



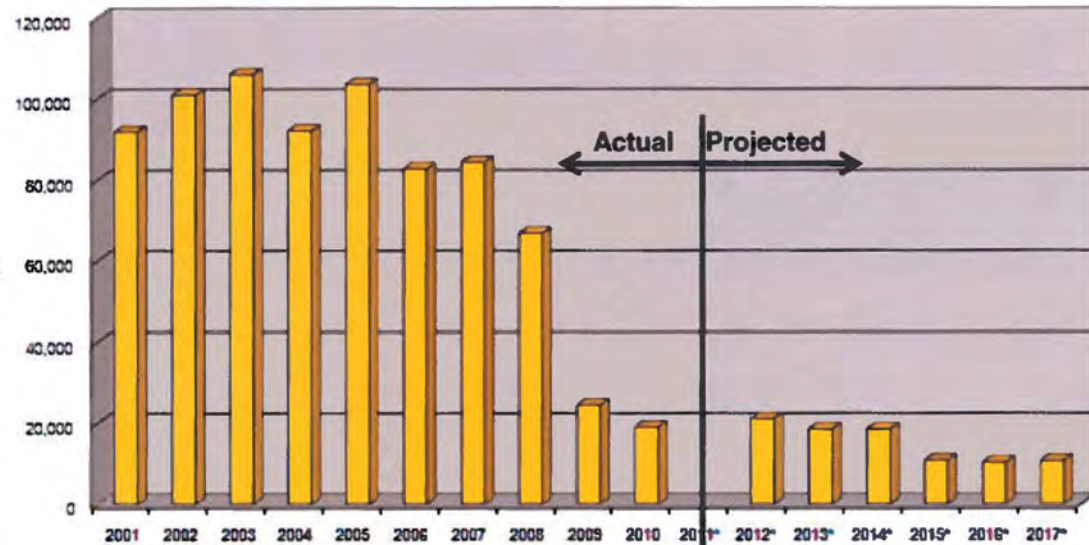
Costs and Effects
of
Complying with EPA regulations

Presented by Bill Eastman, Westar Energy
Before Joint Committee on Energy and Environmental Policy
Kansas Statehouse
152 South

