

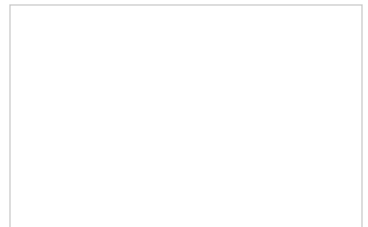
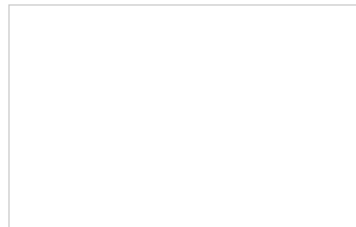
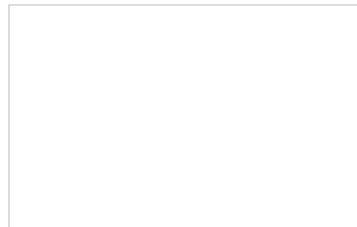
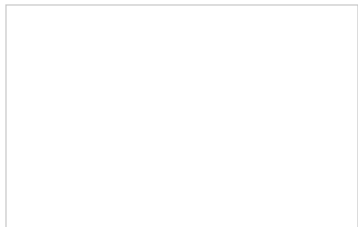
Impacts of Proposed National Air Quality Standards

Thomas Rarick P.E.

