power sector across all state plan pathways.
  - While the final state goals don’t include energy efficiency as a Best System of Emission Reduction (BSER) building block, this does not limit the ability of states to use energy efficiency to meet their CPP goals for affected EGUs.



# Demand-side Energy Efficiency in the CPP

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- “Demand-side energy efficiency refers to an extensive array of technologies, practices and measures that are applied throughout all sectors of the economy to reduce energy demand while providing the same, and sometimes better, level and quality of service.”
- Demand-side EE policies, programs and measures called out in the CPP include, but are not limited to, those that:
  - Lower electricity use in buildings and facilities
  - Are installed as individual EE projects or through an EE deployment program
  - Impose requirements that result in MegaWatt hour (MWh) savings
  - May be provided by a variety of parties
- These policies, programs and measures can be used under any of the state plan pathways.



## Two State Plans Designs:

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- States are able to choose one of two state plan types:

**Emission Standards Plan** – state places federally enforceable emission standards on affected EGUs that fully meet the emission guidelines

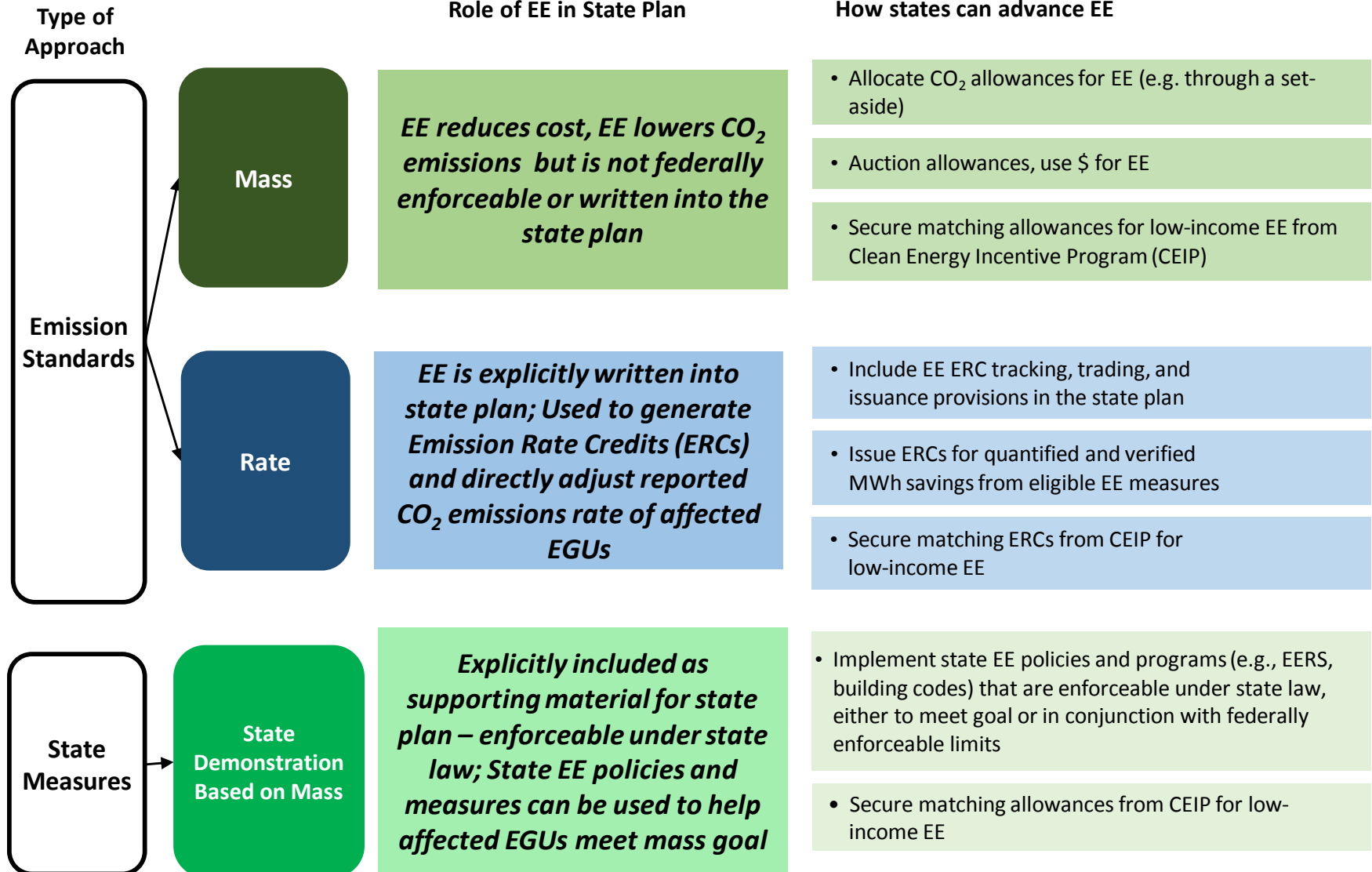
- can be designed to meet the CO<sub>2</sub> emission performance rates or state goal (rate-based or mass-based goal)

