

Moving to a Clean Energy Economy: Opportunities for Colorado

United States Department of Energy
September 30, 2009

OVERVIEW: COLORADO HAS MAJOR ECONOMIC OPPORTUNITIES IN A CLEAN ENERGY ECONOMY

The threat of climate change caused by carbon pollution poses a major challenge to the United States and the world, but it also represents an unprecedented opportunity to create new industries and build a strong, thriving clean energy economy. The clean energy sector is one of the fastest growing industries in the world -- the demand for solar panels and wind turbines, for example, has been growing exponentially over the past few years.

Among industrialized nations, the race is on for the clean energy jobs of the future. China is investing \$12.6 million per hour in clean energy. Denmark has made significant investments in wind capacity and is now home to the world's leading wind turbine manufacturer. With our unrivalled natural, intellectual and scientific resources, the United States can and should emerge as the world's leader in clean energy, but success depends on making the right choices today.

President Obama has called for comprehensive legislation to create a system of clean energy incentives that will catalyze America's industrial and scientific base. It will spark public and private investments in clean energy that will create millions of new jobs.

Meanwhile, Colorado has enacted an aggressive business-development and job-creation agenda that is focused on knowledge-based industries of the future, such as energy, aerospace, biosciences and information technology among others. Colorado is mounting an ambitious effort to create thousands of new jobs, luring existing companies to the state and promoting the development of new, innovative businesses. The state is poised to be a national and international leader in clean and renewable energy.

Moving to clean energy holds major economic opportunity for Colorado today and tomorrow:

- **Colorado has a highly diversified industrial base:** Forbes.com recently ranked the state of Colorado # 1 in the nation on labor supply, based on educational attainment, net migration and projected population growth; # 2 on prospects for growth; and # 5 on economic climate, which includes unemployment and presence of big companies as well as gross state product, job and income growth. The Centennial state has a diverse industrial base of professional and business services, education and health services, mining and logging, construction, and manufacturing. Though the state's job market improved slightly, with unemployment down by half a percent to 7.2 percent during August, its well-educated workforce could find significant new opportunities in clean energy research and development, manufacturing and deployment.
- **Colorado is a leader in science and technology innovation:** the Centennial state is building on its leadership in science and technology as four Colorado institutions: Metropolitan State College of Denver, Colorado School of Mines, Community College of Denver, and Cherry Creek School District, announced an unprecedented education collaborative - the Colorado Academy for the Development of Science, Technology, Engineering and Math (STEM)-related Careers (Colorado ADSC).

Colorado ADSC is designed to position the state as a leader in STEM education and to ensure that its students - from kindergarten through graduate level - are tapped-in and connected to cutting


edge innovation. These efforts will build upon an already strong base in Colorado, including the Department of Energy’s National Renewable Energy Laboratory, located in Golden, which is a major asset to the state.

- Colorado families could reap huge benefits from energy efficiency:** Colorado has made significant strides in energy efficiency and already enjoys lower per capita electricity use than the nation, as well as electricity rates 11 percent below the national average and electricity bills 31 percent below the national average. The example of California, however, shows there are even greater opportunities for significant savings through energy efficiency:

 - o Even though California’s economy has grown significantly since the 1970s, California’s per capita electricity use has remained nearly flat. Over the same time period, Colorado’s per capita electricity use increased at roughly the same rate as the rest of the nation.
 - o The results of California’s successes in promoting energy efficiency are significant: despite electricity rates much higher than the national average, California’s per capita electricity bills are below the national average. (See Appendix II)
- Businesses and Industry in Colorado can also reap major energy efficiency savings:** The Department of Energy has worked with businesses in Colorado to identify steps that they can take to lower their energy bills. Assistance is provided in the form of no-cost energy assessments conducted by Industrial Assessment Centers (IACs), sponsored by DOE’s Industrial Technologies Program. So far more than 4,165 ways have been identified for over 500 small- and medium-sized industrial plants in Colorado to save money and improve productivity through efficiency, with an average payback of only 1.3 years. In Colorado, DOE’s industrial energy assessments are conducted the Mechanical Engineering Department of Colorado State University, Fort Collins. (See: <http://www.iac.rutgers.edu/database/state.php>)
- Colorado is receiving major new funding from the American Recovery and Reinvestment Act:** Colorado’s families and businesses are benefitting from the investments in the Recovery Act to improve energy efficiency and support cutting-edge companies that are at the forefront of the clean energy economy. See the table below:

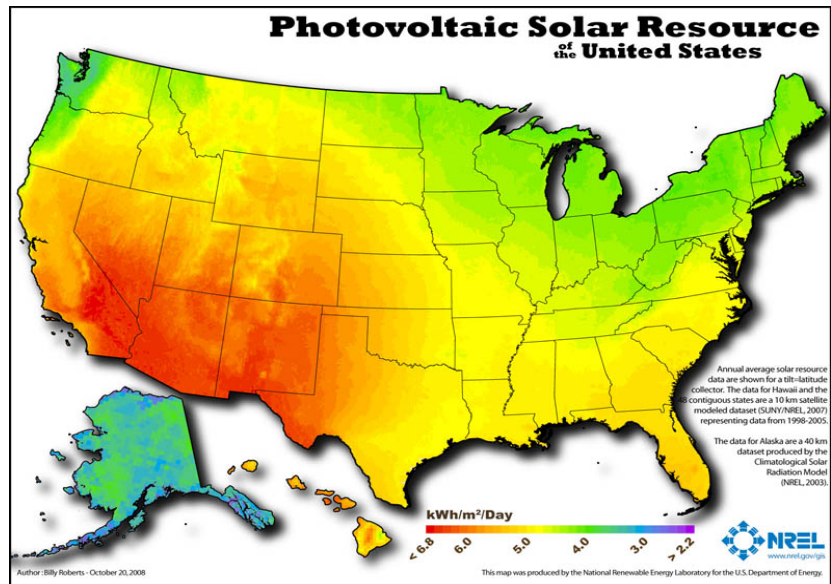
Weatherization	\$79,531,213
State Energy Program	\$49,222,000
Energy Efficiency & Conservation Block Grant Program	\$42,618,700
Advanced Batteries	\$50,100,000
Wind and Wind Facilities	\$111,682,821
Appliance Rebates	\$4,739,253
State and Local	\$521,250

Note: Figures above reflect funding amounts for announced award selections. Some awards are still under negotiation. Grantees are required to meet certain Recovery Act milestones in spending funds.

