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**New Source Review – What can  
we do now, without legislation?**

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# NSR Reform 2002 (1/2)

- > EPA last reformed the NSR rules in 2002
- > EPA introduced a revised approach to determining major modifications at existing sources (i.e. EPA clarified how to calculate the emissions increase for a project)
- > Revised approach has been challenging to implement...need more guidance or regulatory certainty

# NSR Reform 2002 (2/2)

- > Pollution Control Projects (overturned by courts 2005...can not exempt collateral increases in emissions caused by the addition of an air pollution control device)
- > Clean Unit Exemption (overturned by courts 2005...can not exempt a unit from a review of the Best Available Control Technology (BACT) that voluntarily installs controls and obtains a “clean unit” designation)
- > Equipment Replacement Provision (overturned by courts in 2007)

# NSR Reform Today

- > Jan 24, 2017: Presidential Memorandum “Streamlining Permitting and Reducing Regulatory Burdens on Domestic Manufacturing”
- > Required Dept. of Commerce to engage stakeholders on potential federal actions to streamline permitting and issue a report
- > Oct 6, 2017: DOC Report: Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing
  - ❖ Issue #1 - CWA and WOTUS
  - ❖ Issue #2 - NESHAP/NSPS
  - ❖ Issue #3 - NSR/PSD Permit

# NSR Areas for Reform

- > Defining major modification (PSD applicability)
  - ❖ Projected actual emissions
  - ❖ Could have accommodated/demand growth
- > Turnaround time
- > Aggregation
- > RMRR exemption
- > Modeling
- > BACT/LAER determinations

# What is a Major Modification

- > Physical change or change in the method of operation at a major stationary source that would result in a significant emissions increase and a significant net emissions increase.
- > How do you determine the emissions increase (EI)?
- > How do you determine if the emissions increase is significant?

Significant means the EI is above the EPA significant emission rate (SER).

# Emission Increase Formula

> General:

$$\text{Increase} = \text{Projected Actual Emissions (PAE)} - \text{Baseline Actual Emissions (BAE)}$$

> New Source (where PAE must equal PTE and baseline is 0):

$$\text{Increase} = \text{PTE}$$

> Existing Source:

$$\text{Increase} = \text{Projected Actual Emissions (PAE)} - \text{Baseline Actual Emissions (BAE)}$$

# Projected Actual Emissions (1/3)

- > The projected actual annual emission rate at which an existing emissions unit is projected to emit a regulated NSR pollutant
  - ❖ Next 10 years if there is an increase in the equipment design capacity
  - ❖ Next 5 years otherwise
- > In determining the PAE,
  - ❖ “shall consider all relevant information, including but not limited to, historical operational data, the company’s own representations, the company’s expected business activity and the company’s the highest projections of business activity, the company filings with state and federal authorities...”



# Projected Actual Emissions (2/3)

- > Preamble to 12/31/2002 rule (67 FR 80196):
- > “Accordingly, you will calculate the unit’s projected actual emissions as the product of:
  - ❖ (1) The hourly emission rate, which is based on the emission units operational capabilities following the change(s), taking into account legally enforceable restrictions that could affect the hourly emissions rate following the change, and
  - ❖ (2) the projected level of utilization, which is based on both the emissions unit’s historical annual utilization rate and available information regarding the emission unit’s likely post-change capacity utilization
- > Projected Actual Emissions = Hourly Rate x Projected Utilization

# Projected Actual Emissions (3/3)

- > In determining the PAE,
  - ❖ “Shall exclude, in calculating any increase in emissions that result from the particular project that portion of the emission units emissions following the project that **could have been accommodated** during the baseline period and that are **unrelated to the particular project.**”
- > Often referred to as the “demand growth exclusion” but regulatory language is not specific to demand growth

# Excluded Emissions Criteria 1: Could Have Accommodated

- > Should not overestimate the capacity that the unit was “capable of accommodating”
  - ❖ Averaging period is annual
  - ❖ Existing EPA and state guidance suggests a 30 day period could be appropriate for extrapolating an annual rate that could be accommodated
    - ◆ Could unit have sustained operation at that capacity for a full year?
    - ◆ Should adjust downward to account for required maintenance

## Excluded Emissions Criteria 2: Unrelated to the Particular Project (1/2)

- > “...even if the operation of an emissions unit to meet a particular level of demand could have been accomplished during the baseline period, but the increase is related to the changes made at the unit, then the emissions increases resulting from the increased operation must be attributed to the project, and cannot be subtracted from the projection of the projected actual emissions.”

# Excluded Emissions Criteria 2: Unrelated to the Particular Project (2/2)

- > Not as simple as it looks
  - ❖ Prior to the project, how accurate are engineering estimates of what increases the project will accomplish?
  - ❖ How will source be able to demonstrate that an increase in production is not the result of the project?
- > Relative void of EPA guidance interpreting this language...Scrutinized by EPA...NSR Reform?

