EPA’s Clean Power Plan Regional Compliance and Reliability

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The generation fleet in MISO is being affected by fuel prices, energy policies and multiple environmental regulations.

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Mercury and Air Toxics Standards</th>
<th>Cross State Air Pollution Rule and Cooling Water Regulations (316(b))</th>
<th>CO₂ from existing and new power plants</th>
<th>New air quality standards/Coal ash storage</th>
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</thead>
<tbody>
<tr>
<td>Compliance Dates</td>
<td>2015 / 2016</td>
<td>As early as 2015</td>
<td>2015/16 (New) Beginning in 2020 (Existing)</td>
<td>???</td>
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<td>Impacts</td>
<td>Significant coal retirements</td>
<td>NOx requirements tightened</td>
<td>New coal requires CCS; base load capacity options reduced</td>
<td>Increased costs</td>
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<td>Outage coordination challenges</td>
<td>Higher plant compliance costs influence retirement decisions</td>
<td>Significant coal retirements</td>
<td>Other potential impacts depend on regulations</td>
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<td>Shrinking reserve margins around MISO</td>
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<td>Increased dependence on gas and CO₂ neutral resources</td>
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<td>Growing dependence on natural gas</td>
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Lower-cost compliance strategies could retire up to an additional 14GW* of coal capacity.

The cost of compliance for the MISO system ranges from $20 - $80B.

Each diamond represents one policy and economic sensitivity.

* In addition to the 12.6 GW of capacity already projected to retire
Is there enough time to reliably implement lower-cost compliance strategies?

![Graph showing CO2 emissions over time with key milestones and data points.]

- Only ~2 yrs from plan approval to 2020
- 1 to 3 years between plan approval and start of compliance period; 3 to 6 years to retire a coal unit and build a new CC
- ~20% reduction in CO2 emissions from 2018 levels required by 2020

Reference Case
Emissions Target
All Building Blocks
Construction of a new natural gas power plant typically takes 36 to 72 months after a decision to proceed is reached.

- **Planning Year**
  - 2015/16
  - 2016/17
  - 2017/18
  - 2018/19
  - 2019/20
  - 2020/21
  - 2021/22
  - 2022/23
  - 2023/24

- **Indicative Combustion Turbine or Combined Cycle Construction Schedule**
  - **Planning**
    - 3 - 12 months
  - **Regulatory Approval**
    - 6 - 24 months
  - **Transmission Access**
    - 6 - 24 months
  - **Site**
    - 3 - 6 months
  - **Pipeline Extension**
    - 0 - 24 months
  - **Supply Chain**
    - 3 - 18 months
  - **Construction**
    - 9 - 36 months
  - **Range of Earliest Operations**
    - 36 - 72 months
High-Level Thoughts on Implementation

- Preserving reliability is Job #1
- Preserving the system of economic dispatch is critical to preserve billions in consumer benefits
- Multi state reciprocity arrangements must align incentives to avoid wealth transfers
Scope of MISO Operations

- **132,893 MW** historic peak load
- **201,390 MW** generation capacity
- **$20.3 billion** in Gross Market Charges
- **401** market participants who serve **42 million** people

**MISO drives value creation through its three primary functions**

- Reliability
- Wholesale Market Management
- Regional Transmission Planning
For Additional Questions:

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