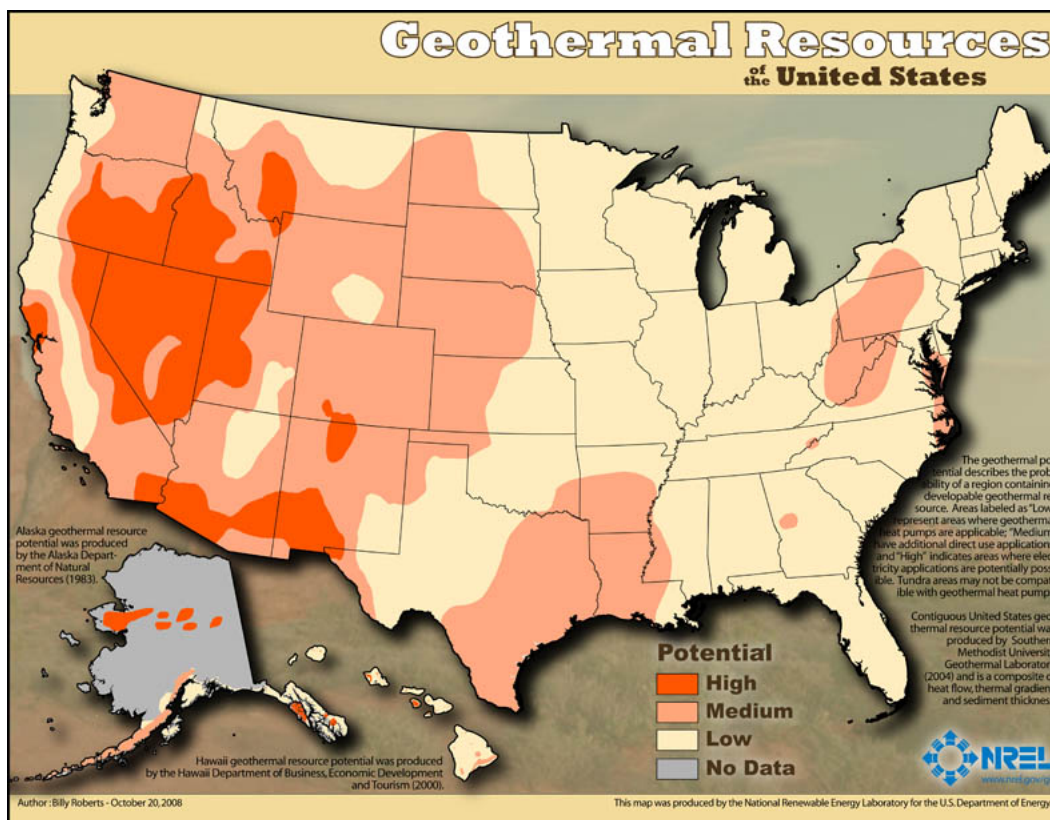


A complete listing of funding announcements for Colorado is available online at: <http://www.energy.gov/colorado.htm>

- Colorado is ranked 11th in solar energy resources. With an average 6.0 to 7.75 kilowatt-hours per square meter per day (kWh/m²/d) of direct-normal solar radiation, Colorado's solar energy resources are classified as fair-to-good. Currently, the state has six solar energy companies and Ascent Solar in Lakewood has plans to add a 1.5 megawatt (MW) and 25MW production facility in the near future.

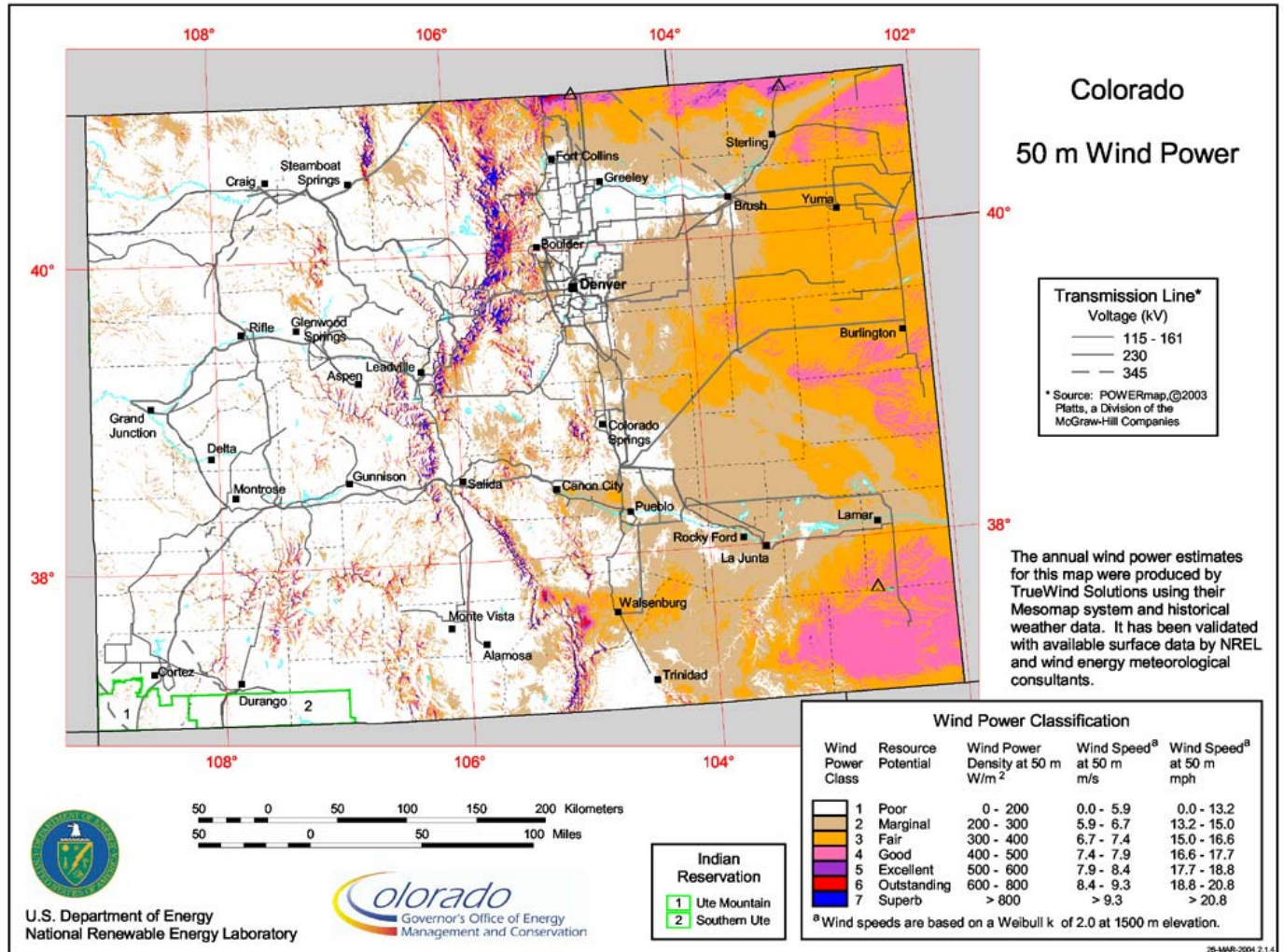


- Colorado has medium to high levels of geothermal energy potential: Colorado's geothermal resources make it well suited not only for geothermal heat pumps for buildings, but also as a site for future electricity generation through enhanced geothermal systems that use the earth's heat to produce steam for electricity.