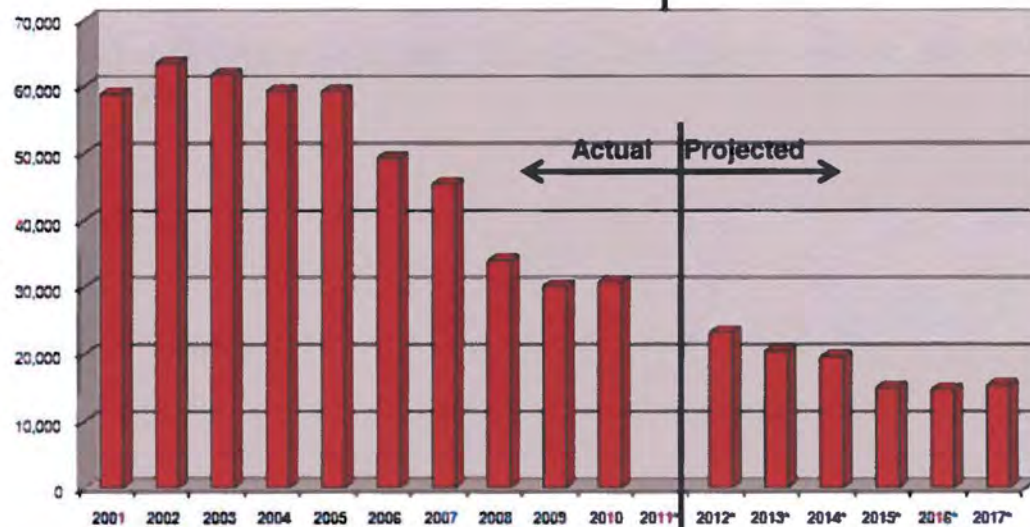
October 17-18, 2011

Westar's Emission Reductions

**Sulfur Dioxide ↓ 82% to date
(tons)**



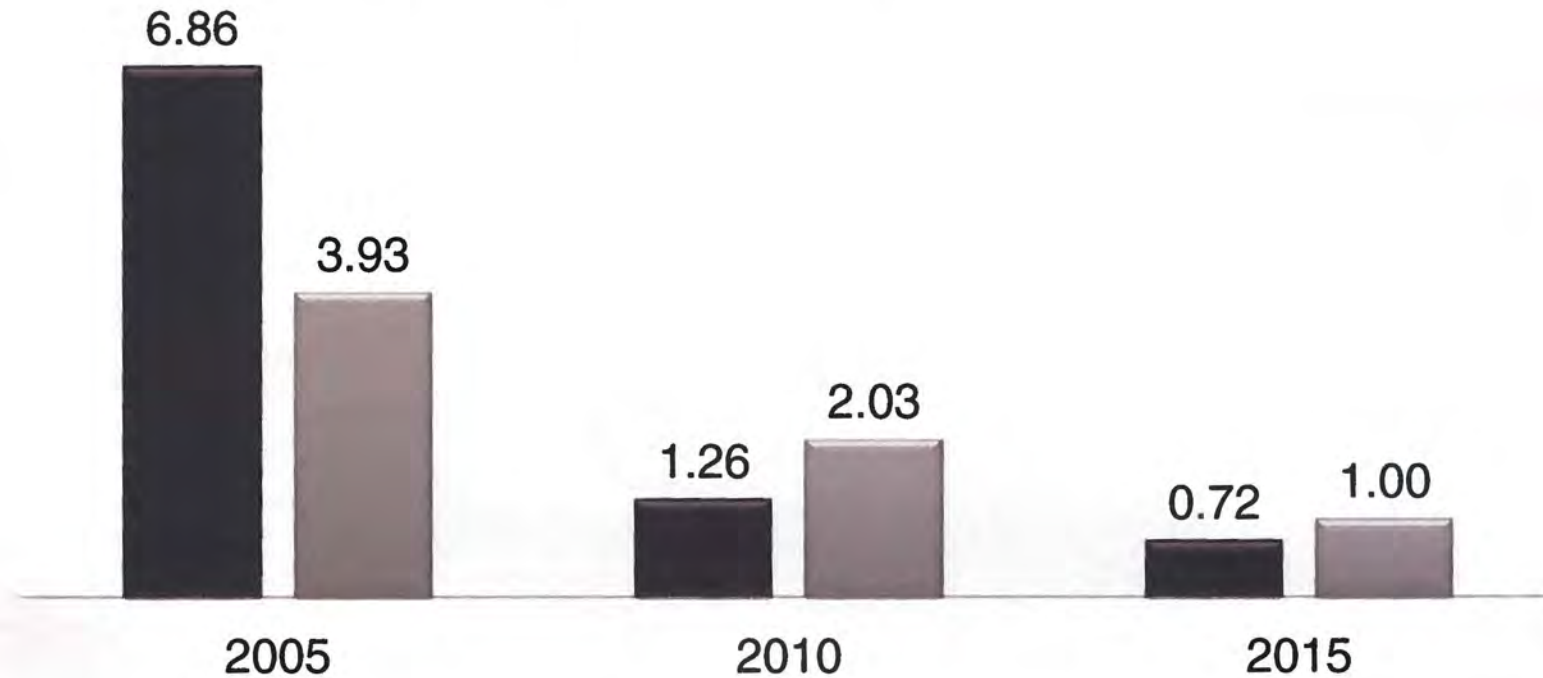
**Nitrogen Oxide ↓ 48% to date
(tons)**



Westar Emission Rates – Historical & Projected

■ SO₂ emission rate
(lbs/MWH)

