



THE REGION

The New Mother Lode: The Potential for More Efficient Electricity Use in the Southwest examines the potential for and benefits from increasing the efficiency of electricity use in the southwest states of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. The study models two scenarios, a “business as usual” Base Scenario and a High Efficiency Scenario that gradually increases the efficiency of electricity use in homes and workplaces during 2003-2020.

Following are region-wide data and results:

Electricity Consumption and Expenditures in 2000

Electricity Consumption (GWh/yr)	186,200
Total Expenditures (billion \$)	11.58

Electricity Generation in 1999

	Coal-fired	Natural gas-fired	Hydro power	Nuclear/other	All sources
GWh	195,200	24,800	17,200	32,000	269,300
% of Generation	72	9	7	12	100

Average Growth Rates of Electricity Use in the Base and High Efficiency Scenario, 2003-2020 (%/yr)

	Residential	Commercial	Industrial	All
Base Scenario	2.4	3.5	1.6	2.6
High Efficiency Scenario	0.7	0.8	-0.5	0.4

Electricity Demand Reductions in the High Efficiency Scenario, by Sector

	2010				2020			
	Res	Com	Ind	All	Res	Com	Ind	All
GWh/yr	10,450	19,110	11,880	41,440	24,590	50,290	24,150	99,040
Percent	14.2	20.0	18.8	17.8	26.3	37.3	32.6	32.8

Avoided New Capacity in the High Efficiency Scenario (MW)

	Coal	Natural Gas	Renewables	Total
2010	2,800	4,670	70	7,540
2020	8,540	7,240	1,420	17,200

Costs and Benefits in the High Efficiency Scenario (Cumulative Present Value, Billion 2000\$)

	Electric Sector & Natural Gas Price Benefits	Energy Efficiency Costs	Net Benefits	Benefit-Cost Ratio
Commercial	17.7	3.0	14.7	5.8
Residential	9.3	3.2	6.1	2.9
Industrial	10.0	2.6	7.4	3.9
Total	37.1	8.8	28.2	4.2

Emissions Reduction Estimates in the High Efficiency Scenario

	2010		2020	
	Reduction	% Change	Reduction	% Change
Carbon (MMTCE)	8.4	13	19.8	26
SO ₂ (million tons)	0.005	1	0.015	4
NO _x (million tons)	0.02	2	0.036	5
Mercury (tons)	0.11	3	0.28	7

(Note: MMTCE – million metric tons of carbon equivalent. This is the standard unit of accounting for carbon dioxide; other units are U.S. short tons.)

Water Savings in the High Efficiency Scenario (billion gallons per year)

	Coal plants	NG plants	Res-eff CWs	Total
2010	14.64	6.33	3.77	24.73
2020	44.90	5.42	11.24	61.56

(Note: The sources of water savings are coal-fired power plants, natural gas-fired power plants, and resource-efficient clothes washers..)

Macroeconomic Impacts

	Net Change in Jobs	Change in Wage and Salary Compensation (million \$)
2010	20,500	450
2020	58,400	1,340

(Note: Dollar figures are in millions of 2000 dollars while employment reflects the actual job total.)