# Emissions Increase Formula

$$\begin{array}{c} \boxed{\begin{array}{c} \text{Projected Actual} \\ \text{Emissions} \\ \text{(PAE)} \end{array}} - \boxed{\begin{array}{c} \text{Emissions Excluded} \\ \text{from Projected Actual} \\ \text{Emissions} \\ \text{(PAE Exemption)} \end{array}} - \boxed{\begin{array}{c} \text{Baseline Actual} \\ \text{Emissions} \\ \text{(BAE)} \end{array}} = \boxed{\text{Increase}} \end{array}$$

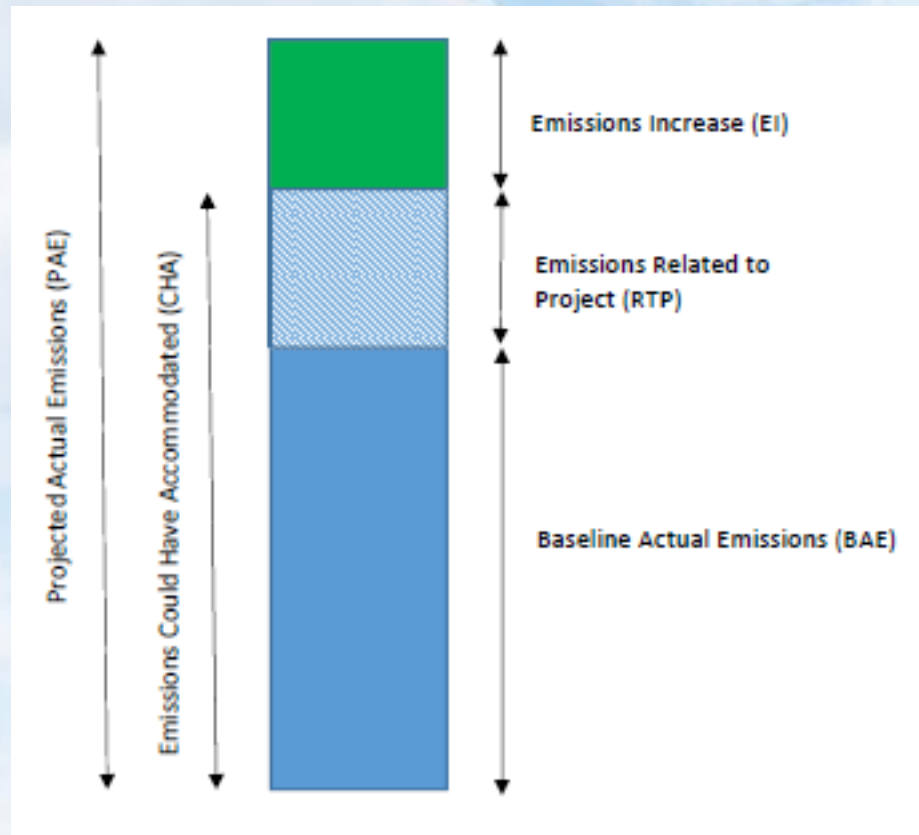
$$\underbrace{\begin{array}{c} \boxed{\begin{array}{c} \text{Emissions source is} \\ \text{capable of} \\ \text{accommodating (COA)} \end{array}} - \boxed{\begin{array}{c} \text{Emissions Related to} \\ \text{Project} \\ \text{(RTP)} \end{array}} - \boxed{\begin{array}{c} \text{Baseline Actual} \\ \text{Emissions} \\ \text{(BAE)} \end{array}} \end{array}}$$



$$\text{Increase} = \text{PAE} - [\text{COA} - \text{RTP} - \text{BAE}] - \text{BAE}$$



# Emission Increase for Changes at Existing Plants



$$\text{Increase} = \text{PAE} - [\text{COA} - \text{RTP} - \text{BAE}] - \text{BAE}$$

# Steps to Estimate Emissions Increase

- > Step 1 - Calculate the Projected Actual Emissions (PAE)
- > Step 2 - Calculate the Baseline Actual Emissions (BAE)
- > Step 3 - Determine the emissions the source is capable of accommodating (COA)
- > Step 4 - Determine what is related to the project (RTP)



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# Georgia Pacific Example

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# Georgia Pacific (GP) Project

- > 3 existing lumber kilns heated by direct-fired dry shavings burners
- > GP proposed to install secondary combustion vortex chambers on the burners for Kilns 2 and 3 to reduce energy cost and improve lumber quality
- > Kiln cycle time will drop from an average of 19 hours to 17.5 hours by utilizing the retained heat in the vortex chamber

