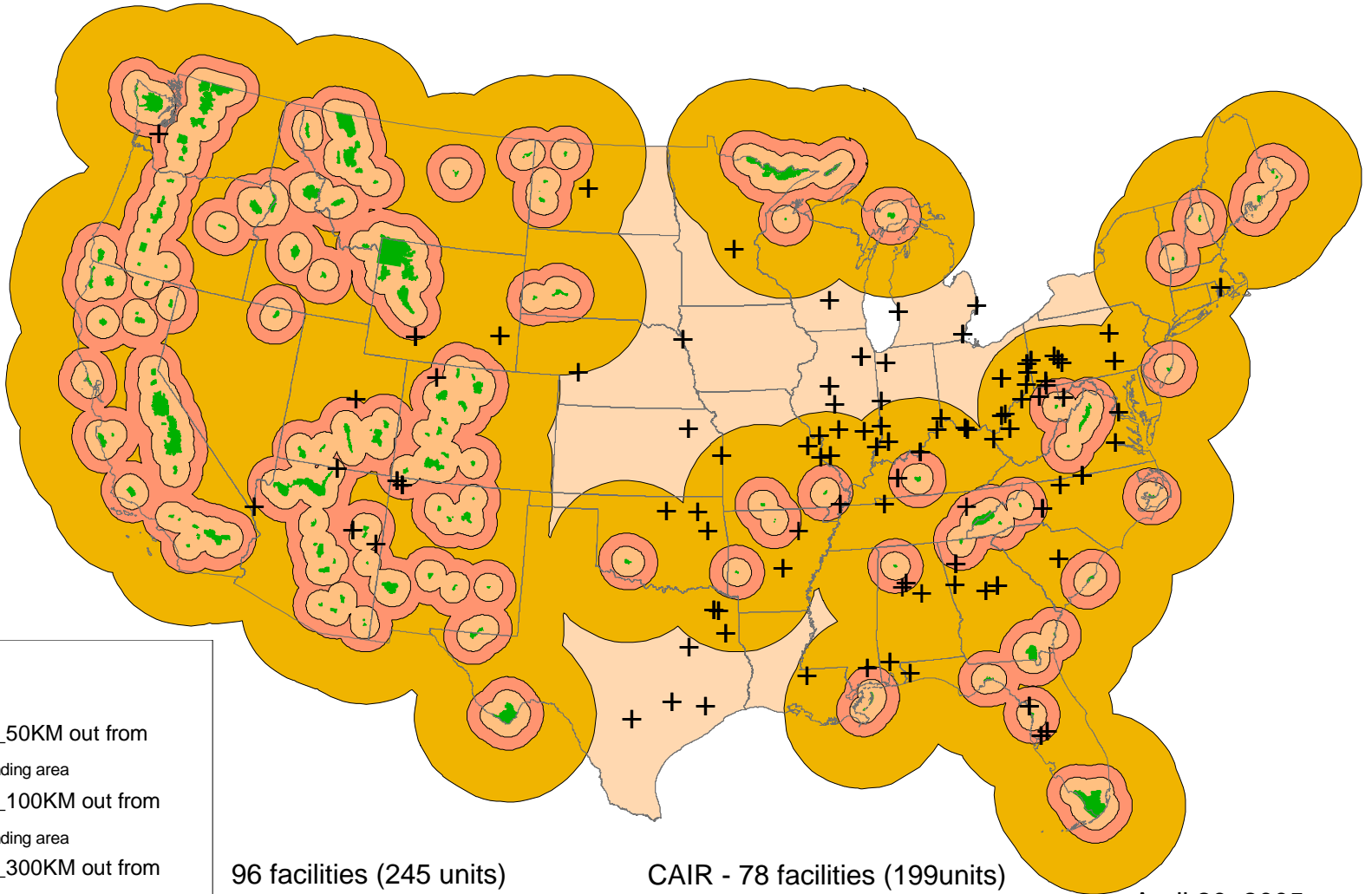


BART - Regional Haze Rule: CALPUFF ACTIVITIES

Modeling Workshop
May 18, 2005
New Orleans, LA

EPA Office of Air Quality Planning and Standards

CLASS I AREAS WITH BART ELIGIBLE UNITS 250 TONS/YR AND ABOVE



Class I

- areas
- buffer_zones_50KM out from
 surrounding area
- buffer_zones_100KM out from
 surrounding area
- buffer_zones_300KM out from
 surrounding area

BART Source Units:

- ⊗ SO2 NonEGU BART Units with SO2 > 250 tons/yr.
- ⊠ NOx NonEGU BART Units with NOx > 250 tons/yr.
- ⊕ EGU BART Units with SO2 or NOx > 250 tons/yr.

96 facilities (245 units)
-4.5 million TPY SO₂
-1.9 million TPY Nox

CAIR - 78 facilities (199units)
-4.0 million TPY SO₂
-1.5 million TPY Nox

April 20, 2005
OAQPS final version

EGU BART UNITS >250 tons/yr.