- **Colorado also has good-to-excellent wind resources.** According to a Department of Energy validated survey of wind energy potential based on wind speeds at 50 meters in elevated areas, Colorado also has good-to-excellent wind resources that can be tapped for renewable energy production (see map below). In addition to benefitting from the deployment of additional wind power in the state, Colorado is poised to emerge as a major manufacturer of wind turbines and components. In 2008, a number of companies either relocated to Colorado or announced plans to build and operate wind farms, build turbines or engage in research and development.

A 2008 report by the Department of Energy and the National Renewable Energy Laboratory found that achieving 20 percent of America’s electricity from wind power would mean 1,000 to 5,000 new manufacturing jobs in Colorado. (See Appendix I)



NOTE: The Department of Energy's Wind Program and the National Renewable Energy Laboratory (NREL) published this new wind resource map for the state of Colorado. This resource map shows wind speed estimates at 50 meters above the ground and depicts the resource that could be used for utility-scale wind development. Future plans are to provide wind speed estimates at 30 meters, which are useful for identifying small wind turbine opportunities.

This map indicates that Colorado has wind resources consistent with utility-scale production. The good-to-excellent wind resource areas are concentrated in higher elevation regions.

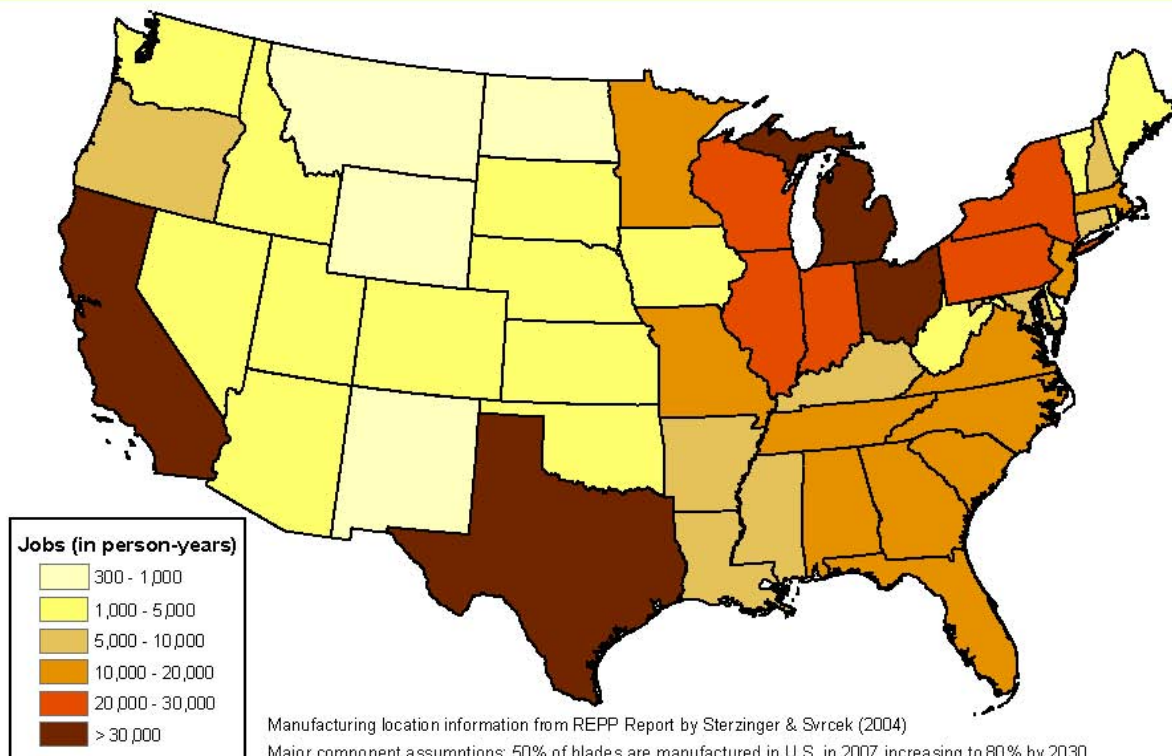
APPENDIX I: COLORADO AND THE 20 PERCENT WIND SCENARIO

The Department of Energy and the National Renewable Energy Laboratory issued a report in 2008 outlining a scenario where the United States could conceivably generate 20 percent of our electricity from wind power by 2030. (Read the full report at <http://www.20percentwind.org/>)

Comprehensive energy legislation under consideration in Congress would help to encourage the further development and deployment of wind power in the United States and achieve President Obama's goal of doubling renewable energy capacity in three years.

Under the 20 percent wind scenario, Colorado would see a substantial expansion of wind power and an additional 1,000 to 5,000 manufacturing jobs in the industry.

Manufacturing Jobs Supported by State



NOTE: Last year, Vestas Americas, the American subsidiary of Denmark-based Vestas Wind Systems A/S, opened a blade-manufacturing plant in Windsor, 50 miles north of Denver. According to Vestas, the company plans to open a tower-manufacturing factory later this year in Pueblo, 120 miles south of the state capital.

