Department of Energy

Recovery Act State Memos

Washington

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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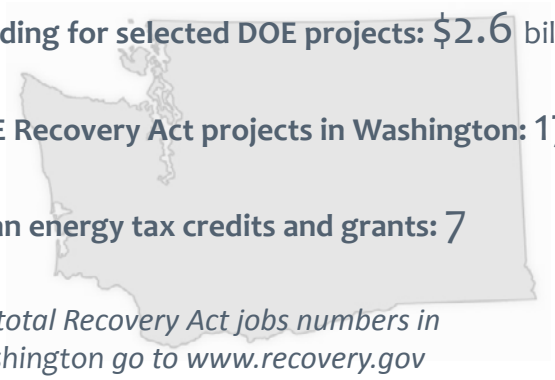
American Recovery and Reinvestment Act

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



Funding for selected DOE projects: $2.6 billion

DOE Recovery Act projects in Washington: 175

Clean energy tax credits and grants: 7

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

Washington State has substantial natural resources, including biomass, wind, geothermal, and hydroelectric power. **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 Washington are supporting a broad range of clean energy projects from energy efficiency and the smart grid to wind, biomass, and geothermal, as well as cleaning up the legacy of Cold War nuclear facilities at Hanford. Through these investments, Washington's businesses, non-profits, and local governments are creating quality jobs today and positioning Washington to play an important role in the new energy economy of the future.

EXAMPLES OF WASHINGTON FORMULA GRANTS

Program	State Energy Program	Weatherization Assistance Program	Energy Efficiency Conservation Block Grants	Energy Efficiency Appliance Rebate Program
Award (in millions)	$60.9	$59.5	$58.8	$6.3
	The Washington Department of Commerce has been granted $60.9 million in State Energy Program funds to invest in state-level energy efficiency and renewable energy priorities.	The State of Washington has been granted $59.5 million in Weatherization Assistance Program funds to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions, and saving money for Washington's low-income families. Over the course of the Recovery Act, Washington expects to weatherize nearly 7,200 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce.	Sixty-nine communities in Washington were granted a total of $58.8 million for Energy Efficiency and Conservation Block Grants (EECBG) to develop, promote, implement, and manage local energy efficiency programs.	The Washington Department of Commerce has been granted $6.3 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 WASHINGTON COMPETITIVE GRANTS AND TAX CREDITS

Award				
	$935.6 million	$383.9 million	$322.2 million	$127.1 million
	A range of contractors and subcontractors including **CH2M Hill Plateau Remediation Company** and **Washington Closure Hanford LLC,** have been awarded a combined total of **$935.6 million** to clean up nuclear facilities and contaminated sites at Hanford's Richland site. This includes deactivating and decommissioning excess facilities, along with cleanup soil and groundwater contamination at the site.	**CH2M Hill Plateau Remediation Company, Washington Closure Hanford LLC,** and **Advanced Technologies and Laboratories (Atl) International** have been awarded a combined total of **$383.9 million** to support nuclear facility deactivation and demolition along the River Corridor at Hanford's Office of River Protection.	**Washington River Protection Associates LLC** in Richland has been awarded **$322.2 million** to accelerate the Tank Operations Contract (TOC).	Washington State received **seven 1603 payments for renewable energy generation** totaling **$127.1 million,** which include solar, wind, and biomass projects. For example, **Harvest Wind** received **$60.8 million** for a wind energy project.

