

111(d) MARKET INTERACTIONS



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MN 111(d) Stakeholders Meeting, July 17, 2015

AGENDA FOR JULY 17TH

- Welcome & Introductions
- Update on Activities
- Recap of Steps in the Stakeholder Process
- Framing Presentation for Discussion:
111(d) and Market Interactions
- Panel Discussion
- Administrative process for CPP Planning
- Next Steps

UPDATES

PCA 111(d) MEETINGS IN 2015

- Stakeholder “Kickoff” Meeting February 20th to explore state’s objectives
- Webinar March 12th on Rate vs. Mass
- Meeting March 18th on Policy Pathways
- **Webinar April 15th with MISO**
- Meeting April 29th on Trading Ready Approaches
- Webinar May 18th on Tracking
- June 26th Meeting on Differentiating Rates and Allocating Allowed Tons

PCA 111(d) MEETINGS IN 2015

- These meetings have been a chance to:
 - learn together,
 - surface preliminary stakeholder concerns and interests; and
 - generally prepare for the release of the final rule

RECAP OF THE 111(d) PROCESS

- EPA to issue final rule in August (?)
 - *Sets minimum stringency for each state in the form of state emissions goals*
 - *Establishes timeframe and rules for state plans*
 - *To propose a federal “backstop” plan*
- States then start with blank page
 - *Lots of options*
 - *Some threshold decisions will narrow the options to manageable set.*

RECAP OF THE PROCESS (CONT'D)

- Threshold Decisions—
 - *Rate- or mass-based plan?*
 - *Who to regulate?*
 - *How much flexibility?*
 - *Trading? within state? with other states?*
- “*Self-correcting*” plan?
- What approach?
 - There are a limited number of self-correcting approaches

Regulated Entities?	Rate-based?	Mass-based?
Covered Power Plants <u>and</u> Other Entities	State Portfolio/Commitment Approach	State Portfolio/Commitment Approach
Utilities	Utility Rate Approach	Utility Budget Approach
	Utility Rate Approach w/ Optional Trading	Utility Budget Approach w/ Optional Trading
Plant/Unit Level	Full Rate-based Trading	Full Mass-based Trading

RECALL “TRADING READY” CONCEPT

- A state plan is “trading ready” if the state—when and if it wants to—can decide to allow its plant owners to use allowed tons or credits from another trading-ready state.
- Based on the idea of compatibility—in EPA’s eyes and in the states’ eyes.

FRAMING PRESENTATION: CLEAN POWER PLAN & MARKET INTERACTIONS

GOALS FOR DISCUSSION

- Generally understand how utilities and other generators account for the costs of compliance with environmental programs.
- Generally understand how the different approaches to 111(d) implementation affect dispatch of units and wholesale electricity prices.
- Generally understand how economic regulation of utilities may affect whether, when and how impacts of program are “felt” by ratepayers.

MASS-BASED PLANS

- Mass-based plans limit the number of tons that can be emitted from covered plants in each year, i.e. the “emissions budget”
- Emissions budget is distributed in the form of allowed tons or “allowances”
- Each plant must turn in one allowance for every ton emitted
- Thus, a plant “burns” allowances the same way it burns fuel to generate electricity.
- Because the allowance has value—the allowance price—the plant is spending that value when it consumes allowances to operate.

MASS-BASED PLANS & MARKET BIDS

- Plants offer or bid their generation into MISO's wholesale electricity market
- The amount of a plant's bid is equal to the plant's operating costs to produce the electricity
- (Fixed costs are covered through commission-approved rates for utilities)
- Environmental regulatory costs can increase or decrease a plant's operating costs
- For a plant that must "burn" allowances to operate, the plant will add the value of the allowance to its market offer/bid
- This new operating cost may affect whether and to what extent the plant is dispatched

HOW IS DISPATCH DETERMINED?