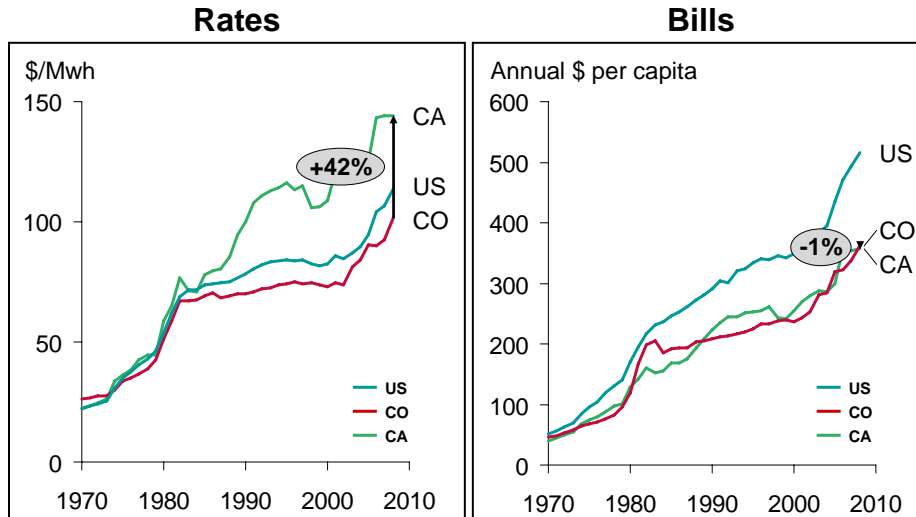
When completed, the Pueblo factory will be the largest wind tower-manufacturing facility in the world, turning out 900 towers a year.

A third Vestas plant producing blades and nacelles (the energy-generating parts of the turbine) will be opened sometime in 2010 in Brighton. At full operation, Vestas's three Colorado plants are expected to employ 2,500 workers statewide.

APPENDIX II: ENERGY EFFICIENCY CAN SAVE COLORADO FAMILIES MONEY

Energy efficiency saves money

Despite its high electricity rates, California has maintained **lower than average electric bills** by implementing strong energy efficiency measures.

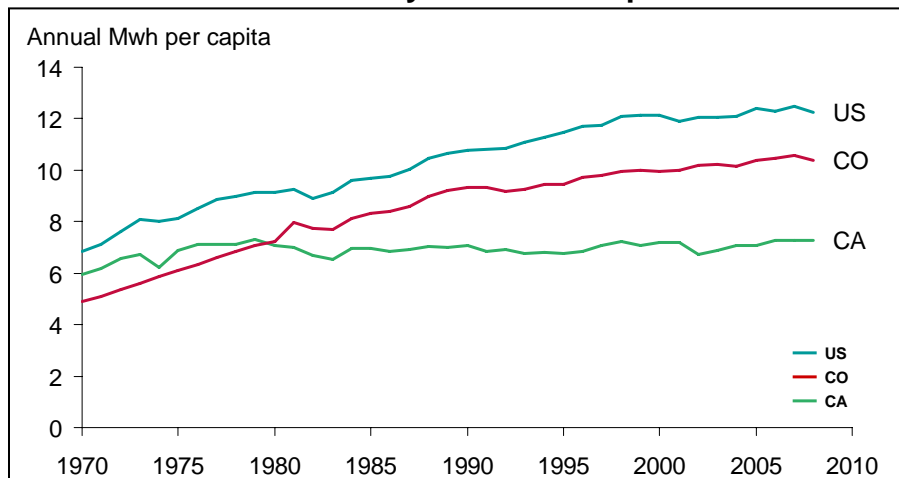


Source: Energy Information Administration, US Department of Energy

Energy efficiency saves money

Since 1975 California's per-capita electricity consumption has remained flat, while Colorado's has grown at the same rate as the US average.

Electricity Sales Per Capita



Source: Energy Information Administration, US Department of Energy

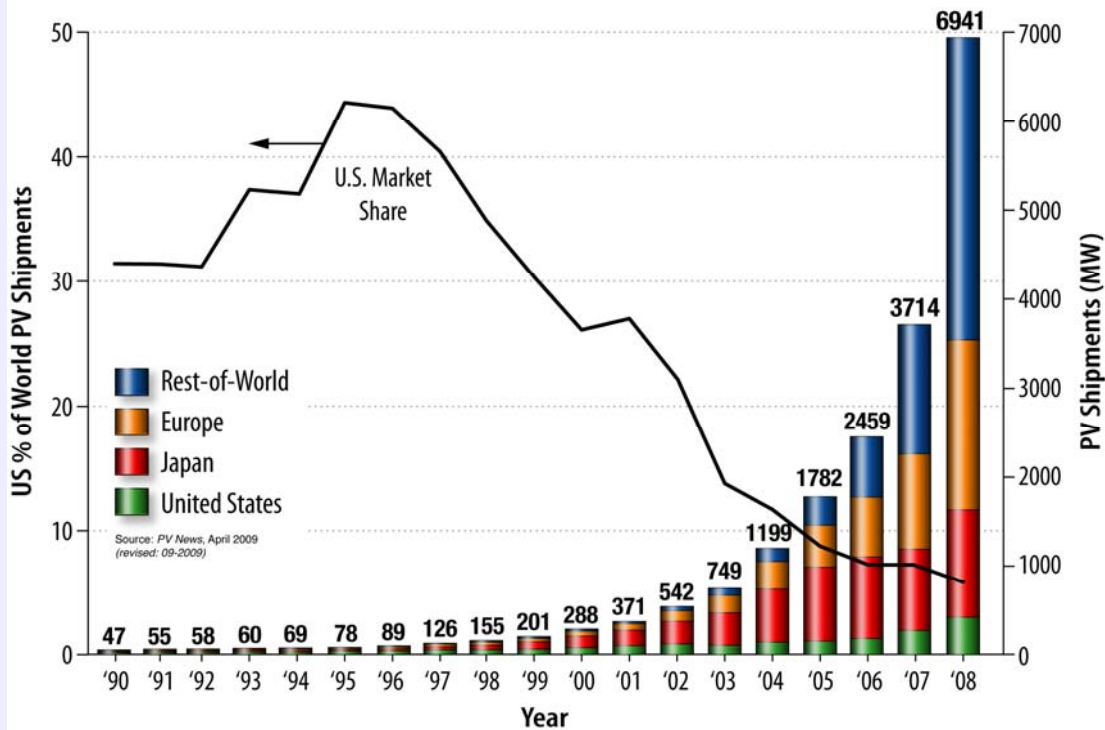
APPENDIX III: COSTS OF INACTION

This is a crucial moment for our economy. From China to Germany to Australia to Denmark, countries around the world are making major investments in clean energy industries and adopting policies that create powerful incentives for clean energy industries to take hold.

