

POLLUTION PREVENTION

Section 51.309(d)(8) of the
Regional Haze Rule

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ESSENCE OF THE SECTION

- Provides an opportunity to use good energy policy and practices to address visibility impairment
- Sets regional goal for power generation from renewable sources
 - 10 percent by 2005 and 20 percent by 2015
- Asks states to preserve and expand their energy conservation efforts

INFORMATION REQUIRED IN REGIONAL HAZE SIP

- Background information on power production from renewable sources
- Potential to generate renewable power
- Programs state will use to help the region reach its renewable production goal
- Programs state will use to preserve and expand its energy conservation efforts
- Description of EERE program impacts on air quality and the economy of the region

POWER PRODUCTION FROM RENEWABLE SOURCES

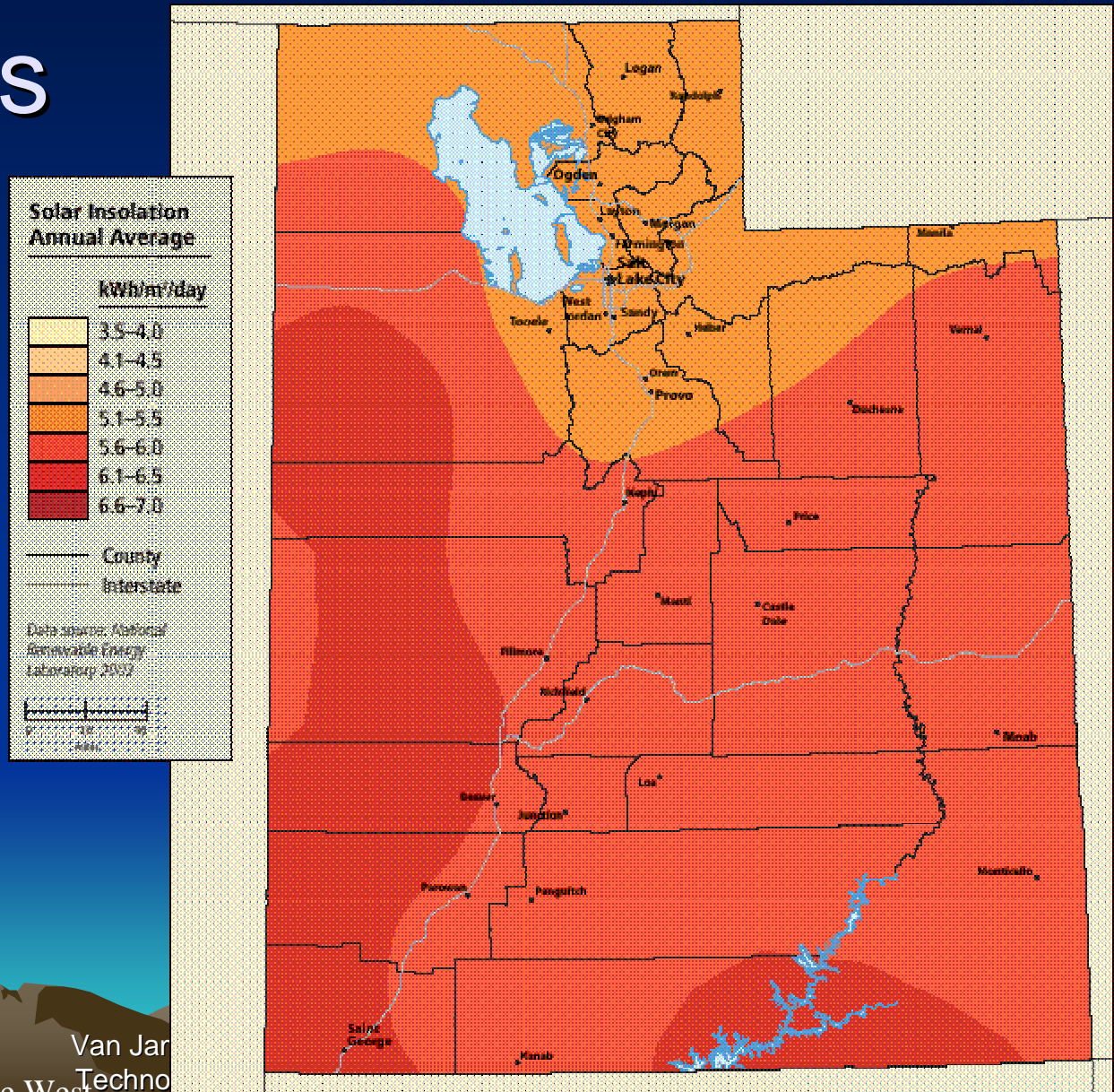
- Total non-hydro renewable power generation capacity in Utah– 42.136 MW
 - Primarily, geothermal
- No hydropower included
 - Must meet Low-Impact Hydropower Institute criteria
 - None certified to meet the criteria
 - Can not prejudge what might meet the criteria
 - If certified in the future, facilities will be counted as a contribution to the renewable power goal

POTENTIAL TO GENERATION RENEWABLE POWER IN UTAH

- Utah possesses sizable renewable power production potential
 - Solar
 - Geothermal
 - One of a few states to have developed geothermal
 - Wind
 - Biomass including landfill gas