**State Measures Plan** - state includes, at least in part, measures implemented by the state that are not included as federally enforceable emission standards

- designed to achieve the state CO<sub>2</sub> mass-based goal
- includes federally enforceable measures as a backstop



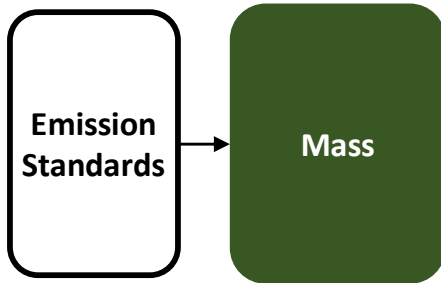
# How Does EE fit in the Clean Power Plan?





# Mass-based emission standards approach

## Type of Approach



## Role of EE in State Plan

*EE reduces cost, EE lowers CO<sub>2</sub> emissions but is not enforceable or written into the state plan*

## How states can advance EE

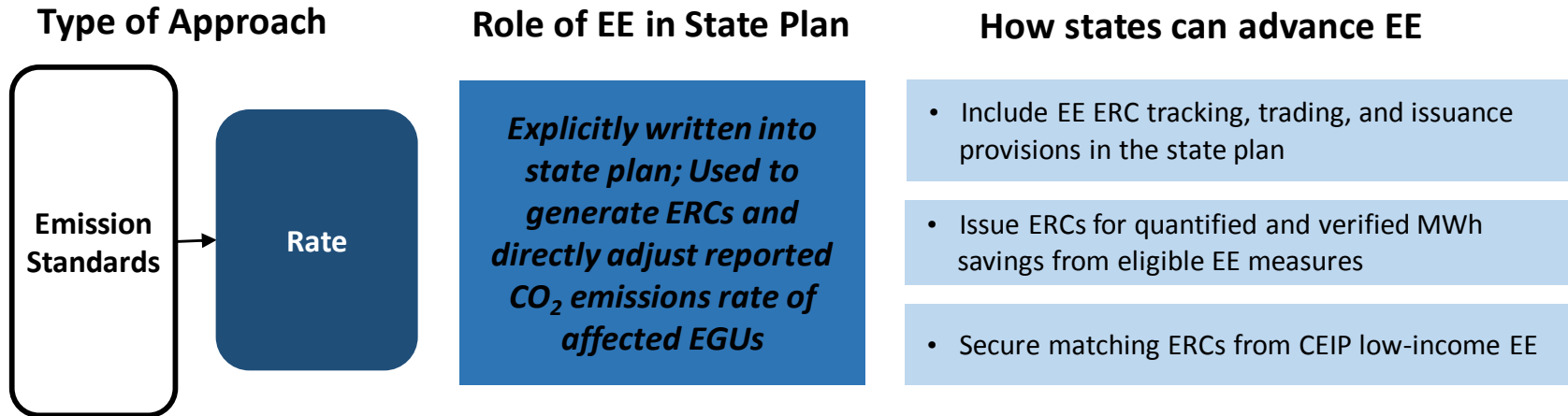
- Allocate CO<sub>2</sub> allowances for EE (e.g. through a set aside)
- Auction allowances, use \$ for EE
- Secure matching allowances for low- income EE from Clean Energy Incentive Program (CEIP)

- Any EE measure achieving savings during the plan performance period, regardless of when it was installed, automatically “counts”.
  - It displaces fossil generation and helps meet the CO<sub>2</sub> emission cap.
  - Stack CO<sub>2</sub> emissions are the key criteria for showing that state goals for affected EGUs have been met.
- States have many opportunities to advance EE as a complement to their state plan, through allowance allocation as part of a state plan, and can get matching allowances from EPA through the Clean Energy Incentive Program.





