






Colorado's Clean Energy Economy: Key Facts and Resources

E2's state profile demonstrates how energy efficiency, renewable electricity and clean fuels are creating jobs and spurring economic growth. We also provide a list of local government resources and contacts working to grow the state's clean economy.

EMPLOYMENT

Businesses in Colorado have announced over 6,300 clean energy jobs, including:

-  641 in Wind Energy
-  5650 in Solar Energy
-  40 in Biomass Energy

OTHER CLEAN JOB RESOURCES

- Brookings provides a two page fact sheet detailing clean job growth and wages in Colorado: [Sizing the Clean Economy in Colorado](#)
- Advanced Energy Economy Institute information on Colorado's energy sector: [AEEI: Employment in Colorado's Advanced Energy Industry.](#)

GENERATION

The Cheapest, Cleanest Form of Energy: None at All

The American Council for an Energy-Efficient Economy (ACEEE) estimates Colorado's investments in energy efficiency in 2011 saved the state 347,132 megawatt hours (MWh) – the equivalent of meeting the annual electricity needs of more than 40,000 Colorado households.¹ At the average price of electricity \$93 per MWh, Colorado saved more than \$32,422,129 through energy efficiency programs.²

Existing Renewable Generation: What does Colorado have today?

U.S. Department of Energy: Annual Renewable Generation (MWh)³

	2010	2011	2012
Wind	3,452,000	5,200,000	5,969,000
Solar	42,000	105,000	165,000
Geothermal	N/A	N/A	N/A
Biomass	60,000	62,000	58,000
Total:	3,554,000	5,367,000	6,192,000*
<i>All Energy Sectors:</i>	50,721,000	51,433,000	52,557,000

**In 2012, Colorado generated enough renewable energy to power over 725,000 homes.*

Planned Renewable Generation: What projects are in development in Colorado?

SNL Financial: Current Renewable Energy Projects in Place (MW)⁴

	Announced	Under Development	Under Construction	Total Projects in Place
Wind	1357	372.59	-	1729.59
Solar	30	239	-	269
Biomass	-	50	11.5	61.5
Total Renewables	1387	661.59	11.5	2060.09

¹American Council for an Energy-Efficiency Economy "The 2013 State Energy Efficiency Scorecard" November 2013. Online. Accessible: <http://aceee.org/research-report/e13k>

² Energy Information Administration "How Much Electricity Does an American Home Use?" March 2013. Online. Accessible: <http://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3>

³ Energy Information Administration "Electricity Data Browser" August 2013. Online. Accessible: <http://www.eia.gov/electricity/data/browser/>

⁴ SNL Financial provides business intelligence services such as data, analysis, and news. This information was sourced from a private subscription to SNL's Energy Unlimited Package.

Technical Potential: What could Colorado generate in the future?

The National Renewable Energy Laboratory (NREL) examined each state's geographic and agricultural resources to determine the maximum amount of renewable energy each state could feasibly produce.

NREL: Technical Renewable Potential in Michigan (MWh)⁵

Onshore Wind	1,096,036
Offshore Wind	0
Utility Scale Photovoltaic	10,484,092,000
Rooftop Photovoltaic	16,162,000
Concentrated Solar Power	9,154,524
Geothermal	1,260,612,000
Biopower (Solid and Gas)	4,138,000
Total	11,775,254,560

*The net technical potential of clean, renewable energy can meet **224 times** Colorado's current electricity needs.

For more information on existing and planned renewable energy projects, visit NRDC's [renewable energy map](#), which shows specific developments and resource potential in each state.

For a full assessment of the energy sector in Colorado, including a map of resource potential, and energy projects and infrastructure, categorized by county and congressional district, please visit the Energy Information Administration: [Colorado State Profile](#)



⁵ National Renewable Energy Laboratory, "U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis" July 2012. Online. Accessible: <http://www.nrel.gov/docs/fy12osti/51946.pdf>

ECONOMY

CLEAN MANUFACTURING CAPACITY

- GLWN, a network of industry manufactures, provides a national map of suppliers in the wind industry: [Wind Industry Supply Chain Map](#)