- The ISO receives bids from all generating units to supply power for a particular time and location
- The bids are placed in order (or stacked) from least-cost bid to highest cost bid
- Lowest cost units will be dispatched ahead of higher cost units, until demand is met
- Some units are not dispatched because demand is not high enough to “reach” those units in the dispatch order

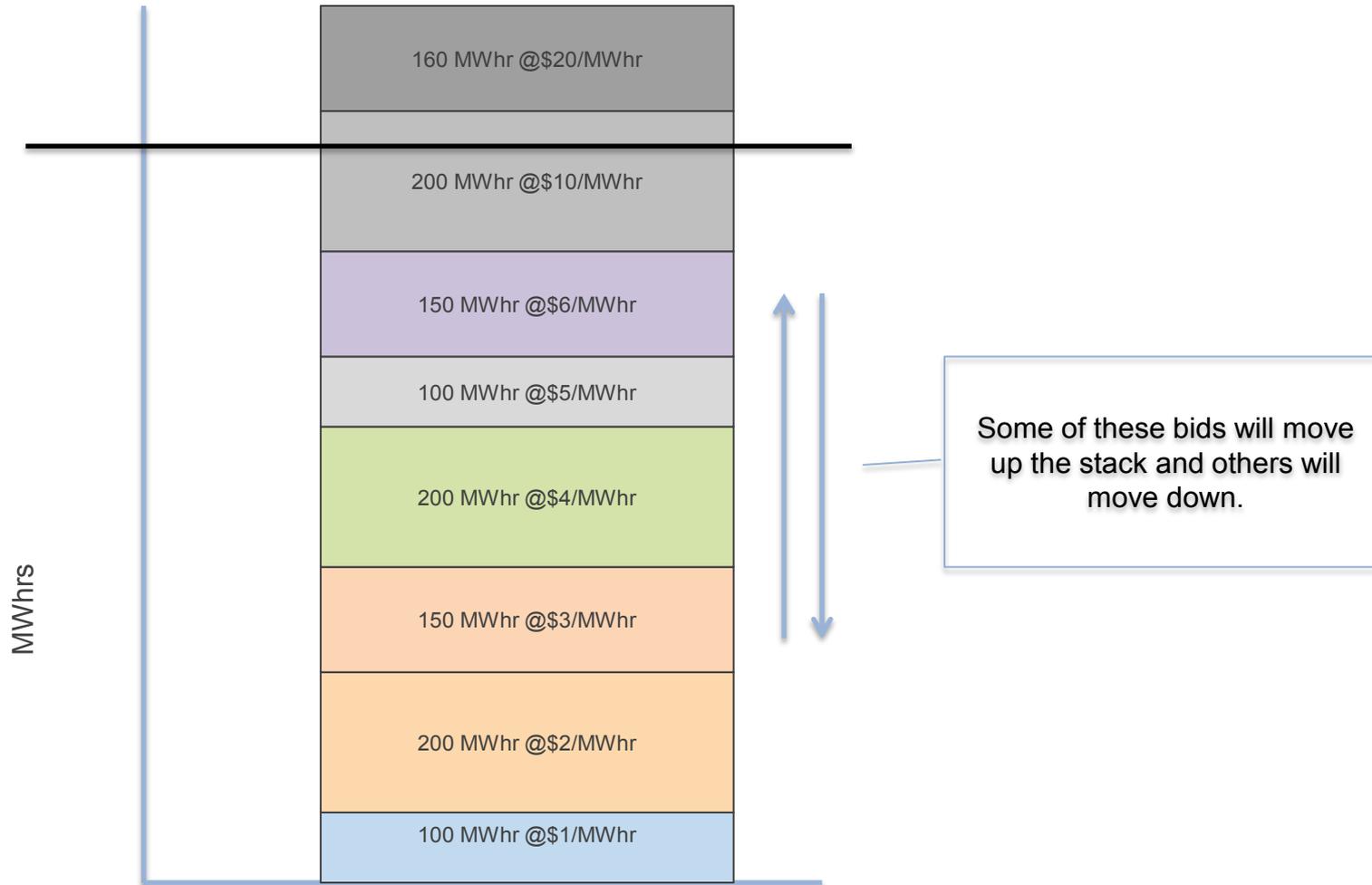
BID STACK DETERMINES DISPATCH ORDER



EFFECT OF RATE-BASED APPROACHES

- The effect a rate-based approach has on a unit depends on whether the unit has an emissions rate above or below the state's emissions goal
 - Units with an emissions rate above the state goal need to buy credit(s) to lower their rate
 - Units with an emissions rate below the state goal earn credit(s) that can be sold to units that need the credit
- Whether a unit earns or has to spend credit has a direct impact on its bid or market offer
 - Units that earn credits subtract from their operating costs
 - Units that must buy credits add to their operating costs