Environmental Resources Management

2011 Indiana Environmental Health Summit Air Quality & Public Health

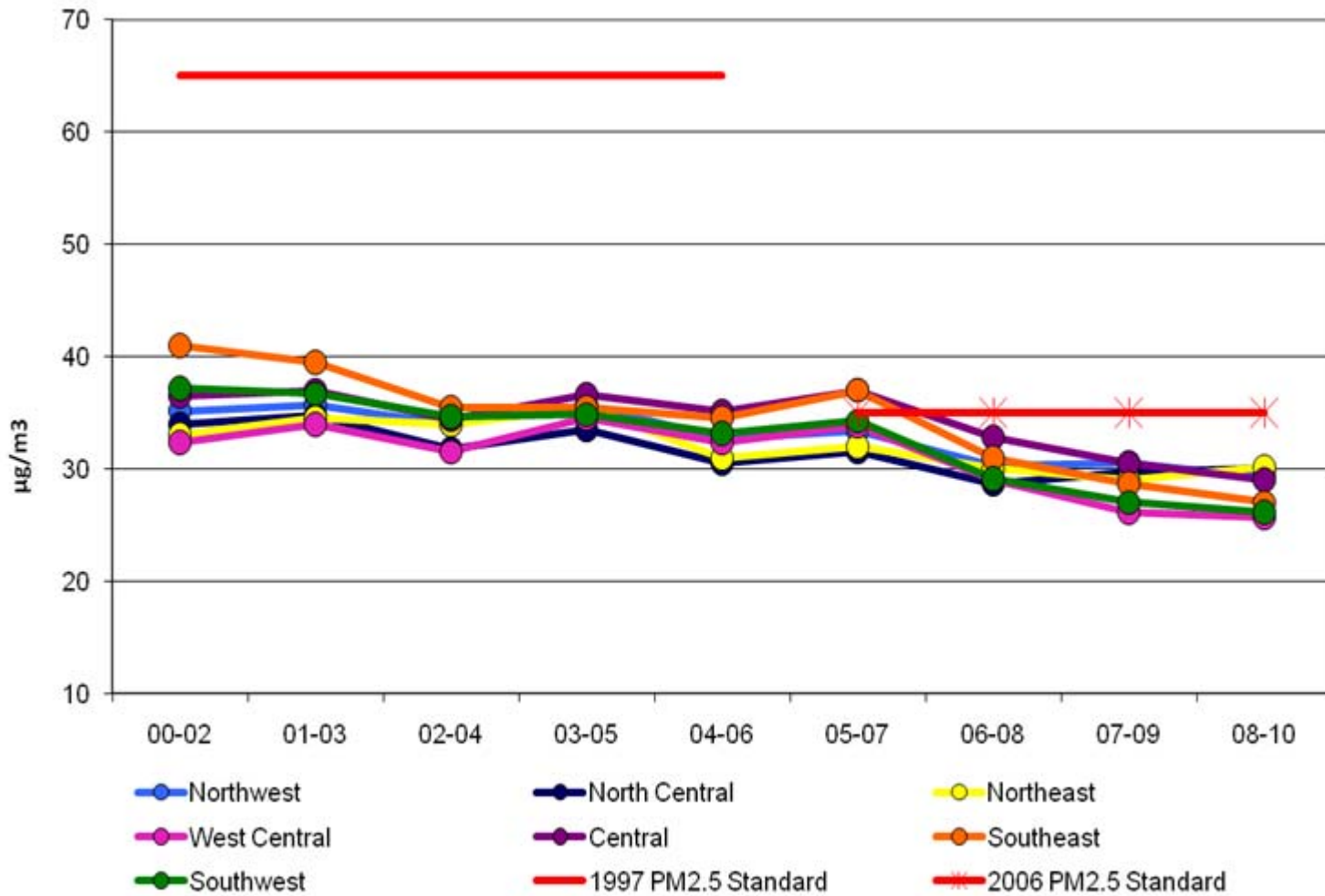
June 6, 2011



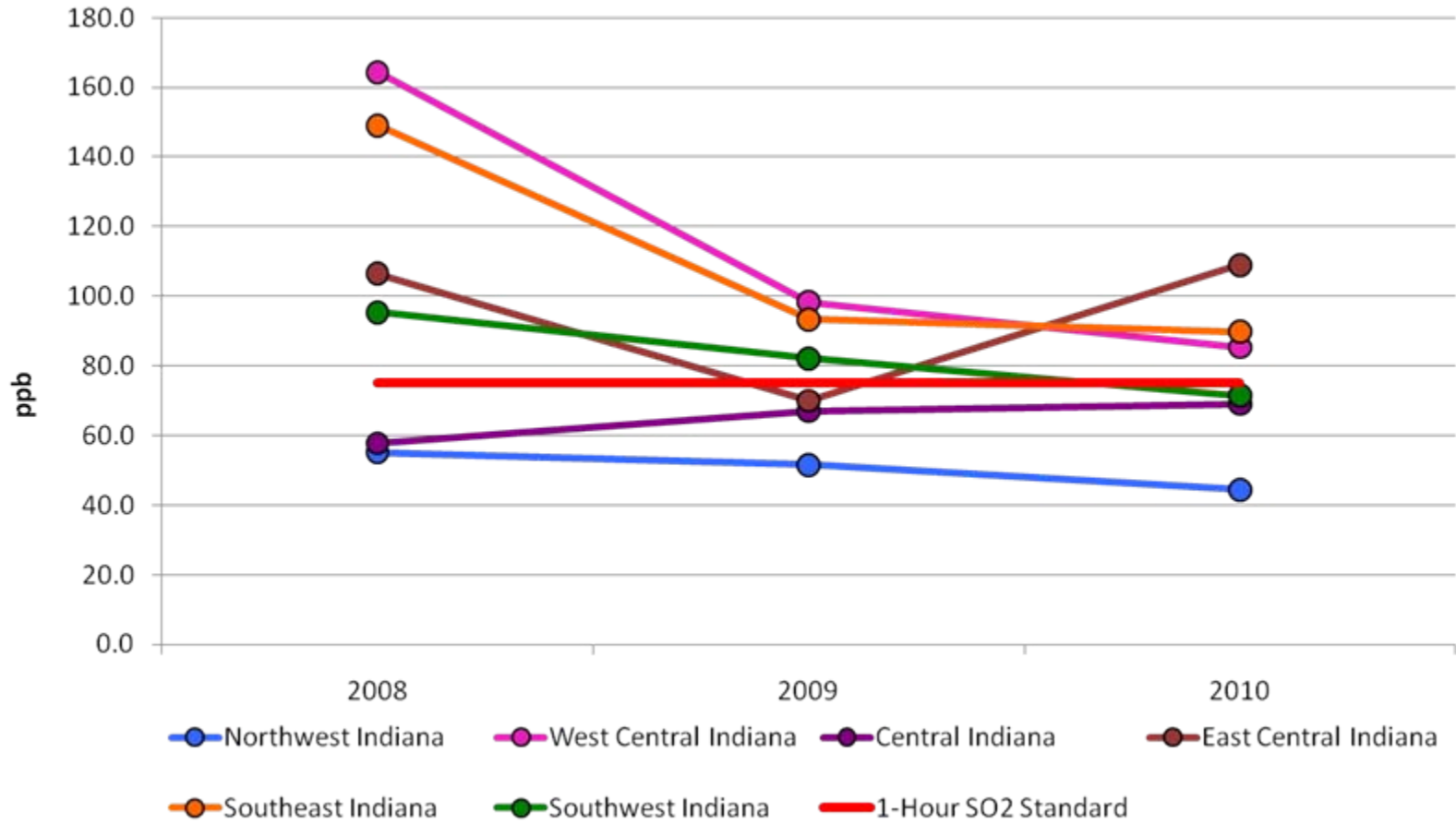
Impacts of the NAAQS

- **Recent Changes to NAAQS**
- **Extent of Non-attainment areas**
- **Role of the SIP process and its impacts**
- **Role of NSR and its Impacts**
- **Strategies for Meeting Air Quality Standards**
- **Pollutant Issues**
- **Economic Impacts**

