Opportunities and Challenges to Expand ESCO Market Demand using EPA's Clean Power Plan

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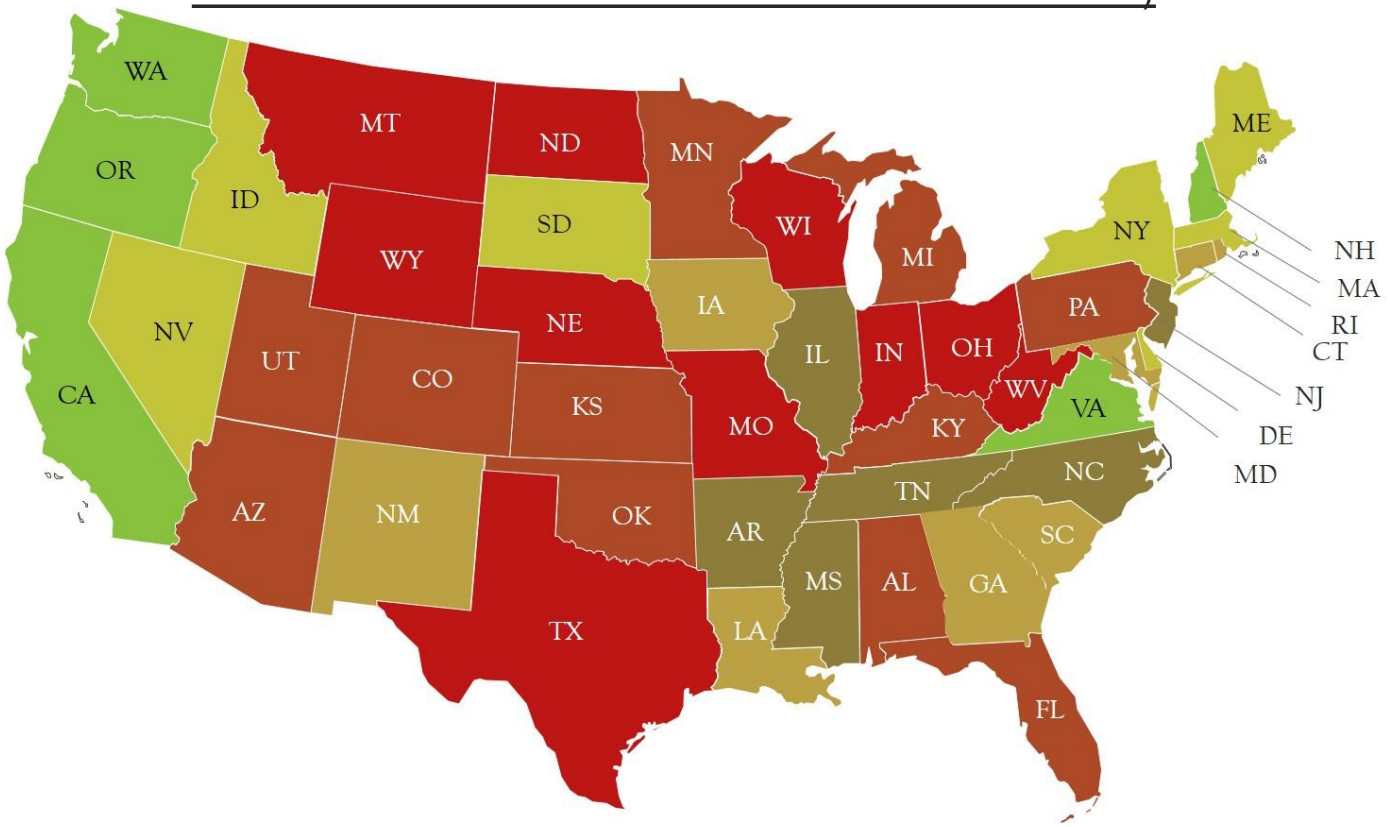
Summary

- On August 3, 2015, EPA released the final Clean Power Plan (CPP). In addition, EPA separately issued a proposed Federal Implementation Plan for public comment.
- The final rule regulates provides flexibility to capitalize on energy efficiency.
- The final CPP is considerably different than the proposed rule, following EPA's consideration of more than 4 million public comments that were submitted on the proposed rule in 2014.
- Energy efficiency technologies and projects face different opportunities and challenges based on whether states adopt rate-based plans or mass-based plans.
- In the implementation of the CPP, states are the prime drivers.

