



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 Wyoming.

Quick Facts:

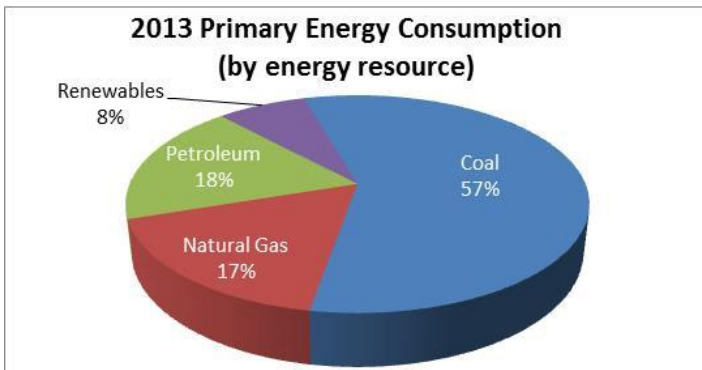
- ◆ Population, 2014: 584,153
 - ◆ Population growth rate, 2006-2014: 1.81% per year
 - ◆ Number of households, 2014: 225,514
- Source: United States Census Bureau.*

Primary Energy Consumption (2013)

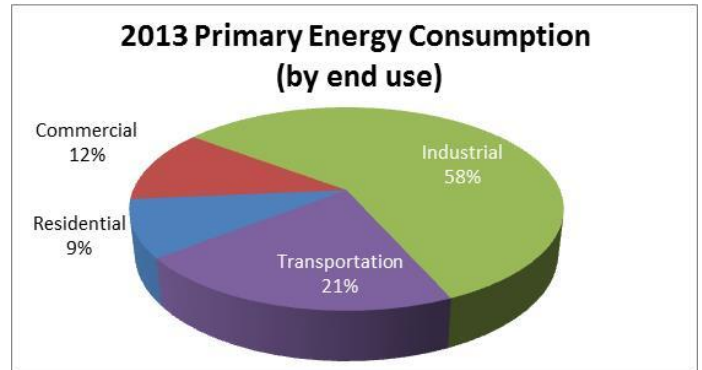
- ◆ Primary energy consumption: 539.2 trillion Btu
- ◆ Growth rate, 2006-2013: 1.66% per year
- ◆ Primary energy consumption per capita: 924 million Btu
- ◆ Ranking, energy consumption per capita: 2
- ◆ Ranking, total energy consumption: 41
- ◆ Ratio of consumption to production: 0.06

Energy Expenditures (2012)

- ◆ Total energy expenditures: \$5.5 billion
 - ◆ Ranking, energy expenditures: 46
 - ◆ Energy expenditures per capita: \$9,357
 - ◆ Ranking, energy expenditures per capita: 4
- 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).

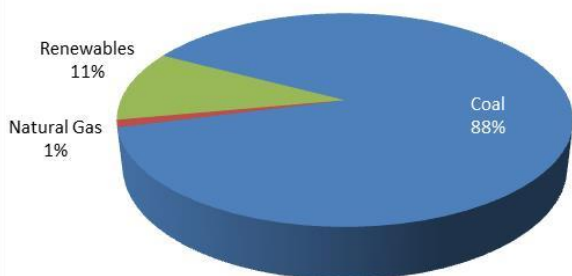
Sources: U. S. Energy Information Administration (www.eia.doe.gov) and U. S. Census Bureau (www.census.gov)

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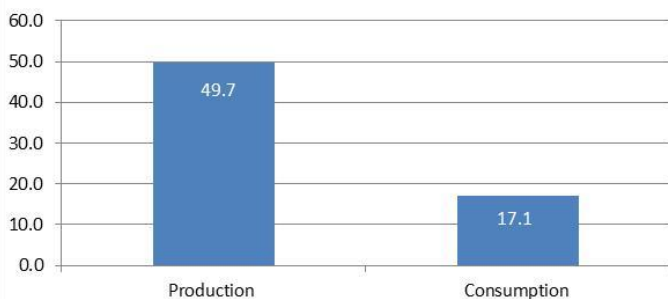
Electricity Use (2014)

- ◆ Total retail sales: 17.1 billion kWh
- ◆ Ranking, total retail sales: 41
- ◆ Consumption growth rate, 2008-2014: 0.44% per year
- ◆ Electricity use per capita: 29,331 kWh
- ◆ Residential electricity use per household: 12,203 kWh
- ◆ Average retail price, all sectors: 7.76 cents/kWh
- ◆ Ranking, average electricity price: 49

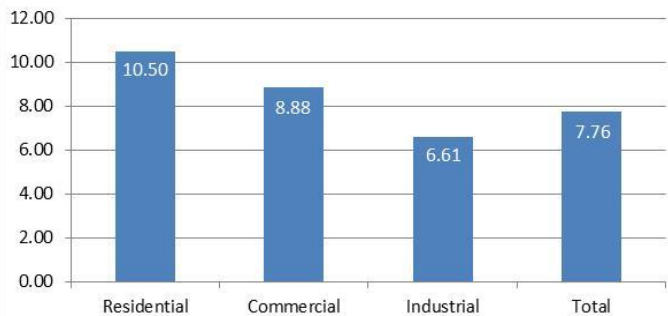
◆ 2014 Electricity Generation Breakdown



2014 Electricity Production and Consumption (Billion kWh)



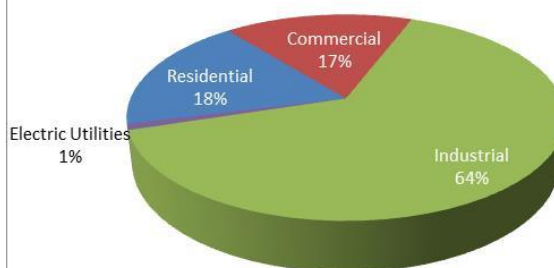
2014 Electricity Average Retail Prices (cents/kWh)



