



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 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 the summer, and other 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 the 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:

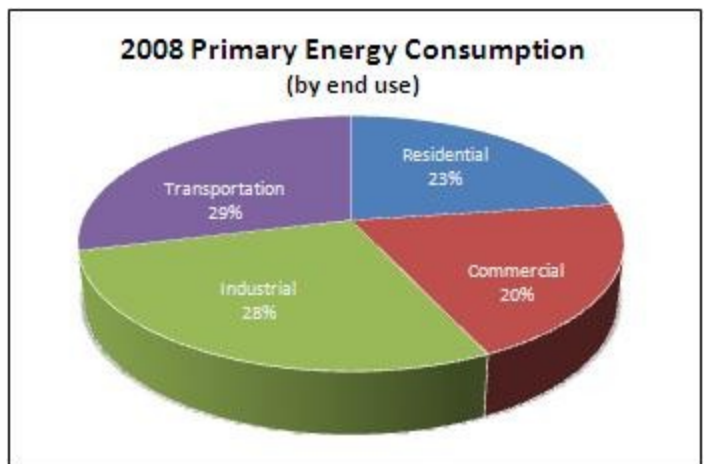
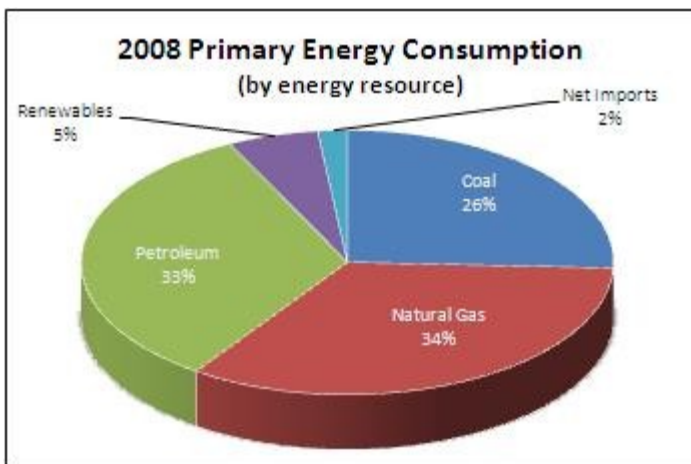
- ◆ Population, 2009: 5,024,748
- ◆ Population growth rate, 2000-2009: 1.74% per year
- ◆ Number of households, 2009: 1,972,868

Primary Energy Consumption (2009)

- ◆ Primary energy consumption: 1.45 quadrillion Btu
- ◆ Growth rate, 2006-2009: 0.31% per year
- ◆ Primary energy consumption per capita: 304 million Btu
- ◆ Ranking, energy consumption per capita: 33
- ◆ Ranking, total energy consumption: 25

Energy Expenditures (2008)

- ◆ Total energy expenditures: \$12.4 billion
- ◆ Ranking, energy expenditures: 27
- ◆ Energy expenditures per capita: \$4,002
- ◆ Ranking, energy expenditures per capita: 44



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).