Ease of Compliance Varies Significantly by State

2030 Final goals vs. BAU (projections of what states' emission rates would be without the Clean Power Plan)



% Change 2030 Final Goal vs. BAU (lbs CO_2/MWh)

- 31% - 42%
- 22% - 30%
- 11% - 21%
- 1% - 10%
- -19% – 0%
- -40% - -20%

Higher emission rates vs. Final Goal

Lower emission rates vs. Final Goal

Analysis: In general, West coast and Northeast states are set to meet or outperform the 2030 final goals. Midwest/Western states must make more significant reductions to comply with the goals. Positioning of states in meeting goals may indicate the future flow of interstate trading

Source: https://blog.epa.gov/blog/wp-content/uploads/2015/08/State-tables-tab-2.pdf

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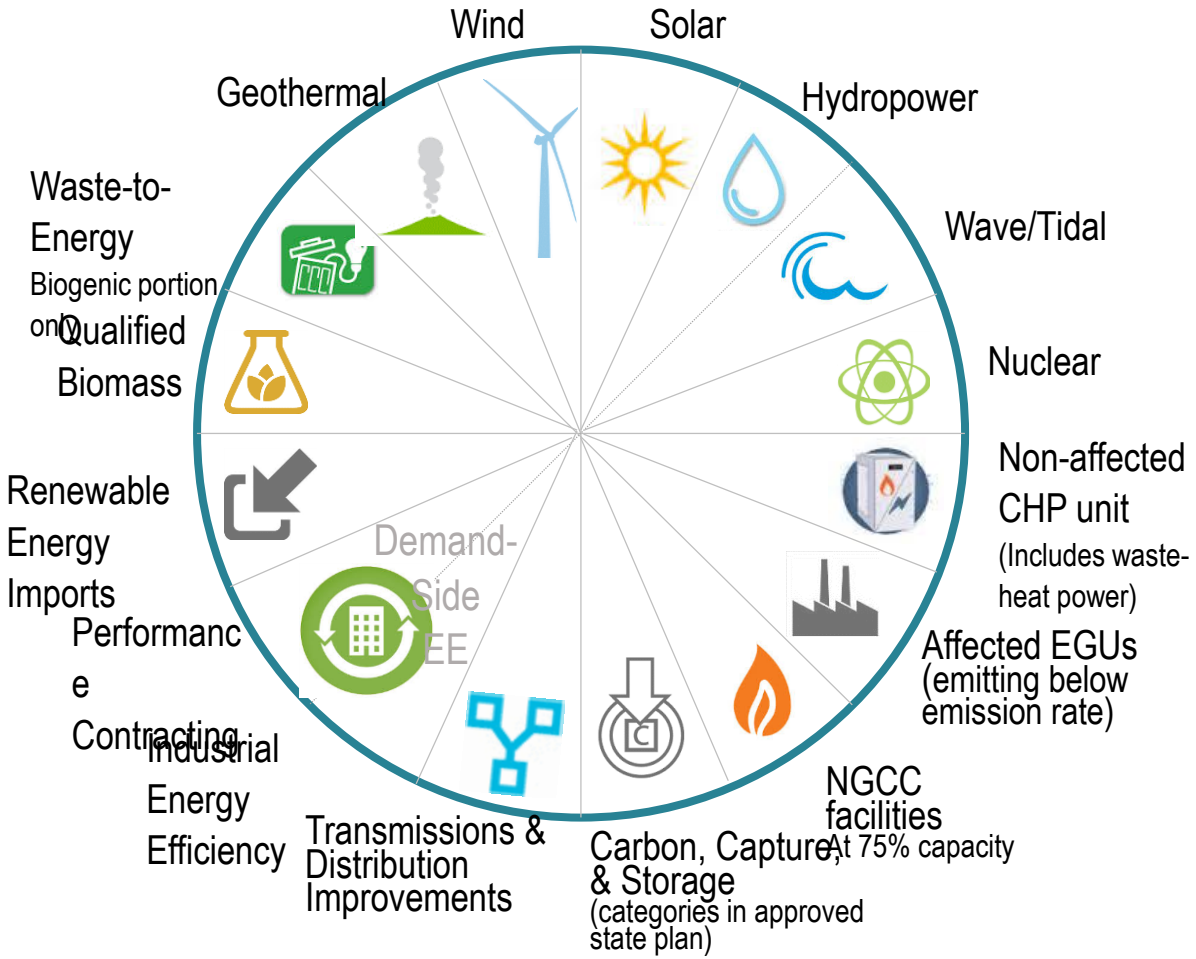
Emission Rate Credits in Rate-Based Plans

