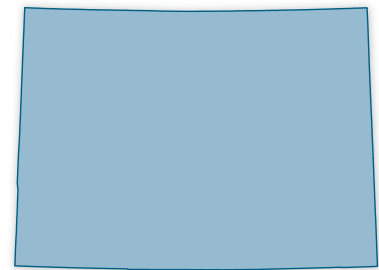




Department of Energy Recovery Act State Memos

Colorado



For questions about DOE's Recovery Act activities, please contact the DOE Recovery Act Clearinghouse:
1-888-DOE-RCVY (888-363-7289), Monday through Friday, 9 a.m. to 7 p.m. Eastern Time
<https://recoveryclearinghouse.energy.gov/contactUs.htm>.

All numbers and projects listed as of June 1, 2010

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American Recovery and Reinvestment Act



U.S. DEPARTMENT OF ENERGY • COLORADO RECOVERY ACT SNAPSHOT

Funding for selected DOE projects: \$585.2 million

DOE Recovery Act projects in Colorado: 115

Clean energy tax credits and grants: 62

For total Recovery Act jobs numbers in Colorado go to www.recovery.gov

The American Recovery & Reinvestment Act (ARRA) is making a meaningful down payment on the nation's energy and environmental future. The Recovery Act investments in Colorado are supporting a broad range of clean energy projects, from energy efficiency and the smart grid to solar power and biofuels. Through these investments, Colorado's businesses, universities, non-profits, and local governments are creating quality jobs today and positioning Colorado to play an important role in the new energy economy of the future.

EXAMPLES OF COLORADO FORMULA GRANTS

Program	State Energy Program	Weatherization Assistance Program	Energy Efficiency Conservation Block Grants	Energy Efficiency Appliance Rebate Program
Award (in millions)	\$49.2	\$79.5	\$44.9	\$4.7
	The Colorado Governor's Energy Office has received \$49.2 million in State Energy Program funds to invest in state-level energy efficiency and renewable energy priorities.	The Colorado Department of Natural Resources has received \$79.5 million in Weatherization Assistance Program funds to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions, and saving money for Colorado's low-income families. Over the course of the Recovery Act, Colorado expects to weatherize nearly 10,500 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce.	Thirty-four communities in Colorado received a total of \$42.8 million for Energy Efficiency and Conservation Block Grants (EECBG) to develop, promote, implement, and manage localized energy efficiency programs.	The Colorado Governor's Energy Office has received \$4.7 million for the Energy Efficient Appliance Rebate Program, which offers consumer rebates for purchasing certain ENERGY STAR® appliances. These energy efficient appliances reduce energy use and save money for families, while helping the environment and supporting the local economy.

EXAMPLES OF COLORADO COMPETITIVE GRANTS AND TAX CREDITS

Award	\$107.7 million	\$82.5 million	\$45.1 million	\$30.2 million	\$25 million
	Colorado received fifty-four 1603 payments for renewable energy generation totaling \$107.7 million , which include solar, wind, and biomass projects. For example, North Colorado Wind Energy LLC has received \$99.9 million for a wind project.	The National Renewable Energy Laboratory in Golden was awarded \$82.5 million to perform infrastructure improvements, including investing in expanded renewable energy capacity and energy efficiency technologies. NREL was also awarded \$44 million to expand the fundamental access and traffic capacity of its site.	UQM Technologies in Frederick was awarded \$45.1 million to manufacture advanced batteries and components for electric vehicles, including advanced lithium ion batteries and hybrid electric systems.	Vestas Blades America Inc. in Brighton was awarded two clean energy manufacturing tax credits totaling \$30.2 million . The funds will be used to produce blades for wind turbines.	Boulder County was awarded \$25 million for the BetterBuildings program to perform large-scale energy efficiency retrofits in neighborhoods and commercial districts in urban, suburban, and rural areas across the state.

Funding Allocation Table (Figure 1)

Total dollar amounts in this document are accurate as of June 1, 2010. Please note that Recovery Act Programs are ongoing and the dollar amounts are subject to change. Recipient locations are based on project sites rather than recipients' headquarters locations.

Recovery Act Pillar	Flagship Program Names & Funding Type ¹	Number of Selections	Selected Amount (in millions) ²
Energy Efficiency	<i>Weatherization Assistance Program (F)</i>	1	\$79.5
	<i>State Energy Program (F)</i>	1	\$49.2
	<i>Energy Efficiency and Conservation Block Grant (F)</i>	34	\$44.9
	<i>BetterBuildings(CM)</i>	1	\$25.0
	<i>Energy Efficient Appliance Rebate (F)</i>	1	\$4.7
	<i>Building Energy Efficiency (CM)</i>	3	\$19.4
	<i>Additional Programs (CM & C)</i>	7	\$8.0
	TOTAL Energy Efficiency	48	\$230.7
Renewable Energy	<i>Solar (CM)</i>	3	\$27.2
	<i>Wind (CM)</i>	3	\$1.4
	<i>Geothermal (CM)</i>	8	\$12.3
	<i>Additional Programs (F & CM)</i>	2	\$3.7
	TOTAL Renewable Energy	16	\$44.6
Electric Grid	<i>Smart Grid Investment and Demonstrations Project (CM)³</i>	3	\$21.5
	<i>State and Local Energy Assurance and Regulatory Assistance (F)</i>	8	\$2.3
	<i>Smart Grid Workforce Training (CM)</i>	1	\$2.5
	<i>Interconnection Transmission Planning and Analysis (F & CM)³</i>	1	\$12.0
	TOTAL Electric Grid	13	\$38.3
Transportation	<i>Advanced Battery Manufacturing (CM)</i>	1	\$45.1
	<i>Transportation Electrification (CM)</i>	1	\$5.0
	<i>Advanced Fuels (CM)</i>	1	\$23.0
	TOTAL Transportation	3	\$73.1
Carbon Capture and Storage	<i>Geologic Characterization Projects (CM)</i>	1	\$4.9
	<i>Research and Training (CM)</i>	3	\$0.9
	TOTAL Carbon Capture and Storage	4	\$5.8
Environmental Cleanup	<i>Environmental Management Contracts (C)</i>	3	\$4.4
	TOTAL Environmental Cleanup	3	\$4.4
Science and Innovation	<i>Advanced Research Projects Agency - Energy (ARPA-E) (CM)</i>	2	\$14.0
	<i>Energy Frontier Research Centers (CM)</i>	1	\$8.0
	<i>Small Business Research (SBIR/STTR) (CM)</i>	10	\$1.5
	<i>National Laboratory Facilities (C)</i>	10	\$161.6
	<i>Additional Programs</i>	5	\$3.2
	TOTAL Science and Innovation	28	\$188.3
TOTAL - DOE Programs⁴		115	\$585.2
Tax Credits/ Grants ⁵	<i>Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)</i>	54	\$107.7
	<i>Clean Energy Manufacturing Tax Credits (48C)</i>	8	\$75.2
	TOTAL Tax Incentives	62	\$183.0
TOTAL - DOE/Treasury + DOE		177	\$768.2

¹F=Formula Grant, CM=Competitive Grant, C=Contract

²"Selected" indicates DOE has selected a potential funding recipient, which begins the process of negotiating an agreement. This does not necessarily indicate that a final agreement has been reached.