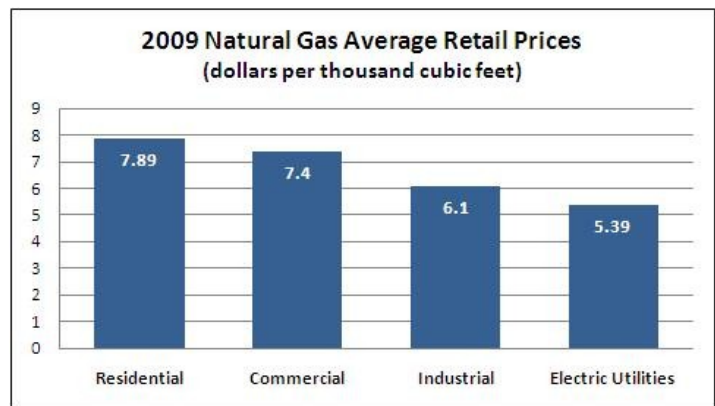
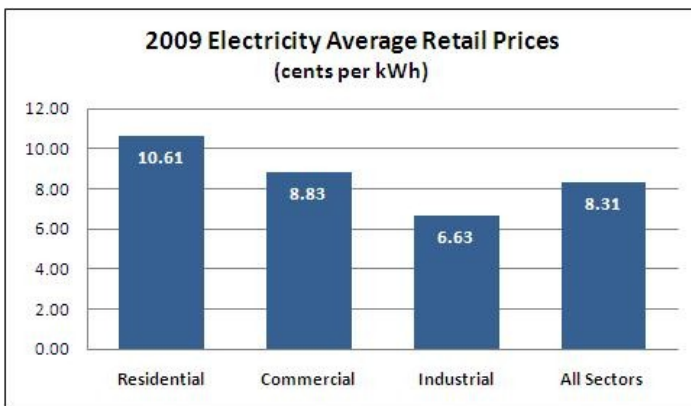
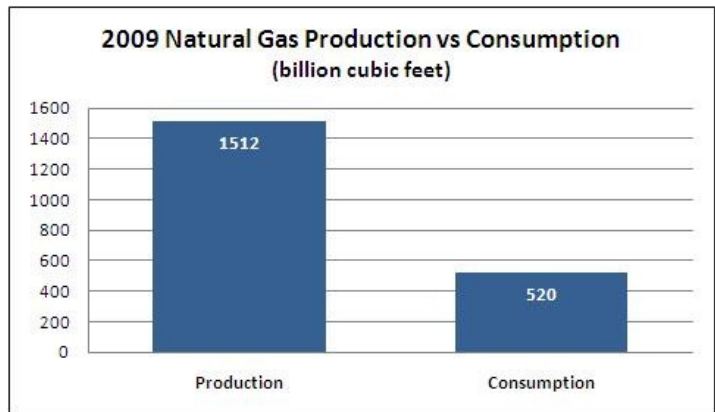
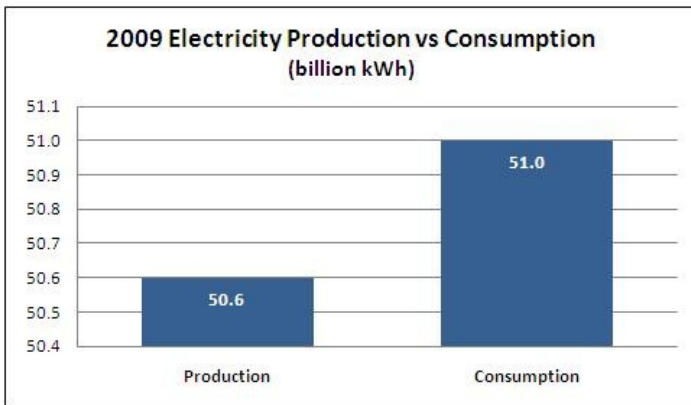
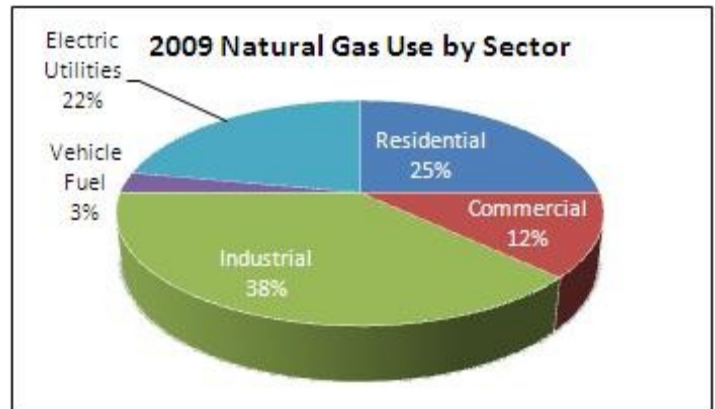
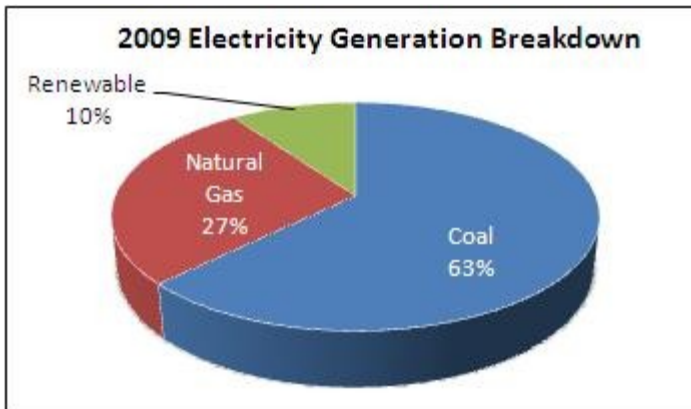
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Electricity Use (2009)