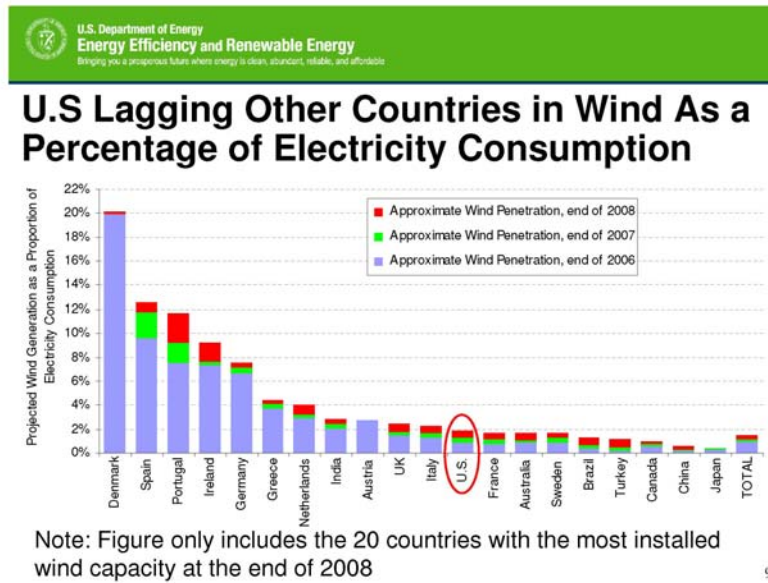
In the international race for clean energy industries, the countries that take bold action to cut carbon emissions will have the advantage. The countries that don't take action will be at a disadvantage.

For example:

- 1) **If the U.S. does not act, we will forfeit the opportunity to lead the new industrial revolution:** In fact, 99 percent of the batteries that power America's hybrid cars are made in Japan. China is investing \$12.6 million per hour in clean energy.
- 2) **The United States pioneered solar cell technology. In recent years, the global market for photovoltaics has been growing by 40 percent a year -- but we have now fallen behind, with about 7 percent market share:**

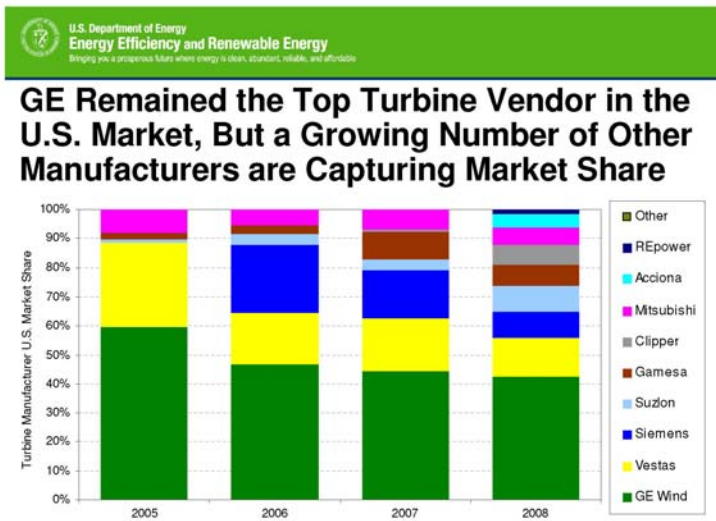


- 3) As the market for wind power facilities expands dramatically, the U.S. is at risk of losing our competitive position and watching as those jobs increasingly are created overseas. The U.S. ranks 12th in the world in wind power (as a percentage of total electricity). The world's largest turbine manufacturing company is headquartered in Denmark:

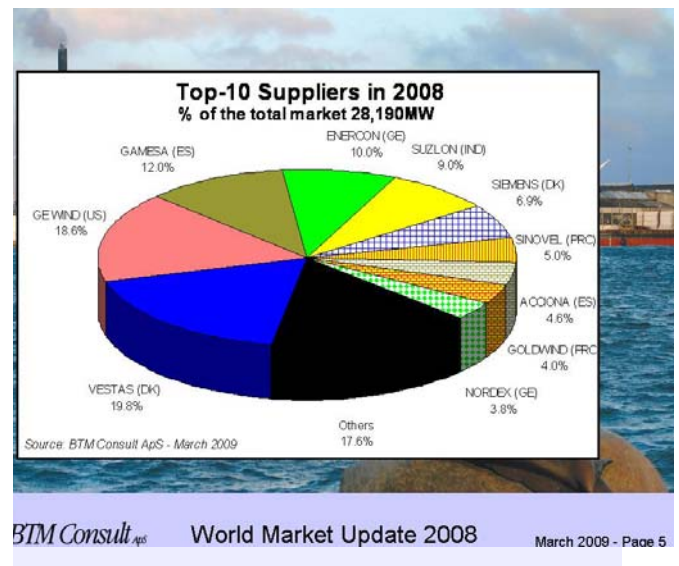


U.S. Market

Global Market



17



- 4) **The stakes are huge:** As the world moves to limit carbon pollution, more than 500,000 wind turbines will be needed. At roughly \$4 million each, this represents a market of more than \$2 trillion (2007 dollars). Similarly, the global market for solar PV panels amounts to nearly 3 million panels worth \$1.5 trillion. (Source: EIA estimate based on data from the IEA's 2008 World Energy Outlook 440 PPM Case)

Again, this is just for solar and wind power. Many more jobs are at stake in energy efficiency, advanced batteries, nuclear power, carbon capture and sequestration, and a wide range of other clean energy technologies.

- 5) **Unless we act to mitigate climate change, Colorado will face serious economic consequences:** The U.S. Global Change Research Program issued a June 2009 report outlining the projected consequences of climate change, including major negative impacts on the Great Plains.

The report drew extensively from a number of rigorously reviewed studies including the International Panel on Climate Change. Key issues facing the Southwest region of the United States as a result of climate change are summarized below:

Recent warming in the Southwest has been among the most rapid in the nation. This is driving declines in spring snowpack and Colorado River flow. Projections of future climate change indicate continued strong warming in the region, with much larger increases under higher emissions scenarios compared to lower. Projected summertime temperature increases are greater than the annual average increases in parts of the region and are likely to be exacerbated by expanding urban heat island effects. Further water cycle changes are projected, which combined with increasing temperatures signal a serious water supply challenge in the decades and centuries ahead. The prospect of future droughts becoming more severe due to warming is a significant concern, especially because the Southwest continues to lead the nation in population growth.

A note on the emissions scenarios

None of the emissions scenarios used in the report assume any policies specifically designed to address climate change. All, including the lower emissions scenario, assume increases in heat-trapping gas emissions for at least the next few decades, though at different rates.