³Projects may cross state boundaries, signifies HQ location.

⁴Total does not include administrative funds.

⁵Jointly administered by DOE and the U.S. Department of Treasury.

ENERGY EFFICIENCY – 48 projects totaling \$230.7 million

Helping millions of American families cut utility bills by making homes and appliances more energy efficient, expanding the home efficiency industry in sales and manufacturing. For more information, visit <http://www.energy.gov/recovery/energyefficiency.htm>.

Award(s): \$79.5 million, Weatherization Assistance Program (WAP)

Location: Statewide

The Colorado Governor's Energy Office received \$79.5 million in Weatherization Assistance Program funds to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for Colorado's low-income families. Over the course of the Recovery Act, Colorado expects to weatherize nearly 10,500 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce.

WAP funds are being dispersed over a three-year period for low-income residents to improve the energy efficiency of homes by replacing inefficient appliances, weather stripping and insulation. To be eligible, a person's income cannot exceed 200 percent of the poverty level. Priority is given to the elderly, persons with disabilities, families with children, high energy users and households with high-energy burdens. The grant is up to \$6,500 per home.

Award(s): \$49.2 million, State Energy Program (SEP)

Location: Statewide

The Colorado Governor's Energy Office received \$49.2 million in State Energy Program funds to invest in state-level energy efficiency and renewable energy priorities.

The Governor's Energy Office is providing a suite of products aimed at removing financial barriers to the rapid deployment of renewable energy and energy efficiency initiatives, including access to short-term and intermediate low-cost capital for projects in the commercial, residential, and industrial sectors. An Energy Efficiency for Existing Buildings Program is helping state agencies reduce their energy use and carbon emissions. Colorado is also substantially expanding its Renewable Energy Rebates and Grants Program across the residential, commercial and industrial / utility sectors. Additionally, the office promotes greater energy efficiency in new and existing homes with programs such as a "whole house tune-up" which bundles efficiency incentives for homes, and long term market transformation in energy efficiency for high-performance green buildings. The Governor's Energy Office is establishing a lead-by-example green government initiative to implement green best practices across state facilities.

Award(s): 34 totaling \$44.9 million, Energy Efficiency and Conservation Block Grant Program (EECBG)

Location: Statewide

Recipients: Adams County, Alliance for Sustainable Energy, LLC, Arapahoe County, Arvada, Boulder County, City and County of Broomfield, Castle Rock, Aurora, Centennial, Pueblo, Loveland, Colorado Springs City Government, Commerce City, Mesa County, City & County of Denver, Douglas County, El Paso County, Fort Collins, Garfield County, Grand Junction, Greeley, Jefferson County, Lakewood, Larimer County, Littleton, Longmont, Parker, Southern Ute Indian Tribe, Governor's Energy Office, Thornton, Ute Mountain Tribe, Weld County, Westminster City

Thirty-four communities in Colorado received a total of \$44.9 million for the Energy Efficiency and Conservation Block Grants Program (EECBG) to develop, promote, implement and manage localized energy efficiency programs.

Colorado plans to use its various EECBG funds for projects that improve energy efficiency and reduce energy use and fossil fuel emissions. The goal is to reduce statewide energy use by 25 percent compared to 1990 levels and develop programs that will remain viable after the Recovery Act funds are spent. The Governor's Energy Office received a \$9.6 million grant for statewide distribution. At least 60 percent of that money will go to cities and counties that did not receive a direct allocation of EECBG funding. Examples of EECBGs include:

- **City of Denver - \$6.1 million**

The City of Denver received \$6.1 million and is using Energy Efficiency and Conservation Block Grant (EECBG) funds to expand its effort to reduce greenhouse gas emissions and enhance energy efficiency in the city, including offering residential services to households that do not qualify for other weatherization assistance. Denver is implementing energy projects identified by EECBG-funded building audits, focusing on cost-effective improvements that reduce energy use and cost. It is expected that projects funded using EECBG dollars will have payback periods of five years or less. The city expects to leverage additional funds through Xcel Energy rebates for completed projects. The city is also exploring performance contracting and other financing mechanisms to use EECBG funds to generate optimal energy savings.

- **City of Colorado Springs - \$3.7 million**

The City of Colorado Springs received \$3.7 million and is using this funding on energy efficiency retrofits at its facilities. The resulting decrease in energy costs is conservatively estimated to save \$140,000 annually. The city is partnering with Colorado Spring Utilities to match students from two local community colleges and a university with area business and organization facilities. A local engineering and architecture firm will train and supervise the students who received hands-on training through retrofits installations.

- **City of Castle Rock - \$175,000**

The City of Castle Rock received \$175,000 to replace 140 metal halide street lamps with LED lamps. This will reduce energy use by approximately 50 percent, reduce electric utility costs, save jobs and stimulate the economy.

Award(s): \$4.7 million, Energy Efficient Appliance Rebate Programs

Location: Statewide

The Colorado Governor's Energy Office received \$4.7 million for the Energy Efficient Appliance Rebate Program, which offers consumer rebates for purchasing certain ENERGY STAR® appliances. These energy efficient appliances reduce energy use and save money for families, while supporting the local economy. The program includes an internet or telephone rebate reservation system that allows participants to reserve rebates for qualifying appliances, then purchase appliances to replace older, inefficient models with ENERGY STAR qualified appliances. Eligible products include refrigerators, clothes washers, dishwashers, gas storage water heaters, gas tank-less water heaters, gas furnaces and gas boilers. Colorado is offering a higher refrigerator rebate to consumers who provide proof of recycling for the old unit.

Award(s): \$25 million, BetterBuildings

Location: Boulder County

Boulder County received \$25 million for the BetterBuildings program to perform large-scale energy efficiency retrofits in neighborhoods and commercial districts in urban, suburban and rural areas across the State.

Award(s): \$2.9 million, Buildings and Appliance Market Transformation

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$2.9 million for Building and Appliance Market Transformation. The Buildings and Appliance Market Transformation project expands building codes, accelerates the pace of Appliance Standard test procedure development and improves the efficiency of commercial buildings' operations by training building operators and commissioning agents.

Award(s): \$7.3 million, Residential Buildings (Building America, Builders' Challenge, and Existing Home Retrofits)

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$7.3 million for the Residential Buildings program. This program focuses on the completion of Energy Savings retrofits, as well as targeted consumer education and outreach campaigns.

Award(s): 3 totaling \$126,000, Enhance and Accelerate FEMP Service Functions to the Federal Government

Location: Statewide

The following recipients are providing technical assistance for federal agencies.