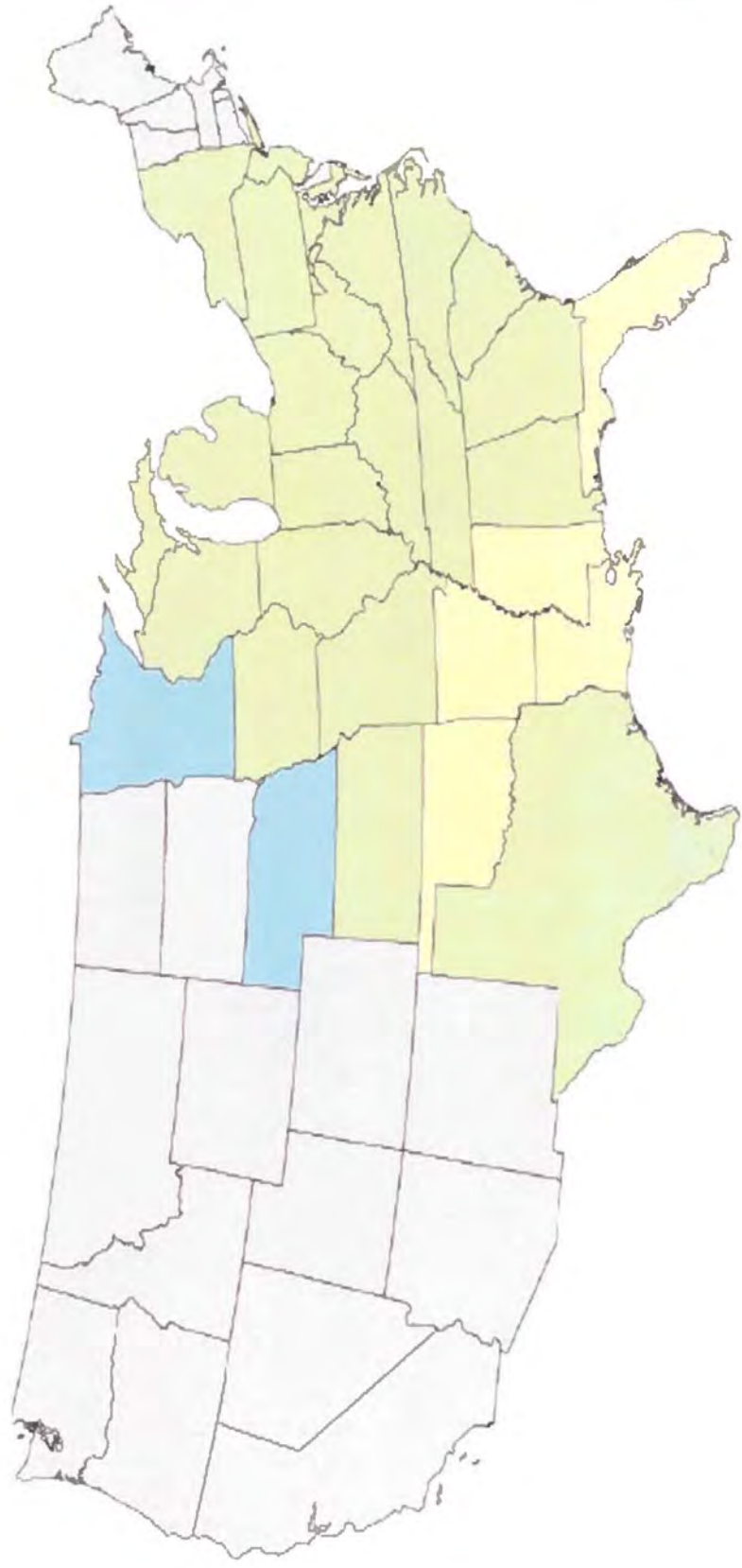
■ NO_x emission rate
(lbs/MWH)