Utah Solar Resources

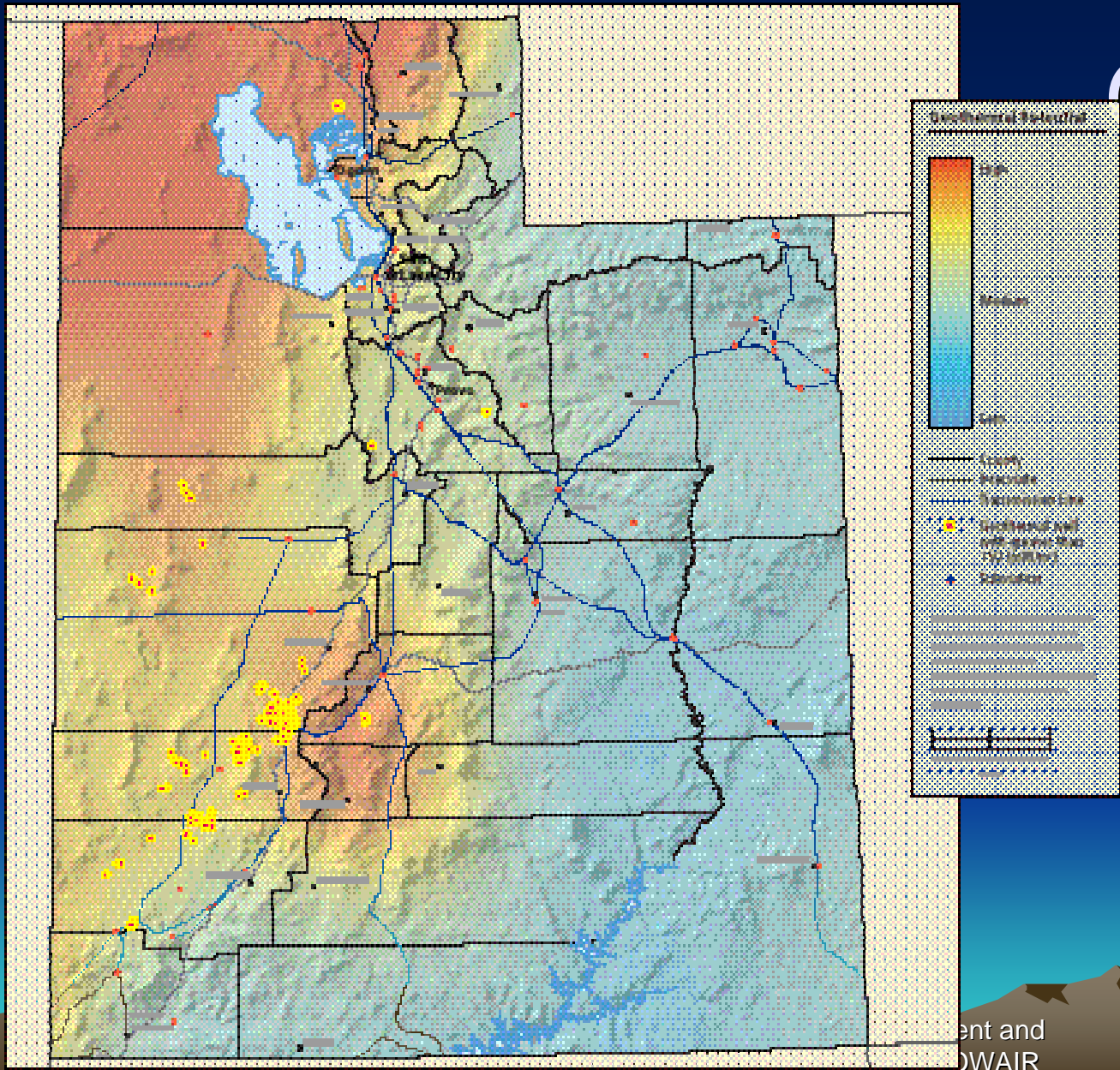
69 million MWh/yr



Source: Renewable Energy Atlas of the West
Van Jar Techno

Utah Geothermal Resources

9 million MWh/yr

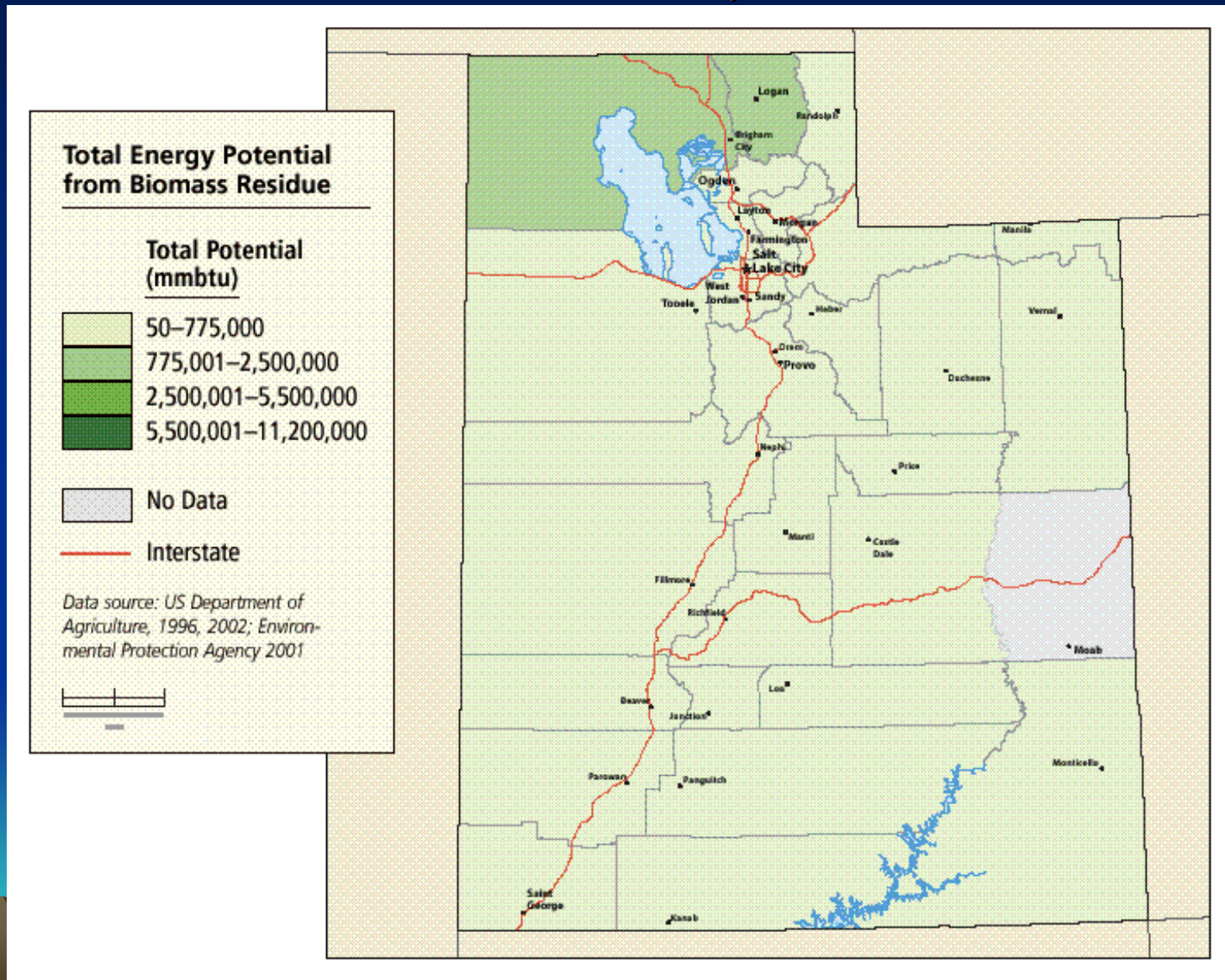


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OWAIR

Source: Renewable Energy Atlas of the West

Utah Biomass Resources

1 million MWh/yr



EXISTING ENERGY PROGRAMS ARE EXEMPLARY

- Can reasonably rely on existing programs in the State Implementation Plan
- Robust set of policy and programs to meet renewable power goal and improve efficiency in energy use
- Conform to the policies and programs recommended by the Air Pollution Prevention Forum
- Government cannot do it all
 - Both public and private contributions

PROGRAMS FOR REACHING RENEWABLE POWER GOAL