Emission Rate Credits (ERCs)

Tradable compliance units representing **one MWh** of electric generation or reduced electricity use

Eligible ERC Approaches & Technologies



States may issue ERCs to:

1. An affected EGU performing below a specified CO_2 emission rate
2. *Providers of qualifying measures that substitute generation for affected EGUs or reduce need for generation from affected EGUs*

State Plan Requirement for Obtaining ERCs

2-Step Process

1. A potential ERC provider submits an eligibility application for a qualifying program/project to the administering state regulator
2. Subsequently, an RE/EE provider submits a M&V report to the state regulatory body documenting the results of the program or project, the results of which must be verified by an accredited independent verifier. The state reviews and approves the report prior to ERC issuance.

Application must include:

- Project description
- Projection of MWh generation or energy savings anticipated over project lifetime
- EM&V plan that satisfies state requirements

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Eligibility Requirements for an Emission Rate Credit

Eligibility Date

Installation

Only measures installed AFTER 2012 are eligible (e.g. placed in service on 1/1/13 or after)

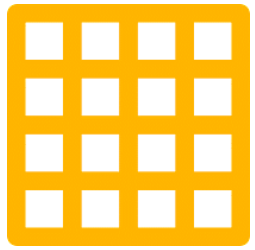
Eligible Measures

Only quantified and verified generation or savings PRODUCED IN OR AFTER 2022 may be applied towards adjusting a CO_2 emission rate

Demonstration of Avoided Generation

Eligible RE measures must be GRID-CONNECTED

All EE measures must generate electricity at a building, facility, or other end-use location connected to the electric grid



Geographic Eligibility

ERC measures may occur IN ANY STATE

ERCs only have value to EGUs in RATE-BASED STATES

Banking

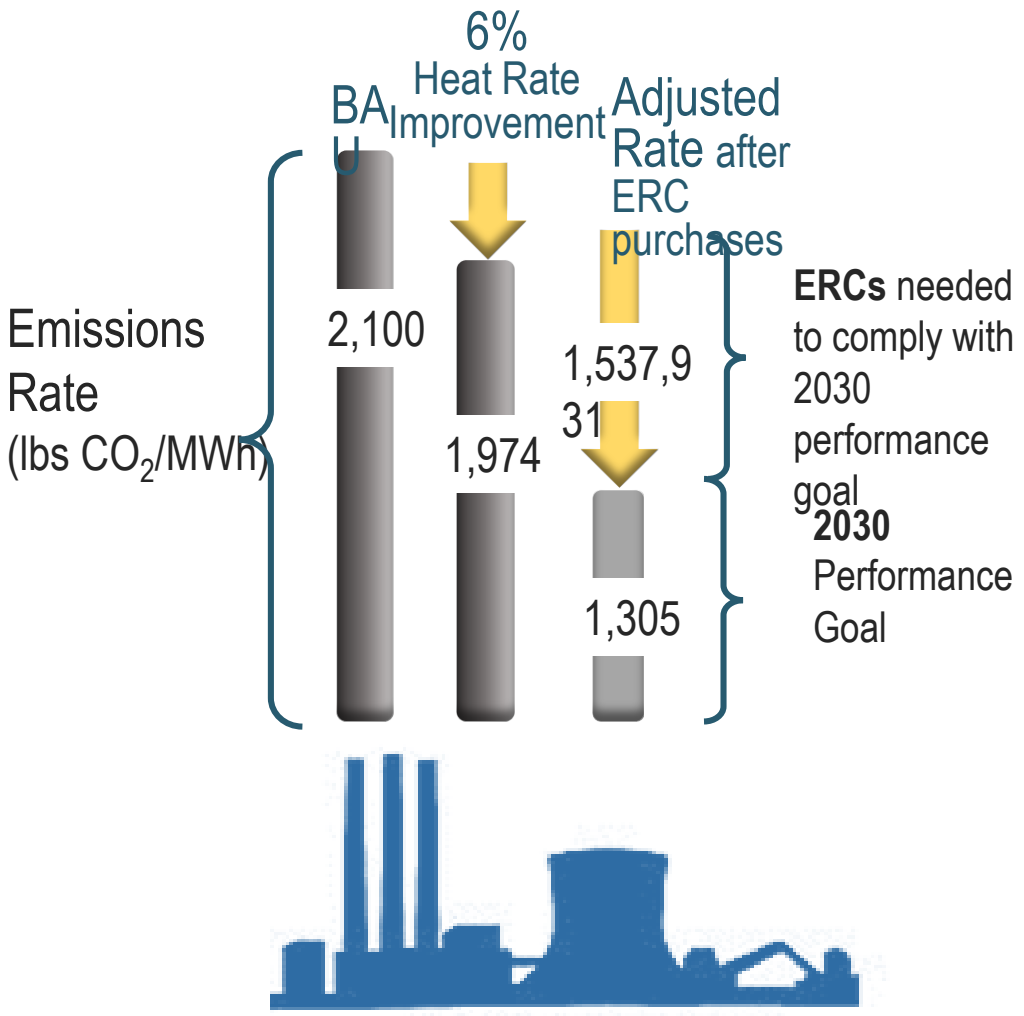
In the proposed Federal Plan, EPA proposes allowing affected EGUs to save or "bank" excess ERCs for use during a future compliance period