# Rate-based emission standards approach

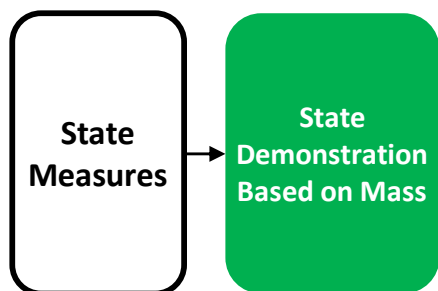


- Quantified and verified MWhs from eligible EE during the plan performance period (2022 and beyond) may be eligible for tradable Emission Rate Credits (ERCs), zero-emission MWh credits that can be used by affected EGUs to lower their reported CO<sub>2</sub> emissions rate during the plan performance period.
  - EE eligible for ERCs includes measures implemented after 2012 that are achieving MWh savings during the compliance period.
  - Must be grid-connected and tied to a state plan.
  - No interstate discounting of EE impacts required.
- Considerations:
  - ERCs require EM&V for all MWh savings.
  - ERC-issuance and tracking provisions must also be documented in state plans.



# State measures approach

## Type of Approach



## Role of EE in State Plan

***Explicitly included as supporting material for state plan – enforceable under state law; State EE policies and measures can be used to help affected EGUs meet mass goal***

## How states can advance EE

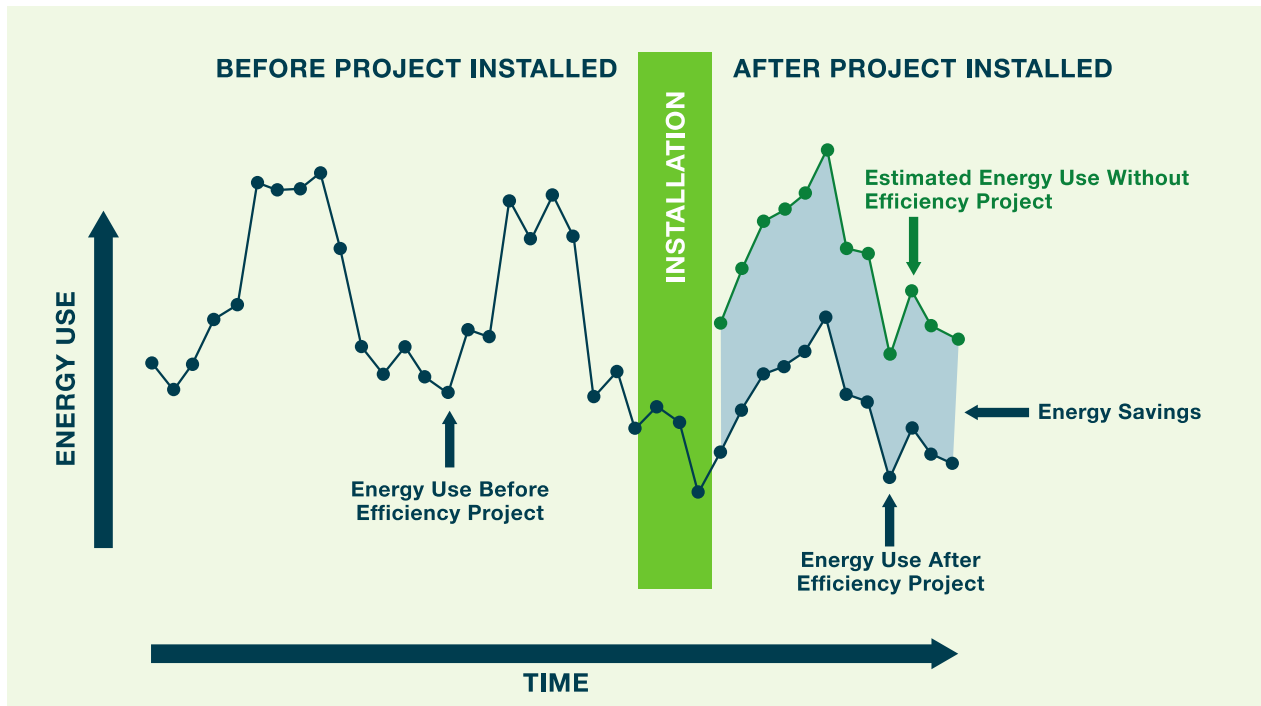
- Implement state EE policies and programs (e.g., EERS, building codes) that are enforceable under state law, either to meet goal or in conjunction with federally enforceable limits
- Secure matching allowances from CEIP for low- income EE

- States implement EE programs and requirements (e.g. EERS) to help affected EGUs meet their mass goal – either alone or in conjunction with federally enforceable limits on affected EGUs.
- Considerations:
  - A state measures state plan must include:
    - A projection of EE impacts and EGU CO<sub>2</sub> emission performance,
    - An EM&V plan related to state EE policies and programs as supporting material for the state plan and
    - Federally enforceable backstop emission standards for affected EGUs in the event state measures don't achieve required CO<sub>2</sub> emission reductions.



