EPA’s Clean Power Plan - Customer Impacts

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Today’s Roadmap

I. Overview of the Office of Public Counsel (“OPC”) and why we care

II. Possible Cost Impacts based on what we know (Blocks 1, 3, & 4)

III. Impacts based on what we don’t know (Block 2)
Overview of OPC

WHO is OPC?
- Created in 1974 to represent consumers in utility matters before the Florida Public Service Commission
- Power to appear before state and federal agencies and courts on behalf of the citizens

Why OPC Cares
- Implementing CPP is a policy decision, which OPC is not addressing
- Environmental compliance costs incurred by utilities will be paid by utility customers
- Therefore, environmental compliance costs should be:
  - Based on accurate data;
  - Not only achievable, but reasonable; and
  - Fairly dispersed among the customers.
Florida Utility Facts
2012 Benchmark Year

- Capacity – 57,454 MW (summer)
- Renewables – 1,400 MW
- Import capacity – 3,800 MW (summer)
  • Geography and limited interstate connections minimize regional compliance options
- 9,495,319 total customers
- 209,691,000 MWh in generation
- Fuel – 65% natural gas, 20% coal

Figures from FPSC’s 2013 and 2014 Facts and Figures of the Florida Utility Industry

Proposed Rule

- From 2012’s rate of 1,238 lbs/MWh to an interim of 794 lbs/MWh in 2020 to the final goal of 740 lbs/MWh in 2030
- Calculated final goal based on 4 building blocks, but states are free to implement as they see fit
- Any discussion of the final goal necessarily involves the methodology used to get there
- 6% coal heat-rate improvement, increase NGCC dispatch to 70%, 10% renewables, 10% DSM
Block 1

• 6% heat-rate improvements on coal-fired EGU’s through
  • equipment upgrades; and
  • best practices

• Derived from
  • 2009 Sargent & Lundy study; and
  • historical analysis (based on data trends)

• EPA estimates average cost of $100/kW to implement

Block 1 for Florida

• 2014 Sargent & Lundy Report
  • “…2009 Report does not conclude that any individual coal-fired EGU or any aggregation of coal-fired EGU’s can achieve 6% heat-rate improvement…”
  • “…2009 Report case studies were estimated at a conceptual level, and were not based on detailed site-specific analyses.”  Sargent & Lundy, Coal Fired Power Plant Heat Rate Reduction – NRECA SL-012541, Nov. 21, 2014

• Generating Performance Incentive Factor – GPIF
  • Economic incentives to increase efficiency
  • 2008-2013 – GPIF varied from -8% to 4%
Block 1 Costs for Florida

- $100,000/MW X 11,657 MW coal = $1,165,700,000

- Increase NGCC dispatch to displace coal could effectively waste capital spent on improving coal heat-rate

Block 3 for Florida

- Move to 10% renewables – capacity or generation
  - Capacity = 4,745 MW additional
  - Generation = 20,969,000 MWh

- Renewables are not base-load or dispatchable energy sources

- Solar PV capacity factor 23%-33% EIA, Electric Power Monthly with Data for November 2014, Jan. 2015

- Need determination - FPSC is required to consider “most cost-effective alternative” § 403.519(3), Fla. Stat. (2014)
Block 3 Costs for Florida

- **Solar PV Costs** –
  - $3,873/kw – EIA, Updated Capital Cost Estimates for Utility Scale Generating Plants
  - NREL Open PV Project (10 MW size and greater) - $4.34/W

- **Capacity** –
  - EIA – 4,345 MW x $3,873,000/MW = $16,828,185,000
  - NREL – 4,345 MW x $4,310,000/MW = $18,726,950,000

- **Generation** – 8,549 MW needed (28% capacity factor)
  - EIA – 8,549 MW x $3,873,000/MW = $33,110,277,000
  - NREL – 8,549 MW x $4,310,000/MW = $36,846,190,000

- 10% reduction through DSM – capacity or generation
  - Capacity – 5,745 MW avoided/reduced
  - Generation - 20,969,000 MWh avoided/reduced


- Long history of cost data in Florida
  - 2012 - $1,493,771/MW avoided/reduced
  - 2012 - $804.34/MWh avoided/reduced

Block 4 Costs for Florida

- Capacity –
  5,745 MW \times $1,493,771/MW = $8,581,714,395
- Generation –
  20,969,000 MWh \times $804.34/MWh = $16,866,205,460

Blocks 1, 3, & 4 Costs

- Capacity - $26,575,599,395
- Generation - $51,142,182,460
- Capacity cost per customer - $2,798.81
- Generation cost per customer - $5,386.04
Block 2 for Florida

- Redispatch NGCC to 70% capacity
- EPA uses nameplate capacity
- According to EPA analysis, Florida operated at 51% capacity in 2012

Block 2 Issues for Florida

- 2012 Data (eGrid and EIA Form 860)

<table>
<thead>
<tr>
<th>Nameplate Capacity</th>
<th>Capacity Factor based on Nameplate</th>
<th>Net Capacity (summer)</th>
<th>Capacity Factor based on Net Capacity (summer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29,485.1 MW</td>
<td>51.48%</td>
<td>23,975.3 MW</td>
<td>63.5%</td>
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- 51.48% vs. 63.5%
  - Cuts Block 2 component to final goal in half
  - Could significantly impact reliability
  - Possible reserve margin implications
Block 2 Issues cont’d

• 3 IOU’s must maintain a 20% reserve margin pursuant to Order No. PSC-99-2507-S-EU
• Those 3 IOU’s cover 73.1% of Florida’s net energy for load
• Nameplate capacity does not accurately represent the capacity actually available to the grid
• Underestimating net capacity could cause unneeded capital investments
  • An extra 1,640 MW NGCC to cover reserve margin would cost $1.5 billion

Conclusions

• Methodology for reaching final goal places enormous costs on the customers
• Methodology for reaching final goal impacts reserve margin and can cause large capital expenditures for infrastructure that is not needed
• Methodology for reaching final goal should use state-specific analysis and state-specific historical data when available
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