Example: How Many ERCs Might a Coal Plant Need?

Hypothetical Scenario Assumptions

Coal-fired power plant:

- 500MW capacity
- 3,000,000 MWh annually



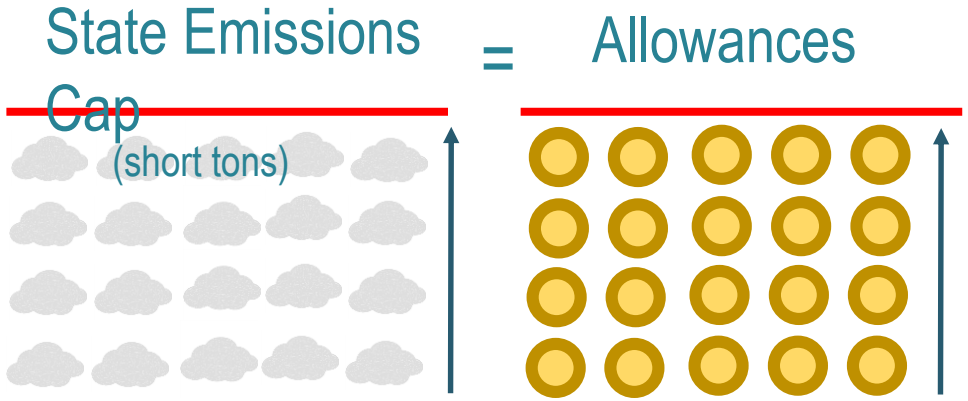
Key Questions

- What will ERCs be worth in the trading market?
- How many ERCs are generated by eligible sources?
- How many states will adopt rate-based plans?

Note: Reducing annual generation also reduces the amount of ERCs that would need to be acquired. For example, this same hypothetical 500MW plant would need 1.025M ERCs in 2030 if it reduced its annual output to 2 million MWh.

Allowances in a Mass-Based Plan

An Allowance authorizes emission of 1 ton of CO_2



Unlike ERCs, allowances are NOT inherently tied to actual RE generation or EE savings

- **Allowances are Generated and Allocated by States**
  And allocated based on rules written in approved state plans; EPA would distribute allowances in a state that chooses not to distribute them.
- **States Determine how Allowances are Distributed**
  Allocation of allowances are flexible and *depend on a state's choice of allocation strategy*:
  - Allocating allowances to EGUs based on historic data: heat input (fuel), emissions, or generation data
  - Auctioning allowances to EGUs and distributing proceeds to support policy objectives
  - Allocating allowances to incentivize other policy objectives, such as deploying renewables, supporting EE projects, etc.
- **State Mass-Based Plan May Be Accompanied by Complementary State Measures**

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Early Action/Clean Energy Incentive Program

EPA created the Clean Energy Incentive Program to reward early investments in renewable energy generation and demand-side energy efficiency measures that generate carbon-free MWh or reduce end-use energy demand during 2020 and/or 2021. State participation in the program is optional. EPA's early action credits are distributed to states based on distance from goals and is capped at a total of 300 million short tons of CO_2 for the period 2020-2021.

Requirements for Eligible Projects

Located in or benefits a state that has included participation in CEIP in its final plan

Commences RE construction or EE operation by the earlier of state plan submission or September 6, 2018

Incentives for Project Providers

For Renewable Energy

Generates metered MWh from wind or solar

1 MWh = 1 credit (generation)

For Energy Efficiency

Quantified & verified electricity savings (MWh) implemented in a low-income community

1 MWh = 2 credits (avoided generation)

The EPA will address design and implementation of the CEIP in a subsequent action after stakeholder engagement to gather information on implementation of the CEIP.