- **Western Area Power Administration, Lakewood - \$100,000**
- **Energy Management Engineering, Inc., Colorado Springs - \$18,000**
- **Emp2 Incorporated - \$8,000**

Award(s): 4 totaling \$7.9 million, Ground Source Heat Pumps

Location: Denver, Rangely, Golden

- **Colorado Department of Personnel and Administration, Denver - \$4.6 million**
The Colorado Department of Personnel and Administration in Denver received \$4.6 million for Ground Source Heat Pumps. The department and its partners will collect and analyze data to assess the performance of GHP systems. The data will be incorporated in the Colorado School of Mines' Geothermal Academy.
- **Denver Museum of Nature and Science, Denver - \$2.6 million**
The Denver Museum of Nature and Science in Denver received \$2.6 million for Ground Source Heat Pumps. The museum is demonstrating an innovative usage of GHP technology by using municipal waste water as the heat exchange medium for a heating / cooling system.
- **Colorado Northwestern Community College, Rangely - \$430,000**
Colorado Northwestern Community College in Rangely received \$430,000 for Ground Source

Heat Pumps. The college is retrofitting a number of campus buildings to provide heating and cooling capacity as well as a strong educational opportunity.

- **Colorado School of Mines, Golden - \$246,000**

Colorado School of Mines in Golden received \$246,000 for Ground Source Heat Pumps. The School is creating a Geothermal Academy, a data and analysis clearinghouse for GHP projects. The Academy enables policymakers and customers to make educated decisions regarding GHP systems.

Award(s): \$9.2 million, National Accounts Acceleration in Support of the Commercial Buildings Initiative

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$9.2 million to substantially reduce energy consumption in the commercial real estate sector by creating, testing and validating design concepts and providing technical assistance to commercial building owners and operators.

RENEWABLE ENERGY – 78 projects totaling \$227.6 million

Developing the clean renewable resources in order to double our supply of renewable energy and boost domestic renewable manufacturing capacity. For more information, visit <http://www.energy.gov/recovery/renewableenergy.htm>.

Award(s): 54 payments totaling \$107.7 million from DOE / Treasury, 1603 Payments for Renewable Energy Generation

Location: Statewide

*For current number of 1603 awards, see the weekly update at <http://www.treas.gov/recovery/1603.shtml>

Colorado received fifty-four 1603 Payments for Renewable Energy Generation totaling \$107.7 million, which include solar, wind, and biomass projects.

- **Northern Colorado Wind Energy, LLC, Peetz - \$99.9 million**

Northern Colorado Wind Energy, LLC, in Peetz received \$99.9 million for a wind project.

- **Kiowa Energy 23, LLC, Denver - \$4.2 million**

Kiowa Energy 23, LLC, in Denver received \$4.2 million for a solar electricity project.

- **MFP Co I, LLC, Denver - \$488,000**

MFP Co I, LLC, in Denver received \$488,000 for a solar electricity project.

- **MFP Co I, LLC, Lafayette - \$402,000**

MFP Co I, LLC, in Lafayette received \$402,000 for a solar electricity project.

- **San Juan Bioenergy, LLC, Dove Creek - \$297,000**

San Juan Bioenergy, LLC, in Dove Creek received \$297,000 for a biomass project.

- **MFP Co I, LLC, Boulder (2) - \$197,000**

MFP Co I, LLC, in Boulder received two awards for \$197,000 each totaling \$394,000 for a solar electricity project.

- **MFP Co I, LLC, Westminster(2) - \$196,000**
MFP Co I, LLC, in Westminster received two awards totaling \$196,000 for solar electricity projects.
- **Eldorado Springs Solar, LLC, Louisville - \$169,000**
Eldorado Springs Solar, LLC, in Louisville received \$169,000 for a solar electricity project.
- **MFP Co I, LLC, Lafayette - \$159,000**
MFP Co I, LLC, in Lafayette received \$159,000 for a solar electricity project.
- **MFP Co I, LLC, Lafayette - \$159,000**
MFP Co I, LLC, in Lafayette received \$159,000 for a solar electricity project.
- **Lighthouse Finance, Boulder - \$158,000**
Lighthouse Finance in Boulder received \$158,000 for a solar electricity project.
- **MFP Co I, LLC, Westminster - \$153,000**
MFP Co I, LLC, in Westminster received \$153,000 for a solar electricity project.
- **Ritt Investment, LLC, Colorado Springs - \$122,000**
Ritt Investment, LLC, in Colorado Springs received \$122,000 for a solar electricity project.
- **NCPWF, LLC, New Castle - \$120,000**
NCPWF, LLC, in New Castle received \$120,000 for a solar electricity project.
- **RC Energy Campus, LLC, Boulder - \$78,000**
RC Energy Campus, LLC, in Boulder received \$78,000 for a solar electricity project.
- **Racines Restaurant, Denver - \$53,000**
Racines Restaurant in Denver received \$53,000 for a solar electricity project.
- **Bloomin Flower Cards, Inc., Boulder - \$51,000**
Bloomin Flower Cards, Inc., in Boulder received \$51,000 for a solar electricity project.
- **OSL Solar PV, LLC, Denver - \$48,000**
OSL Solar PV, LLC, in Denver received \$48,000 for a solar electricity project.
- **S & H Sheet Metal, Inc., Denver - \$44,000**
S & H Sheet Metal, Inc., in Denver received \$44,000 for a solar electricity project.
- **Grand Mesa Medical Supply, LLC, Grand Junction - \$34,000**
Grand Mesa Medical Supply, LLC, in Grand Junction received \$34,000 for a solar electricity project.
- **Powerhouse Gym, RND, LLC, Grand Junction - \$33,000**
Powerhouse Gym, RND, LLC, in Grand Junction received \$33,000 for a solar electricity project.

- **Greenhouse Tech, Colorado Springs - \$29,000**
Greenhouse Tech in Colorado Springs received \$29,000 for a small wind project.
- **Kiva Apartments, LLC, Alamosa - \$27,000**
Kiva Apartments, LLC, in Alamosa received \$27,000 for a solar thermal heating project.
- **Life Transition Partners, LLC, Littleton - \$24,000**
Life Transition Partners, LLC, in Littleton received \$24,000 for a solar electricity project.
- **1528 Wazee, LLC, Denver - \$24,000**
1528 Wazee, LLC, in Denver received \$24,000 for a solar electricity project.
- **5135 Company, Denver - \$23,000**
5135 Company in Denver received \$23,000 for a solar electricity project.
- **Himalaya Enterprises, Northglenn - \$22,000**
Himalaya Enterprises in Northglenn received \$22,000 for a solar electricity project.
- **Southside Rentals, LLC, Alamosa - \$22,000**
Southside Rentals, LLC, in Alamosa received \$22,000 for a solar electricity project.
- **All Metals Welding, Grand Junction - \$21,000**
All Metals Welding in Grand Junction received \$21,000 for a solar electricity project.
- **Green Mountain Corporate Center II, LLP, Golden - \$20,000**
Green Mountain Corporate Center II, LLP, in Golden received \$20,000 for a solar electricity project.
- **Amigo Animal Clinic, Grand Junction - \$19,000**
Amigo Animal Clinic in Grand Junction received \$19,000 for a solar electricity project.
- **White Lighting Design, Inc., Wheat Ridge - \$19,000**
White Lighting Design, Inc., in Wheat Ridge received \$19,000 for a solar electricity project.
- **Vineland, Palisade - \$19,000**
Vineland in Palisade received \$19,000 for a solar electricity project.
- **NNY, LLC, Denver - \$18,000**
NNY, LLC, in Denver received \$18,000 for a solar electricity project.
- **JK Investments, LLC, Louisville - \$18,000**
JK Investments, LLC, in Louisville received \$18,000 for a solar electricity project.
- **6601 Invest Group, Denver - \$17,000**
6601 Invest Group in Denver received \$17,000 for a solar electricity project.

