Electricity and Gas
Harmonization

PJM Gas/Electric Task Force Seminar
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DISCLAIMER

• The views contained within are my own and do not represent those of the Public Utilities Commission of Ohio, its chairman, its commissioners, nor its staff.
Ohio – What does PUCO regulate?

- Electric
  - IOUs – distribution only, not generation

- Natural gas
  - Intra-state transmission
  - IOUs (Home Rule provisions/municipal operations)

- OPSB authority for significant energy projects in Ohio
  - Coordinated effort amongst state agencies
History of Electric Regulation in Ohio

Senate Bill 3
A 1999 law effective Jan. 2001 restructured Ohio’s electric industry
- allowed customers to shop for electricity
- provided a five-year market development period

Turn of the century system
- Unbundling of vertically integrated system
- Customers served by generator of choice
- Transmission and distribution remain regulated
- For generation, the rate of return system of regulation replaced by competition
<table>
<thead>
<tr>
<th>Case No.</th>
<th>Project</th>
<th>County</th>
<th>Date Certified</th>
<th>Number of Turbines</th>
<th>Certified MW's</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-1066-EL-BGN</td>
<td>Blue Creek Wind Farm</td>
<td>Paulding/Van Wert</td>
<td>23-Aug-10</td>
<td>159</td>
<td>350</td>
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<tr>
<td>11-1995-EL-BGA</td>
<td>Blue Creek</td>
<td>Paulding/Van Wert</td>
<td>25-Jul-11</td>
<td>8</td>
<td>See 09-1066</td>
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<tr>
<td>10-0369-EL-BGN</td>
<td>Timber Road II</td>
<td>Paulding</td>
<td>18-Nov-10</td>
<td>55</td>
<td>99</td>
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<td><strong>Total:</strong></td>
<td><strong>449</strong></td>
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Received Certificate of Environmental Compatibility and Public Need

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Project</th>
<th>County</th>
<th>Date Certified</th>
<th>Number of Turbines</th>
<th>Certified MW's</th>
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<tbody>
<tr>
<td>08-0666-EL-BGN</td>
<td>Buckeye</td>
<td>Champaign</td>
<td>22-Mar-10</td>
<td>54</td>
<td>135</td>
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<td>09-0277-EL-BGN</td>
<td>Hog Creek I</td>
<td>Hardin</td>
<td>22-Mar-10</td>
<td>27</td>
<td>48.6</td>
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<td>09-0479-EL-BGN</td>
<td>Hardin</td>
<td>Hardin</td>
<td>22-Mar-10</td>
<td>200</td>
<td>300</td>
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<td>09-0980-EL-BGN</td>
<td>Timber Road I</td>
<td>Paulding</td>
<td>23-Aug-10</td>
<td>32</td>
<td>48.6</td>
</tr>
<tr>
<td>10-0369-EL-BGN</td>
<td>Timber Road III</td>
<td>Paulding</td>
<td>28-Feb-11</td>
<td>28</td>
<td>51.4</td>
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<tr>
<td>10-0654-EL-BGN</td>
<td>Hog Creek II</td>
<td>Hardin</td>
<td>29-Aug-11</td>
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<td>18.4</td>
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<tr>
<td>10-2865-EL-BGN</td>
<td>Black Fork</td>
<td>Crawford/Richland</td>
<td>23-Jan-12</td>
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<td>200</td>
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<td>11-0757-EL-BGA</td>
<td>Hog Creek I</td>
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<td>11-3446-EL-BGA</td>
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Pending Certificate of Environmental Compatibility and Public Need

