Best Practices in Clean Power Plan Planning

NASEO/ACEEE Webinar

Clean Power Plan: Tools for States

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- Founded in 1996 by CEO Bruce Biewald
- Leader for public interest and government clients in providing rigorous analysis of the electric power sector
- Staff of 30 includes experts in energy and environmental economics and environmental compliance

“Moments” in the Clean Power Plan

Key steps for developing Clean Power Plan compliance plans

Step 1 *Identify and engage key agencies and stakeholders: regulators, energy offices, utilities commissions, grid planners, consumer advocates, and others.*

Step 2 *Establish planning objectives and criteria for evaluating plans at the outset, and reference them throughout the planning process.*

Step 3 *Assess current and future system conditions: characteristics of the generation fleet, potential compliance strategies, and modeling input assumptions.*

Step 4 *Formulate a range of potential compliance plans.*

Step 5 *Identify key uncertainties with compliance outcomes and test plans under scenario and sensitivity analysis.*

Key agencies and stakeholders

- State environmental regulators
- State energy offices
- Public Utilities Commissions (PUCs)
- Regional transmission organizations (RTOs)/Independent System Operators (ISOs)
- Utilities
- Consumer advocates
- Other stakeholders

Criteria for strategies

1. All states must contain enforceable measures that reduce CO_2 emissions from affected sources.
2. Enforceable measures must be projected to achieve the equivalent or better than the 2030 emission targets set by EPA.
3. CO_2 emission performance from affected sources must be quantifiable and verifiable.
4. The state plan must include a process for:
   (a) state reporting of plan implementation at the level of the affected entity,
   (b) state-wide CO_2 emission performance outcomes, and
   (c) implementation of corrective measures if the initial measures fail to achieve the expected reductions.

Plan components

1. Identification of affected entities
2. Description of plan approach and geographic scope
3. Identification of state emission performance level (rate vs. mass)
4. Demonstration that the plan is projected to achieve the state's emission performance level
5. Milestones
6. Corrective measures
7. Identification of emission standards and any other measures
8. Demonstration that each standard is quantifiable, non-duplicative, permanent, verifiable, and enforceable
9. Identification of monitoring, reporting, and recordkeeping requirements
10. Description of state reporting
11. Certification of state plan hearing
12. Supporting material

Potential compliance strategies

	Supply Side	Demand Side
Building Blocks	• Heat rate improvements at coal plants • Increased dispatch of NGCC units • Nuclear and renewable energy	• Energy efficiency
Alternative Measures	• Heat rate improvements at non-coal fossil plants • Carbon capture and storage • Fuel switching • Co-firing with biomass • Integrated renewable technology • New natural gas capacity • Credits from new plant over-compliance • Increased utilization of NGCCs • Plant retirements	• Transmission and distribution efficiency • Distributed energy storage • Distributed generation • Combined heat and power • Alternative forms of energy efficiency • Smart grid innovations • Demand response

Characterizing the current and future Electric System

- Generator longevity
- Utilization rates relative to nameplate capacity
- Ramping abilities
- Emission rates and installed environmental controls
- Variable operating costs
- Purchase Power Agreements
- Transmission constraints
- Effectiveness of existing energy efficiency programs
- Current levels of distributed generation

Model input assumptions

1. Sales and peak load
2. Fuel prices
3. Capital costs of generation, transmission and distribution equipment
4. Technology performance characteristics
5. Renewable energy potential
6. Energy efficiency potential and program cost
7. Avoided cost of generation
8. Resource availability and constraints
9. Transmission upgrades or constraints
10. Lead times for permitting and construction
11. Future regulations
12. Resource adequacy and reliability

Modeling compliance scenarios

	Screening tools	Integrated models	Simulation dispatch	Capacity expansion
Clean Power Plan Planning Tool (CP3T)	X			
National Energy Modeling System (NEMS)		X		
Integrated Planning Model (IPM)		X		
PROMOD IV			X	
Market Analytics			X	
MIDAS			X	
ReEDS			X	X
AuroraXMP			X	X
EGEAS				X
Strategist				X
System Optimizer				X

Key questions in the planning process

1. Mass- or rate-basis	Will my state pursue a mass-based or rate-based compliance target? Why is this form of target the best choice?
2. Solo, trading, or joint	Will my state choose solo compliance, compliance with interstate trading, or multi-state joint compliance? Which type of compliance planning offers the most benefits for my state?
3. Correct specifications	Has my region's electric system been characterized properly?
4. Measure availability	Which of EPA's building blocks are available as compliance options in my state? Are alternative compliance options available? Which options might be categorized as least-cost?
5. Forecasting assumptions	Are the electric sector forecasts and assumptions up-to-date? Do sound forecasting methodologies underlie the assumptions? Were the forecasts done by reputable third parties?
6. Transparency	Is the electric sector modeling process transparent? What scenarios and sensitivity variables are being examined?
7. Realistic constraints	Are any model constraints realistic?
8. Supply-side resources	Do electric sector models treat supply- and demand- side resources on equal footing?
9. Evaluation criteria	What are the criteria used to evaluate potential compliance plans?
10. Ratepayer interests	Are ratepayer interests adequately represented in the final compliance plan?

Full report available at:

http://www.synapse-energy.com/sites/default/files/NASUCA-Best-Practices-Report-15-025.pdf

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