- Utility Integrated Resource Planning
- Net Metering
- “Green” Pricing and Marketing
- Financial Incentives
- Government Purchasing of “Green” Power
- Technical Assistance

PROGRAMS TO PRESERVE AND EXPAND CONSERVATION

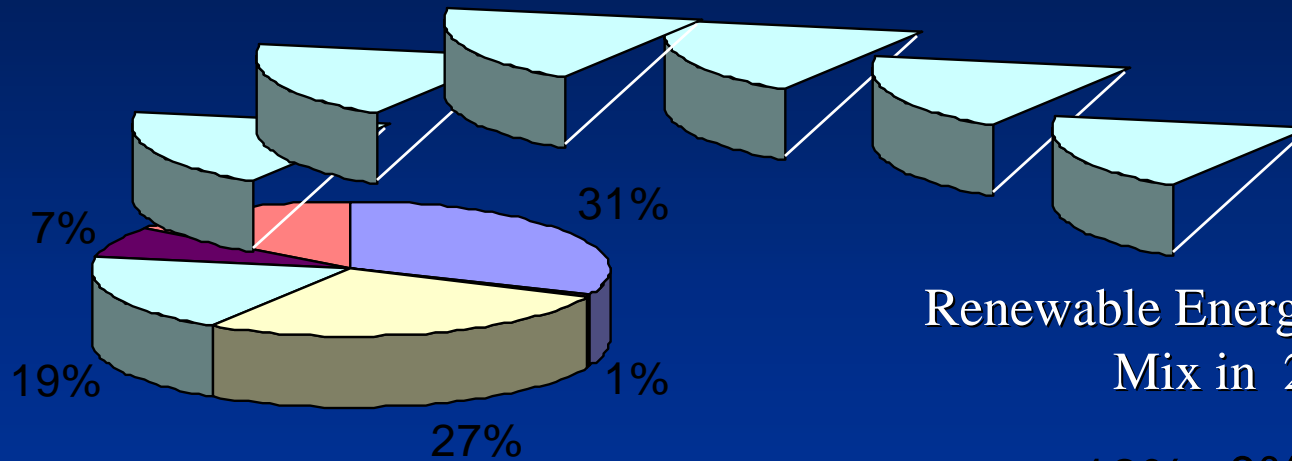
- Utility Integrated Resource Planning
- Residential Energy Efficiency Program
- Commercial and Industrial Energy Efficiency Program
- Schools and Public Buildings Energy Efficiency Program
- Technical Assistance

EERE PROGRAM IMPACTS ON AIR QUALITY AND ECONOMY

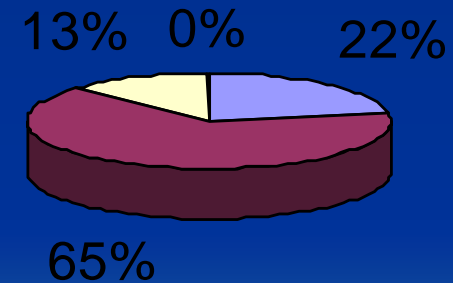
- Cheaper method for reducing SO₂ emissions
- NO_x and CO₂ emissions reductions
- New natural gas fueled generation displaced
- Small net positive impact on gross regional product and employment