- **Victoria Palmer, New Castle - \$17,000**
Victoria Palmer in New Castle received \$17,000 for a solar electricity project.
- **Shiloh Farms, Golden - \$16,000**
Shiloh Farms in Golden received \$16,000 for a solar electricity project.
- **Daniel A. Burnett, Dillon - \$16,000**
Daniel A. Burnett in Dillon received \$16,000 for a solar electricity project.
- **CSF Farms, Seibert - \$15,000**
CSF Farms in Seibert received \$15,000 for a small wind project.
- **Mesa Shadows Orchard, Palisade - \$14,000**
Mesa Shadows Orchard in Palisade received \$14,000 for a solar electricity project.
- **Spanish Mill Granite Company Incorporated, Buena Vista - \$12,000**
Spanish Mill Granite Company Incorporated in Buena Vista received \$12,000 for a small wind project.
- **Lighthouse Solar, Nederland - \$12,000**
Lighthouse Solar in Nederland received \$12,000 for a solar electricity project.
- **Crystal River Spas, Carbondale - \$12,000**
Crystal Rivers Spas in Carbondale received \$12,000 for a solar electricity project.
- **Curbside Recycling Indefinitely dba GJ CRI, Grand Junction - \$10,000**
Curbside Recycling Indefinitely dba GJ CRI in Grand Junction received \$10,000 for a solar electricity project.
- **Hildebrand Enterprises, LLC, Grand Junction - \$10,000**
Hildebrand Enterprises, LLC, in Grand Junction received \$10,000 for a solar electricity project.
- **Jupiter Pluto Co, Denver - \$9,000**
Jupiter Pluto Co in Denver received \$9,000 for a solar electricity project.
- **Wash by U, Inc., New Castle - \$9,000**
Wash by U, Inc., in New Castle received \$9,000 for a solar electricity project.
- **Conifer Products, Inc., Grand Junction - \$8,000**
Conifer Products, Inc., in Grand Junction received \$8,000 for a solar electricity project.
- **Colorado Real Estate, LLC, Lone Tree - \$7,000**
Colorado Real Estate, LLC, in Lone Tree received \$7,000 for a solar electricity project.
- **Hartman Ely Investments, LLC, Denver - \$7,000**
Hartman Ely Investments, LLC, in Denver received \$7,000 for a solar electricity project.

- **Kinikin Corner Dairy, Montrose - \$5,000**

The Kinikin Corner Dairy in Montrose received \$5,000 for a solar thermal project.

Award(s): 8 totaling \$75.2 million from DOE / Treasury, Clean Energy Manufacturing Tax Credit (48C)

Location: Statewide

- **Vestas Blades America, Inc., Brighton (2) - \$30.2 million**

Vestas Blades America, Inc., in Brighton received 2 clean energy manufacturing tax credits totaling \$30.2 million to produce blades for wind turbines used in the production of wind energy. The utility-scale blades, which convert wind into mechanical motion, are approximately 44 meters in length.

- **Vestas Blades Towers, Inc., Pueblo - \$21.6 million**

Vestas Blades Towers, Inc., in Pueblo received \$21.6 million to produce tubular wind towers that support wind turbines at heights ranging from 80 to 95 meters above ground.

- **Abound Solar, Inc., Longmont - \$12.6 million**

Abound Solar, Inc., in Longmont received \$12.6 million to expanding facility capacity with an additional manufacturing line. This facility is solely dedicated to commercial production of PV solar panels using cadmium telluride semiconductor technology.

- **Hexcel Corporation, Windsor - \$8.1 million**

Hexcel Corporation in Windsor received \$8.1 million to establish a technologically advanced manufacturing facility to produce high-performance epoxy, glass, and carbon fiber composite materials. The composites are being used in the manufacture of wind turbine blades.

- **Advanced Energy Industries, Inc., Fort Collins - \$1.2 million**

Advanced Energy Industries, Inc., in Fort Collins received \$1.2 million to establish a manufacturing facility for the production of commercial and utility-scale solar inverters. Inverters are used to integrate solar PV installations.

- **Coolerado Corporation, Denver - \$750,000**

Coolerado Corporation in Denver received \$750,000 to manufacture commercial and residential air conditioning units that use a heat exchanger, incorporating an innovative thermodynamic cycle, to cool the air. The process creates a healthier, more comfortable living environment while significantly reducing energy costs.

- **ReflecTech, Inc., Arvada - \$750,000**

ReflecTech, Inc., in Arvada received \$750,000 to manufacture Mirror Facets made with ReflecTech Mirror Film which will reflect sunlight onto the receivers of Parabolic Trough Concentrating Solar Power (CSP) collector systems. Facets match or exceed the optical and structural characteristics of the existing glass mirrors, and aim to be more cost-efficient and durable. The end product will aid domestic solar power production.

Award(s): \$400 million from DOE / Treasury, Loan Guarantee Program

Location: Statewide

Abound Solar Manufacturing was offered a \$400 million conditional commitment to manufacture state-of-the-art thin-film solar panels. This will be the first time this new manufacturing technology for Cadmium-Telluride panels is deployed commercially anywhere in the world. This project includes two facilities, one in Longmont, Colorado and the other in Tipton, Indiana.

Award(s): \$2.5 million, Community Renewable Energy Deployment

Location: Phillips County

Phillips County received \$2.5 million for Community Renewable Energy Deployment. This project proposes a community-owned 30 MW wind energy project with an ultimate goal to build a 650 MW wind farm within Sedgwick, Phillips and Logan counties in Northeastern Colorado. This project will impact the local economy by sharing the project's revenues with local landowners and other project participants, generating local jobs and substantial property taxes, and providing clean renewable energy for the area's primary communities. Plans for sharing this ownership model are part of the business plan and will be coordinated with DOE to increase national delivery of the message.

Award(s): \$5.4 million, Concentrating Solar Power

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$5.4 million to research the variability of photovoltaic (PV) plants to avoid unnecessary barriers to the interconnection of PV systems.

Award(s): 5 totaling \$4.2 million, Enhanced Geothermal Systems (EGS) Technology R&D

Location: Golden, Lafayette

- **Colorado School of Mines, Golden - \$1.2 million**

The Colorado School of Mines in Golden received \$1.2 million for a project creating a large scale simulation model that will compile the various physical properties of an EGS system. The resulting model will be more robust and accurate than those of a smaller scale.

- **Composite Technology Development, Inc., Lafayette - \$941,000**

Composite Technology Development, Inc., in Lafayette received \$941,000 for shape memory polymer composites and foams to be used to isolate particular sections of a drilled well as part of an EGS stimulation technique.

- **Colorado School of Mines, Golden - \$861,000**

The Colorado School of Mines in Golden received \$861,000 to create and validate an EGS simulation model that will link the various fluid flow properties of an EGS system.

- **William Lettis & Associates, Inc., Golden - \$708,000**

William Lettis & Associates, Inc., in Golden received \$708,000 for the utilization of micro-earthquakes data to image the physical properties of geothermal reservoirs.

