New Source Review
BACT Review

Climate Change Workgroup

CAAAC - Permits, New Source Review, and Toxics Subcommittee

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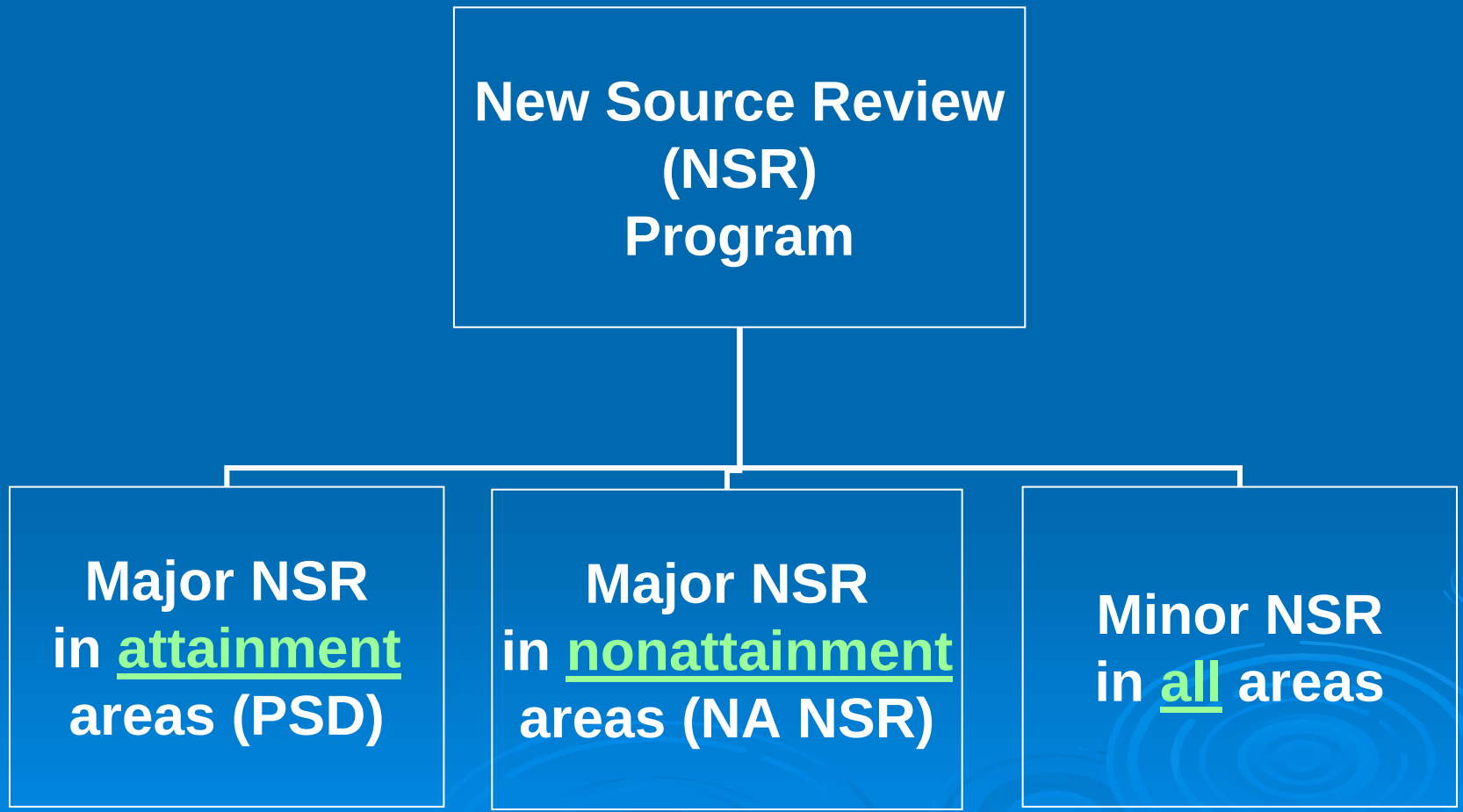
What is New Source Review?

- Preconstruction permitting program for construction and modification of sources of air pollutants in all industries.
- NSR ensures that air quality:
  - does not worsen where the air is currently unhealthy to breathe (i.e. nonattainment areas)
  - is not significantly degraded where the air is currently clean (i.e. attainment areas)

What are the components of New Source Review?



