



An Overview of Energy Efficiency

Energy efficiency means reducing the amount of energy that you need to perform a particular task. When you practice energy efficiency, you increase or maintain your level of service, but you decrease the energy used to provide that service through efficient technologies.

Examples include ENERGY STAR appliances, compact fluorescent and LED light bulbs, better insulation for buildings, more efficient windows, high efficiency air conditioning equipment, and vehicles with higher miles per gallon (mpg). Another distinct strategy is energy conservation, which means that you change your behavior or lifestyle to reduce energy use. Examples include carpooling, using mass transit, turning thermostats down in the winter and up in summer, and other behavioral changes.

Improving energy efficiency is a “win-win” strategy — it saves money for consumers and businesses, reduces the need for costly and controversial new power plants, increases the reliability of energy supply, cuts pollution and greenhouse gas emissions, and lowers energy imports. There is vast potential for improving the energy efficiency of homes, appliances, businesses, and vehicles throughout Colorado.

Quick Facts:

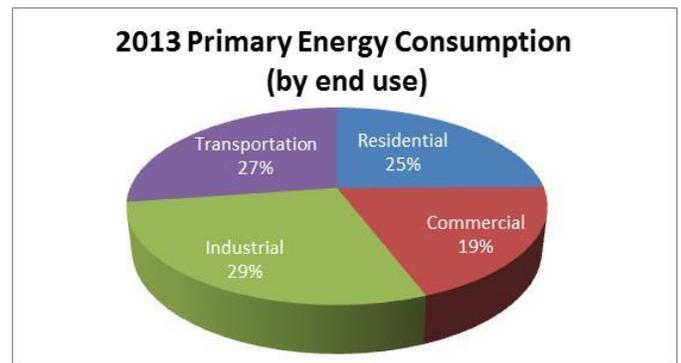
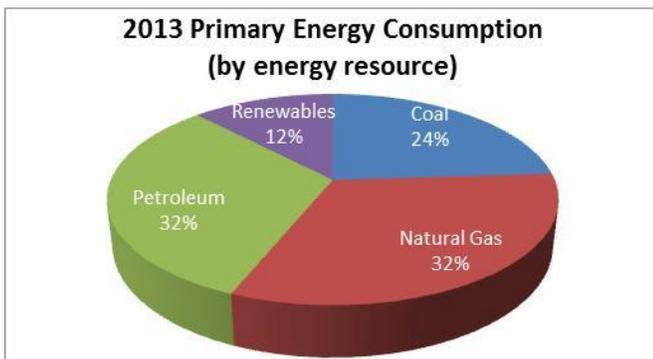
- ◆ Population, 2014: 5,355,866
 - ◆ Population growth rate, 2006-2014: 1.10% per year
 - ◆ Number of households, 2014: 1,998,314
- Source: United States Census Bureau*

Primary Energy Consumption (2013)

- ◆ Primary energy consumption: 1,478.1 Trillion Btu
- ◆ Growth rate, 2006-2013: 0.45% per year
- ◆ Primary energy consumption per capita: 280 million Btu
- ◆ Ranking, energy consumption per capita: 34
- ◆ Ranking, total energy consumption: 25
- ◆ Ratio of consumption to production: 0.52

Energy Expenditures (2013)

- ◆ Total energy expenditures: \$19.7 billion
 - ◆ Ranking, energy expenditures: 26
 - ◆ Energy expenditures per capita: \$3,737
 - ◆ Ranking, energy expenditures per capita: 42
- Source: U.S. Energy Information Administration, State Energy Data System, March 2016.*



Renewables include hydropower, wood, solar, geothermal and waste materials.

Primary energy use includes the losses in electricity generation and distribution. Rankings are position among US states plus DC (1 is highest, 51 is lowest).

COLORADO ENERGY FACT SHEET

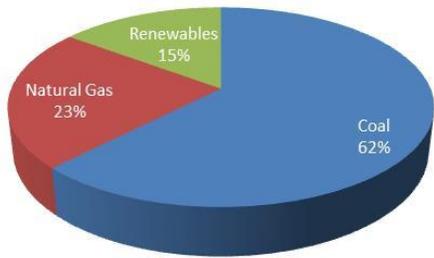
Electricity Use (2014)

- ◆ Total retail sales: 53.4 billion kWh
- ◆ Ranking, total retail sales: 27
- ◆ Consumption growth rate, 2008-2014: 0.40% per year
- ◆ Electricity use per capita: 9,970 kWh
- ◆ Residential electricity use per household: 9,054 kWh
- ◆ Average retail price, all sectors: 10.06 cents/kWh
- ◆ Ranking, average electricity price: 21