# GP Kilns 1 and 2 and PAE (Step 1)

## Process Rate

- > The throughputs for the PAEs were estimated based on the highest monthly throughput (annualized) in the baseline period (105.816 Mbf/yr) PLUS the increased throughput due to decreased cycle time ( $105.816 * 19 / 17.5 = 114.886$  Mbf/yr)

# GP Kilns 1 and 2 and BAE (Step 2)

## Process Rate

- > Baseline throughput = 87.086 Mbf/yr
  - ❖ Highest 2 year annual average based on 10 yr lookback (2004/2005)

# GP Kilns 1 and 2 and COA (Step 3)

## Process Rate

- > For Kilns 2 and 3, the throughputs for the COAs were estimated based on the highest monthly throughput (annualized) in the baseline period (105.816 Mbf/yr)

# GP Kilns 1 and 2 and RTP (Step 4)

## Process Rate

- > The throughputs for the RTPs were estimated as the difference in the PAE (114.886 Mbf/yr) and the COA (105.816 Mbf/yr)
- >  $RTP = 114.886 - 105.816 = 9.070 \text{ Mbf/yr}$

# GP Emission Increase

**Increase = PAE – [Emissions Excluded from PAE] – BAE**

**Increase = PAE – [COA – RTP – BAE] – BAE**

**PAE (from Step 1) = 114.886 Mbf/yr \* Emission Factor**

**BAE (from Step 2) = 87.086 Mbf/yr \* Emission Factor**

**COA (from Step 3) = 105.816 Mbf/yr \* Emission Factor**

**RTP (from Step 4) = 9.070 Mbf/yr \* Emission Factor**

**Production Excluded from PAE = 9.660 Mbf/yr**

# GP Comparison w/ and w/o Exclusions from PAE

- > Without Exclusions = PAE - BAE = 114.886 Mbf/yr - 87.086 Mbf/yr = **27.8 Mbf/yr**
- > With exclusions = PAE - Exclusion - BAE = 114.886 - 9.660 - 87.086 = **18.14 Mbf/yr**



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# Confusion over PAE

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# Detroit Edison Energy (DTE Energy) Monroe Coal Fired Power Plant

- > DTE undertook \$65 million overhaul of Unit 2
- > DTE did not obtain a PSD permit for the overhaul, since the emission increases calculated by DTE for the project showed the project did not trigger PSD review
- > DTE argued both that the overhaul was routine maintenance and also that any increase in emissions would be a result of demand growth that was unrelated to the project
- > EPA disagreed, but DTE argued that an enforcement action could not proceed until after a pollution increase had actually occurred

# Detroit Edison Energy (DTE Energy) Monroe Coal Fired Power Plant

- > EPA and the 6<sup>th</sup> Circuit Court of Appeals rejected DTE Energy's argument saying Congress designed the CAA to prevent emission increases before they occur.
- > The dissenting opinions supporting DTE said DTE complied with the basic requirements for the NSR rules for making projections in the first place
- > In Dec 2017, the Supreme Court denied DTE Energy's petition for review.
- > DTE case leads one to understand that the projected emissions (including the portion of the projections that can be exempted from the emission increase) must be "approved" or "reviewed" by the permit authority prior to beginning construction.

# EPA December 2017 Memo

- > Memo from Pruitt to EPA Regional Administrators
- > Memo driven by the complexities in the DTE case over when emission increase projections must be made and who should review and approve the projections
- > EPA says sources are obligated under the rules to conduct a pre-project review of the emissions increases that considers all relevant information
- > EPA says post-project emissions monitoring and recordkeeping requirements provide a means to evaluate a source's pre-project conclusion that NSR does not apply

# EPA December 2017 Memo

Based on the foregoing, and while further review of these issues by the EPA is pending, the EPA intends to implement and exercise its authority under the NSR provisions to clarify that when a source owner or operator performs a pre-project NSR applicability analysis in accordance with the calculation procedures in the regulations, and follows the applicable recordkeeping and notification requirements in the regulations, that owner or operator has met the pre-project source obligations of the regulations, unless there is clear error (e.g. the source applies the wrong significance threshold). The EPA does not intend to substitute its judgement for that of the owner or operator by “second guessing” the owner or operator’s emissions projections.



# EPA December 2017 NSR Guidance - Final Thoughts

- > The comparison of future emissions to baseline emissions must be done correctly
  - ❖ 2017 memo says EPA will not “second guess” a sources emission projections unless there is a clear error
- > Real issue is what happens if future actual emissions resulting from the project exceed the NSR threshold
  - ❖ The 2017 memo says that EPA presently does not intent to initiate enforcement in such future situations unless post-project actual emissions data indicate that a significant emission increase has occurred

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# Questions?

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