Environmental Update

Environmental Advisory Group

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Timeline of EPA Regulatory Actions Impacting Electric Generators

- **Cooling Water**: 2015 - 316(b) requirements added to renewing permits
- **Carbon**: 2017 - New Rule, 2018 - Plans Due, 2019 - Final Plans, 2020 - Compliance Begins
- **Toxics**: 2018 - Initial Compliance, 2019 - Extensions End
- **Waste Water**: 2019 - New Rule, 2020 - Phase In
- **CSAPR**: 2020 - Phase I, 2021 - Phase II

Sources: EPA
Transition in Regional Generating Capacity

*Driven by Many Factors Including Environmental Rules*

**Upcoming Environmental Rules Affecting Generators**

- **September 30, 2015**: revised wastewater standards due for larger generators (coal- and oil-fired capacity in particular)
- **October 1, 2015**: revised ozone standard due, could impose additional compliance costs on fossil at-risk generators

**Limited Impact Expected Regardless of Outcome in Supreme Court MATS Decision**

- With April 16, 2015 MATS compliance deadline already passed and backstopped by state air toxics regulations across New England, no changes expected in regional air toxics compliance

1,976 MW
Coal

4,410 MW
Oil/Gas
MERCURY & AIR TOXICS STANDARDS IMPLEMENTATION

Final Rule 77 FR 9304 (February 16, 2012)

Startup, Shutdown Reconsideration 79 FR 68777 (November 19, 2014)

Technical Corrections – Prepublication (December 19, 2014)
EIA: MATS Implementation Clearly Impacting Capacity Mix Across Eastern Interconnection

Retiring Coal-fired Capacity Smaller and Less Utilized

- EIA forecasts 16 GW of generating capacity will retire in 2015 across the United States
  - 81% is coal-fired (12.9 GW)
  - Concentrated in Appalachian region
- Majority of 2015 coal-fired retirements are attributed to the MATS April 2015 compliance deadline
- Scheduled coal-fired retirements have an average summer capacity of 158 MW (compared to 261 MW for other coal units), and weighted-average capacity factor of 24% (compared to 60% for all other coal units) based on 2013 data

Source: EIA
MATS Litigation Update

Should Compliance Costs be Factored In?

Supreme Court Scrutinizes EPA Omitting Cost Considerations

- March 25, 2015: Supreme Court heard arguments over how compliance costs were factored into the 2012 MATS:
  - Whether the EPA unreasonably refused to consider costs in determining whether it is appropriate to regulate hazardous air pollutants emitted by electric utilities
- Justice divided whether EPA erred when interpreting “appropriate and necessary” in Section 112 and the timing of cost consideration during the rulemaking

Limited Regional Fallout Expected with Any Outcome

- Across New England, no changes expected in air toxics compliance strategies:
  - April 16, 2015 MATS deadline passed
  - State air toxics regulations in New England as backstop
- Outside region, coal retirements, driven by natural gas economics in addition to environmental rules, expected to continue regardless of litigation outcome
  - EIA forecast 12.92 GW of coal-fired retirements in 2015

Sources: ML Strategies, UBS
EPA AIR QUALITY RULES
Court Rejects Emergency Engine Standards

100 hour Operating Exemption Vacated

Court Rejects Additional Hours for Demand Response Operation

- **May 1, 2015:** D.C. Circuit Court of Appeals found the 100 hour operating exemption for emergency engines “arbitrary and capricious[.]”
  - EPA failed to respond to “well-founded concerns” of efficiency and reliability impacts
  - EPA relied on “faulty evidence” in granting the 100 hour exemption
  - EPA did not properly consult with FERC and NERC on the reliability impacts of the rule changes

EPA Must Decide Whether to Seek Additional Rulemaking Time

- **July 15, 2015:** deadline for EPA to appeal or request the D.C. Circuit grant more time to EPA:
  - “EPA [] may file a motion to delay issuance of the mandate to request either that the current standards remain in place or that EPA be allowed reasonable time to develop interim standards”
  - *Delaware Department of Natural Resources, et al., v. EPA, 13-1093 (D.C. Cir)*

Source: [EPA Stationary Combustion Engines](#)
Court Considering Challenge to Non-Emergency Engine Standards *50-hour Exemption At Issue*

**Court Rejects Additional Hours for Demand Response Operation**

- **July 1, 2015**: final briefs due in litigation challenging 50-hour operating exemption nationwide for non-emergency engines as not justified
  - Petitioners assert evidence showed need only in rural areas
  - EPA asserts exemption tailored for near-blackout conditions
  - *Conservation Law Foundation (CLF)*, *et al. v. EPA*, No. 13-1233

**Existing Non-Emergency Engines Affected Categories**

- Includes existing back-up stationary engines in these categories:
  - Compression ignition (diesel) $\geq 100$ horsepower at major source
  - Compression ignition (diesel) $\geq 300$ horsepower at area source
  - Spark ignition (gas, including natural gas, landfill gas, gasoline, propane, etc.) 100-500 horsepower at major source

