

Renewable Energy, Energy Efficiency, and the Western Regional Air Partnership

**Developing Strategies to Reduce
Regional Haze in the West**

**Washington D.C,
July 17, 2003**

Outline of Presentation

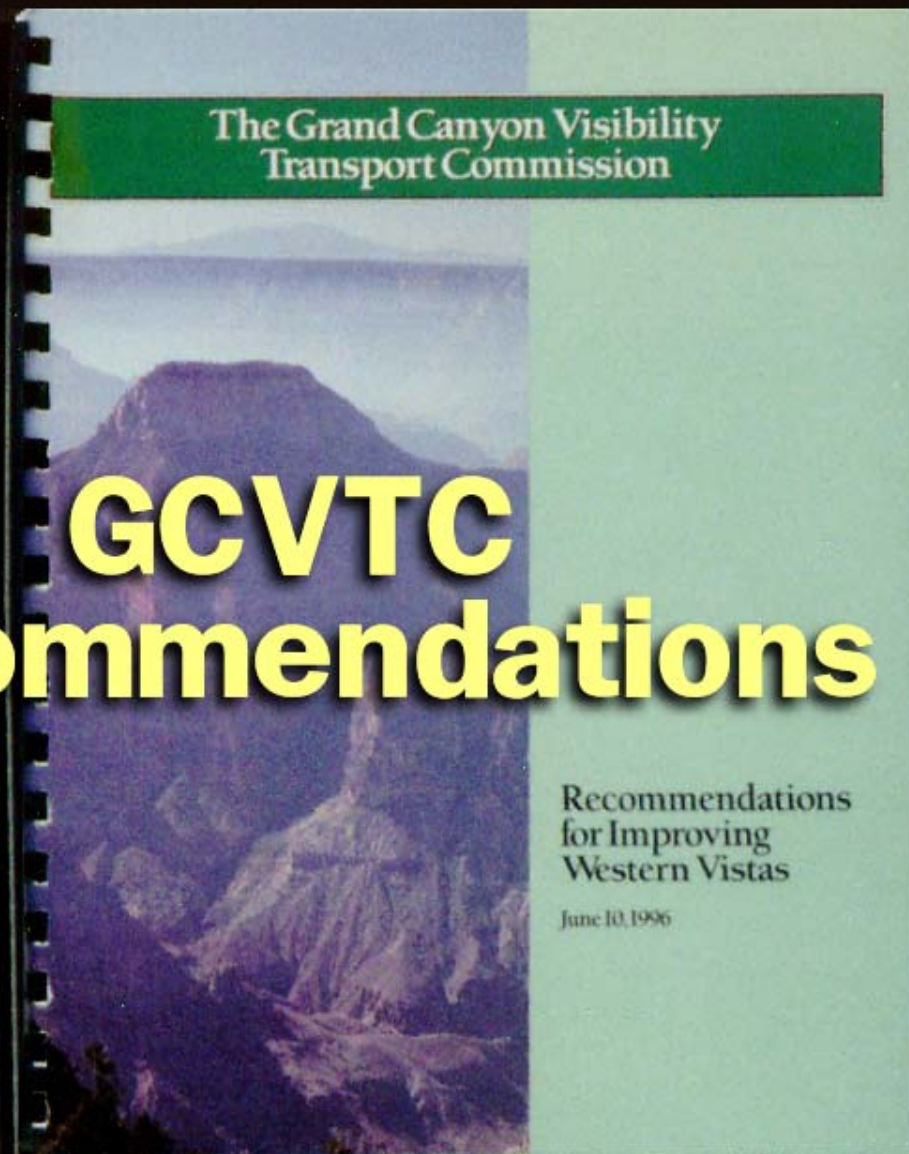
- Regional Haze Rule: 309(d)(8)
- GCVTC Recommendations
- WRAP's AP2 Forum
- Emissions Analysis and Result
- Opportunities and Needs

Regional Haze Rule

- Final rule issued July 1999
- Targets 156 Class I air sheds
- Applies to all states
- SIPs demonstrating “reasonable progress.”
- Section 309: GCVTC Optional Approach



**Grand Canyon
Visibility Transport
Commission**



The Grand Canyon Visibility
Transport Commission

GCVTC Recommendations

Recommendations
for Improving
Western Vistas

June 10, 1996

 national parks

 wilderness areas

Capitol Reef

Bryce Canyon

Zion

Grand Canyon

Sycamore Canyon

Arches

Canyonlands

Mesa Verde

Petrified Forest

Mt. Baldy

Flattops

Maroon Bells

West Elk

Black Canyon

Weminuche

San Pedro Parks

Colorado Plateau



GCVTC Findings

Renewable energy and efficiency can be effective tools to reduce haze and if adopted could result in “...emissions reductions, improvements in visibility, and provide secondary environmental and economic benefits to the region.”