Regulatory Summary

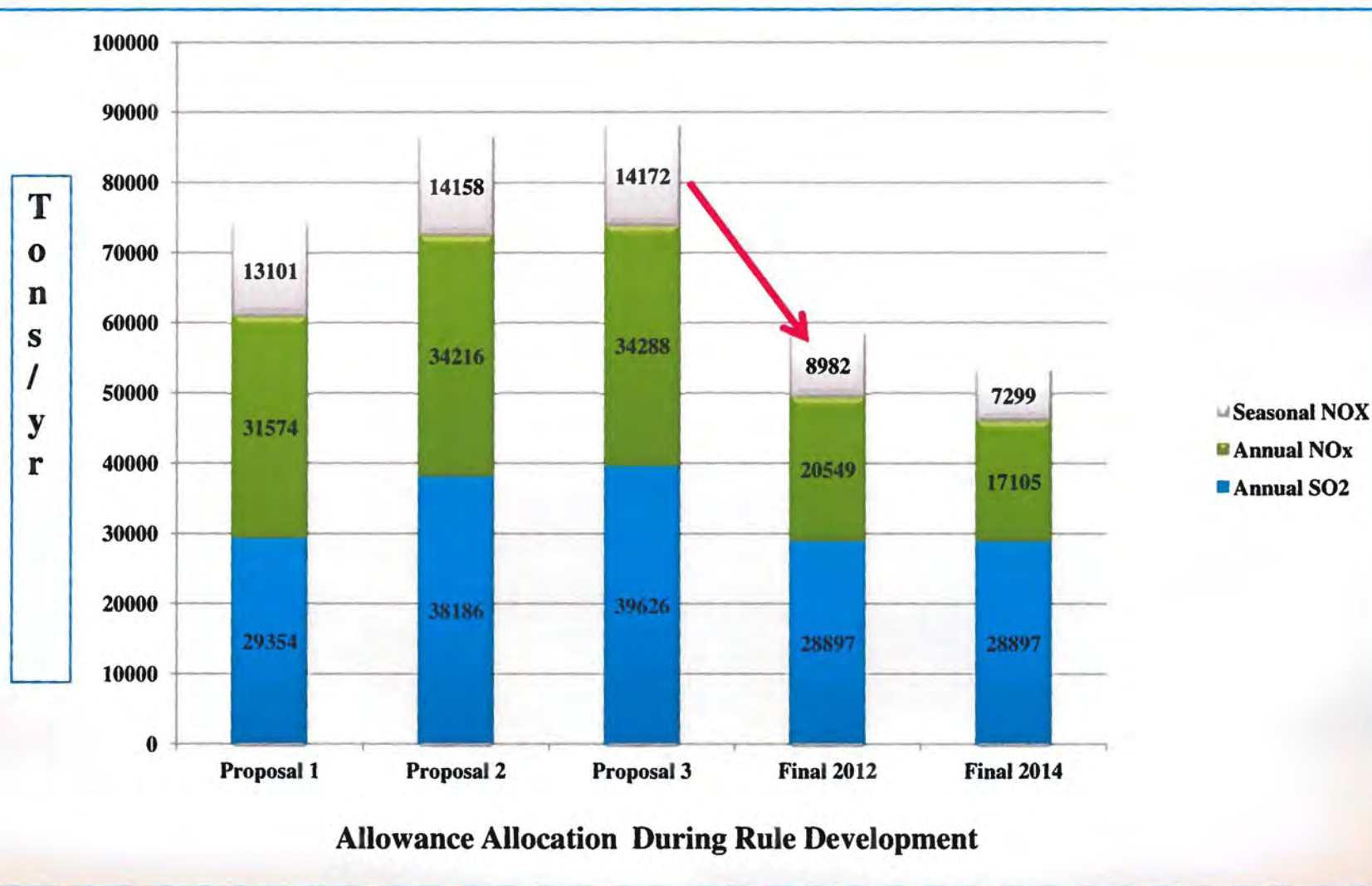
| | Cross States Air Pollution Rule | Utility MACT | 316(b) | Coal Combustion Waste |
|-------------------------|---|---------------------|---------------|-------------------------------|
| Status | Final, Proposed, Revised | Proposed | Proposed | Proposed |
| Effective | Jan 2012 | Nov 2011 | July 2012 | Mid 2013 |
| Emissions/Areas covered | NO _x , SO ₂ | Mercury, Acid Gases | Water Intakes | Coal waste |
| Energy Centers impacted | Coal, Gas | Coal, Oil | Coal, Nuclear | Coal |
| Issue(s) | Cost, reliability, allowances, timeline | Cost, timeline | Cost | Cost, hazardous/non-hazardous |