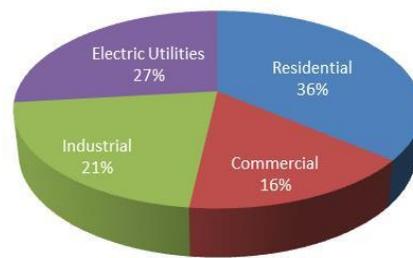
Natural Gas Use (2014)

- ◆ Natural gas consumption by ultimate customers: 367.0 Bcf
- ◆ Ranking: 21
- ◆ Consumption growth rate, 2008-2014: -2.45% per year
- ◆ Natural gas use per capita: 68,527 cf
- ◆ Residential natural gas use (per residential consumer): 78,142 cf

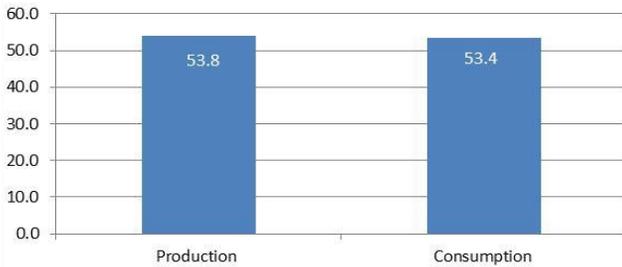
2014 Electricity Generation Breakdown



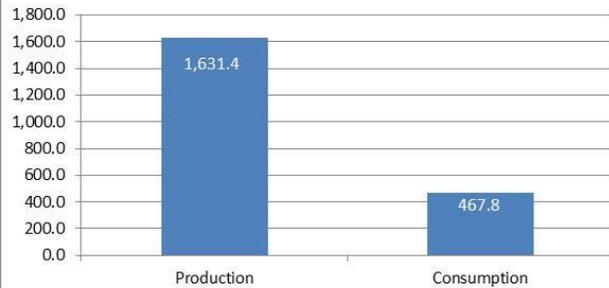
2014 Natural Gas Use by Sector



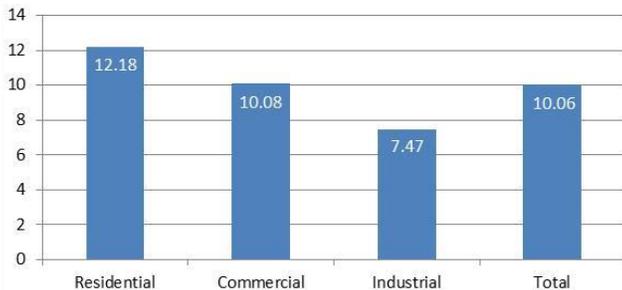
2014 Electricity Production and Consumption (Billion kWh)



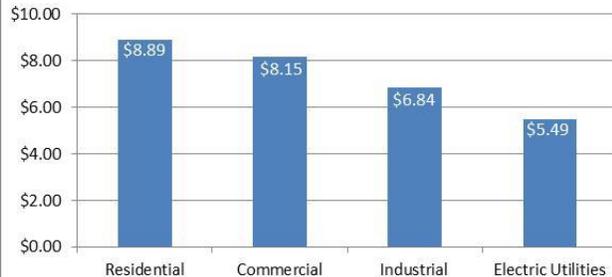
2014 Natural Gas Production and Consumption (Billion Cubic Feet)



2014 Electricity Average Retail Prices (cents/kWh)



2014 Natural Gas Average Retail Prices (Dollars per Thousand Cubic Feet)



Sources: U. S. Energy Information Administration (www.eia.doe.gov) and U. S. Census Bureau (www.census.gov)

COLORADO ENERGY FACT SHEET

Status of Energy Efficiency in Colorado

Electricity Demand-Side Management

The Colorado Public Utilities Commission (PUC) has established energy savings goals for Xcel Energy that have ramped up over time. In response, Xcel implements a wide range of energy efficiency and load management programs for its Colorado residential and business customers. For businesses, these programs include: 1) cash rebates for replacing or updating cooling systems, energy-efficient lighting equipment, high efficiency motor and motor speed controls, and other efficiency measures; 2) technical assistance and incentives for energy-efficient new commercial buildings; 3) discounts on energy audits and engineering studies; and 4) incentives for process efficiency improvements. For residential customers, Xcel's programs include energy audits, instant rebates on compact fluorescent and LED lamps, incentives for high efficiency air conditioning and evaporative cooling systems, and incentives for highly efficient new homes. Also, some smaller utilities such as Black Hills Energy, Colorado Springs Utilities, Fort Collins Utilities and Holy Cross Energy implement energy efficiency programs for their customers.