Renewable Generation Mix 2018

GCVTC Generation Mix 2018



Renewable Energy Generation Mix in 2018

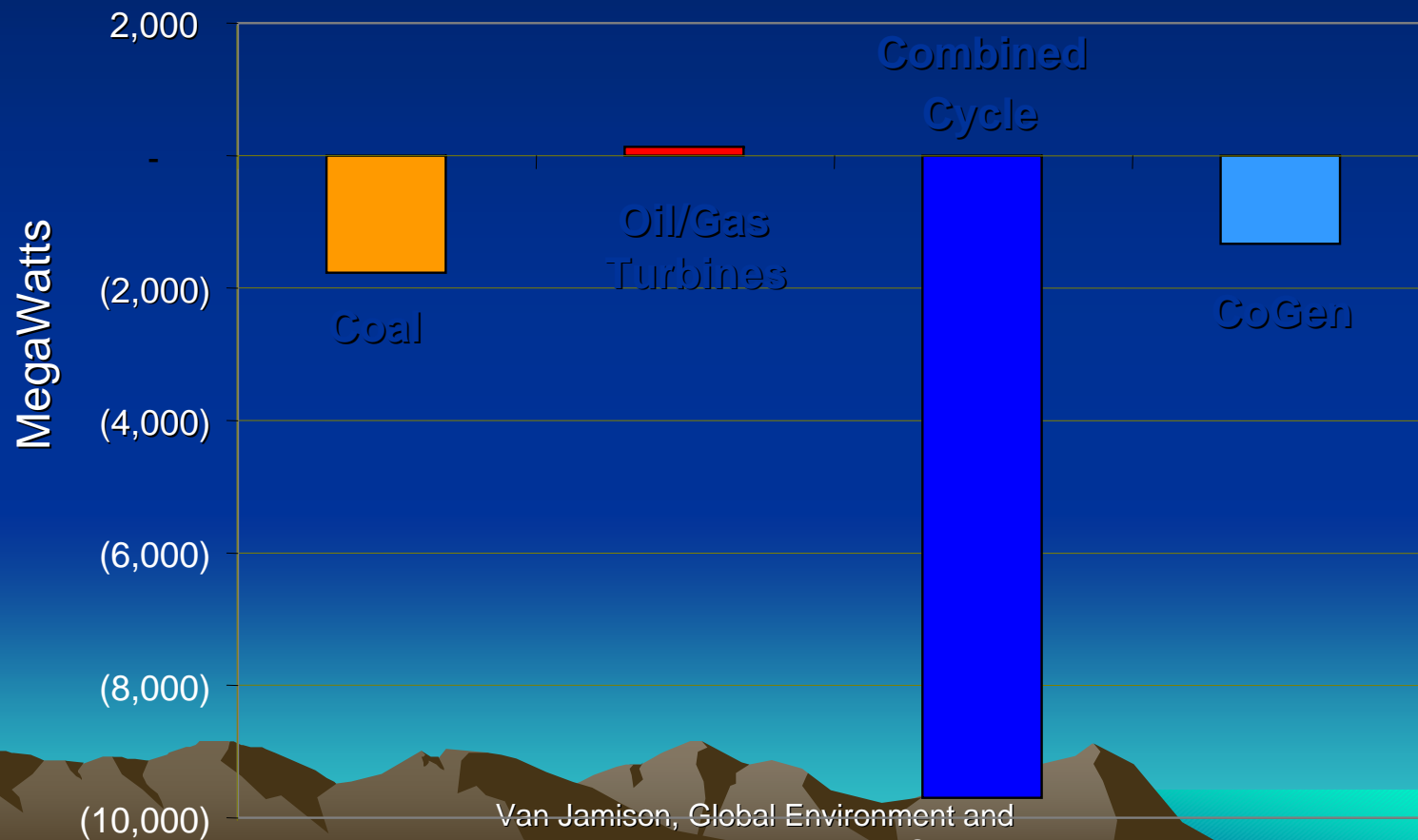


- Coal
- O/G Steam & Turbines
- Combined Cycles
- Renewables (Excludes Hydro)
- Cogens
- Hydro