# What is EM&V?

- CPP definition for evaluation, measurement, and verification (EM&V):
  - *The set of procedures, methods, and analytic approaches used to quantify the MWh from demand-side EE and other eligible resources, and thereby ensure that the resulting savings and generation are quantifiable and verifiable.*
- For demand-side EE, one of the key challenges with EM&V is determining the baseline
  - i.e., Savings are determined by comparing energy use with an EE project in place with the best estimate of energy use in the absence of the project



The final CPP is available at 80 FR 64661. In the event of any conflict between the provisions of the final rule and these slides, the final rule and requirements within are controlling.



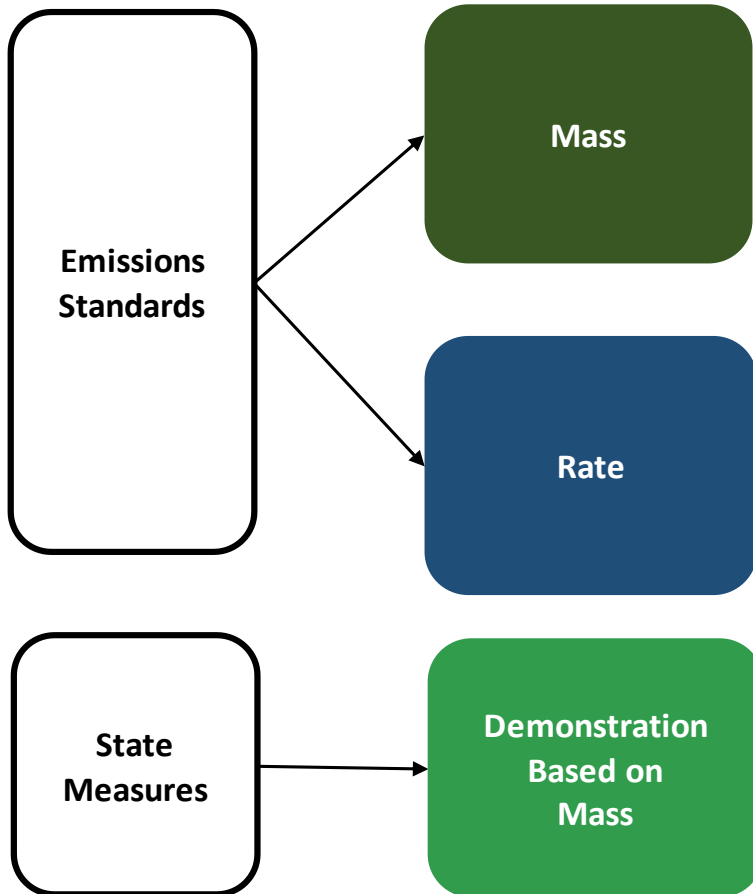
# EM&V Content in the CPP

- The **final emission guidelines** include basic requirements to conduct evaluation, measurement, and verification (EM&V) in certain state-plan circumstances
  - Section VIII.K.3
- Presumptively approvable EM&V provisions in the **proposed fed plan & model trading rules** support the issuance of emission rate credits (ERCs)
  - Section IV.D.8
  - Currently out for public comment: <http://www.epa.gov/cleanpowerplan/how-comment-proposed-federal-plan-clean-power-plan>
  - Comments due Jan 21<sup>st</sup>, 2016
- EPA also released **draft EM&V guidance for EE** that supports implementation of the final guidelines and proposed model rule
  - Purpose is to provide supplemental information to help states and EE providers successfully quantify and verify savings
  - Not a regulatory document
  - EPA is currently seeking stakeholder input on the draft guidance
    - Available at: <http://www2.epa.gov/cleanpowerplantoolbox>
    - Send comments to: [emvinput@epa.gov](mailto:emvinput@epa.gov)
    - Comments due Jan 21<sup>st</sup>, 2016