Cross States Air Pollution Rule

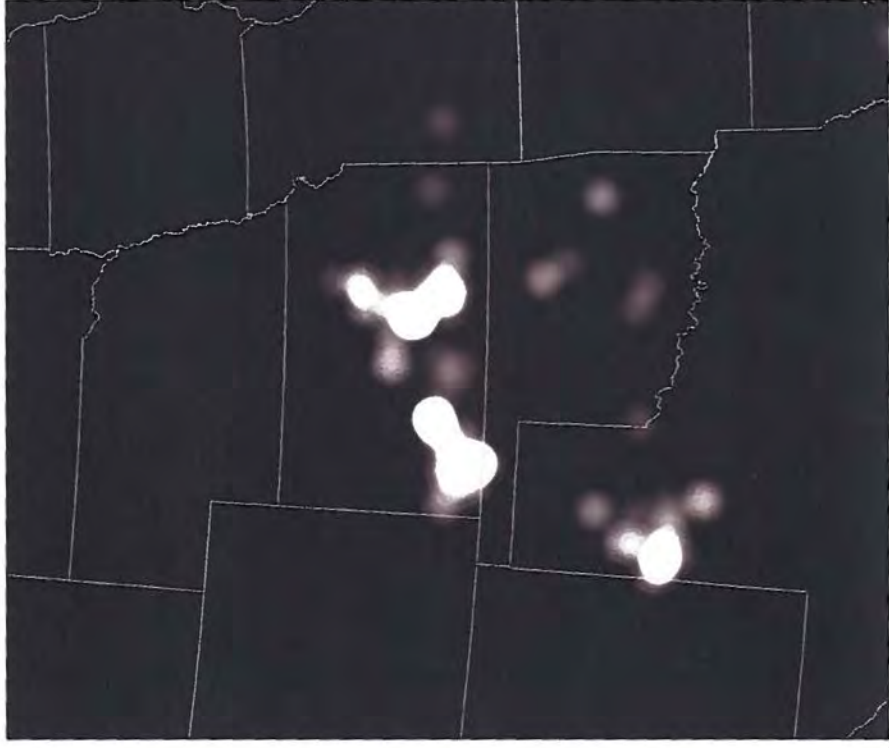
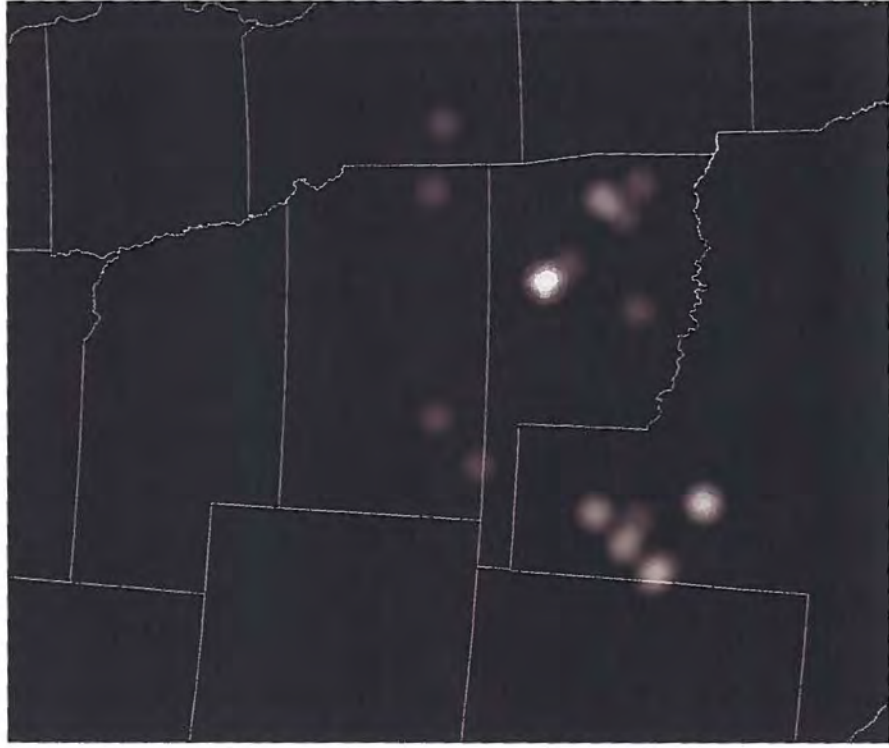


- States controlled for both fine particles (annual CO₂ and NO_x) and ozone (ozone season NO_x) (21 States)
- States controlled for fine particles only (annual SO₂ and NO_x) (2 States)
- States controlled for ozone only (ozone season NO_x) (5 States)
- States not covered by the Cross-State Air Pollution Rule