- Existing
- New Wind
- New Geothermal
- New Landfill Gas

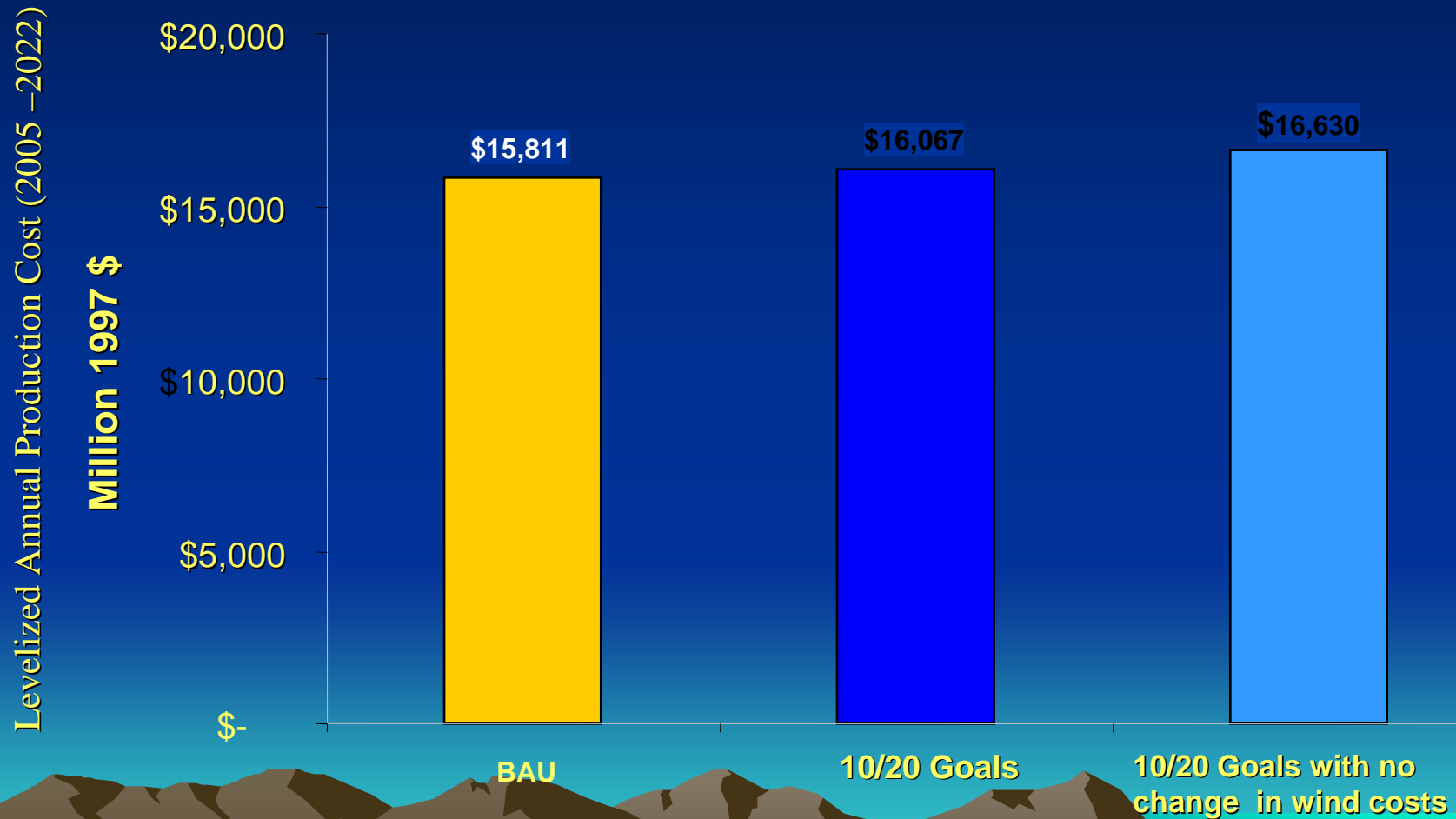
Fossil-Fuel Capacity Displaced

Region Meets 10/20 Goal



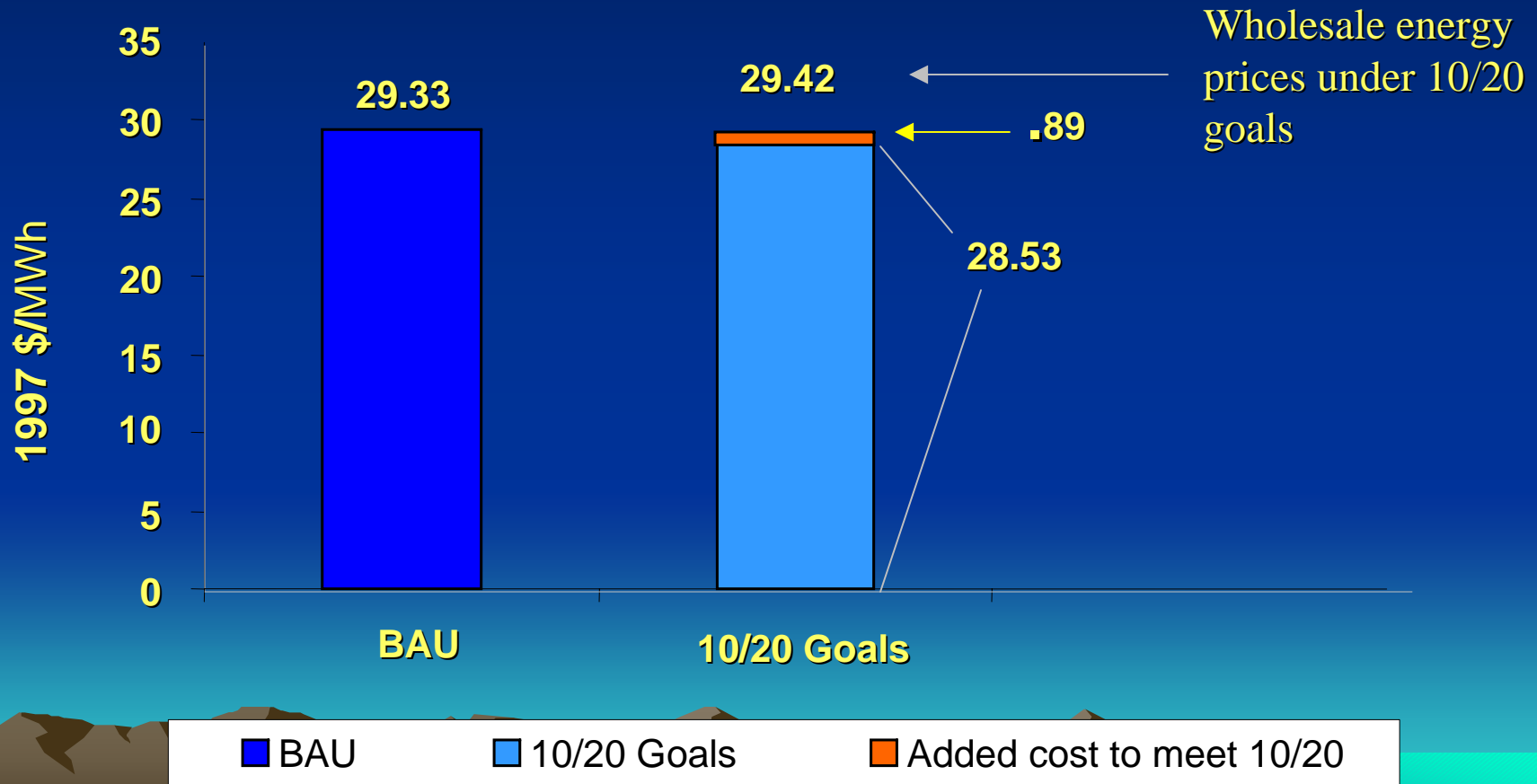
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10/20 RE Goal Increases Annual Electricity Production Cost 2% - 5%



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10/20 Goals – Impact on Wholesale Energy Prices