What is Prevention of Significant Deterioration?

- "Major NSR" in Attainment Areas is called "Prevention of Significant Deterioration" (PSD) and applies to:
  - New major sources of "regulated NSR pollutants." Major Sources have:
    - Potential to Emit (PTE) at least 100 tons per year of any NSR regulated pollutant, if one of the 28 named categories.
    - PTE of at least 250 tpy for all other categories.
  - When a physical change or change in the method of operation occurs at an existing major source **and** the change results in a "significant emissions increase" and a "significant net emissions increase" at the source.

PSD Permitting Requirements

- Best Available Control Technology (BACT)
  - Emission limitation based on the maximum degree of emission reduction (considering energy, environmental, and economic impacts) achievable through application of production processes and available methods, systems, and techniques.
- Air Quality Analysis
  - Assesses existing air quality and predicts through modeling the ambient concentrations that will result from the proposed project and future growth associated with the project.
- Additional Impacts Analysis
  - Assesses the impacts of air, ground, and water pollution on soils, vegetation and visibility caused by increases in emissions from the project.
- Public Involvement
  - Opportunities include public comment period, hearings, appeals, etc. during permit issuance.

BACT Statutory Authority

- CAA § 169(3)
  - The term “best available control technology” means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emissions from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through the application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

EPA's "Top Down" BACT

- EPA policy since late 1980's.
- Required procedure for BACT determinations where EPA is the permitting authority, and encouraged for State agencies with approved plans.
- Comprehensive technology review resulting in selection of "maximum degree of reduction," unless "energy, environmental, and economic impacts and other costs" justify rejection.
- Applicable NSPS sets the stringency floor for BACT.

Steps of the BACT Process

- Step 1: Identify all control options
- Step 2: Eliminate technically infeasible options
- Step 3: Rank remaining control options
- Step 4: Eliminate control options based on evaluation of collateral impacts
- Step 5: Select BACT

Step 1: Identify all Controls

- Identify available control options that are potentially applicable to the proposed source
  - Available control options are those technologies that have a practical potential for application to the emissions unit and the regulated pollutant under evaluation.
  - Review of permitted controls in RACT/BACT/LAER Clearinghouse and other reliable sources
- Should consider a full range of emissions minimization techniques
  - “End-of-stack” controls
  - Fuel and materials choices
  - Production process design and work practices
  - Innovative technologies (not required)
  - Energy usage and conservation techniques

Step 2: Eliminate Infeasible Controls

- Eliminate “technically infeasible” options from the list identified in Step 1.
- For each technology, determine whether it is “demonstrated” (i.e., previously installed and operated successfully on a similar facility).
- If undemonstrated, then determine whether the technology is both “available” and “applicable.”
- Technologies identified in Step 1 that are neither demonstrated nor found to be both available and applicable are eliminated under Step 2.

Step 3: Rank Controls

- Rank remaining control technologies based on control effectiveness, e.g.,
  - control effectiveness for each regulated NSR pollutant (% pollutant removed)
  - expected emission rate for each regulated NSR pollutant (tons per year)
  - expected emission reduction for each regulated NSR pollutant (tons per year)
  - Output based emissions limits (pounds per kWh)
- Make determinations about comparative control efficiencies among techniques employing different emission performance levels and different units of measure of their effectiveness.

Step 4: Eliminate Control Options based on Collateral Impacts

- In descending order, evaluate and compare the "collateral impacts" of the control option
  - Energy impacts (efficiency, BTU, kWh)
  - Other environmental impacts
    - Solid or hazardous waste
    - Water discharge from control device
    - Emissions of toxics and other non-NSR regulated pollutants
  - Economic impacts (e.g., total cost effectiveness, incremental cost effectiveness)
  - Permitting authorities have discretion on weighting each area of collateral impact
- Validates the suitability of the top control option identified, or provides a clear justification as to why the top option should not be selected as BACT.

Step 5: Select BACT

- The most effective control alternative not eliminated in Step 4 is selected as BACT and a corresponding emissions limit is established.
- The permitting authority must assure that the administrative record for the selected BACT is sound, comprehensive, and adequately supports the conclusions of the BACT review.

Questions?