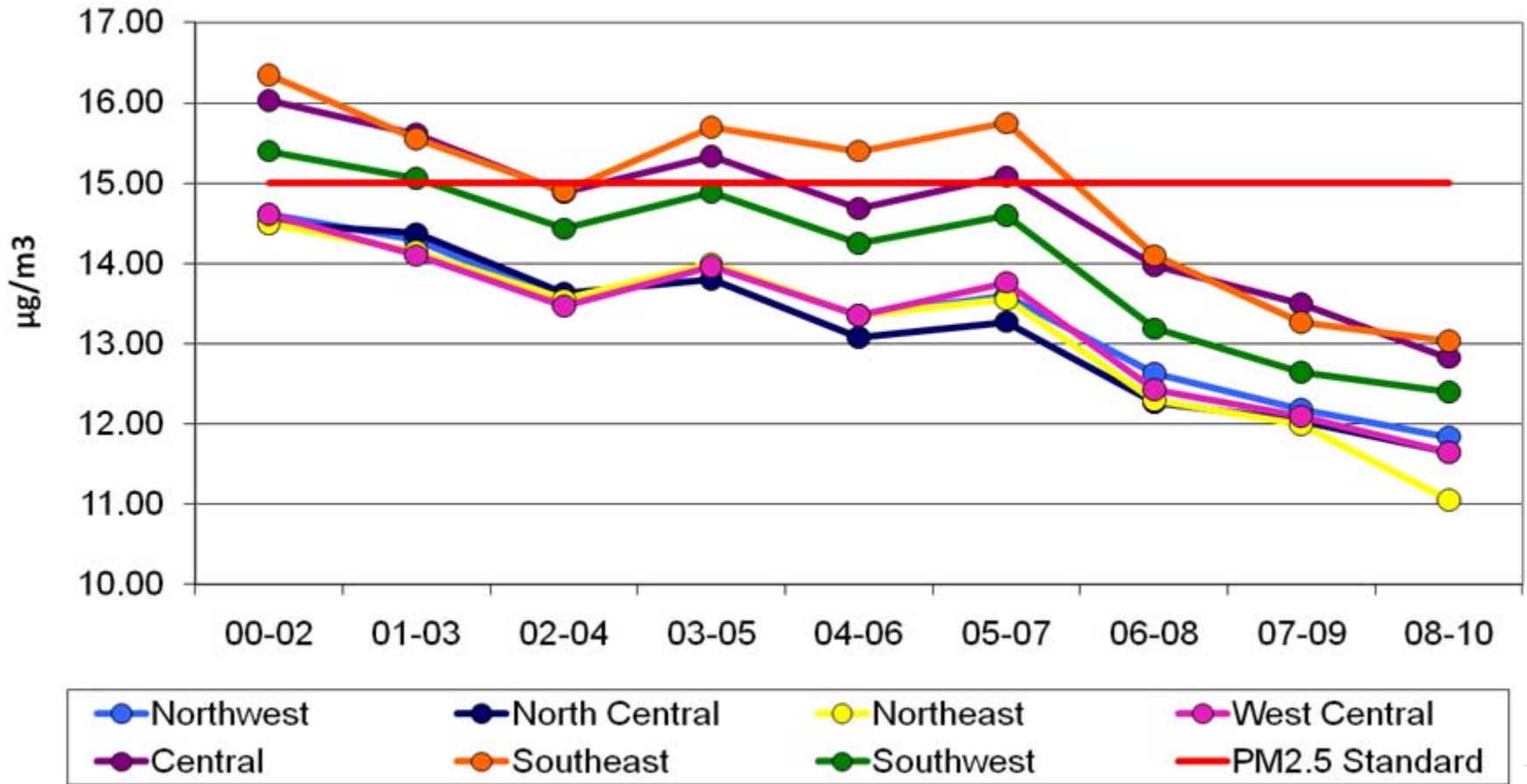
Daily Fine Particle (PM_{2.5}) Design Value Trends