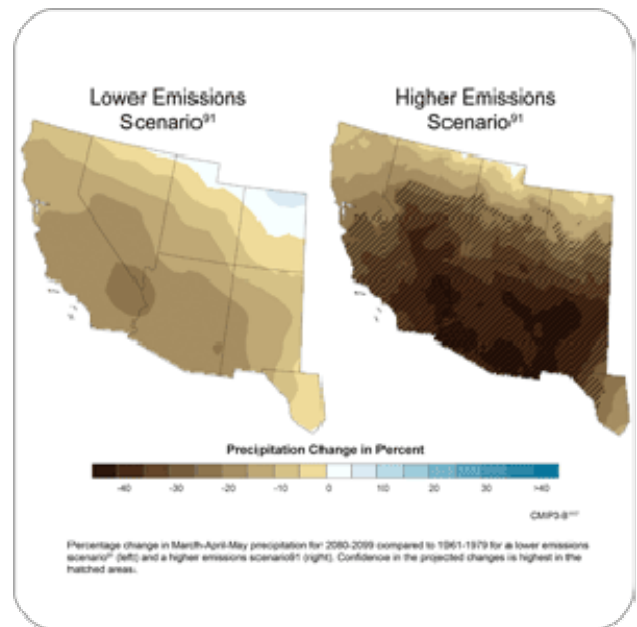
Key Issues:

- **Water supplies will become increasingly scarce, calling for trade-offs among competing uses, and potentially leading to conflict.**

Water is vital to agriculture, hydroelectric power production, the growing human population, and ecosystems. Water supplies in some areas are already becoming limited. Large reductions in spring precipitation are projected for the Southwest. Continued temperature increases combined with river flow reductions and rapid population growth will increase competition for water supplies.

- **Increasing temperature, drought, wildfire, and invasive species will accelerate transformation of the landscape.**

Impacts of climate change on the landscape of the Southwest are likely to be substantial, threatening biological diversity, protected areas, and ranching and agricultural lands. Temperature increases have made the current drought in the region more severe than the natural droughts of the last several centuries. Record-setting wildfires are resulting from the rising temperatures and related reductions in spring snowpack and soil moisture.



- **Increased frequency and altered timing of flooding will increase risks to people, ecosystems, and infrastructure.**

Rapid landscape transformation due to vegetation die-off, wildfire, and loss of wetlands along rivers reduces flood-buffering capacity. Decreased snow cover on the lower slopes of high mountains and the increased fraction of winter precipitation falling as rain and therefore running off more rapidly also increases flood risk.

- **Unique tourism and recreation opportunities are likely to suffer.**

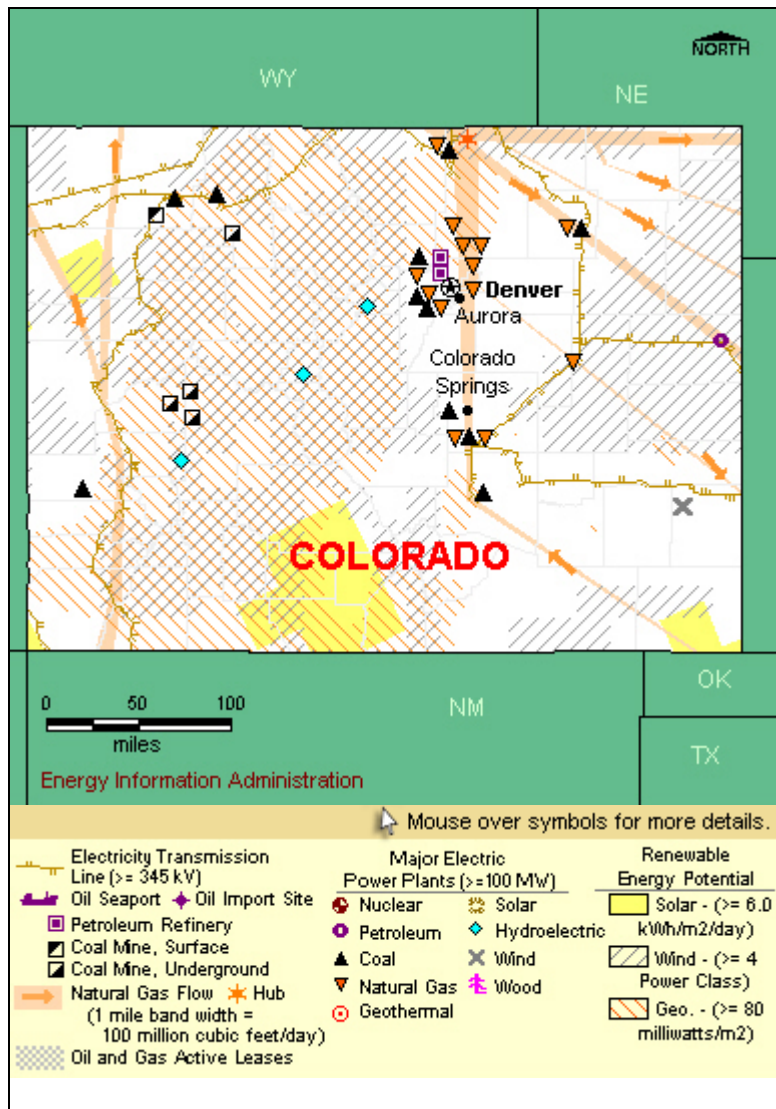
Rising temperatures will adversely affect winter activities such as downhill and cross-country skiing, snowshoeing, and snowmobiling. Later snow and less snow coverage are projected for ski resort areas, particularly those in the southern part of the region. Decreases from 40 to almost 90 percent are likely in end-of-season snowpack under high emissions scenarios in counties with major ski resorts from New Mexico to California.

- **Cities and agriculture face increasing risks from a changing climate.**

With more intense, longer-lasting heat waves projected to occur over this century, demands for air conditioning are expected to deplete electricity supplies, increasing risks of brownouts and blackouts. Much of the region's agriculture will experience detrimental impacts in a warmer future, particularly specialty crops in California such as apricots, almonds, artichokes, figs, kiwis, olives, and walnuts. These and other such crops require a minimum number of hours below a chilling temperature threshold in the winter to set fruit for the following year.

Source: <http://www.globalchange.gov/images/cir/region-pdf/SouthwestFactSheet.pdf>

APPENDIX IV: COLORADO STATE ENERGY PROFILE U.S. ENERGY INFORMATION ADMINISTRATION



Colorado Quick Facts

- Seven of the Nation's 100 largest natural gas fields and two of its 100 largest oil fields are found in Colorado.
- Colorado is responsible for more than one-fourth of all coalbed methane produced in the United States. Coalbed methane output accounts for about one-half of Colorado's natural gas production.
- The Rockies Express Pipeline, set to begin service in January 2008, will help move Colorado's rapidly increasing natural gas production to markets in the Midwest.
- Colorado's oil shale deposits hold an estimated 1 trillion barrels of oil – nearly as much oil as the entire world's proven oil reserves. However, oil production from those deposits remains speculative.