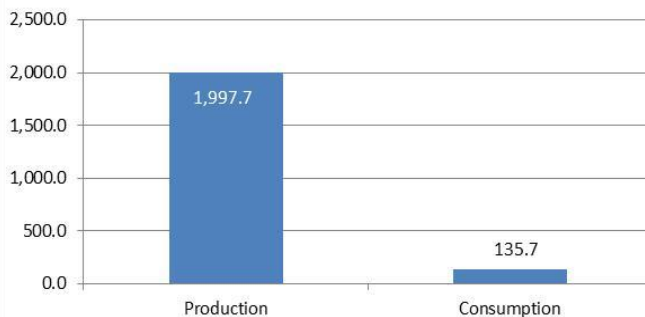
Natural Gas Use (2014)

- ◆ Natural gas consumption by ultimate customers: 73.1 Bcf
- ◆ Ranking: 43
- ◆ Consumption growth rate, 2008-2014: 1.60% per year
- ◆ Natural gas use per capita: 125,132 cf
- ◆ Residential natural gas use (per residential consumer): 82,469 cf

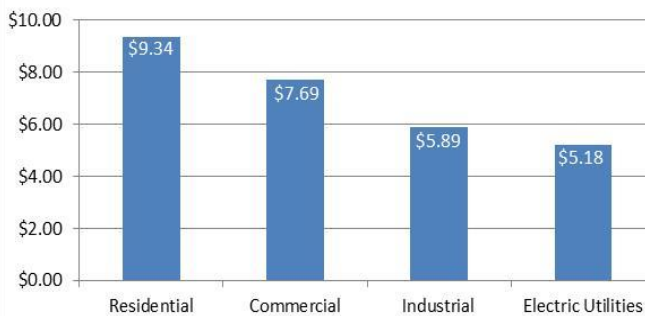
2014 Natural Gas Use by Sector



2014 Natural Gas Production and Consumption (Billion Cubic Feet)



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)

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Status of Energy Efficiency in Wyoming

Electricity Demand-Side Management

Rocky Mountain Power (RMP), the main electric utility in Wyoming, began implementing energy efficiency programs in Wyoming in 2008. These programs include financial incentives for a wide range of efficiency measures that households and businesses can adopt. Total spending on electric utility energy efficiency programs in 2015 was about \$65 million, or 0.9% of utility revenues (RMP only).

- ◆ Info about RMP's residential programs: <http://www.rockymountainpower.net/res/sem.html>.
- ◆ Info about RMP's business programs: <http://www.rockymountainpower.net/bus/se.html>.

Cheyenne Light Fuel and Power Company, a combined electricity and natural gas utility, is implementing a variety of energy efficiency programs for its customers in Wyoming.

- ◆ Info about Cheyenne Light Fuel and Power's DSM programs: <https://www.cheyennelight.com/save-money-energy/energy-efficiency>

Natural Gas Demand-Side Management

Questar Gas Company was implementing rebates on a variety of energy efficiency measures for its customers in Wyoming as of 2014.

- ◆ Info about Questar's DSM programs: <http://www.thermwise.com>

Status of Building Energy Codes

Wyoming has no mandatory statewide energy codes. The jurisdictions of Teton County, Jackson, and Sheridan have adopted the 2012 IECC with local amendments. The U.S. Department of Energy estimates that new homes in Wyoming meeting the 2012 International Energy Code (IECC) rather than the 2006 IECC would save \$466 per year in energy costs.

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

State Efficiency Programs

The Wyoming Business Council supports multiple programs to support energy efficiency improvements for Wyoming small businesses and local governments. These programs include underwriting the cost of small business energy audits, benchmarking the performance of local government office buildings, and providing energy code education for Wyoming builders.

- ◆ For more information, visit <http://wyomingbusiness.org/content/SEOprograms>

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, Wyoming ranked 50th among all states with a score of 5.5 out of a possible 50 points.

Electricity Conservation Potential and Impacts in Wyoming*

Savings potential in 2020:	15% Avoided
new power capacity:	367 MW Net
dollar savings (2010-2030):	\$0.9 billion
Net increases in jobs by 2020:	610
Water savings by 2020:	1.8 B gallons/year

*Based on the High Efficiency Scenario in SWEEP'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.

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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 EIA presents only aggregated data for Idaho, Montana, Utah and Wyoming; therefore these numbers represent the average for those four states.

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

Poor insulation:	15%
Home is too drafty during the winter some or most of the time:	40%
Single pane glass in windows:	15%
Energy-efficient light bulbs:	60%
Two or more refrigerators:	35%
ENERGY STAR refrigerator:	35%
ENERGY STAR dishwasher:	25%
ENERGY STAR clothes washer:	40%
Keep some or all portable tools and appliances chargers always plugged in:	30%
Three or more televisions:	45%
Turn off computers when not in use:	45%
Keep some or all cell phone and other electronic device chargers always plugged in:	50%
Electric resistance heating as a main heating source:	20%
Have and use a programmable thermostat:	35%
Central air conditioning:	55%
Evaporative cooling:	15%
Use ceiling fans quite a bit or all summer:	40%
Electric resistance water heating:	30%
Insulation blanket on main water heater:	10%

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