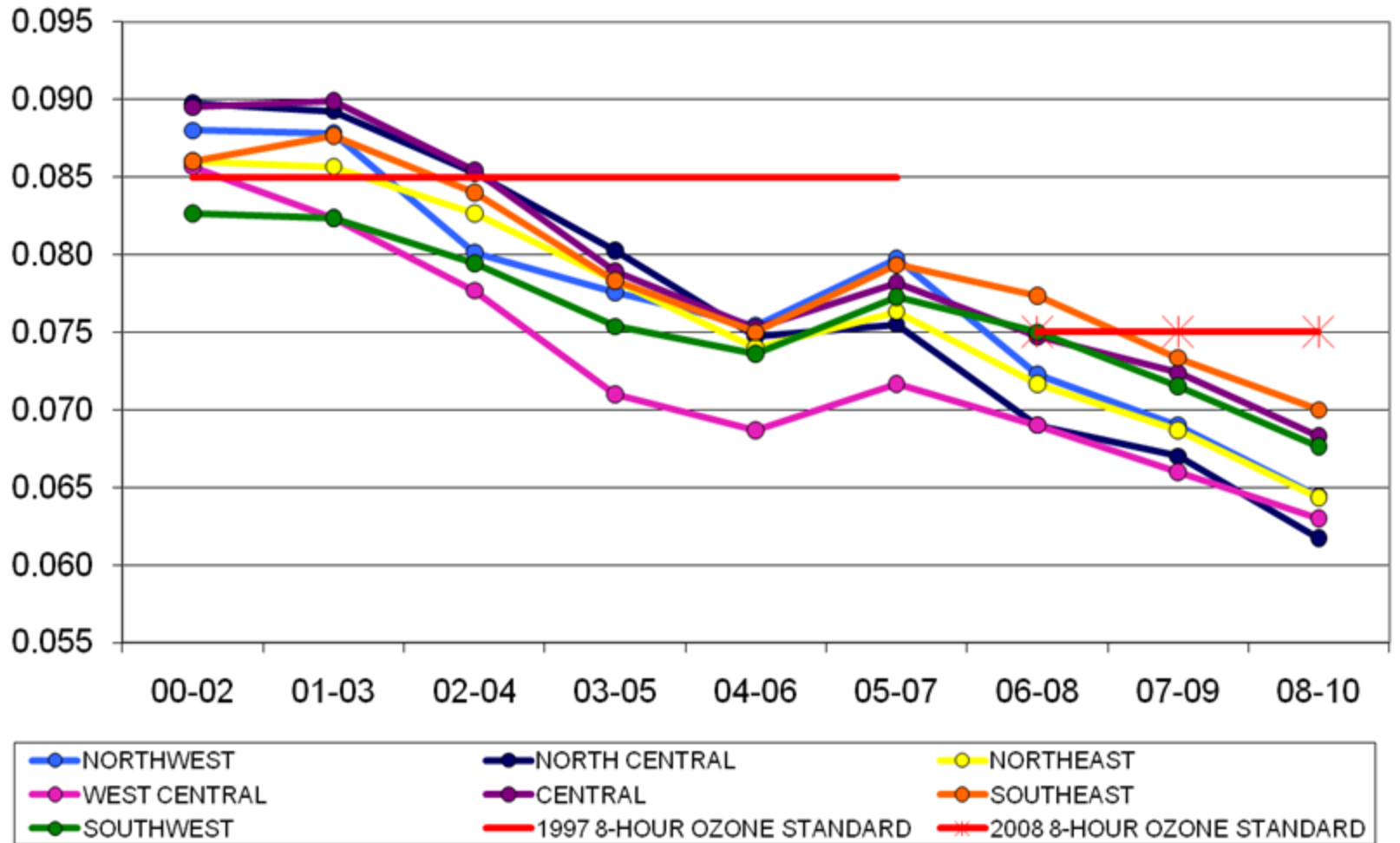
1-Hour Sulfur Dioxide (SO₂) Trends



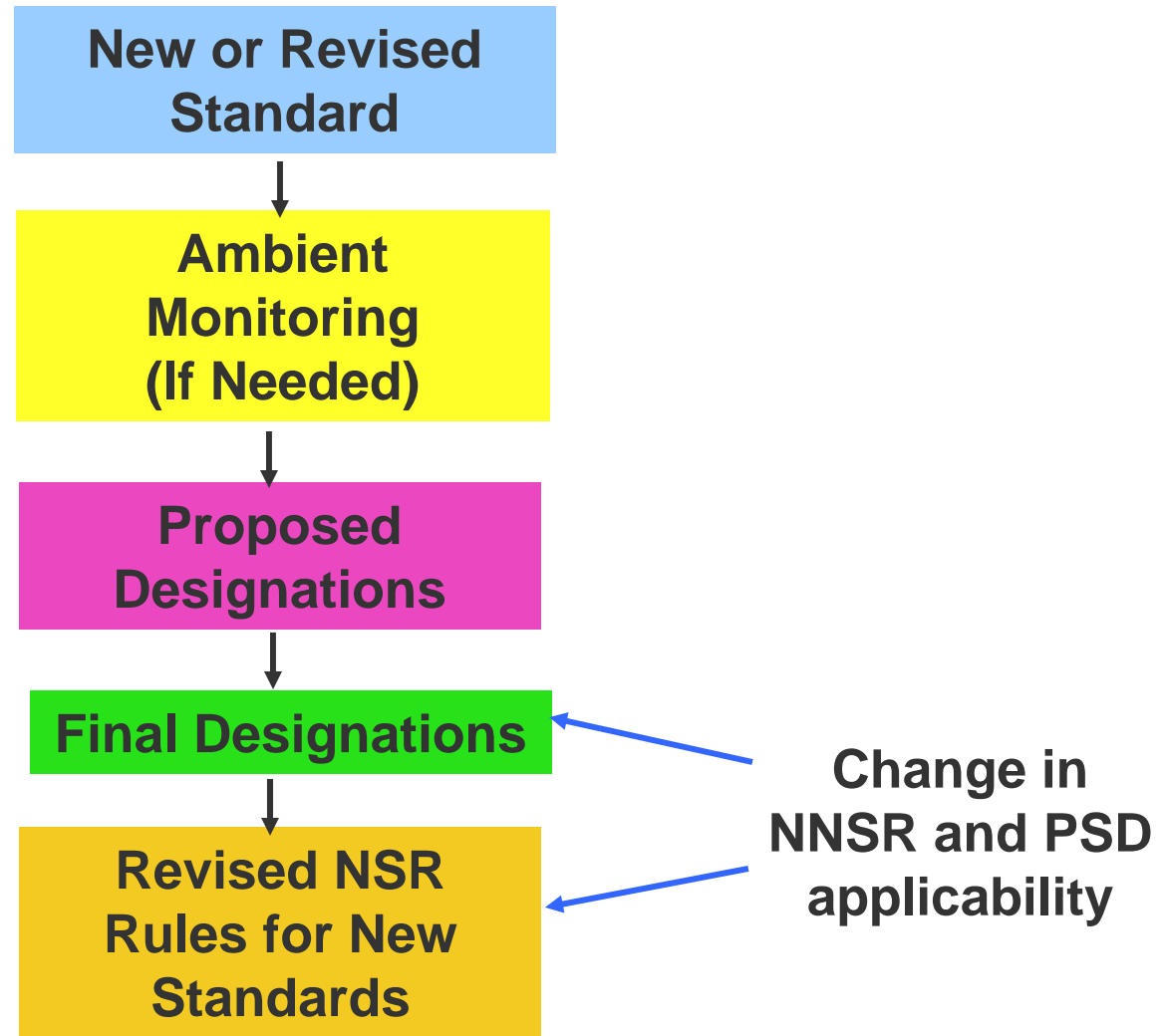
Annual Fine Particle (PM_{2.5}) Value Trends