Overview

Resources and Consumption

Colorado has substantial conventional fossil fuel and renewable energy resources. The State contains several fossil fuel-rich basins, including the Sand Walsh, Piceance, Paradox, and San Juan basins in the west, and the Denver and Raton basins in the east. Seven of the Nation's 100 largest natural gas fields and two of its 100 largest oil fields are found in Colorado. Substantial deposits of bituminous, subbituminous, and lignite coal are also found in the State.

Colorado's high Rocky Mountain ridges offer wind power potential, and geologic activity in the mountain areas

provides potential for geothermal power development. Major rivers flowing from the Rocky Mountains offer hydroelectric power resources. Corn grown in the flat eastern part of the State offers potential resources for ethanol production. The Colorado economy is not energy intensive. The transportation and residential sectors are the leading energy-consuming sectors in the State.

Petroleum

Colorado oil production typically accounts for around 1 percent of the annual U.S. total. Most production takes place in the Denver and Piceance Basins. Crude oil output serves Colorado's two refineries in Commerce City north of Denver. Several petroleum product pipelines from Wyoming, Texas, and Oklahoma help supply the Colorado market. The use of oxygenated motor gasoline is required during the winter months in the Denver/Boulder and Ft. Collins areas. Although the Denver metropolitan area was the first area in the country to require the use of motor gasoline blended with ethanol to reduce carbon monoxide emissions, the State is relatively new to large-scale ethanol production. Colorado produces ethanol mostly from corn at small facilities in the northeastern part of the State. Colorado's smallest ethanol production plant is co-located with the Coors brewery in Golden and uses waste beer to produce ethanol for fuel consumption.

Although its proven crude oil reserves account for only about 1 percent of the U.S. total, Colorado has enormous deposits of oil shale rock, known as marlstone, which can be converted into crude oil through destructive distillation. The Green River Formation, a group of basins in Colorado, Wyoming, and Utah, hold the largest known oil shale deposits in the world. Colorado's oil shale deposits, concentrated in the Piceance Basin in the western part of the State, hold an estimated 1 trillion barrels of oil—as much oil as the entire world's proven oil reserves. Although this natural resource holds tremendous promise, oil shale development remains speculative and faces several major obstacles involving technological feasibility, economic viability, resource ownership, and environmental considerations. Pilot oil shale projects have been undertaken in the area, but the construction of commercial oil shale production facilities in Colorado is not permitted prior to 2010, pending the implementation of the U.S. Department of Interior's oil shale leasing program.

Natural Gas

Colorado is a top natural gas-producing State. Conventional and unconventional output from several Colorado basins typically accounts for more than 5 percent of annual U.S. natural gas production. Coalbed methane (unconventional natural gas produced from coal seams) accounts for just over half of Colorado's natural gas production. Coalbed methane production is active in the San Juan and Raton Basins, and further development is possible in northwest Colorado's Piceance Basin, which holds the second-largest proved reserves in the Nation.

The industrial and residential sectors are the leading natural gas-consuming sectors in Colorado. About three-fourths of Colorado households use natural gas as their primary energy source for home heating, one of the highest shares in the Nation.

Colorado uses only about two-fifths of its natural gas production. The remainder is transported to California and to Midwest markets. Colorado's natural gas production is growing, and producers have proposed a new pipeline to help move rapidly increasing output to the Midwest. The proposed system, known as the Rockies Express Pipeline, will originate in the Piceance Basin and is set to begin service in January 2008.

Coal, Electricity, and Renewables

Coal- and natural gas-fired power plants dominate electricity generation in Colorado. Coal-fired plants account for over seven-tenths of the State's generation and natural gas-fired plants account for close to one-fourth. Colorado produces coal from both underground and surface mines, primarily in its western basins, and large quantities of coal are shipped in and out of the State by rail. Colorado uses about one-fourth of its coal output and transports the remainder to markets throughout the United States. Colorado also brings in coal, primarily from Wyoming, to supplement local production.

Hydroelectric and wind power facilities account for most of the State's electricity generation from renewable sources. However, much of Colorado's substantial renewable energy potential remains to be developed, and the State

currently ranks relatively low in renewable energy generation. Less than one-fifth of Colorado households use electricity as their main energy source for home heating.

Data

Economy

Population and Employment	Colorado	U.S. Rank	Period
Population	4.9 million	22	2008
Civilian Labor Force	2.7 million	21	Aug-09
Per Capita Personal Income	\$41,042	11	2007
Industry	Colorado	U.S. Rank	Period
Gross Domestic Product by State	\$248.6 billion	20	2008
Land in Farms	31.6 million acres	9	2007
Market Value of Agricultural Products Sold	\$6.1 billion	19	2007

Prices

Petroleum	Colorado	U.S. Avg.	Period
Domestic Crude Oil First Purchase	\$61.78/barrel	\$63.08/barrel	Jun-09
No. 2 Heating Oil, Residential	—	\$2.29/gal	Jun-09
Regular Motor Gasoline Sold Through Retail Outlets (Excluding Taxes)	\$2.09/gal	\$2.15/gal	Jun-09
State Tax Rate on Motor Gasoline (other taxes may apply)	\$0.22/gal	\$0.22/gal	Aug-08
No. 2 Diesel Fuel Sold Through Retail Outlets (Excluding Taxes)	—	\$2.04/gal	Jun-09
State Tax Rate on On-Highway Diesel (other taxes may apply)	\$0.21/gal	\$0.22/gal	Aug-08
Natural Gas	Colorado	U.S. Avg.	Period
Wellhead	\$4.57/thousand cu ft	\$6.37/thousand cu ft	2007
City Gate	\$5.16/thousand cu ft	\$5.63/thousand cu ft	Jun-09
Residential	\$12.02/thousand cu ft	\$13.81/thousand cu ft	Jun-09

Coal	Colorado	U.S. Avg.	Period
Average Open Market Sales Price	\$24.91/short ton	\$26.20/short ton	2007
Delivered to Electric Power Sector	W	\$ 2.22 /million Btu	Jun-09
Electricity	Colorado	U.S. Avg.	Period
Residential	9.97 cents/kWh	11.91 cents/kWh	Jun-09
Commercial	8.08 cents/kWh	10.51 cents/kWh	Jun-09
Industrial	6.30 cents/kWh	7.18 cents/kWh	Jun-09