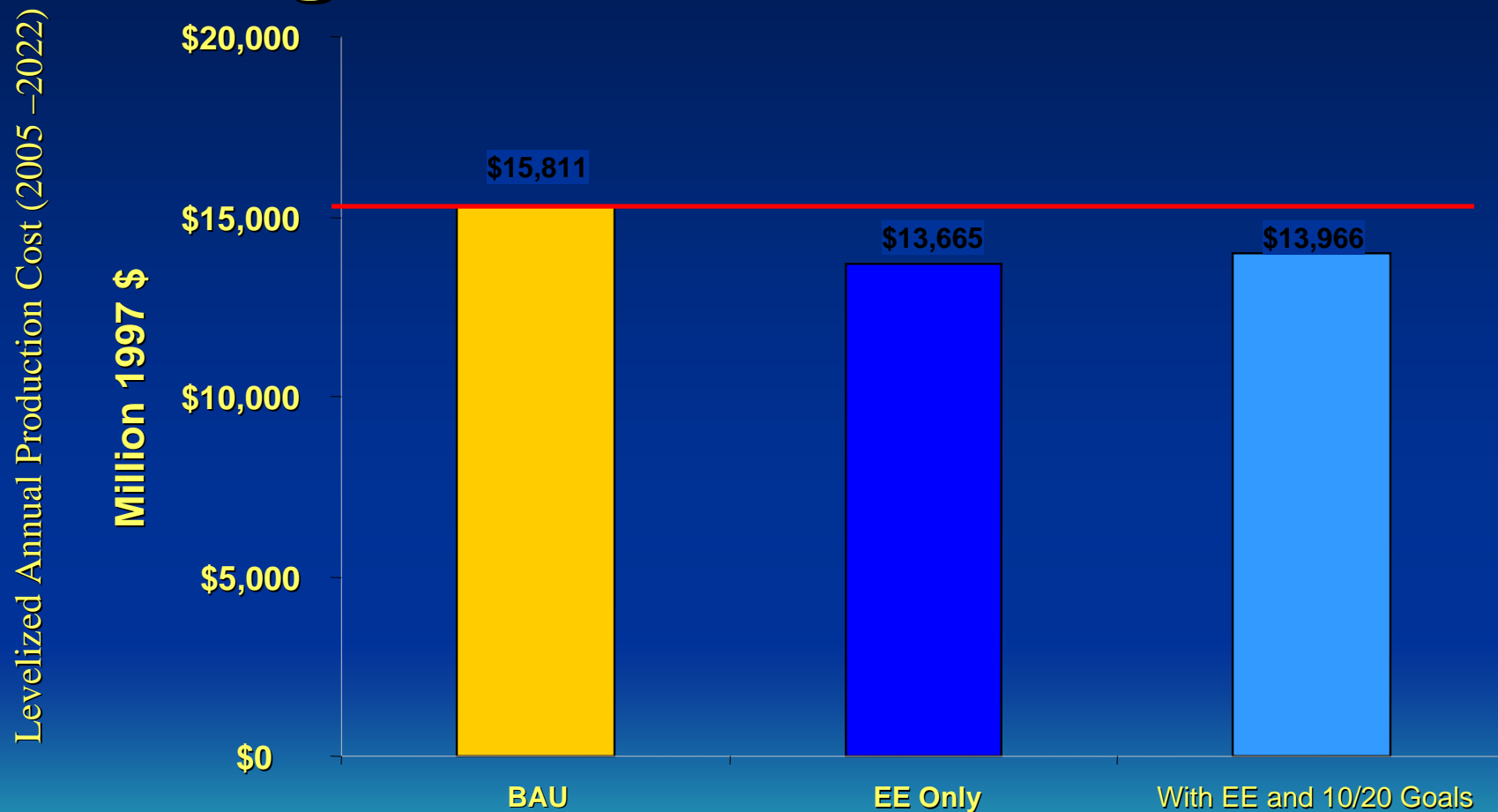
Energy Efficiency Modeling Results

- Implementation of the energy efficiency “best practices” recommendations would reduce power demand in the Western states by 1.0 % in 2005 and 8% in 2018.
- Represents 54,000 GWH of saved energy and 6,100 MW of capacity.
- Net savings in electricity production costs range from \$200 million in 2005 to \$2.1 billion in 2018.

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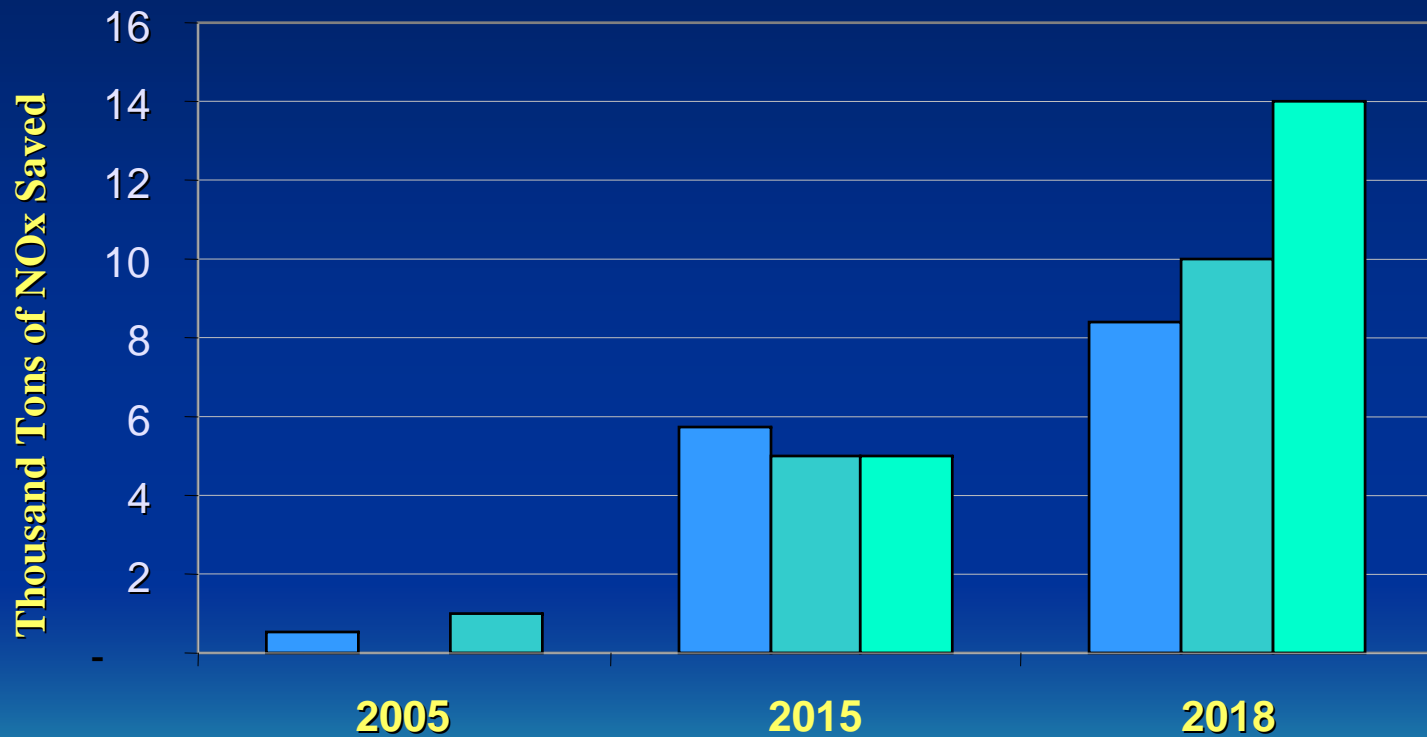
Annual Savings From EE