(Report of the GCVTC to the U.S. Environmental Protection Agency: Recommendations for Improving Western Vistas, June 1996, pg. 28)

Regional Haze Rule

Section 309 (d) (8): Pollution Prevention

- Identify state RE and EE programs
- Progress meeting 10/20 renewable goal
- Projections of short and long term:
 - Energy costs and savings
 - Emissions reductions
 - Secondary economic benefits
 - Visibility Improvements

Air Pollution Prevention Forum Work Plan

**Examine market
barriers to efficiency
and renewable
energy.**

**Identify Policies to
remove market
barriers.**

IPM Model

- Demand
- Fuel Costs
- Gen Capacity
- Electricity Costs
- Gen Output
- Emissions

REMI Model

- Employment
 - Income
 - GRP
- (November) 2002)*

WRAP Policy
Renewable Energy and
Energy Efficiency

(April 2003)

**Model Visibility
Impacts**

Scenarios Modeled

BAU Scenario

Represents how future might unfold with no policies for achieving RE goals and EE best-practices recommendations

Key Policy Scenarios

10/20 goals

Assumes region is meeting 10/20 goals for RE by adopting one or more of the policies recommended by the AP2 Forum

EE

Assumes region has achieved electricity demand reductions by implementing AP2 Forum's EE best-practices recommendations

EE & 10/20 goals

Assumes region is meeting 10/20 goals for RE and has implemented EE best practices recommendations

Renewable Modeling Results

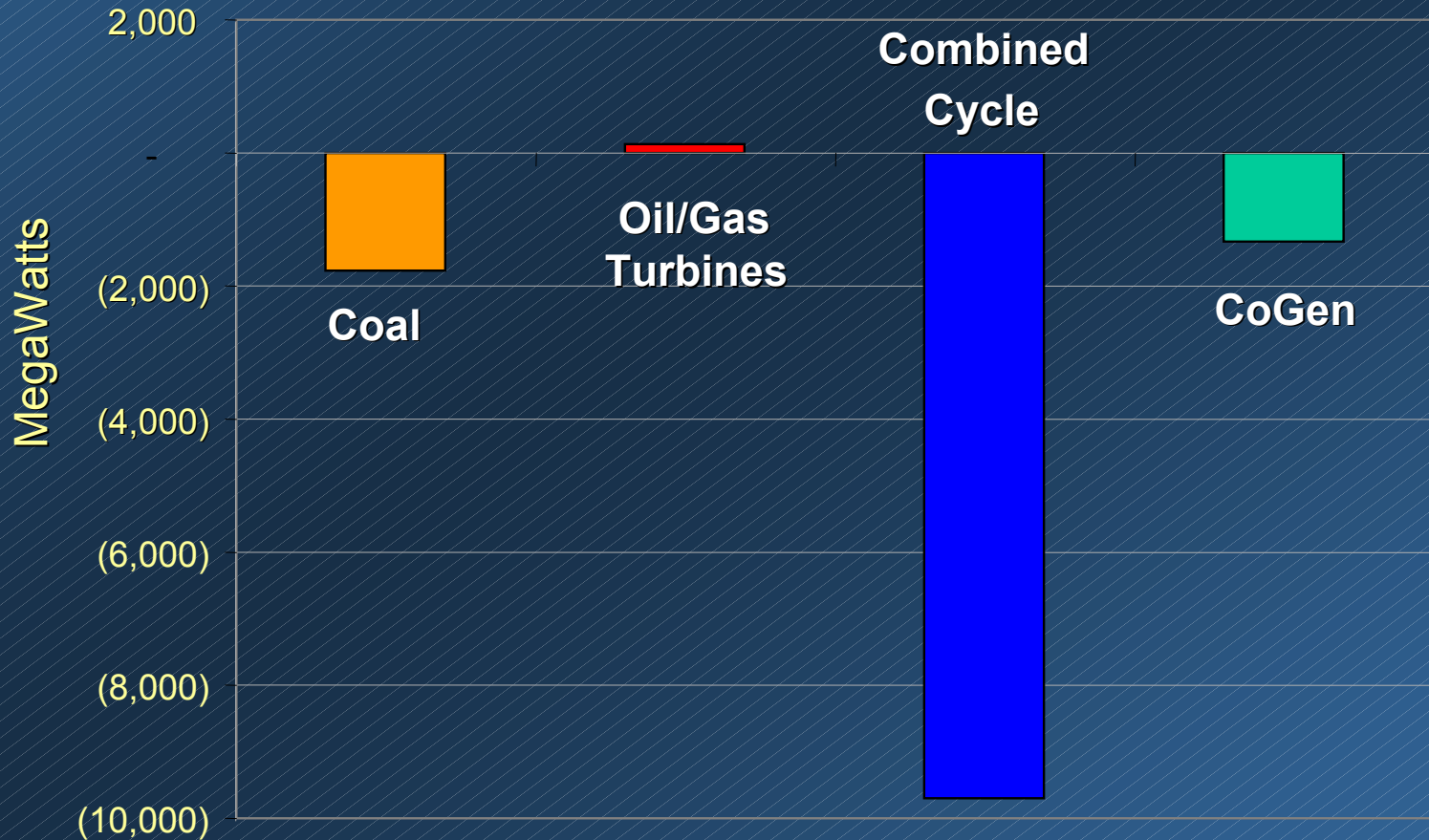
- 21,500 GW needed to meet 10/20 goal
- Wind is the big winner.
- Gas and “new” coal generation displaced
- Levelized annual costs of electricity production increased between 2% and 5%.