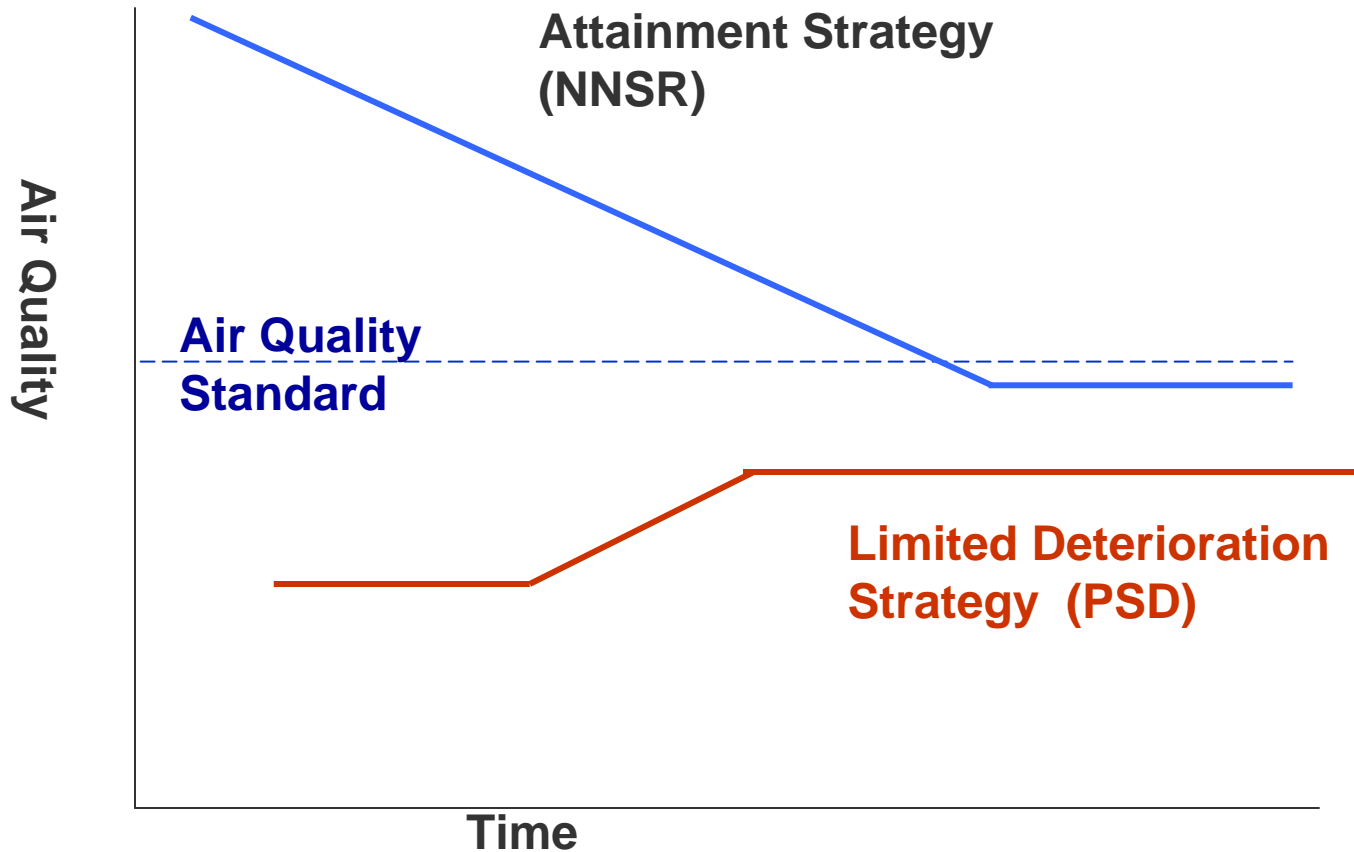
Ozone Trends 2000-2010



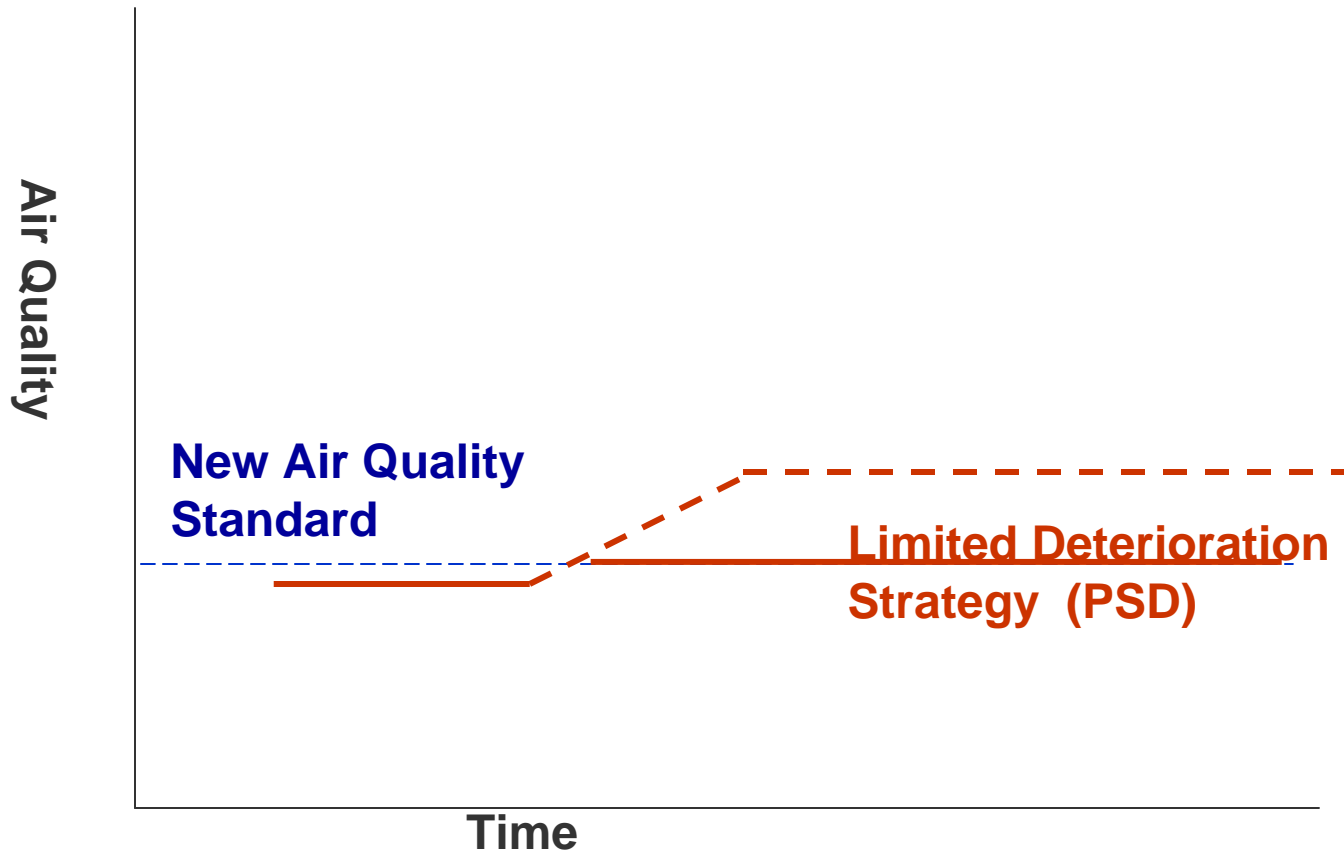
Impact of Changing Air Quality Standards