Total spending on electric utility energy efficiency and load management programs in Colorado was about \$108 million in 2015. For Xcel Energy, the budget for energy efficiency and load management programs represents about 3.0% of revenues.

- ◆ For Colorado electric utility DSM program details, see: <http://swenergy.org/programs/utilities/state/colorado>

Natural Gas Demand-Side Management

Under PUC mandate, natural gas utilities in Colorado are implementing energy efficiency programs for their customers. These programs include rebates for insulation and high-efficiency furnaces, support for low-income home weatherization, and other efforts. Natural gas utilities in Colorado spent about \$16 million on energy efficiency programs in 2013.

- ◆ For Colorado gas utility DSM program details, see: <http://swenergy.org/programs/utilities/state/colorado>

Status of Building Energy Codes

Colorado cities and counties with building codes are required to adopt an energy code at least as stringent as the 2003 International Energy Conservation Code (IECC). A growing number of local jurisdictions including Denver and Aurora have adopted the 2015 IECC while many municipalities have adopted the 2012 IECC. The U.S. Department of Energy estimates that new homes in Colorado meeting the 2012 or 2015 IECC rather than the 2006 version will save \$392 per year in energy costs.

- ◆ For more information, see: <http://swenergy.org/buildings/energy-code/colorado>

Colorado Industrial Energy Challenge

The Colorado Industrial Energy Challenge (CIEC) program encourages Colorado's largest industrial firms to set a voluntary goal to reduce their energy intensity or energy consumption and report on their progress towards their goal. The program offers networking and training opportunities, and annual recognition of outstanding achievements by the Colorado Governor's Office. Twenty-three companies, including some of Colorado's largest manufacturing and mining companies, participated in the program as of 2014.

- ◆ For more information, see: <http://swenergy.org/industrial/ciec>

State Energy Efficiency Scorecard

The American Council for an Energy-Efficient Economy (ACEEE) has ranked states based upon scores in six categories including: 1) utility and public benefits of energy efficiency programs; 2) combined heat and power (CHP); 3) building energy codes; 4) transportation policies; 5) appliance and equipment efficiency standards; and 6) state government initiatives. In the 2015 state scorecard, Colorado was ranked 12th among all states with a score of 24.5 out of a possible 50 points.

Electricity Conservation Potential and Impacts in Colorado*

Savings potential in 2020:	22% Avoided
new power capacity:	2,213 MW
Net dollar savings (2010-2030):	\$4.8 billion
Net increases in jobs by 2020:	6,960
Water savings by 2020:	2.5 B gallons/year

*Based on the High Efficiency Scenario in SWEET's study *The \$20 Billion Bonanza: Best Practice Utility Energy Efficiency Programs and their Benefits for the Southwest*. This study, completed in 2011, presents the energy savings potential and impacts from a strong commitment to utility energy efficiency programs over a 10-year period.

COLORADO ENERGY FACT SHEET

Residential Energy Consumption Survey (2009)

Housing Characteristics:

The Energy Information Administration (EIA) has published housing characteristics data from the 2009 Residential Energy Consumption Survey.

The table below indicates the fraction of households in Colorado that report having, using or practicing the following equipment and/or behaviors in their homes:

Poor insulation:	21%
Home is too drafty during the winter some or most of the time:	47%
Single pane glass in windows:	32%
Energy-efficient light bulbs:	63%
Two or more refrigerators:	26%
ENERGY STAR refrigerator:	32%
ENERGY STAR dishwasher:	26%
ENERGY STAR clothes washer:	32%
Keep some or all portable tools and appliances chargers always plugged in:	21%
Three or more televisions:	37%
Turn off computers when not in use:	42%
Keep some or all cell phone and other electronic device chargers always plugged in:	47%
Electric resistance heating as a main heating source:	11%
Have and use a programmable thermostat:	32%
Central air conditioning:	37%
Evaporative cooling:	16%
Use ceiling fans quite a bit or all summer:	32%
Electric resistance water heating:	16%
Insulation blanket on main water heater:	16%

Source: U. S. Energy Information Administration, 2009 Residential Energy Consumption Survey: Housing Characteristics Tables.

More Information on Energy Efficiency

- ◆ American Council for an Energy-Efficient Economy (ACEEE) www.aceee.org
- ◆ Alliance to Save Energy www.ase.org
- ◆ Consortium for Energy Efficiency www.cee.org
- ◆ ENERGY STAR® Products www.energystar.gov
- ◆ Southwest Energy Efficiency Project www.swenergy.org
- ◆ U.S. DOE's Energy Efficiency & Renewable Energy Programs www.eere.energy.gov