Energy Efficiency Modeling Results

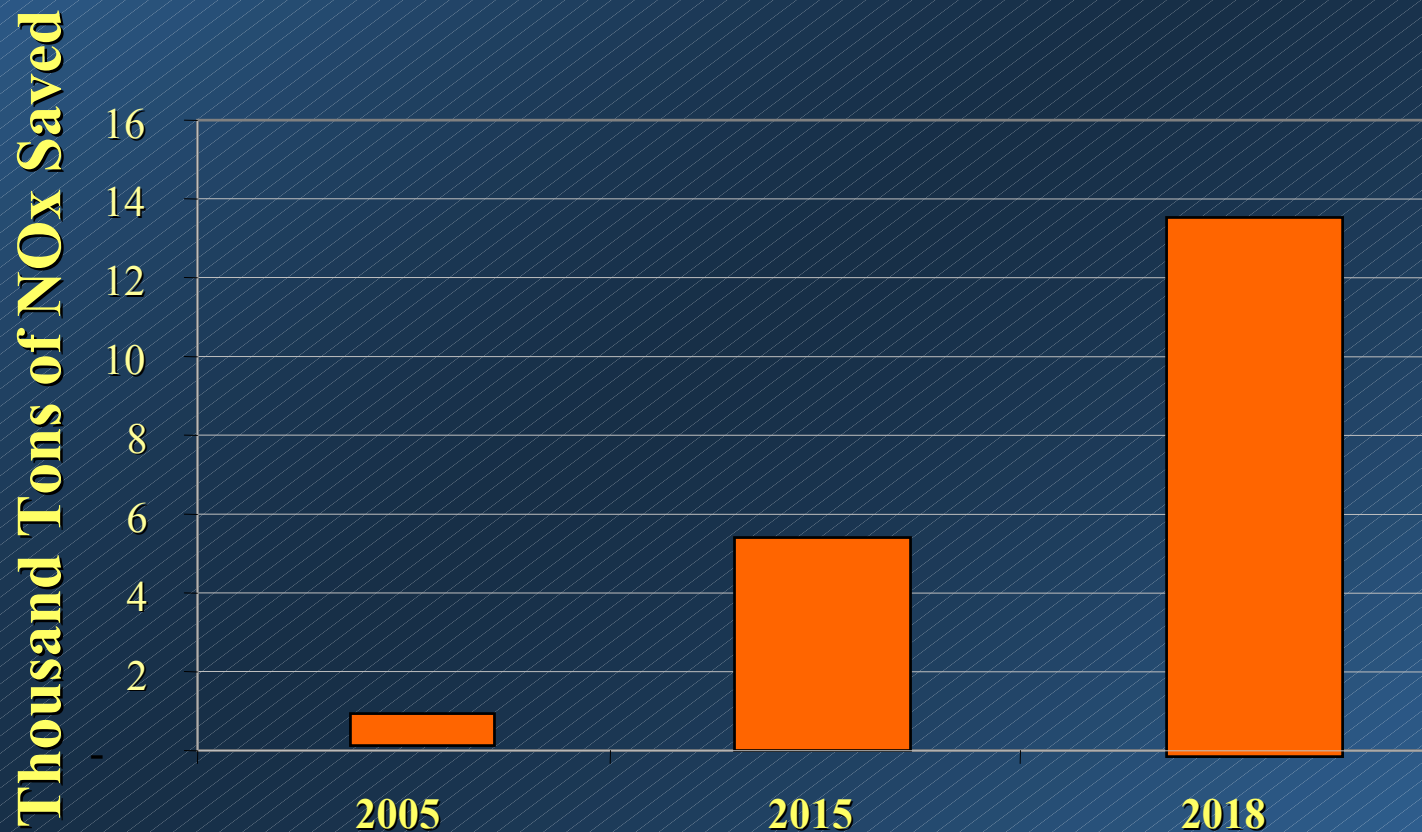
- Energy efficiency “best practices” would reduce power demand in the Western states by 1.0 % in 2005 and 8% in 2018.
- Represents 56,000 GWH of saved energy and 16,000 MW of capacity.
- Net savings in electricity production costs range from \$150 million in 2005 to \$1billion in 2018.