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	*Weatherization Assistance Program (F)*	1	$59.5
	State Energy Program (F)	1	$60.9
	Energy Efficiency and Conservation Block Grant (F)	69	$58.8
	BetterBuildings (CM)	1	$20.0
	Energy Efficient Appliance Rebate (F)	1	$6.3
	Building Energy Efficiency (CM)	7	$24.7
	Industrial Energy Efficiency (CM)	2	$19.8
	TOTAL Energy Efficiency	82	$250.0
Renewable Energy	*Solar (CM)*	3	$1.2
	Wind (CM)	2	$0.4
	Geothermal (CM)	1	$3.9
	Additional Programs (F & CM)	3	$6.0
	TOTAL Renewable Energy	9	$11.5
Electric Grid	*Smart Grid Investment and Demonstrations Project (CM)[3]*	3	$124.6
	State and Local Energy Assurance and Regulatory Assistance (F)	2	$1.7
	Smart Grid Workforce Training (CM)	3	$11.1
	TOTAL Electric Grid	8	$137.4
Transportation	*Advanced Battery Manufacturing (CM)*	1	$0.2
	Clean Cities Alternative Fuel and Vehicles Program (CM)	1	$15.0
	Advanced Fuels (CM)	1	$17.9
	Additional Programs (CM)	1	$8.5
	TOTAL Transportation	4	$41.6
Carbon Capture and Storage	*CCS Projects (CM)*	3	$20.6
	Research and Training (CM)	2	$1.0
	TOTAL Carbon Capture and Storage	5	$21.6
Environmental Cleanup	*Environmental Management Contracts (C)*	52	$1,959.6
	TOTAL Environmental Cleanup	52	$1,959.6
Science and Innovation	*Energy Frontier Research Centers (CM)*	1	$1.2
	Small Business Research (SBIR/STTR) (CM)	4	$0.6
	National Laboratory Facilities (C)	7	$130.8
	Additional Programs	4	$14.0
	TOTAL Science and Innovation	16	$151.5
TOTAL - DOE Programs[4]		**175**	**$2,567.8**
Tax Credits/ Payments[5]	*Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)*	7	$127.1
	TOTAL Tax Incentives	7	$127.1
TOTAL - DOE/Treasury + DOE		**182**	**$2,694.9**

[1]F=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.

[3]Projects may cross state boundaries, signifies HQ location.

[4]Total does not include administrative funds.

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

ENERGY EFFICIENCY – 82 projects totaling $250 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): $59.5 million, Weatherization Assistance Program (WAP)
Location: Statewide
Washington received $59.5 million in Weatherization Assistance Program funds to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for Washington's low-income families. Over the course of the Recovery Act, Washington expects to weatherize nearly 7,200 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce.

Award(s): $60.9 million, State Energy Program (SEP)
Location: Statewide
The Washington Department of Commerce received $60.9 million in State Energy Program funds to invest in state-level energy efficiency and renewable energy priorities. This project supports the goal of achieving 25 percent energy efficiency improvements from the 1990 baseline by 2012. This project also partially funds $8 billion in shovel-ready projects that that states and territories can implement quickly.

Award(s): 69 totaling $58.7 million, Energy Efficiency and Conservation Block Grant Program (EECBG)
Location: Statewide
Recipients: Sauk-Suiattle Indian Tribe of Washington, Confederated Tribes of the Chehalis Reservation, Cowlitz Indian Tribe, Edmonds, Confederated Tribes of the Colville Reservation, Richland, Renton, Port Gamble Indian Community of the Port Gamble Reservation, Kalispel Indian Community of the Kalispel Indian Community of the Kalispel Reservation, Lakewood, Confederated Tribes and Bands of the Yakama Nation, Jamestown S'Klallam Tribe of Washington, Makah Indian Tribe of the Makah Indian Reservation, Quinault Tribe of the Quinault Reservation, Pierce County, Quileute Tribe of the Quileute Reservation, Puyallup Tribe of the Puyallup Reservation, Puyallup, Kitsap County, Kirkland, Lummi Tribe of the Lummi Reservation, Lower Elwha Tribal Community of the Lower Elwha Reservation, Longview, Clark County, Federal Way, Everett, Pasco, King County, Kent, Kennewick, Samish Indian Tribe, Nooksack Indian Tribe of Washington, Nisqually Indian Tribe of the Nisqually Reservation, Muckleshoot Indian Tribe of the Muckleshoot Reservation, Auburn, Olympia, Hoh Indian Tribe of the Hoh Indian Reservation, Bellingham, Bellevue, Stillaguamish Tribe of Washington, Shoalwater Bay Tribe of the Shoalwater Bay Indian Reservation, Seattle, Sammamish, Redmond, Yakima County, Yakima, Lacey, Vancouver, Upper Skagit Indian Tribe of Washington, Tulalip Tribes of the Tulalip Reservation, Thurston County, Whatcom County, Washington State Energy Office, Squaxin Island Tribe of the Squaxin Island Reservation, Spokane Valley, Spokane Tribe of the Spokane Reservation, Spokane County, Spokane, Snoqualmie Tribe, Snohomish County, Skokomish Indian Tribe of the Skokomish Reservation, Skagit County, Shoreline, Tacoma, Swinomish Indians of the Swinomish Reservation, Suquamish Indian Tribe of the Port Madison Reservation

