

Utility Energy Efficiency Programs in the Southwest: Generating Enormous Benefits for Consumers and the Environment

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Electric utilities in the Southwest greatly expanded their energy efficiency programs over the past nine years, thereby helping households and businesses in the region save billions of dollars, according to a new set of state fact sheets prepared by the Southwest Energy Efficiency Project (SWEET). The state fact sheets [link] cover the energy efficiency programs of major electric utilities in Arizona, Colorado, Nevada, New Mexico and Utah.

The state fact sheets review the history of energy efficiency policy for electric utilities in each state, trends in energy efficiency program funding levels, and the key impacts of energy efficiency programs implemented by utilities in each state over the past nine years (2008-2016).

Electric Utilities Included in the Fact Sheets

Arizona: Arizona Public Service Company, Salt River Project,
Tucson Electric Power

Colorado: Xcel Energy and Black Hills Energy

Nevada: Nevada Power Company and Sierra Pacific Power
Company (NV Energy)

New Mexico: Public Service Company of New Mexico, El Paso
Electric Company, Southwestern Public Service Company

Utah: Rocky Mountain Power

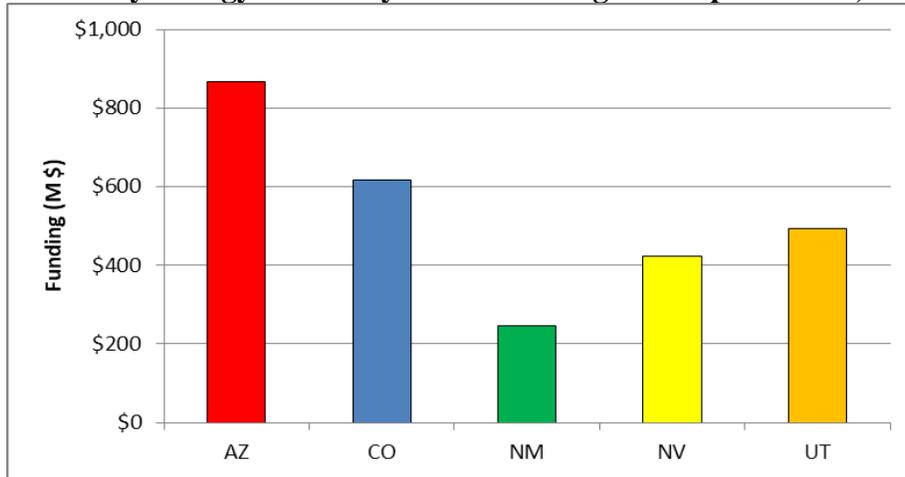
The fact sheets show that electric utilities in these five states spent a total of over \$2.6 billion on energy efficiency and other demand-side management (DSM) programs during 2008-16. These programs helped households and businesses save energy and lower their electricity bills through education, technical assistance and rebates for energy saving measures. Most of the programs focus on lowering electricity consumption, but some programs focus on reducing peak electric demand. For the utilities covered, total funding across the five states increased from about \$150 million in 2008 to \$360 million in 2016.

The first chart below shows the total amount that utilities spent on energy efficiency and other DSM programs during 2008-16 by state. Program spending was highest in Arizona and Colorado, the two largest states in terms of population and economic activity.

Households and businesses in the region lowered their electricity use in 2016 by about 16.9 billion kWh as a result of the utility energy efficiency program implemented during the

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Electric Utility Energy Efficiency and DSM Program Expenditures, 2008-16



period 2008-16.² This is equivalent to the amount of electricity used annually by about 1.5 million typical households in the region. If this investment in energy efficiency had not been made, total electricity consumption in the region would have been about 8% greater than it actually was in 2016.

The overall energy savings achievement also means that utilities in the region avoided constructing and operating eight large (300 MW) baseload power plants as a result of the efficiency programs implemented during 2008-16, or their equivalent. Avoiding construction of these power plants along with associated transmission and distribution lines saved utilities (or third party owners of power plants) billions of dollars, investments that if they had been made would eventually be paid for by utility customers.

The second chart below shows the total energy savings in 2016 by state, from programs implemented during 2008-16. Utilities in Arizona were responsible for around 48% of total energy savings in the region, utilities in Colorado were responsible for around 18%, utilities in Nevada around 15%, the utility in Utah around 13%, and utilities in New Mexico around 6%.³ The chart in the appendix shows the relative size of the states in terms of population.

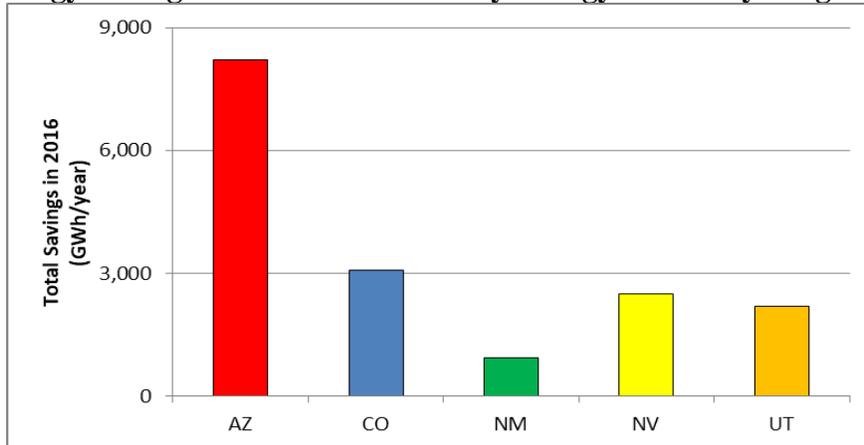
The energy efficiency programs implemented by electric utilities in the Southwest provide economic benefits that far exceed the costs of the programs and measures. The third chart shows the net economic benefits that households and business will realize over the lifetime of the energy efficiency measures installed through utility programs during 2008-16, by state. The net economic benefits were calculated by the utilities using the benefit-cost methodology approved in each state. In total, the utilities estimate that consumers will realize about \$6.3 billion in net economic benefits as a result of energy efficiency programs implemented during 2008-16. The projected economic benefits are greatest in Arizona, followed by Colorado and Utah.