Fossil-Fuel Capacity Displaced

Region Meets 10/20 Goal

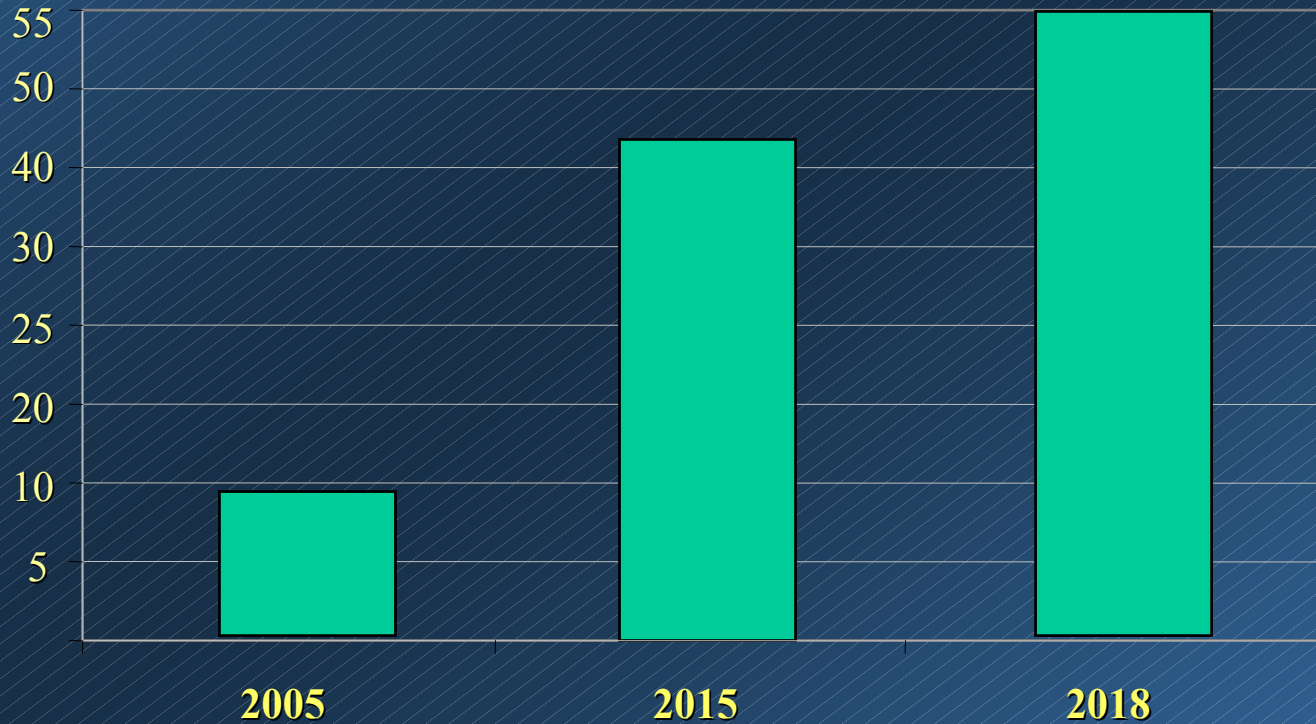


NO_x Emissions of Utility Sector Reduced by 2%



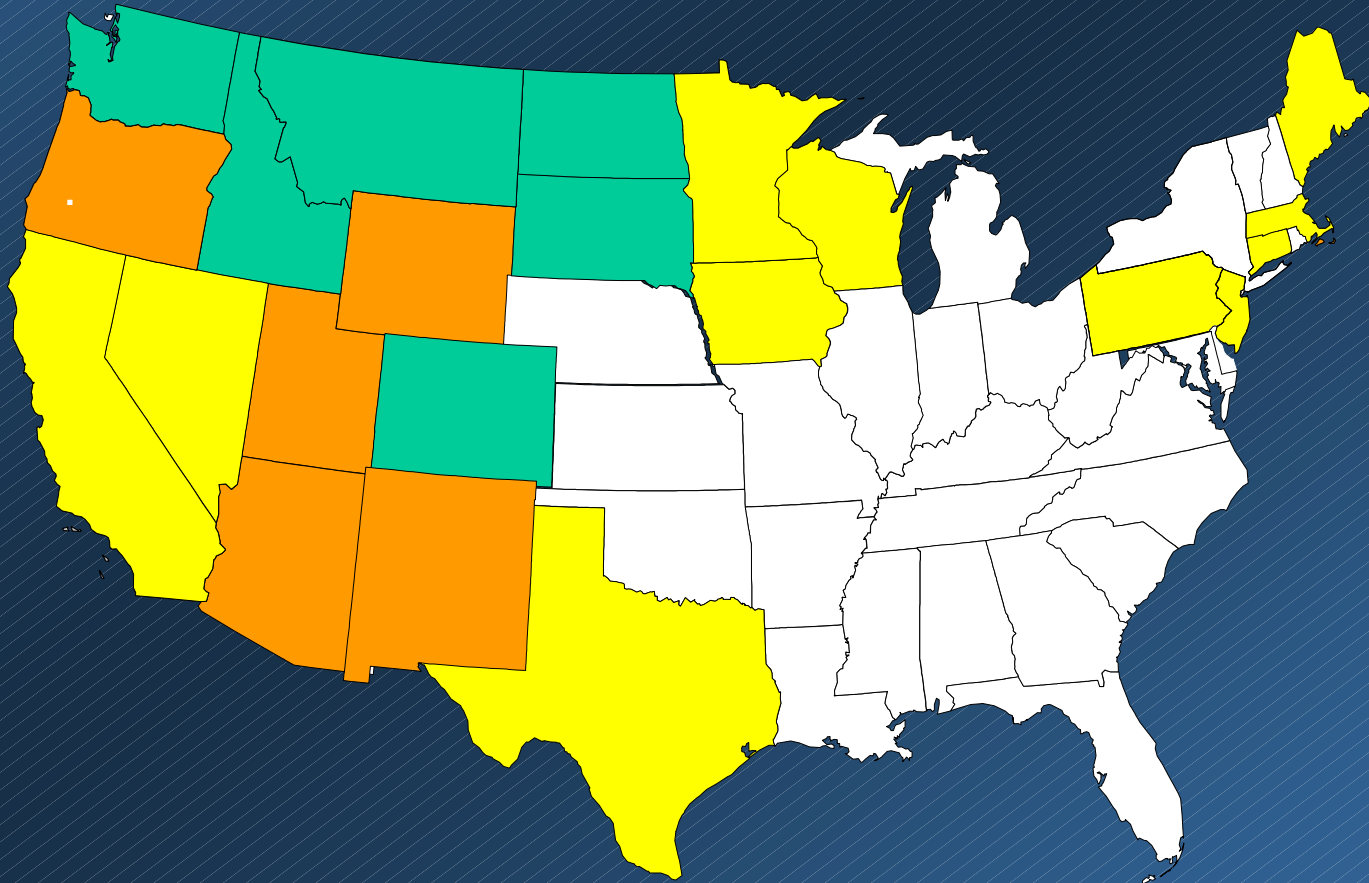
CO₂ Emissions of Utility Sector Reduced by 14%

Million Metric Tons of CO₂ Saved



Emerging Opportunities

WRAP “308” States and RPS States



Emissions Modeling Needs

Lessons Learned

- Institutional Needs:
 - Utility resource planning
 - Policy planning and analysis
 - Environmental compliance verification
 - Emissions and “green energy” market transactions
 - Uniform acknowledgement by EPA and state regulators
- Features Needed in Emission Modeling Tools:
 - State or regional in scope
 - Must respect geography and markets
 - Linked to verifiable generation data.