Sixty-nine communities in Washington received a total of $58.7 million for the Energy Efficiency and Conservation Block Grants Program (EECBG) to develop, promote, implement and manage local energy efficiency programs. This project is augmenting the existing weatherization program to

achieve the nationwide goal of one million newly weatherized homes per year. To attain this goal, the state is expanding workforce education, increasing maximum per home expenditure, raising eligibility standards and increasing funding for training programs, as needed. This program will eventually expand into all U.S. territories. This project expects to weatherize over 525,000 homes nationally, which requires significant growth within the weatherization network. Examples of EECBGs include:

- **Seattle - $6.1 million**
  Seattle's EECBG funding supports programs that focus on conserving electricity and natural gas. The majority of Seattle's initial investment of EECBG dollars went directly to a community development finance institution (CDFI) to seed a revolving loan fund to catalyze residential energy efficiency retrofits. The CDFI is managing the loan fund and connecting residents with other energy efficiency financial incentives provided by federal, state and city agencies. Borrowers will be presented with a complete package of resources in order make their home retrofit as affordable and effective as possible. The city partnered with a CDFI that has the ability to leverage the city's initial investment for other matching funds.

- **Olympia - $221,000**
  Olympia received an EECBG award to fund the Growth and Transportation Efficiency Center (GTEC) which was designed to reduce the number of single occupancy vehicles travelling on the city streets, regional roads and highways. Program goals include a reduction in fuel use and green house gas emissions due to commuters choosing mass transportation. The funds will also be used to retrofit the heating system within City Hall.

Award(s): $6.3 million, Energy Efficient Appliance Rebate Programs
Location: Statewide
The Washington Department of Commerce received $6.3 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. This funding assists state-level rebate programs by paying up to 50 percent of the administrative costs of establishing and executing these types of programs. Though states and territories determine the appliances which apply, typically those include clothes washers, dishwashers, refrigerators, freezers, room air conditioners and water heaters.

Award(s): $20 million, BetterBuildings
Location: Seattle
The City of Seattle received $20 million for its Neighborhood Weatherize Every Building (WEB) Initiative to Power Change plan, which seeks to drastically reduce carbon emissions by fostering a clean energy economy. The project is partnering with more than forty public, private and nonprofit organizations throughout the city and targeting a variety of downtown neighborhoods. Single-family homes are the program's primary focus, with a secondary focus on retrofit efforts for multifamily units, small businesses, commercial, institutional and municipal facilities. This program promotes residential retrofits and reducing carbon emissions, while utilizing a neighborhood-based approach to identify, finance, deliver and monitor energy efficiency retrofits.

Award(s): 5 totaling $13.6 million, Buildings and Appliance Market Transformation
Location: Richland, Seattle
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.

- **Battelle Memorial Institute, Richland - $13.6 million**
- **Amazon.com LLC, Seattle - $2,000 (4)**

Award(s): $18.8 million, Combined Heat and Power (CHP), District Energy Systems, Waste Heat Recovery Implementation and Deployment of Efficient Industrial Equipment
Location: Seattle
Seattle Steam Limited Partnership received $18.8 million to support Combined Heat and Power (CHP) on Post Street in downtown Seattle. The project deploys a CHP plant in downtown Seattle that is integrated into the existing electrical and thermal energy distribution networks. This project increases the capacity and reliability of the electrical grid and district heating system in the downtown core, particularly in light of growing energy demand. The new CHP plant generates fifty MW of electrical power and steam to offset existing, inefficient steam production equipment. The CHP plant will save an estimated 1.84 trillion Btu annually.

Award(s): $500,000, Industrial Assessment Centers and Plant Best Practices
Location: Olympia
The Washington Department of Commerce in Olympia received $500,000 for Industrial Assessment Centers and Plant Best Practices. The funds support the implementation of energy efficiency improvements in medium to large industrial facilities in Washington, Oregon, Idaho and Montana.

Award(s): $6.9 million, National Accounts Acceleration in Support of the Commercial Buildings Initiative
Location: Richland
Battelle Memorial Institute in Richland received $6.9 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.