Range From \$ 1.8 – \$2.1 Billion



Includes cost of implementing EE and avoided transmission distribution cost from EE use
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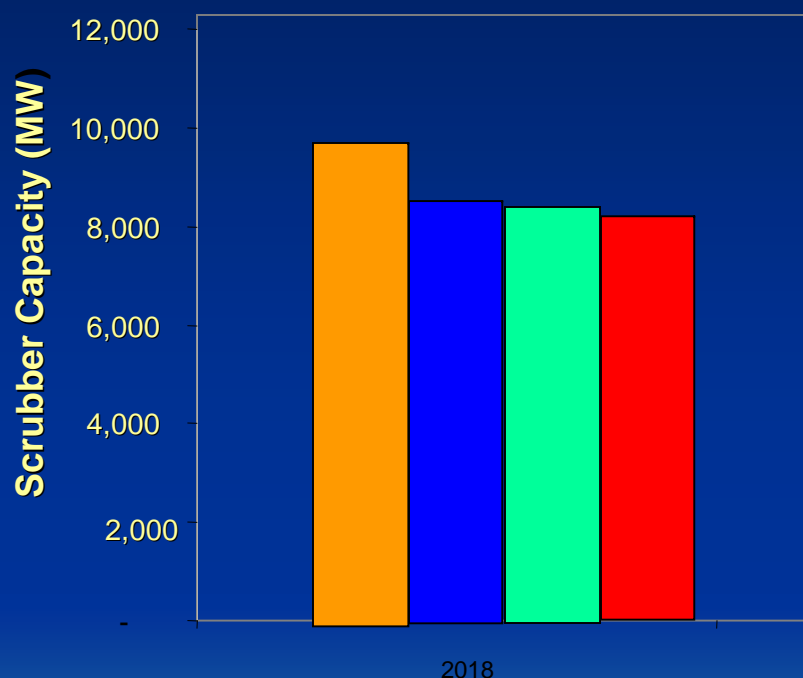
NO_x Emissions Reductions



Under 10/20 Goals With EE Under 10/20 Goals + With EE

Technology Foundation and POWAIR

Investments in RE and EE Lowers SO₂ Compliance Costs



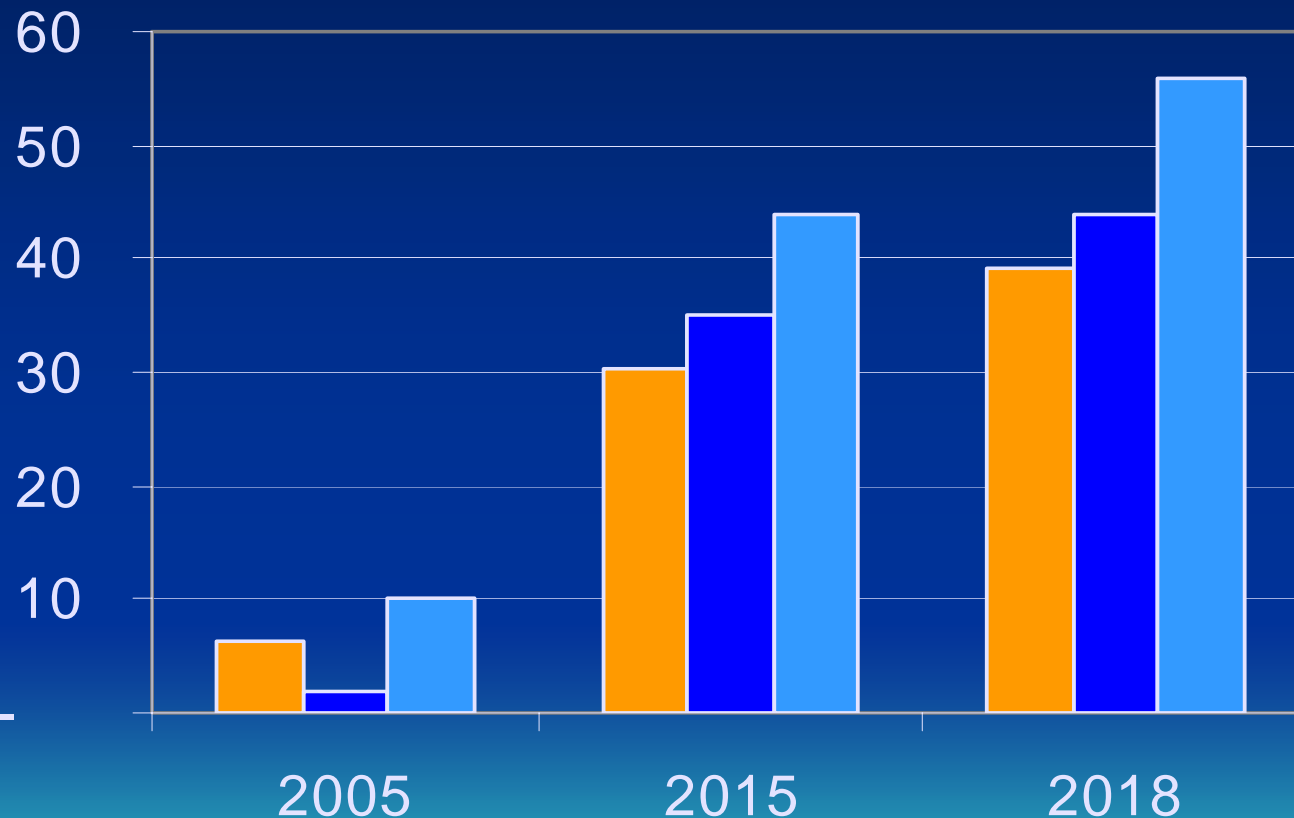
- 10/20 goals and EE will reduce the need for scrubber capacity by 1200 MW to 1700 MW by 2018
- Cuts compliance cost by about \$10 million or 7%