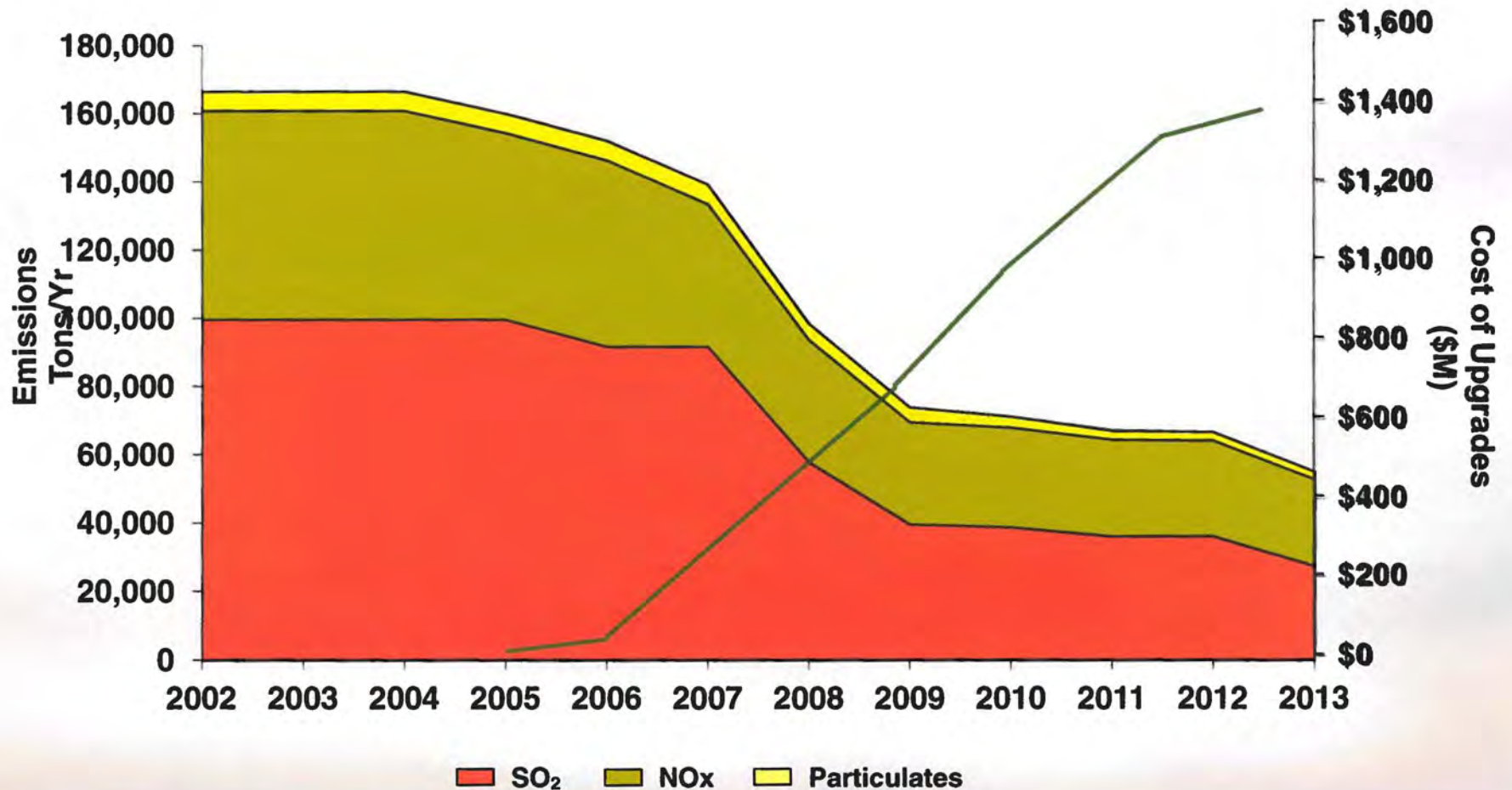
Dramatic Reduction in Allocated Allowances



Southwest Power Pool Reliability Modeling



Emission Reductions and Capital Costs



Westar Coal Fleet Emission Control Equipment

| Unit | Scrubber | Precipitator | Fabric Filter | Low NOx | SCR |
|------------|----------|--------------|---------------|---------|-----------|
| Jeffrey 1 | Yes | Yes | No plans | Yes | Planned |
| Jeffrey 2 | Yes | Yes | No plans | Yes | Uncertain |
| Jeffrey 3 | Yes | Yes | No plans | Yes | No plans |
| La Cygne 1 | Yes | (b) | Planned | No | Yes |
| La Cygne 2 | Planned | Yes | Planned | Planned | Planned |
| Lawrence 3 | No plans | Planned | No plans | Planned | No plans |
| Lawrence 4 | Yes (a) | (b) | Planned | Planned | No plans |
| Lawrence 5 | Yes (a) | (b) | Planned | Yes | No plans |
| Tecumseh 7 | No plans | Yes | No plans | Yes | No plans |
| Tecumseh 8 | No plans | Planned | No plans | Planned | No plans |

(a) Equipment rebuild underway

(b) PM removal integrated into scrubbers

No present projects underway for CO2

Questions?