Award: $4.2 million, Solid State Lighting
Location: Richland
Battelle Memorial Institute in Richland received $4.2 million for Solid State Lighting. The goal of the program is to engineer an organic light-emitting diode (OLED) system based on a combination of novel and existing hosts and whole transport materials that has high device efficiency and improved operational stability.

RENEWABLE ENERGY – 16 projects totaling $138.6 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: 7 payments $127.1 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

- **Harvest Wind, Roosevelt - $60.8 million**
  Harvest Wind in Roosevelt received $60.8 million for a wind project.

- **Puget Sound Energy, Inc, Ellensburg - $28.7 million**
  Puget Sound Energy, Inc., in Ellensburg received $28.7 million for a wind project.

- **Windy Flats Partners, LLC, Centerville - $19.4 million**
  Windy Flats Partners, LLC, in Centerville received $19.4 million for a wind project.

- **Simpson Tacoma Kraft Company, LLC, Tacoma - $17.4 million**
  Simpson Tacoma Kraft Company, LLC, in Tacoma received $17.4 million for a biomass project.

- **Farm Power Rexville, LLC, Mount Vernon - $930,000**
  Farm Power Rexville, LLC, in Mount Vernon received $930,000 for a biomass project.

- **CFG Holdings, LLC, Bellevue - $20,000**
  CFG Holdings, LLC, in Bellevue received $20,000 for a solar electricity project.

- **SME, Inc., Seattle - $8,000**
  SME, Inc., in Seattle received $8,000 for a solar electricity project.

Award(s): $4.3 million, Enhanced Geothermal Systems (EGS) R&D[1]
Location: Redmond
Honeywell International, Inc., in Redmond received $4.3 million for Enhanced Geothermal Systems (EGS) Research and Development. The funds will be used to increase the maximum operating temperature of Honeywell's accelerometers, electronics and Applied Physics Systems' (APS) magnetometers which are all currently fielded in Oil and Gas MWD tools. Honeywell will then utilize the High Temperature Sensors and Electronics in a small diameter, digital output and programmable Directional Drilling Instrument that can reliably operate at 300°C. This drilling instrument includes capabilities to handle high shock and vibration environments required for Geothermal MWD wells.

[1] One additional Enhanced Geothermal Systems R&D project can be located in the "Science and Innovation" section within this document.

Award(s): $300,000, High-Penetration Solar Deployment
Location: Seattle
Seattle City Light received $300,000 for High-Penetration Solar Deployment. This project supports the development of a sustainable community solar financial and ownership model, marketing the program and enrolling participants.

Award(s): 2 totaling $5.5 million, Hydroelectric Facility Modernization Program
Location: Hoodsport, Packwood

- **City of Tacoma Department of Public Utilities, Hoodsport - $4.7 million**
  The City of Tacoma Department of Public Utilities received $4.7 million for the Hydroelectric Facility Modernization Program. This project will add two 1.8 MW Francis Turbines to an in-stream flow release at an existing hydroelectric dam.

- **Energy Northwest, Packwood - $812,000**
  Energy Northwest received $812,000 to design, manufacture and install a state-of-the-art Pelton Wheel Turbine at the Packwood Lake Hydroelectric facility.

Award(s): 2 totaling $886,000, Photovoltaic (PV) Systems Development
Location: Richland, Seattle

- **Battelle Memorial Institute, Richland - $750,000**
  Battelle Memorial Institute in Richland received $750,000 to improve window barrier and interlayer materials for use in CdTe-based solar cells. If successful, this project could reduce the cost of solar-generated electricity to fewer than eleven cents per kWh.

- **Washington Technology Center, Seattle - $136,000**
  Washington Technology Center in Seattle received $136,000 to develop nano-imprinted diffraction gratings for light trapping in crystal-silicon film PV. Light trapping is essential in the production of low-cost, thin crystalline silicon devices that ensure acceptable light absorption and electric current generation.

Award(s): 2 totaling $430,000, Wind Energy Technology R&D and Testing
Location: Seattle, Richland

- **DNV Global Energy Concepts, Inc., Seattle - $400,000**
  DNV Global Energy Concepts, Inc., in Seattle received $400,000 for Wind Energy Technology R&D and Testing, to support gearbox durability studies.

- **Battelle Memorial Institute, Richland - $30,000**
  Battelle Memorial Institute in Richland received $30,000 to support the development and demonstration of an advanced wind turbine condition-based maintenance system.