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<th>Case No.</th>
<th>Project</th>
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<th>Number of Turbines</th>
<th>Pending MW's</th>
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<td>11-2400-EL-BGN²</td>
<td>Ashtabula</td>
<td>Ashtabula</td>
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<td>11-3676-EL-BGN</td>
<td>Leipsic</td>
<td>Putnam</td>
<td>75</td>
<td>150</td>
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<tr>
<td>11-4886-EL-BGN²</td>
<td>Honey Creek</td>
<td>Crawford/Seneca</td>
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<td>184</td>
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<tr>
<td>12-0160-EL-BGN</td>
<td>Buckeye II</td>
<td>Champaign</td>
<td>56</td>
<td>140</td>
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<td></td>
<td><strong>Total:</strong></td>
<td><strong>274</strong></td>
</tr>
</tbody>
</table>

(1 - Application not yet received. Turbines/Megawatts unknown.) (2 - Application not yet received.)
Qualified Renewable Resources

- Solar
- Wind
- Hydro
- Biomass
- Fuel Derived from Solid Waste
- Storage
- Fuel Cells
- Abandoned Coal Mine Methane
- Waste Energy Recovery
- CHP System
- CHP System
Advanced Energy Resources

- Clean coal
- Advanced Nuclear
- Fuel cells
- Customer co-generation
- Advanced solid waste conversion
- Utility generation plant or demand-side management efficiency measures
- Uprated capacity of an existing electric generating facility resulting from the deployment of advanced technology
- Any new, retrofitted, refueled or repowered generating facility in Ohio
- Note: RECs are not created from advanced resources
Generation Retirements
Ohio electric generating capacity comparison

2010

- Coal: 65%
- Natural Gas: 25%
- Nuclear: 7%
- Petroleum: 3%
- Renewables: >1%

Including 2012 - 2015 plant retirements

- Coal: 47%
- Gas: 27%
- Nuclear: 6%
- Petroleum: 3%
- Renewables: 2%
- Retirements: 14%
- Other: 1%
Gas & Electric Interdependencies

- Interdependencies are growing
  - Additional natural gas-fired electric generation
  - Additional regional robust fuel availability
  - Increasing dependence of electric compressors for natural gas system
  - Increasing renewable requires firming power
Gas & Electric Interdependencies

• Need Increased Coordination
  – Improved coordination between the natural gas and electricity sectors will help improve system reliability and reduce outages and curtailments

• Example:
  – Feb. 1-5, 2011 in the southwestern US
Electricity and Gas Interdependencies

- Increasing presence of renewables requiring firming power further sharpens the point

- Failure to coordinate and harmonize these 2 sectors is likely to lead to worse results for all – end users, gas & electric system owners & operators, as well as for regulators
Gas and Electric Harmonization

- Harmonization ensures consumers, utilities, and operators benefit
- Harmonization can ensure improved operation of the grid and enhanced system reliability
- Harmonization can lend stability to both gas & electricity markets
Electricity and Gas Harmonization

• Enhance communication
• Improve timely, relevant information sharing
• Improved coordination and synchronization of markets
• Develop new tools and approaches to resolve issues
Concerns

• Required give & take for both G&E sectors
  – Neither can expect the other to do a complete overhaul

• COSTS
  – Costs to implement necessary changes
  – Costs for not implementing necessary changes
Conclusions

• Appreciate PJM’s forward-thinking approach and getting ahead of the curve on this issue
• Keep process simple, straightforward
• Keep moving
• Regional coordination essential
  – Better communication
  – Better coordination
• Work toward unification of 1 energy day
Conclusions (continued)

• Some issues will be required to be done at FERC
  – Need to participate in the process

• The further along we are WRT regional coordination, the better
  – Be a model, or
  – Become a conformist
Conclusions (continued)

• Proper planning essential
  – Coal plant retirements hitting region hard
  – 2015-2016 window – what will it look like?
  – Need to resolve many issues before and during that time frame
Expectations

- Meeting of relevant regional interests
- Collaborative approach
- No unreasonable expectations
Final Thoughts

- Harmonization, if properly done, will benefit and lend stability to both markets

- This needs to be as true in restructured markets as in vertically integrated markets, and vice-versa
Questions?

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