# EM&V Required in the CPP

## State Plan Approach



## EM&V Requirements

- EM&V is generally not applicable
- EM&V needed for set-asides used to meet the equivalence requirement addressing leakage
- CEIP set asides must have EM&V that meets rate-based ERC issuance EM&V requirements
- EM&V plans and reports are needed to support EE/RE ERC tracking, trading, and issuance provisions
- EM&V is needed to secure ERCs in the CEIP for solar, wind and low-income EE
- EM&V is applicable for EE/RE "state measures" (e.g., EERS, building codes); must be documented in supporting material of state plan
- EM&V is needed to secure matching allowances in the CEIP for solar, wind and low-income EE

**Note:** State and regional oversight entities typically have purposes, objectives, and authorities for conducting EM&V that are independent of the CPP



# EM&V in the CPP Reflects Existing Best Practices

- Existing EM&V approaches for demand-side EE programs are well-established
  - States, EE providers, evaluators, etc have decades of experience
  - Refinements and best practices developed along the way
  - Ongoing efforts to improve cross-state consistency and accuracy of results
- Key features include:
  - Routine use of protocols and guidelines
  - Oversight by PUCs, SEOs, and other authorities
  - Supported by many firms, practitioners, NGOs
  - Training and certification programs
  - Rich library of published reports, data and tech resources
- EPA’s approach to the proposed regulatory provisions and draft guidance:
  - Leverage best practices already in wide use
  - Encourage use of existing protocols, methods, tools
  - Balance EM&V accuracy with costs and effort
  - Anticipate and support the continued evolution of EM&V into the future



# Information and Resources

How can I learn  
more?

After two years of unprecedented outreach, the EPA remains committed to engaging with all stakeholders as states implement the final Clean Power Plan.

- For more information and to access a copy of the rule, visit the **Clean Power Plan website**: <http://www2.epa.gov/carbon-pollution-standards>
- For a factsheet on Energy Efficiency in the Clean Power Plan, see: <http://www2.epa.gov/cleanpowerplan/factsheet-energy-efficiency-clean-power-plan>
- Through graphics and interactive maps, the **Story Map** presents key information about the final Clean Power Plan. See: <http://www2.epa.gov/cleanpowerplan>
- For community-specific information and engagement opportunities, see the **Community Portal**: <http://www2.epa.gov/cleanpowerplan/clean-power-plan-community-page>
- For additional resources to help states develop plans, visit the **CPP Toolbox for States**: <http://www2.epa.gov/cleanpowerplantoolbox>
- For a graphical and detailed walk through of the EGU category-specific CO<sub>2</sub> emission performance rate and state goals, see **State Goal Visualizer**: <http://www2.epa.gov/cleanpowerplantoolbox>
- EPA provides **webinars** and **training** on CPP related topics at the air pollution control learning website. See: <http://www.apti-learn.net/lms/cpp/plan/>
- **Federal programs and activities** to support renewable energy and energy efficiency in low- and moderate-income communities: [https://www.whitehouse.gov/sites/default/files/low-income\\_and\\_energy\\_efficiency\\_programs.pdf](https://www.whitehouse.gov/sites/default/files/low-income_and_energy_efficiency_programs.pdf)
- Federal initiative to **increase solar access** for all Americans: <https://www.whitehouse.gov/the-press-office/2015/07/07/fact-sheet-administration-announces-new-initiative-increase-solar-access>



# Thank You and Discussion



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# Appendix

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# What's in the Draft EM&V Guidance?

- **Section 1:** Overview and context
- **Section 2:** Discussion and Guidance for 12 Key EM&V Topics, including:
  - EM&V methods
  - Electricity savings metrics and baselines
  - Reporting timeframes and considerations
  - Deemed savings
  - Independent factors
  - Accuracy and reliability of quantified savings
  - Avoiding double counting
  - Effective useful life and persistence
  - Quantification and verification cycles
  - T&D savings adders
  - Interactive effects
  - Use of EE EM&V protocols
- **Section 3:** Additional EM&V guidance for several common EE program and project types, including:
  - Utility/demand-side EE programs (i.e., programs implemented using utility customer funds)
  - Individual EE Projects (e.g., those implemented by ESCOs or at industrial facilities)
  - Building energy codes
  - Appliance standards
- **Appendix A:** Glossary
- **Appendix B:** Templates for EM&V Plans
- **Appendix C:** Considerations for selecting/implementing EM&V methods