- ◆ Total retail sales: 51.0 billion kWh
- ◆ Ranking, total retail sales: 27
- ◆ Consumption growth rate, 2007-2009: -0.2% per year
- ◆ Electricity use per capita: 10,063 kWh
- ◆ Residential electricity use per household: 8,982 kWh
- ◆ Average retail price, all sectors: 8.31 cents/kWh
- ◆ Ranking, average electricity price: 31

Natural Gas Use (2009)

- ◆ Total consumption: 520.2 Bcf
- ◆ Ranking, total consumption: 12
- ◆ Consumption growth rate, 2007-2009: 1.01% per year
- ◆ Natural gas use per capita: 103,529 cf
- ◆ Residential natural gas use (per residential consumer): 90,561 cf



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

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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 ramp up over time. In response, Xcel implements a wide range of energy conservation 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 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 and Fort Collins Utilities implement energy efficiency programs for their customers.

Total spending on electric utility energy efficiency programs Colorado is estimated at \$82 million in 2011. For Xcel Energy, total energy efficiency program spending represents 2.8% of revenues.

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

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.

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

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). Denver and various other local jurisdictions have adopted the 2009 IECC. The U.S. DOE estimates that new homes in Colorado meeting the 2009 IECC rather than the 2003 version will save \$213-266 per year in energy costs.

- ◆ For more information, visit <http://www.energycodes.gov/states/>.

Guide on Energy Efficiency for Businesses

SWEEP has developed a web-based information resource that assists Colorado businesses in reducing their use of energy and lowering their energy bills. Targeted to business and facility owners and managers, the Energy Efficiency Guide for Colorado Businesses points out opportunities for Colorado businesses to improve the energy efficiency of their buildings and operations, and helps businesses obtain assistance in identifying and implementing energy efficiency projects.

- ◆ For more information, visit <http://www.coloradoefficiencyguide.com/>.

State Energy Efficiency Scorecard

The American Council for an Energy-Efficient Economy (ACEEE) has ranked states based upon scores in six categories of energy efficiency commitment and policy support as of 2010. The categories include: 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 this national ranking, Colorado was tied for 19th among all states with a score of 22 out of a possible 50 points.

Electricity Conservation Potential and Impacts in Colorado*

Savings potential in 2020:	31%
Avoided new power capacity:	2,500 MW
Net dollar savings (2003-2020):	\$6.4 B
Net increases in jobs by 2020:	12,200
Water savings by 2020:	14 B gallons/year

*Based on the High Efficiency Scenario in SWEEP's study *The New Mother Lode: The Potential for More Efficient Electricity Use in the Southwest*.

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Residential Energy Consumption Survey (2009)

The Energy Information Administration (EIA) has recently published housing characteristics data from the 2009 Residential Energy Consumption Survey. Residential energy consumption data will be published and included in this fact sheet when it becomes available.

Housing Characteristics:

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: Preliminary 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.cce.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