Development of a Model Rule on Emissions from Distributed Resources

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Purpose

- Recognizing the role of DR in existing and restructured electricity markets

- What concerns are being addressed?
  - Environmental protection with technology and industry changes
  - Promoting clean DR
  - Administrative simplicity
  - Promoting certification of small engine conformance to clean standards
A 30-member working group made up of state energy regulators, state and federal air quality regulators, manufacturers, interest groups (environmental and industry)

Work done primarily by conference call and e-mail; two face-to-face meetings

Agreement sought to the greatest extent possible
Timeline

- Kick-off meeting in January 2001
  - Issue areas (applicability, emissions, certification, credits for offsets) assigned to sub-groups
- May 2001 meeting
- November 2001 Public Review Draft
- Revisions, February through August 2002
- Final draft, 31 October 2002
The model emissions standards should:

– Lead to improved air quality, or at least do no additional harm
– Be technology-neutral and fuel-neutral, to the extent possible
– Promote regulatory consistency across states
  • Reduced barriers ➤ improved economic efficiency ➤ greater environmental benefit
The model emissions standards should:

- Promote technological improvements in efficiency and emissions output
  - Encourage the use of non-emitting resources
  - Account for the benefits of CHP and the use of otherwise flared gases

- Be easy to administer
  - Facilitate the development, siting, and efficient use of DR
Key Issues: Applicability

- What types of sources should be covered?
  - New only

- What sizes of engines should be addressed?
  - Anything not covered by federal NSR

- What functions should be covered?
  - Emergency and non-emergency
Key Issues: Emissions

- Establish “appropriate” emissions standards
  - Better than grid average, as good as new BACT for large combined cycle sources, LAER?
    - A middle ground that pushes technology to beat expected improvements over the next decade
- Credits for flared fuels, CHP, renewables and end-use efficiency
- Pollutants: NO\textsubscript{x}, PM, CO, CO\textsubscript{2}, SO\textsubscript{2}
Proposed Emissions Limits

- Emergency Generators
  - 300 hours annual operation
  - 50 hours annual maintenance (included in the 300 total)
  - EPA off-road engine standards, expressed in pounds/MWh
Proposed Emissions Limits

- For $\text{NO}_x$, PM, CO, CO$_2$:
  - Output-based limits: pounds per MWh

- For SO$_2$:
  - Diesel is the issue
  - Ultra-low sulfur fuel requirement
  - Following EPA on-road requirements

- Technology review prior to Phase Three
**Proposed NO\textsubscript{x} Limits**

(lbs/MWh)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Non-Attainment</th>
<th>Attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I (2004)</td>
<td>0.6</td>
<td>4</td>
</tr>
<tr>
<td>Phase II (2008)</td>
<td>0.3</td>
<td>1.5</td>
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<tr>
<td>Phase III* (2012)</td>
<td>0.15</td>
<td>0.15</td>
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* Subject to Technology Review
## Proposed PM Limits

**Non-Gas only (lbs/MWh)**

### Non-Emergency, All Areas

<table>
<thead>
<tr>
<th>Phase</th>
<th>Limit (lbs/MWh)</th>
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<tbody>
<tr>
<td>Phase One (2004)</td>
<td>0.7</td>
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<tr>
<td>Phase Two (2008)</td>
<td>0.07</td>
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<tr>
<td>Phase Three* (2012)</td>
<td>0.03</td>
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</tbody>
</table>

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## Proposed CO Limits

(lbs/MWh)

<table>
<thead>
<tr>
<th>Non-Emergency, All Areas</th>
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<tbody>
<tr>
<td>Phase One (2004)</td>
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<tr>
<td>Phase Two (2008)</td>
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<tr>
<td>Phase Three* (2012)</td>
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# Proposed CO$_2$ Limits

*(lbs/MWh)*

<table>
<thead>
<tr>
<th>Emergency and Non-Emergency, All Areas</th>
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<tbody>
<tr>
<td>Phase One (2004)</td>
<td>1900</td>
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<tr>
<td>Phase Two (2008)</td>
<td>1900</td>
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<tr>
<td>Phase Three* (2012)</td>
<td>1650</td>
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</tbody>
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On-Going Activities

2003 – 2004:

- Provide technical assistance to states considering adoption of DR emissions standards and removal of regulatory barriers to DR
More on Distributed Resources

- **Model Regulations for the Output of Specified Air Emissions from Smaller-Scale Electric Generation Resources – Model Rule and Technical Support Documents**; RAP, 31 October 2003

- **State Regulatory Policy and Distributed Resources: Accommodating Distributed Resources in Wholesale Markets**; F. Weston with C. Harrington, D. Moskovitz, W. Shirley, R. Cowart, and R. Sedano; T. Basso, NREL Technical Monitor, NREL TP-32497

- **State Regulatory Policy and Distributed Resources: Distributed Resources and Electric System Reliability**; R. Cowart with C. Harrington, D. Moskovitz, W. Shirley, F. Weston, and R. Sedano; T. Basso, NREL Technical Monitor, NREL TP-32498

- **State Regulatory Policy and Distributed Resources: Distributed Resource Distribution Credit Pilot Programs: Revealing the Value to Consumers and Vendors**; D. Moskovitz with C. Harrington, W. Shirley, R. Cowart, R. Sedano, and F. Weston; T. Basso, NREL Technical Monitor, NREL TP-32499

- **State Regulatory Policy and Distributed Resources: Distribution System Cost and Methodologies for Distributed Generation**; W. Shirley with R. Cowart, R. Sedano, F. Weston, C. Harrington, and D. Moskovitz; T. Basso, NREL Technical Monitor, NREL TP-32500

- **State Regulatory Policy and Distributed Resources: Distribution System Cost Methodologies for Distributed Generation Volume II Appendices**; W. Shirley with C. Harrington, D. Moskovitz, R. Cowart, R. Sedano, and F. Weston; T. Basso, NREL Technical Monitor, NREL TP-32501