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Utilizing the Demand Growth Exclusion Under NSR Reform

Presented to the Air & Waste Management Association
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Overview of PSD Regulations

• Enacted to prevent deterioration in existing air quality

• Classifies areas as “attainment” or “non-attainment” by direct measurement of pollutant concentrations in ambient air (pollutant specific)

• Significant modifications to major sources must demonstrate they will not create an adverse impact to existing air quality
PSD Applicability – Modifications

• A Modification is a *physical change* or a *change in the method of operation*
• PSD applies to Major Modifications of existing major sources
• A Major Modification is a modification that results in a significant emissions increase
• A significant emissions increase is defined on a pollutant-specific basis
## Significant Emission Rates

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Rate (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PM</td>
<td>25</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>15</td>
</tr>
<tr>
<td>SO\textsubscript{2}</td>
<td>40</td>
</tr>
<tr>
<td>NO\textsubscript{x}</td>
<td>40</td>
</tr>
<tr>
<td>VOC</td>
<td>40</td>
</tr>
<tr>
<td>CO</td>
<td>100</td>
</tr>
<tr>
<td>Lead</td>
<td>0.6</td>
</tr>
</tbody>
</table>
BACT Applicability

• Once PSD applies, BACT is required for all pollutants with a significant emissions increase
• BACT applies to each emissions unit at which a net emissions increase occurs
• PSD applications may include
  • Multiple BACT analyses for multiple pollutants
  • Multiple BACT analyses for multiple emissions units
BACT

"An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis taking into account energy, environmental, and economic impacts and other costs...determines is achievable"
NSR Reform — What Really Changes?

• NSR Reform impacts only applicability determinations for modifications
• All other aspects of NSR remain unchanged
• Modifications are critical
Major Changes Under NSR Reform

- New applicability test for emissions increases
  - Old: Past Actual to Future Potential
  - New: Past Actual to Projected Future Actual
- New method to determine baseline actual emissions
  - Old: Annualize 24 months preceding the project
  - New: Annualize any 24 months in the past 10 years
<table>
<thead>
<tr>
<th>NSR Applicability Test</th>
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<tbody>
<tr>
<td><strong>Old Requirements</strong></td>
</tr>
<tr>
<td>• Actual to Potential Test: Compare past actual emissions (2-yr average) to future PTE</td>
</tr>
<tr>
<td>• This test swept numerous projects into NSR without any real change in actual emissions</td>
</tr>
<tr>
<td><strong>New Requirements</strong></td>
</tr>
<tr>
<td>• Actual to Projected Actual Test: Includes all changes at existing emissions units, not just the project under review</td>
</tr>
<tr>
<td>• Source must project post-change annual emissions</td>
</tr>
<tr>
<td>• 5 year period after change if no increase in PTE or capacity</td>
</tr>
<tr>
<td>• 10 year period if increase in PTE</td>
</tr>
<tr>
<td>• Exclude demand growth that could have been accommodated</td>
</tr>
<tr>
<td>• Option to use PTE to avoid recordkeeping</td>
</tr>
</tbody>
</table>
## Determining Baseline Actual Emissions

### Old Requirements

- Average of the annual emissions for the 2-year period immediately preceding the project

  *or*

- Another 2-year period if it is determined to be more representative of emissions by the reviewing authority

- Typically single baseline year for all pollutants

### New Requirements

- Average annual emissions that occurred during any consecutive 24-month period in the past 10 years
  - Need adequate data

- Adjustments
  - Reflect current control requirements
  - No credit for emissions beyond allowable emissions

- Allows different baseline periods for different pollutants
The Netting Process

- Netting allows a source to avoid PSD if the “net emissions increase” over baseline < significance level
- Include ALL creditable emissions increases associated with the project
- Include any creditable decreases from deactivated equipment or activities
Netting Details

• Select baseline period emissions, average of any 24-month period in the prior 10 years (annualized)
• Project future actual emissions, use highest predicted annual emission over next five years
• In projecting future actual emissions, a source may exclude those emissions unrelated to the project which are the result of growth in product demand
Keys to the Demand Growth Exclusion

*Increasing the utilization of existing capacity is not an NSR-triggering event*

1. Determine the Baseline Actual Emissions for each affected pollutant
2. Determine the emissions a source could have accommodated during the baseline period above the baseline emissions
3. Determine the portion of projected actual emissions that are unrelated to the project, and can be attributed to a growth in product demand
Details of Demand Growth Determination

• May choose the most advantageous baseline period, which may be different for different pollutants

• Must show that the unit could accommodate an increase in product demand prior to the proposed project
  • Credit only given for unused capacity
  • Must account for enforceable permit limits

• Must show a trend of increasing emissions due to growth in product demand though historical data
Mechanics of the Demand Growth Exclusion

Graph taken from David I. Rosenbaum, Ph.D., *Demand Growth Exclusions in Estimating Projected Actual Emissions in a PSD Review For Non-Electric Generating Units*, 2005

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Benefits of the DGE

• The DGE allows a project to be isolated from “normal” facility emissions, preventing a project from triggering PSD due to unrelated emissions increases

• **Special Case:** Sources subject to a synthetic limit (emissions cap) can net out any project by demonstrating that actual emissions will reach the cap within five years due to demand growth
  - Source must maintain synthetic limit or change less than the significance level
Baseline Determination by Midpoint Average

Figure 2-1: 24-month Rolling Average Emissions of SO₂

Highest average emissions
Projecting Demand Growth Emissions

Historical SO₂ Emissions and Pre-Project Future Trend

\[ y = 5,891.12x + 1,139,489.07 \]
“Reasonable Possibility”

• The projection of future actual emissions does not become an enforceable permit limit….or does it?
• Actual-to-Actual test raises the possibility that projections of future demand will be incorrect
• Recordkeeping and reporting required for projects with a “reasonable possibility” of a significant emissions increase
• Reasonable possibility was left undefined and without guidance in the NSR Reform rule
New York vs. EPA

• Court remanded the rule for a better definition of reasonable possibility

• EPA Solution: If the projected net emissions increase is 50% or more of the significance level, then a reasonable possibility exists

• Maintain records of pre-project production and emission projections, and record post-project emissions for at least 5 years

• If records show a resulting disparity, reports must be submitted to EPA
Summary

• NSR Reform provides relief to projects which do not by themselves constitute a significant increase in emissions

• The Demand Growth Exclusion can be critical to the determination that a project will not create a significant net emissions increase

• Facilities must recognize the importance of keeping adequate data to justify use of the DGE

• Post-project records should be kept to minimize risk associated with projections of future emissions
Questions?

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