Source: [EPA Stationary Combustion Engines](https://www.epa.gov/air-emissions-reduction/diverse-sources/combustion-emissions)
EPA SIP Call for Startup, Shutdown & Malfunction Exemptions

Sierra Club Petition Challenged Exemptions

- **June 12, 2015**: EPA issues SIP call requiring certain States to remove regulatory exemptions for emissions during startup, shutdown (SSM) and malfunctions at industrial facilities, including power plants in existing State Implementation Plans (SIPs)

- Affects 36 States including in the region, corrective SIPs due by November 22, 2016:
  - Maine
  - New Hampshire
  - Rhode Island

SSM Provisions Found Inadequate and Needing Amendment

- **Maine**: EPA granted the petition objections to certain boiler exemptions for visible emissions
  - 06-096-101 Me. Code R. § 3
  - 06-096-101 Me. Code R. § 4

- **New Hampshire**: EPA rejected objections to certain provisions, which were later removed in 2012 SIP changes
  - N.H. Code R. Env-A 902.03, .04

- **Rhode Island**: EPA granted the petition objection for variance allowing operation during malfunctions
  - 25-4-13 R.I. Code R. § 16.2

Source: [EPA Startup, Shutdown, Malfunction SIP Call](#)
EPA Proposing Lower Ozone Standard

*Final Rule due late 2015*

**Revised Ozone Standard Under Interagency Review**

- **October 1, 2015:** EPA must finalize new ozone standard
- **December 17, 2014:** EPA proposes more stringent ozone standards:
  - Lowering the primary standard to between 0.065-0.070 parts per million (ppm) (currently 0.075 ppm on an eight (8) hour average)
  - Lowering the secondary standard to within the same range (0.065-0.070 ppm)

**Other Proposed Changes to Ozone Standard**

- Modify data requirements for ozone monitoring data and conforming changes to Air Quality Index (AQI)
- Changes to ozone monitoring seasons
- Amend permitting rules to allow grandfathering certain permit applications
- Revisions to technical standards for ozone monitoring and changes to associated monitoring networks

Source: [EPA proposed ozone standard](#)
Regional Ozone Air Quality Trends 2000-2013
(Annual 4th Maximum of Daily Max 8-hour Average)

Proposed Ozone Standard range (0.065-0.070 ppm)

Source: EPA
2008 Ozone Standard Implementation

**EPA Ordered to Take Action on Missing Plans**

- **May 14, 2015**: Court orders EPA to act on pending state implementation plans regarding 2008 ozone standard
  - EPA has 16 months to act on submitted plans and to take action on missing plans

- **June 30, 2015**: EPA must make finding of failure to submit ‘Good Neighbor plans as required under the Clean Air Act

- **August 2016**: EPA target date for new interstate air pollution transport rule to address 2008 ozone standard

  - Alabama
  - Arkansas
  - California
  - Connecticut
  - Georgia,
  - Iowa
  - Illinois
  - Kansas
  - Massachusetts
  - Maine
  - Michigan
  - Minnesota
  - Missouri
  - New Hampshire
  - New Mexico
  - Oklahoma,
  - Pennsylvania
  - Rhode Island
  - South Carolina
  - Virginia
  - Washington
  - West Virginia

Source: ML Strategies
2012 Fine Particulate Standard Implementation

**EPA Proposes Guidance for State Implementation Plans**

- **May 22, 2015**: comments due on EPA’s proposed guidance for 2012 PM$_{2.5}$ implementation (80 FR 15339)

- EPA initially applied less stringent requirements, but was rebuffed D.C. Circuit, and directed to apply more stringent provisions
  - *Natural Resources Defense Council v. EPA* (D.C. Cir. 2013)

**EPA Must Also Consider Secondary PM$_{2.5}$**

- EPA previously focused on PM$_{2.5}$ directly emitted from sources (including vehicles and power plants)

- EPA must now consider regulating certain PM2.5 precursors
  - sulfur dioxide
  - nitrogen oxides
  - volatile organic compounds
  - ammonia

- Once emitted, these chemicals react in secondary reactions to form PM$_{2.5}$, rather being directly emitted as particles from sources

*Source: EPA*
PM$_{2.5}$ Air Quality Trends 2000-2013 (ug/m$^3$) (Seasonally Weighted Annual Average)

Source: EPA
REGIONAL GENERATION & EMISSIONS TRENDS

New England Generator $\text{NO}_x$, $\text{SO}_2$, $\text{CO}_2$ Monthly Emissions (2012-2015, 5-year average)
New England Generator NO\textsubscript{x} Monthly Emissions
(2012-2015YTD, 5-year average) (Tons)

January 2014, February 2015 emissions reflect combustion of > 2 M barrels of oil

Source: EPA
New England Generator SO$_2$ Monthly Emissions
(2012-2015YTD, 5-year average) (Tons)

Source: EPA
New England Generator CO₂ Monthly Emissions
(2012-2015YTD, 5-year average) (Tons)

Source: EPA
1st Quarter Daily Generation by Fuel Type (2012-2015) (MWh)

Source: ISO
Regional Monthly Net Generation & Imports (GWh)

Source: ISO
Questions