- **Composite Technology Development, Inc., Lafayette - \$504,000**

Composite Technology Development, Inc., of Lafayette received \$504,000 to develop and demonstrate a new class of circuit boards that can withstand high temperatures and operate reliably in EGS wells.

Award(s): \$1 million, Geothermal Demonstrations

Location: Littleton

Johnson Controls, Inc., in Littleton received \$1 million for Geothermal Demonstrations. Funds are being used to install equipment on the Oregon Institute of Technology campus. This equipment generates electricity from low temperature geothermal resources at a cost at least 20 percent below that of the currently available technology.

Award(s): \$1.6 million, High-Penetration Solar Deployment

Location: Golden

Alliance for Sustainable Energy, LLC, in Golden received \$1.6 million for High-Penetration Solar Deployment. These funds support the enhancement of grid integration testing capabilities to better support U.S. industry. The project utilizes modeling, simulation, laboratory testing, and field demonstrations to determine the effects of high penetrations of up to 500 MW of mostly commercial-scale rooftop PV on electrical distribution systems, including prototypical distribution circuits and a circuit with Smart Grid functionality.

Award(s): \$1.2 million, Hydroelectric Facility Modernization Program

Location: Boulder

The City of Boulder received \$1.2 million for the Hydroelectric Facility Modernization Program. The project is modernizing the 100-year-old Boulder Canyon Hydroelectric Project by replacing two older turbines with a single, high-efficiency unit.

Award(s): \$20.2 million, Photovoltaic (PV) Systems Development

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$20.2 million for research and development of photovoltaic technology.

Award(s): 2 totaling \$7.1 million, Validation of Innovative Exploration Technologies

Location: Denver, Castle Rock

- **Flint Geothermal, LLC, Denver - \$4.8 million**
Flint Geothermal, LLC, in Denver is utilizing a combination of geological and mapping tools to identify resources in Colorado.
- **Presco Energy, Inc., Castle Rock - \$2.3 million**
Presco Energy, Inc., in Castle Rock received \$2.3 million to use state-of-the-art imaging technology in a geothermal resource area

Award(s): 3 totaling \$1.4 million, Wind Energy Technology R&D and Testing

Location: Golden, Lakewood, Boulder

- **The Alliance for Sustainable Energy, LLC, Golden - \$425,000**
The Alliance for Sustainable Energy, LLC, in Golden received \$425,000 for wind turbine research and testing.

- **Native American Technologies Company, Lakewood - \$750,000**
The Native American Technologies Company in Lakewood received \$750,000 to extend a new welding process, a new forming process and a new coating process for a large utility scale wind tower.
- **The Regents of the University Of Colorado, Boulder - \$233,000**
The Regents of the University of Colorado in Boulder received \$233,000 for upstream measurements of wind profiles with Doppler LIDAR for improved wind energy.

MODERNIZING THE ELECTRIC GRID – 13 projects totaling \$38.3 million

Harnessing clean energy sources and integrating them onto a modernized electric grid, while giving consumers better choices and more control over their energy use. For more information, visit <http://www.energy.gov/recovery/smartgrid.htm>.

Award(s): 7 totaling \$1.5 million, Enhancing State and Local Governments' Energy Assurance

Location: Statewide

This project focuses on building regional energy assurance capability by enhancing inter- and intra-state coordination and cooperation during energy emergencies. The project funds states to update or develop State Energy Assurance Plans incorporating new energy portfolios such as wind, renewables and biofuels. The project also funds cities to update or develop Local Energy Assurance Plans. The two sets of funding are used to hire or retrain staff to build in-house expertise in dealing with Smart Grid technologies, critical energy infrastructure interdependencies and cyber-security.

- **State of Colorado - \$653,000**
The State of Colorado received \$653,000 for State Energy Assurance Planning.
- **City and County of Denver - \$210,000**
The City and County of Denver received \$210,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Lakewood - \$195,000**
The City of Lakewood received \$195,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Aurora - \$152,000**
The City of Aurora received \$152,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Wheat Ridge - \$130,000**
The City of Wheat Ridge received \$130,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Aspen - \$59,000**
The City of Aspen received \$59,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Durango - \$59,000**

The City of Durango received \$59,000 for the Local Energy Assurance Planning (LEAP) Initiative.

Award(s): \$12 million, Interconnection Transmission Planning and Analysis

Location: Denver

The Western Governors' Association in Denver received \$12 million for Interconnection Transmission Planning and Analysis. The funds support transmission planning for the country's three interconnection transmission networks, promoting collaborative long-term analysis and planning for the Eastern, Western and Texas electricity interconnections. This helps states, utilities, grid operators and others prepare for future growth in energy demand, renewable energy sources and Smart Grid technologies. This project represents the first-ever effort to take a collaborative, comprehensive look across each of the three transmission interconnections. The transmission planning supported through this award develops an open, transparent and collaborative process that involves participants from industry, federal, state and local government agencies, universities and non-governmental organizations.

Award(s): 2 totaling \$16.7 million, Smart Grid Investment Program (EISA 1306)

Location: Golden, Pueblo

- **Alliance for Sustainable Energy, LLC, Golden - \$10.5 million**
The Alliance for Sustainable Energy, LLC, in Golden received \$10.5 million to perform work on the smart grid database architecture and design.
- **Black Hills / Colorado Electric Utility Company, LP, Pueblo - \$6.1 million**
Black Hills / Colorado Electric Utility Company, LP, in Pueblo received \$6.1 million for the Smart Grid Investment Program (EISA 1306). The funds support installation of approximately 42,100 advanced metering infrastructure (AMI) / smart meters, communications infrastructure and IT software for AMI System.

Award(s): \$4.8 million, Smart Grid Regional and Energy Storage Demonstration Project (EISA 1304)

Location: Fort Collins

The City of Fort Collins received \$4.8 million for a Smart Grid Regional and Energy Storage Demonstration Project. The grant is being used to solicit and fund projects through a competitive Funding Opportunity Announcement for large-scale Smart Grid demonstration projects. These projects verify technology viability, quantify costs and validate Smart Grid business models at scale so they can be replicated.

Award(s): \$2.5 million, Smart Grid Workforce Training

Location: Boulder

The University of Colorado in Boulder received \$2.5 million for Smart Grid Workforce Training. These funds are being used to build a sustainable graduate engineering program with a focus on networking, wireless communications and cyber-security within electric power systems. The academic program is designed for students seeking a full Master of Science degree or a shorter certificate and can be flexibly completed on-campus or from anywhere online.

Award(s): \$876,000, State Assistance on Electricity Policies

Location: Denver

The Public Utilities Commission of the State of Colorado received \$876,000 for State Assistance on Electricity Policies to assist in addressing its Recovery Act electricity workload by hiring staff trained to facilitate the review of time-sensitive requests approving electric utility expenditures.

TRANSPORTATION – 3 projects totaling \$73.1 million

Investing in a new generation of advanced fuels and vehicles to reduce our dependence on foreign oil and revitalize domestic manufacturing. For more information, visit <http://www.energy.gov/recovery/vehicles.htm>.