² The energy savings values and other impacts discussed in this overview are based on information prepared and reported by the electric utilities.

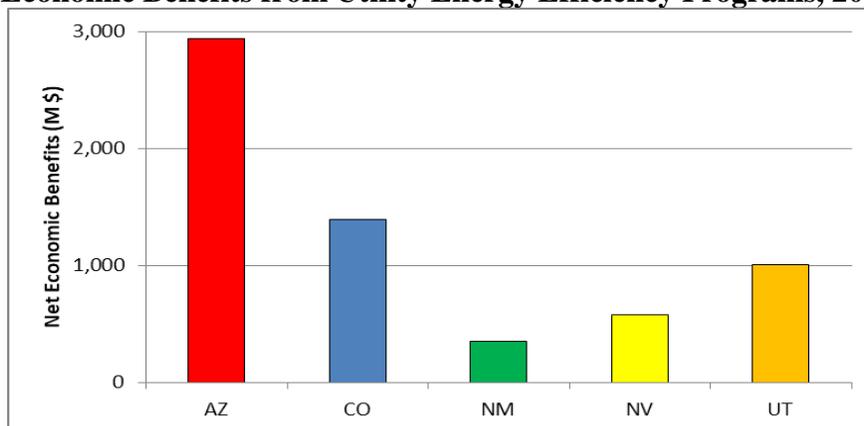
³ Methodologies for determining energy savings, economic benefits, etc. vary somewhat from state to state, so comparisons across states are approximate.

The table in the Appendix shows the benefit-cost ratios as of 2016 for the portfolio of energy efficiency and other DSM programs implemented by the major utilities in the region. The benefit-cost ratios range from 1.5 to 3.3.

Energy Savings as of 2016 from Utility Energy Efficiency Programs



Net Economic Benefits from Utility Energy Efficiency Programs, 2008-16

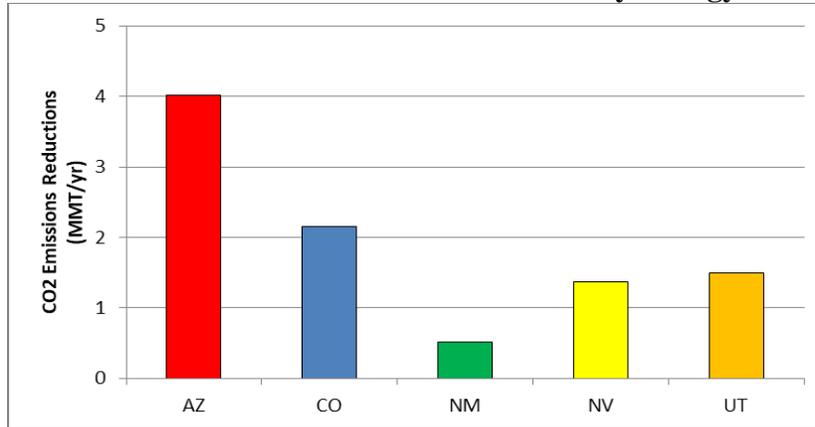


The energy efficiency programs implemented by electric utilities in the Southwest also provide environmental benefits by reducing the operation of coal-fired and natural gas-fired power plants, which are still the primary sources of electric power in the region. The fourth chart shows the estimated reduction in carbon dioxide (CO₂) emissions as of 2016, due to utility energy efficiency programs implemented during 2008-16. We estimate that utilities in the region reduced their CO₂ emissions in 2016 by about 9.5 million metric tons as result of their energy efficiency programs. This level of emissions reduction is equivalent to taking about 1.9 million typical passenger vehicles off the road.

Utilities in the region also reduced their emissions of other pollutants including NO_x, sulfur dioxide, particulate matter and heavy metals as a result of the energy efficiency programs implemented during 2008-16. These reductions in pollutant emissions improve public health as well as improve visibility in national parks and monuments. In addition, utility energy efficiency

programs in the region reduce water consumption for power generation. SWEEP estimates that utilities in the region reduced their water consumption in 2016 by around 6.5 billion gallons (19,950 acre-feet) as a result of energy efficiency programs implemented during 2008-16.

Carbon Dioxide Emissions Reduction as of 2016 from Utility Energy Efficiency Programs



In summary, households and businesses in the Southwest are realizing large economic benefits as a result of the energy efficiency programs implemented by electric utilities in the region. Likewise, the environment is benefitting from lower CO₂ and other pollutant emissions by power plants. These benefits will grow in the future as energy efficiency programs continue to stimulate the adoption of energy-efficient appliances, lights, buildings, industrial processes and the like. Eight large power plants have already been avoided as a result of utility energy efficiency programs, and more will be avoided as these programs continue to provide cost-effective energy savings.

Appendix – Additional Data

Overall Benefit-Cost Ratio for Portfolio of Energy Efficiency Programs, 2016

Utility	Benefit-Cost Ratio
APS	1.54
PNM	1.80
RMP	1.98
SRP	3.30
TEP	2.80
Xcel Energy	1.80

Note: The benefit-cost ratios were calculated by the utilities using the primary cost effectiveness methodology adopted in each state.

State Population as of 2015