Strategies for Clean Air



Strategies for Clean Air



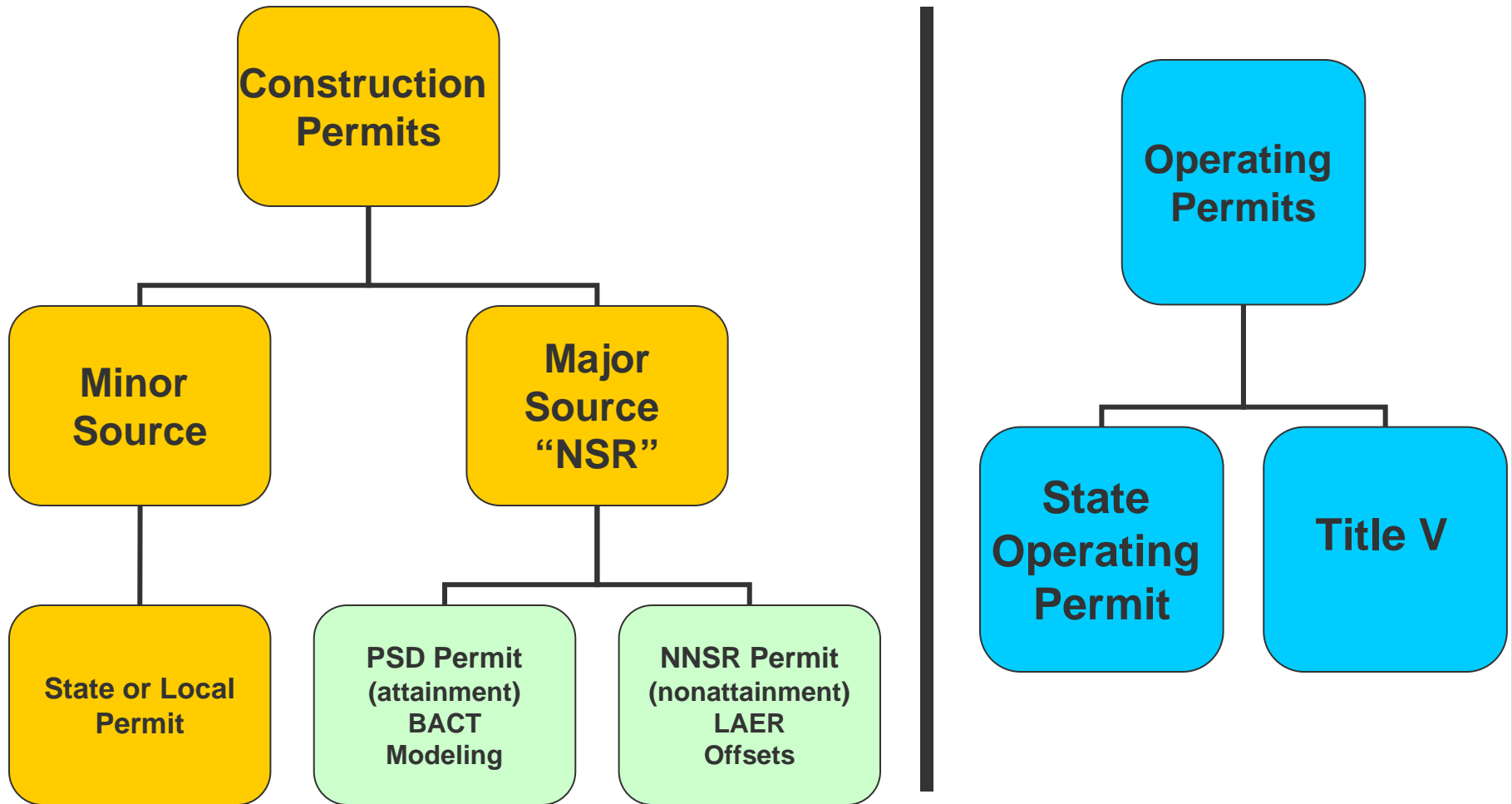
Strategies for Clean Air



State Implementation Plan (SIP) Process

- **States are Responsible for Amending their Rules to provide sufficient enforceable measures to ensure that the NAAQS is attained and maintained.**
 - Rules for Industrial Emissions
 - Transportation Control Measures
- **Federal Rules are also counted toward these goals.**
 - Motor Vehicle Standards
 - NSPS, NESHAPs
 - Acid Rain, CATR
- **Plan contains legal authorities, rules, modeling demonstrations.**
- **CAA establishes deadlines for SIP submittals and attainment.**

Air Permits: Two Types



NSR Programs

- **PSD = Prevention of Significant Deterioration**
- **NNSR = Nonattainment New Source Review**
- **At the most basic level:**
 - Preconstruction permitting programs required under the CAA for Large Sources or Significant Modifications.
 - Impose control technology requirements.
 - Have an air quality component.
- **Economic Development and Source Expansions can be affected.**

Relationship Between NAAQS and PSD/NNSR

- **PSD applies to attainment & unclassifiable areas**
 - to preserve, or prevent, significant deterioration of air quality
- **Nonattainment New Source Review (NNSR) applies strictly to nonattainment areas**
 - to enable areas to achieve the NAAQS or restore air quality
- **A project could be subject to both rules but for different pollutants.**



PSD Modeling Issues

- **Must Demonstrate that PSD increment (approximately 25% of the Standard) is not exceeded based on emissions from the new source.**
 - This has historically been the limiting test for new and modified sources.
 - Indiana restricts increment to 80% of the Federal increment.
- **Must Demonstrate that NAAQS is Protected.**
 - Based on impact from the source + other local sources + background concentrations.
 - This is now the limiting test where standards are lowered to levels approaching background.
 - SO₂, NO₂ and PM_{2.5} are of primary concern.

