

Clean Power Plan Modeling Update

Transmission Expansion Advisory Committee February 11, 2016



What Are we Being Asked

What will be the economic and reliability impacts to states

What is my state's bottom line due to trading versus not using a trading option

What happens to resource diversity and what does it mean for baseload resources

What is the difference between an emissions market trading seam and an electric market seam

What happens if my plan diverges from what most of the other PJM states submit in their compliance plans

Alright, trading makes sense but rate or mass



How is PJM Identifying Answers

Phase 1: Long-Term Analysis

20-year Economic Entry/Exit

- Long-Term Emissions Constraints
- Limited Transmission Constraints

- Reliability Analysis
- · Reactive Analysis
- Limited Transmission Screening

Phase 2:

Medium-Term Analysis

Develop emissions shadow prices/quantities with assumed retirements and new entrants.

More detailed transmission, generation and load modeling

Phase 3:

Short-Term Analysis

Solve hourly chronological Energy Market model with full transmission constraints, emissions and reserve and energy constraints

More detailed reliability evaluation as needed

Medium and Short-Term Analysis

- Will initially be studied for 2023, 2026, 2028 and 2030
- Rate and Mass Based Compliance Scenarios
- Interstate and Intra-state Trading



What Information will Answer these Questions

Detailed Results by Individual State and/or PJM region

Reliability

Capacity added /retired by LDA and RTO region

Transfer capability for reactive interfaces

Generation and Load Deliverability tests results

Electric Market

Locational marginal prices and energy market load payments

Facility level transmission congestion

Percentage of generation by prime mover and fuel type

Environmental Regulation

Carbon dioxide prices, total allowance supply/demand

Resource entry capital costs

Emission rate credit production and consumption



When does PJM Plan to Answer these Questions



Publish compliance pathways report