Reserves & Supply

Reserves	Colorado	Share of U.S.	Period
Crude Oil	304 million barrels	1.4%	2007
Dry Natural Gas	21,851 billion cu ft	9.2%	2007
Natural Gas Liquids	559 million barrels	6.1%	2007
Recoverable Coal at Producing Mines	328 million short tons	1.7 %	2007
Rotary Rigs & Wells	Colorado	Share of U.S.	Period
Rotary Rigs in Operation	114	6.1%	2008
Crude Oil Producing Wells	8,477	1.6%	2008
Natural Gas Producing Wells	22,949	5.1%	2007
Production	Colorado	Share of U.S.	Period
Total Energy	2,283 trillion Btu	3.2%	2006
Crude Oil	1,940 thousand barrels	1.2%	Apr-09
Natural Gas - Marketed	1,242,571 million cu ft	6.2%	2007
Coal	32,028 thousand short tons	NA	2008

Capacity	Colorado	Share of U.S.	Period
Crude Oil Refinery Capacity (as of Jan. 1)	102,000 barrels/calendar day	0.6%	2009
Electric Power Industry Net Summer Capability	12,288 MW	1.2%	2007
Net Electricity Generation	Colorado	Share of U.S.	Period
Total Net Electricity Generation	3,958 thousand MWh	1.1%	Jun-09
Petroleum-Fired	1 thousand MWh	0.1%	Jun-09
Natural Gas-Fired	1,128 thousand MWh	1.3%	Jun-09
Coal-Fired	2,488 thousand MWh	1.7%	Jun-09
Nuclear	—	—	Jun-09
Hydroelectric	184 thousand MWh	0.6%	Jun-09
Other Renewables	166 thousand MWh	1.6%	Jun-09
Stocks	Colorado	Share of U.S.	Period
Motor Gasoline (Excludes Pipelines)	705 thousand barrels	1.3%	Jun-09
Distillate Fuel Oil (Excludes Pipelines)	327 thousand barrels	0.3%	Jun-09
Natural Gas in Underground Storage	69,601 million cu ft	1.0%	Jun-09
Petroleum Stocks at Electric Power Producers	146 thousand barrels	0.3 %	Jun-09
Coal Stocks at Electric Power Producers	4,461 thousand tons	2.3 %	Jun-09

Production Facilities	Colorado
Major Coal Mines	Foidel Creek Mine/Twenty mile Coal Co. • Elk Creek Mine/Oxbow Mining LLC • Colowyo Mine/Colowyo Coal Co. LP • West Elk Mine/Mountain Coal Co. LLC
Petroleum Refineries	Suncor Energy (USA) Inc (Commerce City East) • Suncor Energy (USA) Inc (Commerce City West)
Major Non-Nuclear Electricity Generating Plants	Craig (Tri-State G & T Assn • Inc) • Cherokee (Public Service Co of Colorado) • Fort St Vrain (Public Service Co of Colorado) • Comanche (Public Service Co of Colorado) • Rocky Mountain Energy Center (Rocky Mountain Energy Ctr LLC)
Nuclear Power Plants	None

Distribution & Marketing

Distribution Centers	Colorado		
Oil Seaports/Oil Import Sites	None		
Natural Gas Market Centers	Cheyene (Market Hub)		
Major Pipelines	Colorado		
Crude Oil	Amoco • Conoco • Ultramar Diamond Shamrock • Unocal.		
Petroleum Product	Chase • Kaneb • Phillips • Sinclair • Ultramar-Diamond Shamrock.		
Liquefied Petroleum Gases	Amoco • Phillips.		
Interstate Natural Gas Pipelines	Colorado Interstate Gas • El Paso Natural Gas Co. • KM Interstate Gas Co. • Northwest Pipeline Corp. • Panhandle Eastern Pipeline Co. • Questar Pipeline Co. • Southern Star Central Gas Pipeline Co. • Trailblazer Pipeline Co.		
Fueling Stations	Colorado	Share of U.S.	Period
Motor Gasoline	2,322	1.4%	2008
Liquefied Petroleum Gases	46	1.9%	2009
Compressed Natural Gas	19	2.4%	2009
Ethanol	76	3.9%	2009
Other Alternative Fuels	25	2.0%	2009

Consumption

per Capita	Colorado	U.S. Rank	Period
Total Energy	305 million Btu	35	2007
by Source	Colorado	Share of U.S.	Period
Total Energy	1,479 trillion Btu	1.5%	2007
Total Petroleum	97.8 million barrels	1.3%	2007
Motor Gasoline	52.2 million barrels	1.5%	2007
Distillate Fuel	19.7 million barrels	1.3%	2007
Liquefied Petroleum Gases	6.0 million barrels	0.8%	2007
Jet Fuel	13.5 million barrels	2.3%	2007
Natural Gas	504,786 million cu ft	2.2%	2008
Coal	19,779 thousand short tons	1.8%	2007
by End-Use Sector	Colorado	Share of U.S.	Period
Residential	342,916 billion Btu	1.6%	2007
Commercial	291,079 billion Btu	1.6%	2007
Industrial	399,021 billion Btu	1.2%	2007
Transportation	446,260 billion Btu	1.5%	2007
for Electricity Generation	Colorado	Share of U.S.	Period
Petroleum	2 thousand barrels	0.1%	Jun-09
Natural Gas	8,750 million cu ft	1.3%	Jun-09
Coal	1,327 thousand short tons	1.7%	Jun-09
for Home Heating (share of households)	Colorado	U.S. Avg.	Period
Natural Gas	75%	51.2%	2000
Fuel Oil	0%	9.0%	2000
Electricity	16%	30.3%	2000
Liquefied Petroleum Gases	6%	6.5%	2000
Other/None	3%	1.8%	2000

Environment

Special Programs

Colorado

Clean Cities Coalitions

Denver • Northern Colorado • Southern Colorado Clean Cities Coalition.

Alternative Fuels

Colorado

Share of U.S.

Period

[Alternative-Fueled Vehicles in Use](#)

15,108

2.2%

2007

Ethanol Plants

4

2.9%

2008

Ethanol Plant Capacity

125 million gal/year

1.6%

2008

[Ethanol Consumption](#)

1,672 thousand barrels

1.0%

2007

Electric Power Industry Emissions

Colorado

Share of U.S.

Period

[Carbon Dioxide](#)

42,989,936 metric tons

1.7%

2007

[Sulfur Dioxide](#)

58,843 metric tons

0.7%

2007

[Nitrogen Oxide](#)

66,627 metric tons

1.8%

2007

– = No data reported. * = Number less than 0.5 rounded to zero. NA = Not available. NM = Not meaningful due to large relative standard error or excessive percentage change. W = Withheld to avoid disclosure of individual company data.

Update on September 24, 2009

(Revised by: Jacque Zanders-Hubbard/Office of Economic Analysis/PI-41/6-4334/Sep 29, 2009)