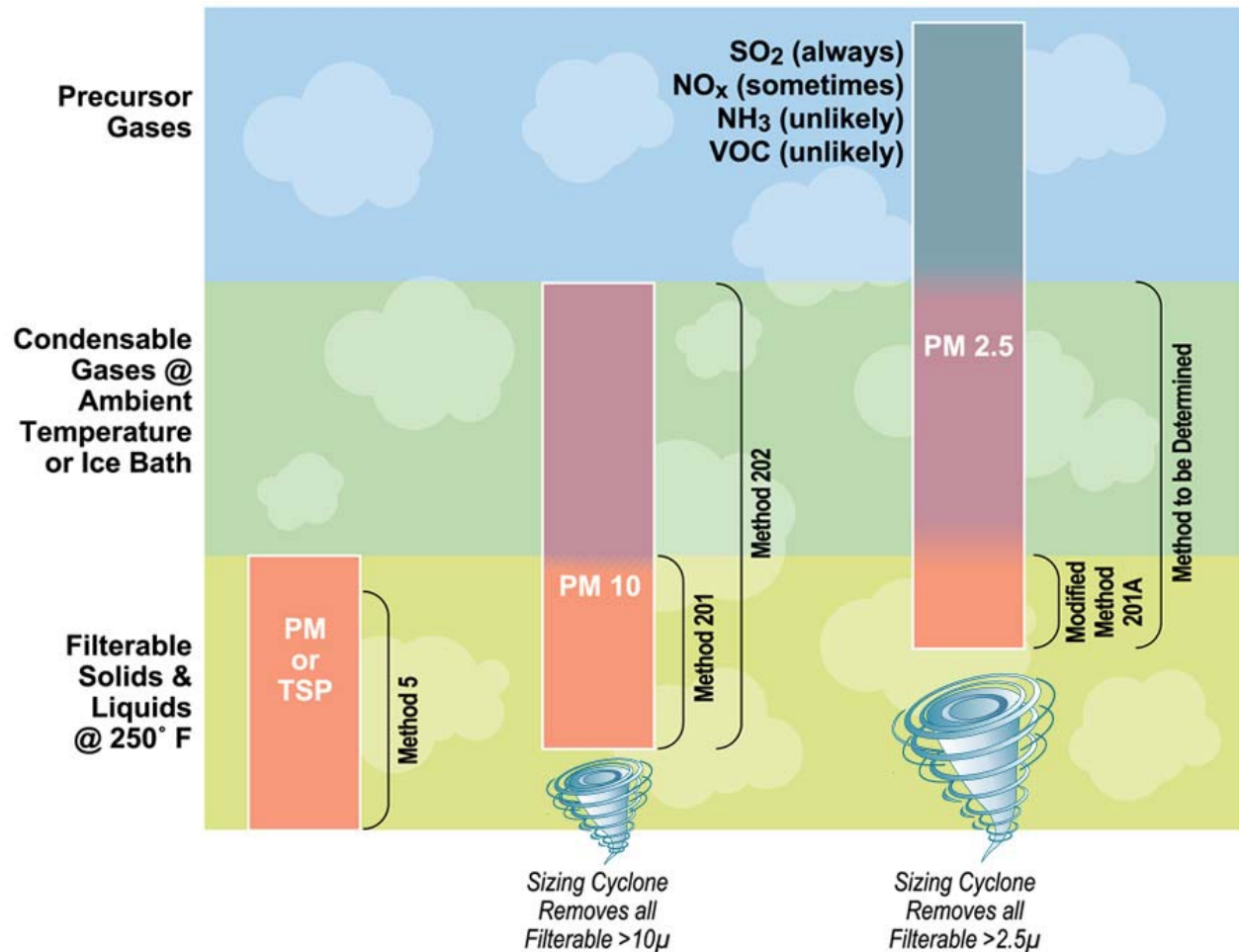
Revised NO₂ NAAQS for Indiana

- **Most of State will be attainment.**
- **Possible non-attainment based on new roadside monitors**
- **Attainment Strategies will focus on transportation measures**
- **Impacts on industrial source primarily through NSR program, especially air quality demonstrations.**
 - Current projects may be delayed or cancelled.

Revised SO₂ NAAQS for Indiana

- **Limited Portions of the State will be Non-attainment based on Monitoring.**
 - Attainment Strategies will require real SO₂ reductions at power plants.
- **Possibility for widespread non-attainment based on modeling.**
 - Attainment Strategies may be a mix of real and “paper” SO₂ reductions at Power Plants.
- **Impacts of NSR permit program**
 - Emission Offsets in Non-attainment Areas
 - 1-hour modeling issues in Attainment areas
 - Current projects may be delayed or cancelled.

The Many Components of Particulate Matter



Revised PM_{2.5} NAAQS for Indiana

- State is Attainment at the Current Standard.
- Significant Areas of the State Could be Non-attainment depending on the level of the revised standard.
 - Attainment Strategies will likely rely on SO₂ and NO_x reductions.
 - Condensable PM will complicate control strategies due to lack of accurate emission factors and newly revised stack test procedures.
- Impacts of NSR permit program
 - Emission Offsets in Non-attainment Areas
 - Modeling issues in Attainment areas
 - Current projects may be delayed or cancelled.

Revised Ozone NAAQS for Indiana

- State is Attainment at the Current Standard.
- Significant Areas of the State Could be Non-attainment depending on the level of the revised standard.
 - Could require a relatively high % emission reduction for a small air quality improvement.
 - Attainment Strategies will likely focus on motor vehicles, fuels and transportation.
 - Limited Availability of Significant Reductions
- Impacts of NSR permit program
 - Emission Offsets for VOCs and NOx in Non-attainment Areas
 - Modeling not required in Attainment areas for Ozone.

Primary Economic Impacts of Revised Standards

- **Capital Costs for SO₂ and NO_x add-on controls, and/or**
- **Capital Costs for Conversion to Cleaner Fuels and Alternate Power Sources**
- **Increased cost to meet lower BACT and LAER requirements**
- **Higher Costs for Low Emitting Motor Vehicles**
- **Capital Cost for Transportation Infrastructure**
- **Lost Manufacturing Jobs for Projects that cannot be built.**

Questions

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