MODERNIZING THE ELECTRIC GRID – 8 projects totaling $137.4 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): $801,000, Enhancing State and Local Governments' Energy Assurance
Location: Olympia
The Washington Department of Commerce in Olympia received $801,000 to focus on building regional energy assurance capabilities by enhancing inter- and intra-state coordination and cooperation during energy emergencies. This project funds states to update and develop State Energy Assurance Plans that incorporate new energy portfolios such as wind, renewable and biofuels. This program also funds cities updating and developing Energy Assurance Plans within local areas. The two sets of funding are being used to hire or retrain staff, building in-house expertise in the areas of Smart Grids, critical energy infrastructure interdependencies and cyber-security.

Award(s): 2 totaling $35.8 million, Smart Grid Investment Grant Program (EISA 1306)
Location: Spokane, Everett

- **Avista Utilities, Spokane - $20 million**
  Avista Utilities in Spokane received $20 million for the Smart Grid Investment Grant Program. The funds are being used to implement a distribution management system, intelligent end devices and a communication network that permits a portion of the distribution system to respond to dynamic loading and outage conditions.

- **Snohomish County Public Utility District 1, Everett - $15.8 million**
  Snohomish County Public Utility District 1 in Everett received $15.8 million for the Smart Grid Investment Grant Program. The funds support digital telecommunication network expansion, substation automation expansion, distribution automation and distributed management systems across a selected number of circuits.

Award(s): $88.8 million, Smart Grid Regional and Energy Storage Demonstration Project (EISA 1304)
Location: Richland
Battelle Memorial Institute in Richland received $88.8 million for the Smart Grid Regional and Energy Storage Demonstration Project. Spanning five states and affecting more than 60,000 consumers, this project demonstrates and validates new Smart Grid technologies; provides two-way communication between distributed generation, storage and demand assets and the existing grid infrastructure; quantifies Smart Grid costs and benefits; and advances interoperability standards and cyber-security approaches.

Award(s): 3 totaling $11.1 million, Smart Grid Workforce Training
Location: Centralia, Issaquah, Pullman

- **Centralia College, Centralia - $5 million**
  Centralia College in Centralia received $5 million for Smart Grid Workforce Training. The funds support the Northwest Center of Excellence for Clean Energy. The Center is developing an online Smart Grid training and information portal for utilities, businesses and consumers. The project

will deliver Smart Grid training for utility workers in a four state region (Washington, Idaho, Montana and Oregon).

- **Incremental Systems Corporation, Issaquah - $3.6 million**
  Incremental Systems Corporation in Issaquah received $3.6 million for Smart Grid Workforce Training. The funds support massive, real-time simulations for training smart grid operators. Funds are being used to update real-time simulations with specific and realistic models of the nine NERC regions so that system operators, engineers and students can learn to prevent major power system events. The simulations facilitate capturing the knowledge held by experienced, senior operators and transferring it into a manageable skill set for trainees. The simulations are being used to train and certify 120 military veterans as NERC system operators and place them in energy industry jobs.

- **Washington State University, Pullman - $2.5 million**
  Washington State University in Pullman received $2.5 million for Smart Grid Workforce Training. The funds are being used for a training program in clean energy Smart Grid engineering, which will develop a comprehensive set of undergraduate and graduate courses in clean energy and Smart Grid engineering. The program also prototypes asynchronous, computerized delivery to enable individuals with various backgrounds to acquire the next level of engineering skills. This program will create career development tracts for technicians moving into engineering jobs in the utility industry and for practicing engineers moving into the R&D.

Award(s): $917,000, State Assistance on Electricity Policies
Location: Olympia
The Washington Utilities and Transportation Commission in Olympia received $917,000 for State Assistance on Electricity Policies. This project funds states and their Public Utility Commissions (PUCs) to hire staff trained to facilitate the review of time-sensitive requests approving electric utility expenditures undertaken as part of the Recovery Act.

TRANSPORTATION – 4 projects totaling $41.6 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): $192,000, Advanced Battery Manufacturing
Location: Statewide
J.A.D. Environmental received $192,000 for Advanced Battery Manufacturing to perform National Environmental Policy Act site inspections for battery grant awardees.