Award(s): \$45.1 million, Advanced Battery Manufacturing

Location: Fredrick, Longmont

UQM Technologies in Frederick received \$45.1 million to manufacture advanced batteries and components for electric vehicles, including advanced lithium ion batteries and hybrid electric systems.

Award(s): \$23 million, Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries

Locations: Commerce City

Clearfuels Technology, Inc., in Commerce City received \$23 million for the Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries. The funds are being used to produce renewable diesel and jet fuel from woody biomass by integrating ClearFuel and Rentech's conversion technologies. The facility also evaluates the conversion of bagasse and biomass mixtures to fuels.

Award(s): \$5 million, Transportation Electrification

Location: Fort Collins

Colorado State University in Fort Collins received \$5 million for Transportation Electrification. The funds establish widespread demonstration and evaluation projects to accelerate the market introduction of advanced electric drive vehicles. Grants will be received by entities that conduct demonstration and data collection projects on a wide range of electric drive transportation technologies.

CARBON CAPTURE & STORAGE – 4 projects totaling \$5.8 million

Developing clean coal technologies so we can utilize America's coal resources sustainably. For more information, visit <http://www.energy.gov/recovery/ccs.htm>.

Award(s): \$4.9 million, Geologic Sequestration Site Characterization

Location: Greenwood Village

North American Power Group in Greenwood Village received \$4.9 million for Geologic Sequestration Site Characterization. The funds are being used to conduct a characterization study in multiple formations for the developing south-central part of the Powder River Basin near the Two Elk Energy Park. The project characterizes a potentially viable storage site and valuable opportunities for research and development in the Powder River Basin. The project positively impacts the economics of the region, setting the stage for additional facilities and jobs.

Award(s): 3 totaling \$897,000, Geologic Sequestration Training and Research Grant Program

Location: Golden, Fort Collins

- **Colorado State University, Fort Collins - \$300,000**

Colorado State University in Fort Collins received \$300,000 for the Geologic Sequestration

Training and Research Grant Program. This project provides training opportunities for two graduate students, improving the human capital and skills required for implementing and deploying carbon capture and sequestration (CCS) technologies.

- **Trustees of the Colorado School of Mines, Golden - \$300,000**
The Trustees of the Colorado School of Mines in Golden received \$300,000 for the Geologic Sequestration Training and Research Grant Program. The research advances the state-of-the-science in two critical areas of risk assessment: multi-process, multi-scale quantification and simulation of the risks associated with leakage into aquifers and pore-scale geochemical processes and modeling associated with injectivity of carbon dioxide such as mineral reactivity and multiphase flow. The work is accomplished using state-of-the-art mathematical models for multi-scale, multiphase, multi-component hydrogeochemical processes and creating Lagrangian models for probabilistic risk assessment. This project supports one Masters of Science student, one PhD student and one Undergraduate student via research in geologic carbon sequestration (GCS).
- **Trustees of the Colorado School of Mines, Golden - \$298,000**
The Trustees of the Colorado School of Mines in Golden received \$298,000 for the Geologic Sequestration Training and Research Grant Program. The objective of the project is to generate research and training activities for students who will be part of the human capital necessary to implement and deploy Carbon Capture and Sequestration (CCS) technologies. Graduate students are part of the development, validation and deployment of an advanced simulation and risk assessment model that can be used to predict the fate and movement of carbon dioxide in underground formations. The model also evaluates the risk of potential leakage to the atmosphere and underground aquifers.

ENVIRONMENTAL CLEANUP – 3 projects totaling \$4.4 million

Creating jobs and reducing the legacy cold war footprint of the Department of Energy, and clean up the polluted land and water resources in communities. For more information, visit <http://www.energy.gov/recovery/cleanup.htm>.

Award(s): 3 totaling \$4.4 million, Title X Uranium / Thorium Reimbursement Program

Location: Grand Junction, Golden, Englewood

Umetco Minerals Corporation, Western Nuclear, and Cotter Corporation, Inc., received a total of \$4.4 million for the Title X Uranium / Throium Reimbursement Program. The goal of this project is to eliminate the government's liability for environmental cleanup at sites that produced uranium (U) and thorium (Th) during the Cold War era for DOE and its predecessors. The funding provided by ARRA may enable to the licensees of these sites to accelerate the completion of cleanup programs and eliminate the environmental risks at these sites.

- **Umetco Minerals Corporation, Grand Junction - \$3.5 million**
- **Western Nuclear, Golden - \$818 ,000**
- **Cotter Corporation, Inc., Englewood - \$140 ,000**

SCIENCE AND INNOVATION – 28 projects totaling \$188.3 million

Renewing our commitment to science and innovation to ensure global competitiveness in the future. For more information, visit <http://www.energy.gov/recovery/innovation.htm>.

Award(s): 2 totaling \$14 million, Advanced Research Projects Agency – Energy (ARPA-E)

Location: Littleton

- **Foro Energy, Inc., Littleton - \$9.1 million**

Foro Energy, Inc., in Littleton received \$9.1 million for Advanced Research Projects Agency – Energy. Funds are being used to develop a disruptive, new hybrid thermal-mechanical drilling technology to enable rapid and sustained penetration of ultra-hard rock formations. This project opens cost-effective access to the U.S.'s vast domestic store of geothermal energy.

- **ITN Energy Systems, Inc., Littleton - \$4.9 million**

ITN Energy Systems, Inc., in partnership with MAG Industrial Automation, EPRI, and the Colorado School of Mines, received \$4.9 million for Advanced Research Projects Agency – Energy. The funds are being used to develop solid-state electrochromic (EC) film on plastic substrates to reduce EC window cost in support of net-zero energy buildings.

Award(s): \$527,000, Community Renewable Energy Deployment

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$527,000 for Community Renewable Energy Deployment. Funds are being used for merit review support for solicitation at the National Renewable Energy Laboratory.

Award(s): \$875,000, Enhanced Geothermal Systems (EGS) Technology R&D

Location: Golden

The National Renewable Energy Laboratory in Golden received \$875,000 for Enhanced Geothermal Systems (EGS) Technology R&D. NREL has worked with industry to explore various strategies for boosting the performance of air coolers in hot weather. Computer modeling and experimental measurements have been done on the use of evaporative media upstream of the air-cooled condensers at the Mammoth Lakes Power Plant. NREL has also analyzed the use of an air-cooled condenser in series with (i.e., upstream of) a water-cooled condenser and found that this can be beneficial for power cycles requiring desuperheating of the turbine exhaust vapor. Recently, the conventional power industry developed an interest in operating water- and air-cooled condensers in parallel. This arrangement allows a small water cooler to reduce the heat transfer duty on the air cooler on hot summer days thereby allowing the condensing working fluid to make a much closer approach to the air dry bulb temperature.

Award(s): \$8 million, Energy Frontier Research Centers

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$8 million for research at the National Renewable Energy Laboratory (NREL) to replace trial-and-error methods used in the development of materials for solar energy conversion with an inverse design approach powered by theory and computation.

Award(s): 4 totaling \$3 million, Energy Sciences Fellowships and Early Career Research Program

Location: Boulder

The Regents of the University of Colorado in Boulder received \$3 million for the Energy Sciences Fellowships and Early Career Research Program. The four projects funded by this grant are: Physics Analysis of Microwave Imaging Data from DIII-D & KSTAR, New States of Matter and Quantum Simulation with Ultracold Alkaline Earth Fermions, Theory and Simulation of Tailored Assembly in Rod-Coil Polymer Nanocomposites and Probing Neutrino Properties with Long-Baseline Neutrino Beams.