Why Use CALPUFF?

- Source-by source examination is required by *American Corn Growers* decision.
- CALPUFF provides assessment of *relative* impacts from secondary pollutants.
- Long-range transport modeling is required.
- Single sources are too diluted in grid modeling.

When to Apply CALPUFF in the BART Determination Process

- Determine BART eligibility
 - Operation date; potential to emit.
- Determine “subject to BART”
 - Reasonably anticipated to contribute to regional haze impact.
- Determine level of BART control.
 - Five factors
 - Degree of visibility improvement

Degree of visibility improvement

- Set up base case and control case CALPUFF simulations.
- Hold everything equal except for the emissions.
- Assess the differences.
- Critical details (clean vs. natural conditions; background conc. settings) are somewhat washed out in the comparison.

Subject to BART Analysis

“Reasonably anticipated to contribute”

- *Corn Growers* requires a means to allow States to determine “subject to BART” without comprehensive modeling.
- “Contribute” relies upon comparing a source’s impact to a visibility benchmark.
- This is not a relative assessment.
- It’s a harder sell to use CALPUFF in this more deterministic manner.

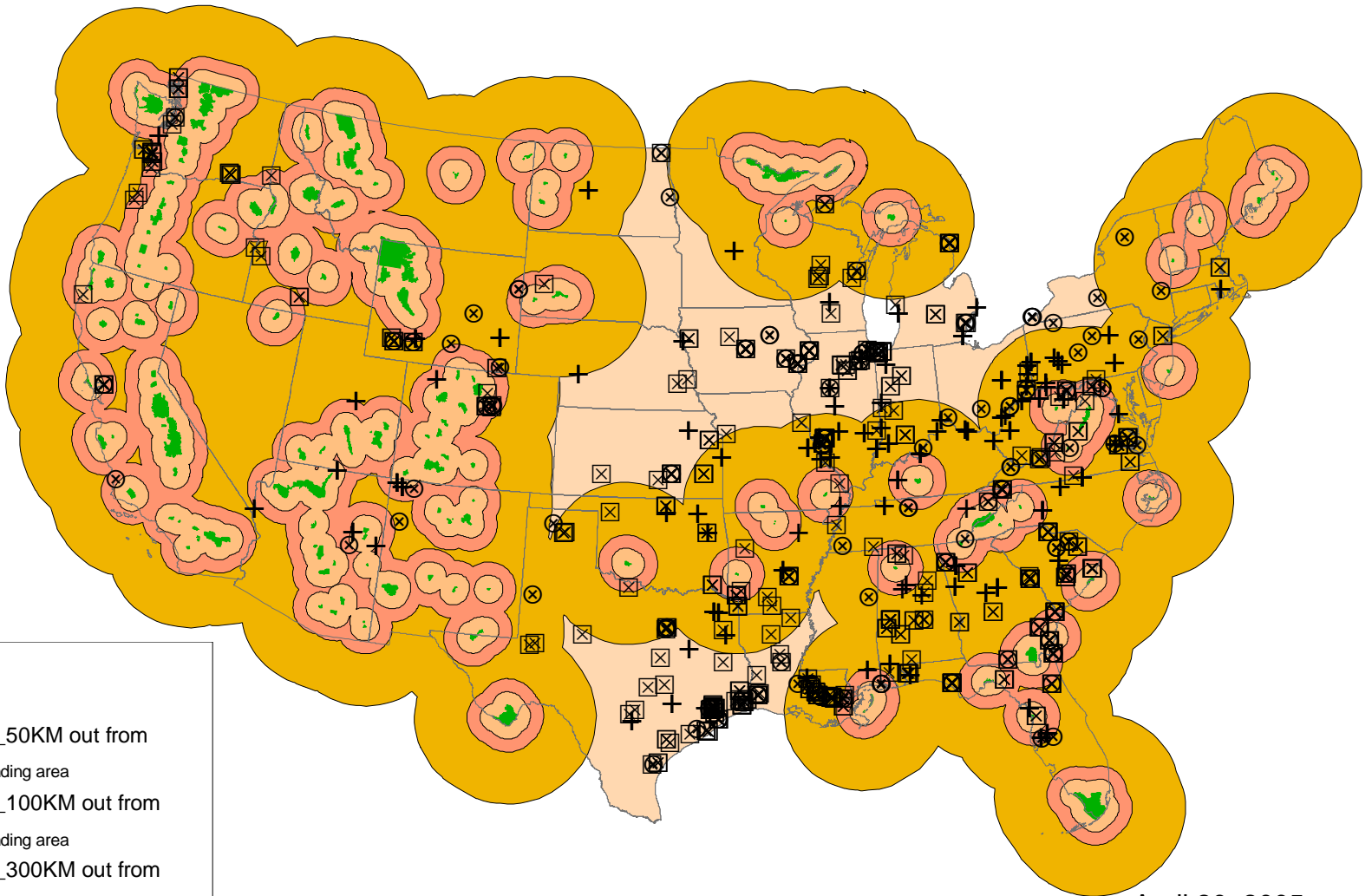
Illustrative CAPLUFF Applications

- Model scenarios typical of sources in the BART-eligible world.
- Simulate several emission variations using the same parameters.
- Any relationships that arise from the illustrative modeling informs the State's development of tests for being subject to BART.