Only for MWh generated/saved in 2020 - 2021

EM&V Guidance

Positive Outcomes

- References common industry standards and practices
- Provides standard EM&V plan outline with boiler plate sections
- Lists IPMVP Option A as an acceptable M&V method (even for complex equipment)
- Allows stipulated savings for simple measures using Technical Reference Manual data
- Allows verifiable improvement measure life using sampled inspections across projects
- Uses gross savings instead of net savings

Areas Requiring Further Comment:

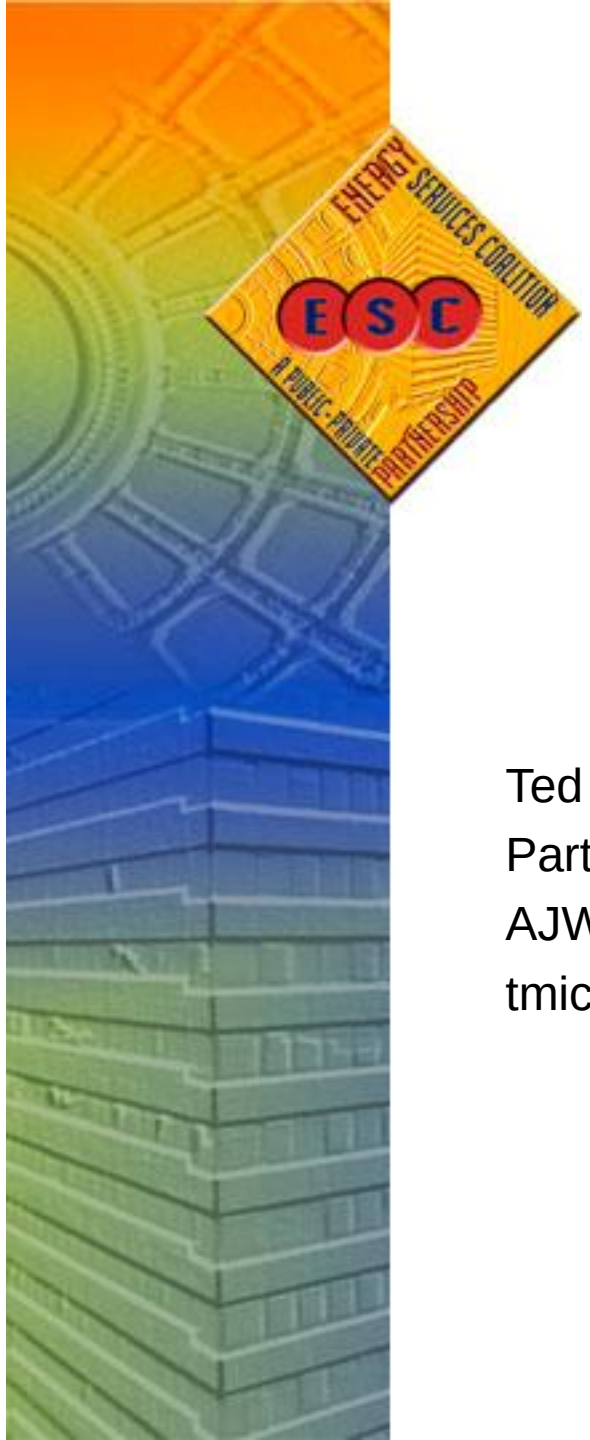
- Uses a common practice baseline (CPB) instead of typical installed equipment savings baseline
- Accounting for interacting effects (e.g. lighting and heating) in savings estimates
- Accounting for independent variables an estimation of accuracy and reliability in reported savings
- Double/triple counting issues with state and utility programs (e.g. building codes)
- Confirming role of independent verifier vs. physical verification of operation and savings

EM&V Opportunity

EPA invites comment on its EM&V draft and make recommendations for how it can be improved for the purpose of implementing the applicable EM&V provisions of the CPP. Comments will be accepted for 90 days after publication of the FIP in the Federal Register

Summary

- Although Building Block 4 was removed from the BSER standard-setting process, demand-side energy efficiency is a qualified GHG-mitigating technology under the Clean Power Plan
- EPA is taking an active role to establish trading programs and tracking systems that will enable EE projects to be registered and receive credits, which can be sold to entities regulated under the CPP
- States can benefit from third-party delivered EE in both a rate-based and mass-based state plan, although the ability to monetize EE savings will be different.
- Under the Clean Energy Incentive Program, EE projects implemented in low-income communities will receive 2 “early action” credits for each avoided MWh in 2020 and 2021
- There are further opportunities to refine the CPP through comments on the



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