STATE POLICY AND INVESTMENT

CleanEdge Ranking	5 th	ACEEE: Energy Efficiency Scorecard Ranking	16 th
Ernst and Young: State Energy Attractiveness	3 rd	Freeing the Grid	A (Net Metering) B (Interconnection Standards)
Energy Efficiency Resource Standard	Yes	Renewable Energy Standard	Investor-owned utilities: 30% by 2020 Electric cooperatives serving fewer than 100,000 meters: 10% by 2020 Electric cooperatives serving 100,000 or more meters: 20% by 2020 Municipal utilities serving more than 40,000 customers: 10% by 2020

- The Database of State Renewable Incentives for Renewable Energy, DSIRE, details all state and municipal renewable energy policies for all fifty states: [DSIRE: Renewable Electricity and Energy Efficiency Incentives and Policies](#)
- The U.S. Department of Energy lists state policy supporting alternative fuels and energy efficient transportation: [DOE: Clean Fuel Incentives and Regulatory Policy](#)
- The Advanced Energy Economy Institute's [Public Utility Commission Portal](#) provides a helpful overview and links to the key regional and state energy and utility policymaking institutions in Colorado.

FEDERAL POLICY AND INVESTMENT

Energy Type	2009 Federal Stimulus [Sec.1603]	USDA Grants	Loan Guarantees	Federal R&D Funding	Small Business Innovation Research
Wind	\$265,359,790	\$187,322	-	\$18,764,650	-

Solar	\$242,647,173	\$922,853	\$490,000,00	\$67,808,111	\$624,165
Geothermal	\$17,790	\$50,875	-	N/A	-
Biomass	\$296,977	\$5,505,101	-	N/A	\$150,000
Fuels	-	-	-	-	-
Energy Efficiency	-	\$304,088	-	-	\$999,909

Section 1603 of the 2009 American Recovery and Reinvestment Act (ARRA- commonly known as the Stimulus) offered payments in lieu of tax credits for the installation or construction of renewable energy systems. For the full list of projects awarded payments, click [here](#).

With the goal of effectively using agricultural resources to generate energy, the U.S. Department of Agriculture issues grants to American farmers to install renewable energy systems and efficient technology. For a list of grants, ranging from anaerobic digester facilities to photovoltaic systems, please click [here](#).

The Department of Energy's Loan Programs Office provides loan guarantees to select businesses to accelerate the deployment of advanced clean energy technology. For a detailed list of loan guarantees recipients, please click [here](#).

To learn more about the federal government funds clean energy research, please visit of the [Office of Energy Efficiency and Renewable Technology](#)

For further information on Small Business Innovation Research Grant awardees, please visit the [Department of Energy's Office of Science](#).



RESOURCES AND ADVOCACY

State Organizations

[Colorado Center for Renewable Energy and Economic Development](#)

The Colorado Center for Renewable Energy Economic Development (CREED) is a catalyst for economic development in Colorado through clean energy and energy efficiency innovation and entrepreneurship.

[Colorado Renewable Energy Society](#)

CRES uses its expertise and broad contact to provide fact-based, non-partisan support to initiatives and policies that move Colorado towards increased use of renewable energy, reduced pollution and greenhouse gases, and improvements in energy efficiency.

[Colorado Solar Energy Industries Association](#)

SEIA is fighting challenges to net-metering and the state's renewable energy standard.

[Eco-USA: List of Colorado's Environmental Organizations](#)

Eco-USA is a database of state environmental organizations.

[Interwest Energy Alliance](#)

The Interwest Energy Alliance is a non-profit trade association that represents the nation's leading companies in the renewable energy industry, bringing them together with nongovernmental organizations in the West.

National and Federal Organizations

[EERE – Clean Energy in My State](#)

Users can explore the Department of Energy's statistics and policy information related to renewables and energy efficiency.

[National Governor's Association: Profile of Your State's Green Economy](#)

NGA seeks to provide a detailed, empirical account of each state's existing assets across multiple green sectors and serve as a foundation for identifying future growth areas and related needs.

[Advanced Energy by State \(AEE\)](#)

AEE is a national association of businesses and business leaders who are making the global energy system more secure, clean, and affordable.

[American Council on Renewable Energy: Colorado Fact Sheet](#)

ACORE summarizes Colorado's solar and wind irradiance, as well as its current policies in place to promote renewable energy.

[American Wind Energy Association: Wind Energy in Your State](#)

The American Wind Energy Association's summary of jobs directly supported by the wind industry in Michigan.

[Solar Energy Industry Association: Policy in Your State](#)

SEIA compares Colorado's solar capacity and potential to other states, and details the impact of solar energy throughout the state.