BAU 10/20 Goals 10/20 Goals + EE With EE

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CO₂ Emissions Reductions

Million Metric Tonnes of CO₂ Saved



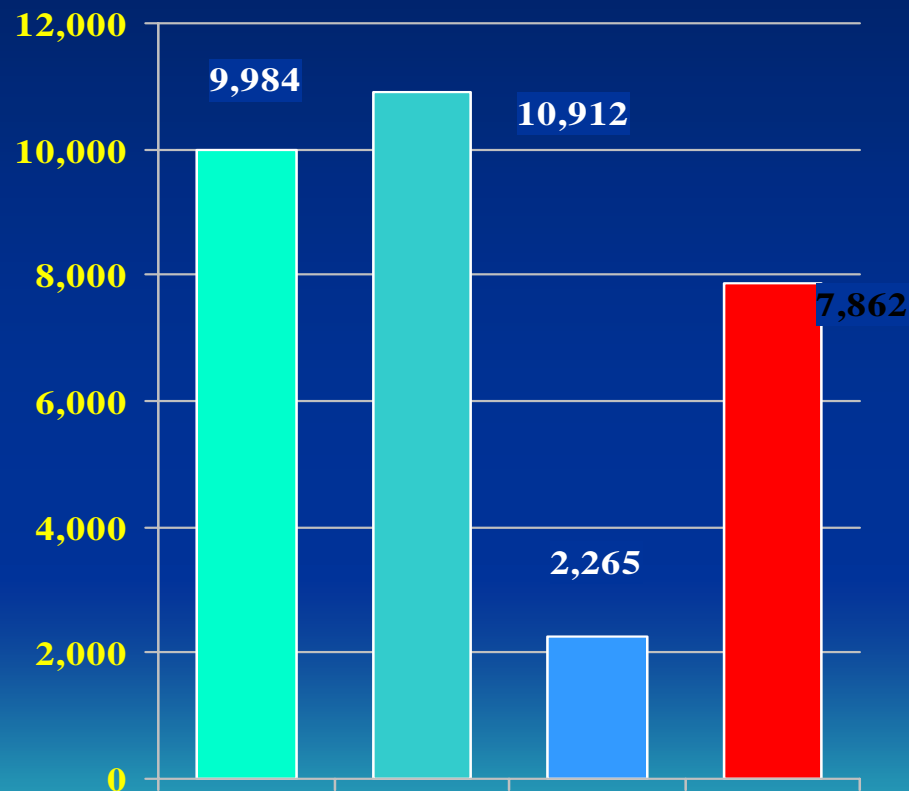
Under 10/20 Goals With EE Under 10/20 Goals + With EE

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Regional Economic Impacts

- Small, but positive regional economic impact
- Local economic impacts more significant
- Driven by investment/employment linkage
- Meeting 10/20 goal with EE increases....

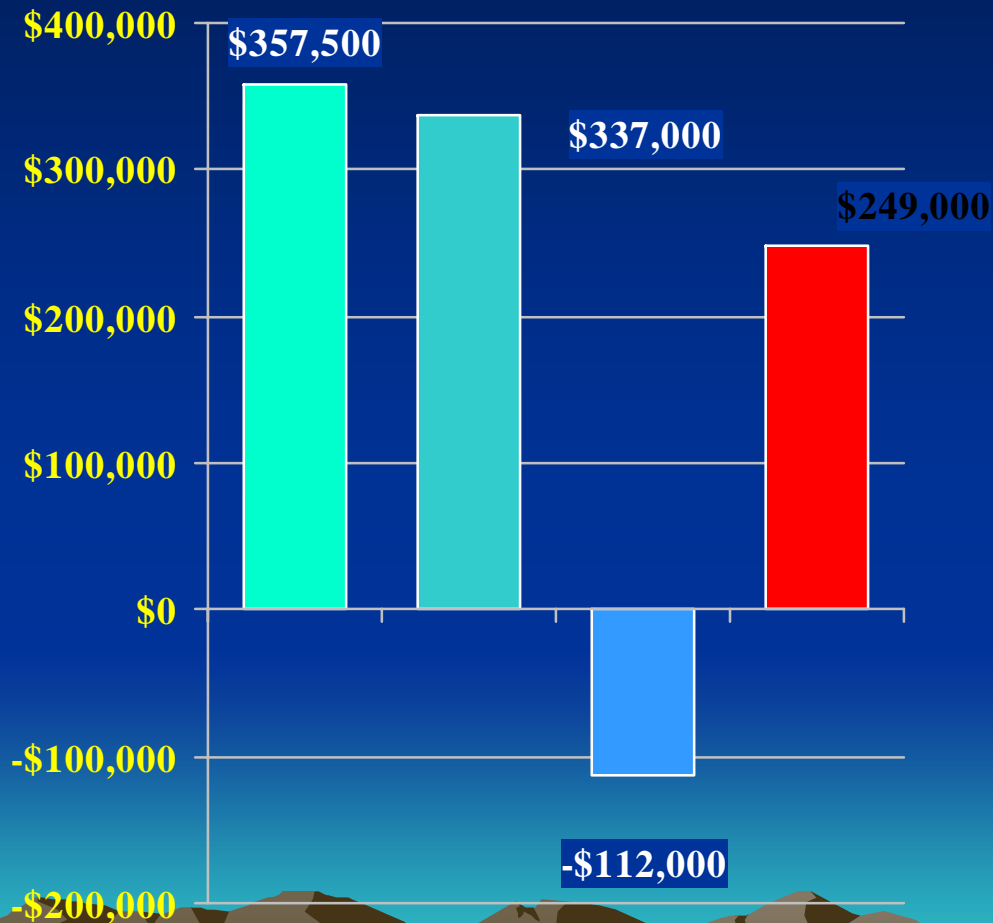
Regional Employment



- 7,862 ave. annual increase in employment
- Most jobs created in 2010-2015 period.
- Colorado, Arizona, and Wyoming experience largest growth in employment.....

■ 2005-2010 ■ 2011-2015 ■ 2016-2020 ■ Average

Gross Regional Product (Thousand Dollars)



- \$249,000,000 levelized annual increase in gross regional product
- 7 of 9 states in Transport Region experience increase in economic activity.

CONCLUSIONS

- Emissions reductions are small
 - Baseline included the Annex and the “backstop” cap-and-trade program
- Yields secondary set of emissions benefits
 - Significant CO2 emissions reductions
- Good for the economy
- When EE and RE are taken together, reduces compliance costs
- No need for Utah to make significant program or public policy changes