Award(s): \$2.5 million, Energy, Water & Emissions Reporting and Tracking System

Location: Golden

The National Renewable Energy Laboratory in Golden received \$2.5 million for greenhouse gas protocol development for federal agencies.

Award(s): \$4.1 million, Enhance and Accelerate FEMP Service Functions to the Federal Government

Location: Golden

The Alliance for Sustainable Energy, LLC, in Golden received \$4.1 million to provide technical assistance for federal agencies.

Award(s): \$13.4 million, Integrated Biorefinery Research Expansion

Location: Golden

Alliance for Sustainable Energy, LLC, in Golden received \$13.4 million for Integrated Biorefinery Research Expansion. This project doubles the research capacity of the Integrated Biorefinery Research Facility at the National Renewable Energy Laboratory through increased user community demand to support novel cellulosic ethanol research. The additional capacity enables the facility to support multiple industrial users and research initiatives simultaneously.

Award(s): \$2 million, Lab Call for Facilities and Equipment

Location: Golden

Alliance for Sustainable Energy, LLC, in Golden received \$2 million for Lab Call for Facilities and Equipment. This project supports the development of a battery thermal and life test facility.

Award(s): \$44 million, NREL Ingress / Egress Project

Location: Golden

Alliance for Sustainable Energy, LLC in Golden received \$44 million for the National Renewable Energy Laboratory (NREL) Ingress / Egress Project. This NREL project is acquiring an additional external site ingress / egress route for normal traffic and emergency access, stacked parking for 1,500 vehicles to preserve valuable land for R&D use, and supporting roadway reconfigurations. This project also improves existing drainages necessary to accommodate the new traffic patterns and future site development. This project is critical to the safe and cost-effective expansion of the fundamental access and traffic capacity on the NREL site.

Award(s): \$10 million, National Wind Technology Center (NWTC) Upgrades

Location: Golden

Alliance for Sustainable Energy, LLC, in Golden received \$10 million for NWTC Upgrades. This project funds two major upgrades to existing NWTC to increase testing capabilities: The 2.5 MW Dynamometer Testing Facility enables full testing of drivetrains which are a major point of failure in

wind turbine systems and the current site electrical distribution system to accommodate the connection of two utility-scale wind turbines already under construction.

Award(s): \$241,000, Plasma Science Centers

Location: Boulder

The Regents of the University Of Colorado in Boulder received \$241,000 to fund research cooperative agreements for Plasma Science Centers and accelerate the advancement of understanding in plasma science.

Award(s): \$82.5 million, Renewable Energy and Supporting Site Infrastructure

Location: Golden

The National Renewable Energy Laboratory in Golden received \$82.5 million to perform infrastructure improvements, including investing in expanded renewable energy capacity and energy efficiency technologies.

Award(s): 10 totaling \$1.5 million, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1

Location: Boulder, Wheat Ridge, Lafayette

This project supports Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. DOE strives to maintain a strong and appropriately balanced core research program by supporting R&D at universities, the DOE national laboratories and small businesses. America's small businesses continue to make valuable contributions to advancing the Department's missions.

- **Ald Nanosolutions, Inc., Boulder - \$150,000**
Ald Nanosolutions, Inc., in Boulder received \$150,000 scale-up a process known to significantly improve the quality of battery materials, while using lean manufacturing techniques.
- **Eltron Research & Development, Inc., Boulder - \$150,000**
Elton Research & Development, Inc., in Boulder received \$150,000 for electromechanical dewatering of paper pulp for increased energy efficiency.
- **Smallfoot, Boulder - \$150,000**
Smallfoot in Boulder received \$150,000 to develop a low cost solution for reducing peak energy demand in commercial buildings. The wireless system is simple to install and automatically lowers peak demand, utility costs, power grid stress and utility generation needs without affecting occupant comfort or productivity.
- **Tda Research, Inc., Wheat Ridge - \$450,000**
Tda Research, Inc., in Wheat Ridge received 3 awards of \$150,000 each totaling \$450,000 for brackish and wastewater cleanup for process cooling, production scale-up of nanoporous carbons for ultracapacitors, and biodiesel distillation.
- **Composite Technology Development, Inc., Lafayette - \$150,000**
Composite Technology Development, Inc., in Lafayette received \$150,000 to develop materials for tidal turbine blades.

- **Syntrotek Corporation, Boulder - \$149,000**
Syntrotek Corporation in Boulder received \$149,000 for the development, manufacture and commercialization of a new cost-effective sensor network combined with an internet-based diagnostic and control analyzer for minimizing the economic impact of corrosion related problems within advanced power plant equipment.
- **Tusaar, Inc., Boulder - \$148,000**
Tusaar, Inc., in Boulder received \$148,000 to develop a passive treatment media that can be used for the sequestering of heavy metals found in coal fired power plants' waste streams.
- **Infotility, Inc, Boulder - \$141,000**
Infotility, Inc., in Boulder received \$141,000 for the assessment and design of an agent-based smart controller for smart grid storage applications.

Award(s): \$1.7 million, Solid State Lighting

Location: Golden

Alliance for Sustainable Energy, LLC, in Golden received \$1.7 million for Solid State Lighting. This project aims to test two scientific principles recently demonstrated at NREL, one related to growth of high bandgap $GaxIn_{1-x}P$ (GaInP) epilayers on GaAs for advanced multi-junction solar cells and the potential advantages in applying this new technology for synthesizing LEDs operating in the green and red gap spectral regions. The other principle being tested is related to forming cladding layers for high bandgap GaInP LED active regions using $GaxIn_{1-x}P$ disorder-order heterojunctions.

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Recovery Act Success Stories

Energy Empowers is a U.S. Department of Energy clean energy information service. Our team produces stories featuring the people and businesses that are fueling the energy transformation and economic recovery in America. For more stories from your state, go to energyempowers.gov/Colorado

FREDERICK

UQM revving up electric motor production

Business is booming at UQM Technologies, a Frederick, Colo.-based manufacturer and developer of electric vehicle propulsion systems.

Last summer, UQM signed a 10-year contract to build motor and control systems for all electric cars to be manufactured by CODAAutomotive of California. UQM aims to produce 20,000 of the propulsion systems over a two-year span.

To accommodate the increase in production, UQM purchased a 129,000 sq. foot building, four times the size of the original facility. UQM used a portion of its American Reinvestment and Recovery Act grant through the Department of Energy's Vehicles Technologies Program to pay for part of the \$7.5 million facility in Longmont, Colo.

The expansion has been "a thrill ride," says UQM president and chief executive William Rankin.

230 production jobs

The company expects to add 230 jobs by next year, growing its workforce from 70 to 300. "The bulk of the jobs will be assemblers," Rankin says. More workers will be hired when UQM's build out is complete. "A lot of support functions will be required to run a business at this level," he adds.

A flurry of activity is underway at the facility as expansion begins. "We are currently setting up the production lines," says Rankin. When the facility is at full capacity, UQM expects to pump out "80 [propulsion systems] a day," he says.