Illustrative CAPLUFF Applications

<u>Model Plant</u>	<u>Stack Height</u>	<u>Stack Diameter</u>	<u>Temp*</u>	<u>Flow rate</u>	<u>Velocity</u>
EGU	100 m	8 m	400 F	1257 m ³ /s	25 m/s
Industrial Boiler	55.5 m	2.6 m	350 F	60.5 m ³ /s	11.4 m/s

CLASS I AREAS WITH BART ELIGIBLE UNITS 250 TONS/YR AND ABOVE



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Class I

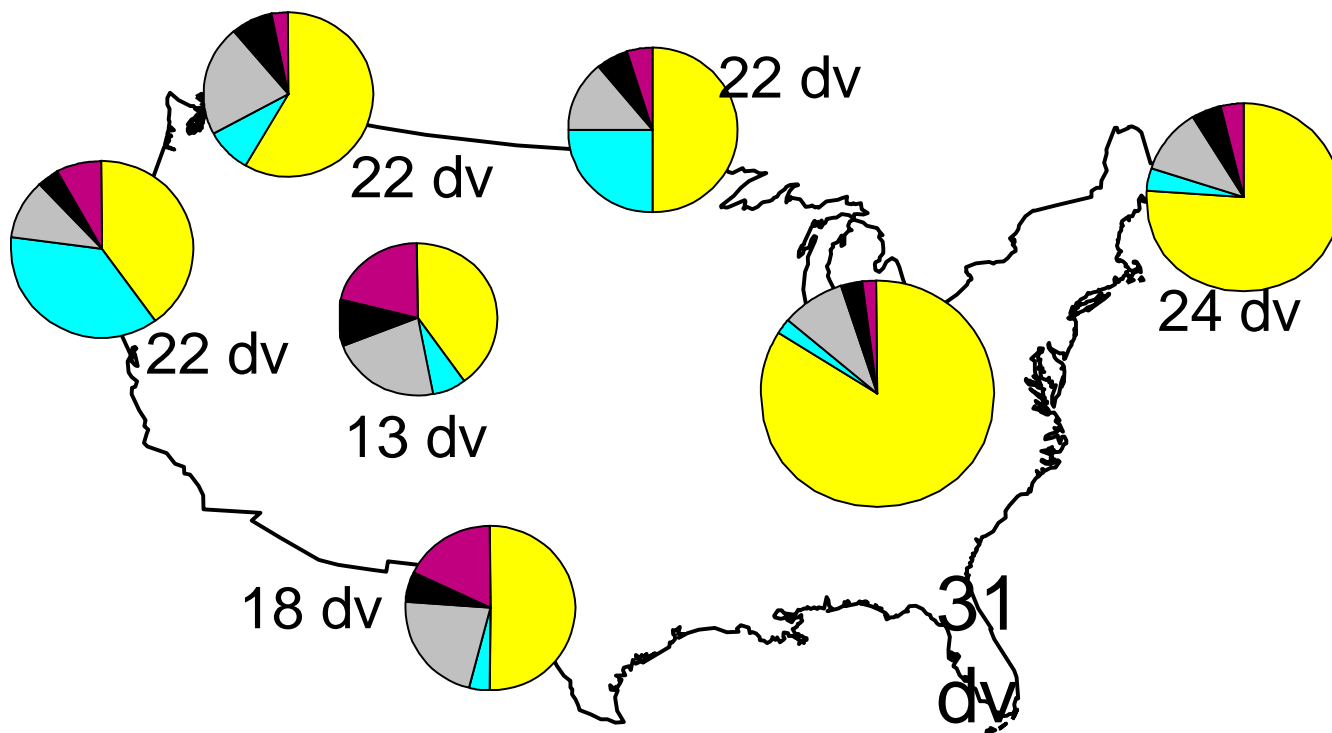
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BART Source Units:

- ⊗ SO2 NonEGU BART Units with SO2 > 250 tons/yr.
- ⊠ NOx NonEGU BART Units with NOx > 250 tons/yr.
- + EGU BART Units with SO2 or NOx > 250 tons/yr.

EGU & nonEGU (SO2&NOx) BART UNITS >250 tons/yr.

Regional Variation of Visibility Impairment and Contributing Pollutants on 20% Haziest Days



Illustrative CAPLUFF Applications: Scenarios being Considered

- EAST (Huntington, WV)
 - Vary SO_2 by up to 90%
 - Set $\text{NO}_x = \text{SO}_2/2.8$
 - Set $\text{PM}_{2.5} = \text{SO}_2/200$
 - Also control SO_2 and NO_x independently
- WEST (Denver, CO)
 - Same as EAST, with this exception:
 - Set $\text{NO}_x = \text{SO}_2/1.6$