UNDER RATE SOME MOVE UP AND SOME MOVE DOWN IN BID STACK



MASS-BASED APPROACHES CAN MIMIC RATE-BASED APPROACHES

- A mass-based approach can be designed to mimic the effect rate-based approaches have on market offers/bids:
 - If allowances are distributed at the end of the period based on how much electricity is generated below a certain emissions rate, this affects the unit's operating costs the same way a rate-based approach does, i.e. it gives that plant a subsidy to operate
 - This is called “updating output-based allocation”
- Some suggest that this allocation approach provides the effect of a rate-based policy with the simplicity of a mass-based approach

HOW DO WE KNOW THE VALUE OF AN ALLOWED TON OR CREDIT?

- Under both mass-based and rate-based trading programs, the market for tons or credits “discovers” an allowance price or credit price
- Under current trading programs, this price is discovered when sellers and buyers come together in arms-length transactions and the price paid is reported by the major brokerage desks
- This price discovery is important because it tells generators how much to add to their bids into MISO (or subtract in the case of some units in a rate-based approach)

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DAILY PRICING			
SPEC	TERM	BID PRICE	OFFER PRICE
SO2	2013	\$0.25	\$0.50

ON THE EMISSIONS BLOG

06.30.15

03.31.15

[CSAPR Market Report: Jan-Mar 2015](#)

11.21.14

[EPA to Restart CSAPR in January](#)

EVOBRIEF NEWSLETTER

[U.S. Emissions Market Resets with New Clean Air Rules](#)

[New Clean Air Rules Take Markets on a Detour](#)

[January and February SO2 Markets Update](#)

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UTILITY-FOCUSED APPROACHES

- Some of the approaches under consideration in the 111(d) context are not trading approaches.
- We have discussed utility-focused approaches in which the utility is given an emissions budget or a rate to manage across its portfolio with no external trading of tons or credits
- Under the utility approaches, allowed tons or “credits” have value just as they do in a trading approach, but it is less clear how we know what the value is without a functioning market to discover the price

WHY DO WE CARE ABOUT THIS?

- Important to understand the effect a policy has on the dispatch order because that is what determines which plants operate (and emit)
- Policies that clearly and transparently work into market offers are more consistent with wholesale market operations than other types of policies
 - Example: a permit restriction on a plant that restricts its operation is blunt compared to a policy that imposes a new operating cost on a unit. The former takes the plant out of play, while the latter makes it about cost—something the market is already equipped to handle.
- Such policies inform dispatch decisions and wholesale electricity prices, and in turn retail rates

HOW MIGHT A POLICY IMPACT RESOURCE AVAILABILITY?

- Two ways that a policy might affect the economics of a plant:
 - If a policy has the effect of adding to a unit's operating cost, that policy might push that unit high enough in the bid stack that it no longer operates very much, i.e. decreasing revenues
 - If a policy reduces the wholesale electricity price (the clearing price) so that the margins a plant earns are lower under the policy, revenues decrease, and may no longer be sufficient to keep the plant in operation
- The fact that a plant is not economic from a market perspective does not mean it will go away—only that market revenues are insufficient to keep it around
 - Other ways to pay to keep needed capacity in reserve

EFFECT OF ECONOMIC REGULATION

- Need to not only understand the wholesale electricity market impacts, but also whether and how those impacts are felt by consumers in a regulated state
- Utilities manage their portfolios under commission regulation:
 - Resource planning determines what resource investments are made by the utility and paid for by ratepayers through cost recovery
 - Retail rates are set by the commission
- When utilities generate power or contract for power at below market rates, the savings are passed on to ratepayers
- When a plant is rendered uneconomic by market conditions, consumers share in the cost of lost assets

REVIEW OF CONCEPTS

- Different 111(d) approaches can interact differently with the MISO market—understanding the differences is an important part of assessing the effectiveness of the policy approach.
 - Mass and rate approaches have different impacts on bids, dispatch order (e.g., which plants are running), wholesale prices, and which units are economic (affecting retirements)
 - Trading approaches are consistent with dispatch mechanisms
 - Utility/entity approaches may not yield transparent cost numbers to add to ISO bids
- In a regulated environment, impacts to the wholesale market are not always felt by ratepayers

PANEL DISCUSSION

NEXT STEPS

THANK YOU

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