Compact, but powerful systems

The systems UQM developed for Coda cars are compact, measuring 11.25 inches in diameter and 10.9 inches long and weighing 110 pounds. Despite their small size, the units are powerful, generating a peak of 100 kilowatts (134 horsepower) of energy. "They are very sophisticated," Rankin says.

UQM has a long history in the electric vehicle industry. The



UQM will manufacture electric vehicle propulsion systems like this at its new facility in Longmont, Colo. | Photo courtesy of UQM

company formed in 1967 and originally built fiberglass parts for planes and kit automobiles. In the late 1970s, UQM's focus switched to manufacturing Electrek—an electric car. Following Electrek's development, the company invented a core permanent magnet motor. UQM has created extensions of the technology ever since. "We have been at this a long, long time," says Rankin.

The company has witnessed a sea change in the clean fuel vehicles sector over the past two years. Government incentives have enabled consumers to buy green vehicles at reduced rates and private and public partnerships have blossomed. "Billions of dollars are being provided in grants and low interest loans to support the infrastructure and launch of vehicles, batteries and other components," Rankin says. He says the result is a "perfect storm" for the industry.

He says UQM will assist electric vehicle manufacturers in the future as America's clean energy economy expands. "Our expectation is to grow in serving these opportunities."

"For us, the sky's the limit," Rankin says.

DENVER

Iraq war veteran finds new career in weatherization

An Army veteran who served in Iraq has found a new career weatherizing homes for poor residents.

When Mike Flaherty of Newburgh, Ind., left the military in 2006 after five-and-a-half years and two deployments to Iraq as a petroleum supply specialist, he had limited "marketable skills" for the civilian job market, he says.

Funding innovation

UQM received a \$45 million Recovery Act grant through the U.S. Department of Energy's Vehicle Technologies Program to advance research and production of electric and hybrid-electric vehicle propulsion systems. VTP's mission is to develop energy efficient and eco-friendly highway transportation technologies. The long-term aim is to develop "leap frog" technologies that will provide Americans with greater freedom of mobility and energy security, with lower costs and lower impacts on the environment.

Flaherty's Army career brought him to Colorado Springs, Colo., where he stayed after fulfilling his military duties. While taking a break from studying at Pike's Peak Community College last spring, he was recruited to join the first wave of weatherization training by the non-profit Veterans Green Jobs.

Funded by the Recovery Act, Veterans Green Jobs provides weatherization services for low-income residents in Colorado.

After completing his training, Flaherty worked as a crew member weatherizing homes in the six county region of San Luis Valley. He was promoted to crew leader and is now a weatherization coordinator for Veterans Green Jobs. Flaherty says he still travels to job sites; ensuring crews have everything they need to finish their projects.

The Denver-based nonprofit is hiring 100 new employees for weatherization and energy efficiency related jobs. Flaherty says green jobs and training programs provide "hands to catch them (veterans) when they get back" to civilian life.

"I think it would be great for veterans to lead the way in the emerging clean energy," he adds.

After serving in the military, weatherization work provides a positive, more restorative departure, Flaherty says. "It's therapeutic, from that standpoint."

DENVER

Denver museum taps into unique geothermal source

The Denver Museum of Nature & Science is planning to install a heating and air conditioning system in the new wing of the Denver Museum of Nature & Science will run on an unusual, subterranean heat source: the recycled wastewater rushing through the pipes below.

The museum could have proposed a standard ground-source heat pump system. These systems tap into geothermal sources by drilling and installing numerous shallow wells over a large area, to provide a heat and cooling resource for the units. But instead, they're planning to install an open-loop system that uses water circulating within the city's municipal water system.

"That's the unique piece about it," says Dave Noel, vice president of operations and chief technology officer for the museum. "A traditional ground source heat field might cost two-thirds of the total costs of the whole system. In this case, if we can make this work, not only are the costs much cheaper, but we won't require as much space."

The system at the new Education and Collection Facility — a 100,000 square foot wing that will include an underground collections storage space and a three floor science engagement center with state-of-the-art educational exhibits and labs — will pull from the same non-potable water used by DenverWater to irrigate golf courses and parks.

"Our intention is to grab water out of that system, run it through heat pumps, and re-inject the warmer — or cooler — water back into the system. Essentially we're borrowing heat — or cold — from the water, and then returning it to the system," Dave says.

This project, which received \$2.6 million in funds from the Recovery Act, should reduce energy expenses significantly while providing information to support similar implementations in other locations.

"The key to this is the sustainability goal for the entire addition," says Dave, the museum's sustainability guru who also spearheaded the main building's solar array project in 2008. "The [new wing] will meet the LEED platinum specifications and use 50 percent less energy

than a typical building of its kind. Our ultimate goal is to create a Zero Energy Building, where we produce more energy than we consume."

These energy efficient practices could save the museum up to \$7 million over the next 20 years, Dave says.

Ex-Army artilleryman transitions into new role as weatherization technician

After serving seven years in the U.S. Army as an artilleryman, including a tour in Iraq, Dom Rosas has leveled his sights on a new career. Now he's putting his military pride, enthusiasm and work ethic to good use every day when he clocks in as a weatherization technician in America's clean energy economy — an economy he thinks is set to boom.

Dom bounced from job to job when he transitioned into civilian life, driving forklifts and making pizzas, but he says he never felt fulfilled. His teenage love for environmentalism was always in the back of his mind.

"I wondered what next step I could take that might give me the skills to work in some kind of green job," Dom says. "I looked at job boards but couldn't figure out what green jobs would be best for me, or what skills I needed to learn in order to get some of these jobs."

After networking with other veterans through an organization that helps soldiers express their emotions about their experiences through art, Dom heard about an organization called Veterans Green Jobs and signed up for its Green 101 class.

He completed an eight-week training program, like a second boot camp, and was set to help Americans become more energy efficient by weatherizing their homes. By doing this, Dom believes he's improving America's energy future, which is one of the reasons he says he enlisted in the military in the first place.

Colorado Gov. Bill Ritter announced Sept. 22 that Veterans Green Jobs will provide weatherization services to income-qualified households in a six-county region in the San Luis Valley in southern part of the state.

The program is expected to create or retain about 20 jobs, including Dom's new position as a certified energy-efficiency auditor, implementing weatherization measures for the new project.

Dom says he's excited about his new green job and sees it as an entry point into a growing industry with longevity where he can continue to gain new skills.

"I know what I'm doing every day is helping Americans here at home and protecting the environment for all of humanity," he says. "I want to be able to show people how to live in balance with their environment."

His new job training has allowed Dom an opportunity to find ways to apply his military skills in order to help people save energy instead of wasting it.

"The military teaches us how to function and even thrive in hazardous conditions, which prepares us for field work in wilderness situations, disaster response, technical and industrial settings and even in home energy auditing — going into parts of homes where the residents have never gone, such as attics and basements, crawling under floorboards and finding ways to conserve energy that go beyond what's expected," he says.

The \$1.1 million contract for VGJ runs through 2010 and calls for the group to weatherize and improve efficiencies in 240 homes. The funding came from DOE through the Recovery Act.