Award(s): $15 million, Clean Cities Alternative Fuels and Vehicles Grant Program
Location: Seattle
Puget Sound Clean Air Agency in Seattle received $15 million for the Clean Cities Alternative Fuels and Vehicles Grant Program to assist 21 public and private fleets in purchasing more than 650 alternative fuel or advanced technology vehicles. This project will also install the electric charging, CNG, biodiesel and ethanol infrastructure.

Award(s): $8.5 million, Enabling Fuel Cell Market Transformation
Location: Spokane
Relion, Inc., in Spokane received $8.5 million to install and operate hydrogen fuel cells as back-up power equipment for electric utility communications sites.

Award(s): $17.9 million, Fundamental Research in Key Program Areas
Location: Richland
Battelle Memorial Institute in Richland received $17.9 million to model land use change as well as complete soil carbon, greenhouse gas (GHG) and water analysis.

CARBON CAPTURE & STORAGE – 5 projects totaling $21.6 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): 3 totaling $20.6 million, Industrial Carbon Capture and Storage (CCS) Applications
Location: Bellevue, Richland

- **Ramgen Power Systems, Bellevue - $20 million**
  Ramgen Power Systems in Bellevue received $20 million to demonstrate a developing concept for carbon dioxide compression using supersonic shock wave compression technology. Ramgen will demonstrate the simultaneous potential of shock wave compression to achieve high compression efficiency and high stage pressure capability. The high stage pressure capability will allow Ramgen to use single stage configuration which will offer significant cost savings over conventional designs. The secondary aspects of this project are identifying and reducing technical risk of this process through the execution of a Critical Success Factors Risk Reduction validation and test program. The incorporation of an approximately 13,000 hp demonstration unit will also be assessed. This study will ensure the larger unit meets budget, schedule and technical requirements. The carbon dioxide Compressor Preliminary and Final Design phases will also be completed.

- **Battelle Memorial Institute, Richland - $500,000**
  Battelle Memorial Institute in Richland received $500,000 to demonstrate geologic, carbon dioxide storage in deep flood basalt formations. Fluor Corporation is designing a customized version of its Econamine Plus carbon capture technology for operation with the specialized chemical composition of exhaust gases produced from combustion of black liquor fuels.

- **Battelle Memorial Institute, Richland - $99,000**
  Battelle Memorial Institute in Richland received $99,000 to provide new insight on the chemical, electronic and photo properties of the interface layer formed at the junction between Cadmium sulfide (CdS) and Cadmium telluride (CdTe). The resulting information will lead to improved performance, lifetime, and lower cost of CdTe solar cells.

Award(s): 2 totaling $995,000, Geologic Sequestration Training and Research Grant Program
Location: Seattle, Richland

- **Environmental Outreach and Stewardship Alliance, Seattle - $746,000**
  The Environmental Outreach and Stewardship Alliance in Seattle received $746,000 to facilitate the development of a carbon capture and sequestration workforce through regional carbon dioxide sequestration technology training. This training focuses on twelve to fourteen key topics related to long-term underground carbon dioxide storage. EOS is implementing an organized sponsorship program, developing short courses on CCS technologies, providing regional training, outreach and networking, performing regional technology transfer services and managing the regional program. Courses also cover the intricacies of storage in basalts, another geologic formation common in the region.

- **Battelle Memorial Institute, Richland - $249,000**
  Battelle Memorial Institute in Richland received $249,000 to facilitate transfer of knowledge and technologies required for site development, operations, and monitoring of commercial CCS projects.

ENVIRONMENTAL CLEANUP – 52 projects totaling $2 billion

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): 42 totaling $700.1 million, Hanford Central Plateau D&D Recovery Act Project
Location: Richland
This accelerated project scope deactivates and demolishes (D&D) nuclear facilities and contaminated sites. In addition, the operational footprint at the 586-square mile Hanford Site will be reduced by 29 square miles by the end of fiscal year 2011.

Award(s): $235.5 million, Hanford Central Plateau Soil and Groundwater Recovery Act Project
Location: Richland
CH2M Hill Plateau Remediation Company in Hanford Works received $235.5 million for the Hanford Central Plateau Soil and Groundwater Recovery Act Project. The goal of this project is to eliminate environmental threats to the Columbia River and reduce the Hanford Site footprint through remediation of groundwater. By the end of Fiscal Year 2011, the project is designed to complete installation of groundwater remedies, including the necessary well drilling activities in the River Corridor and Central Plateau, as well as decommissioning of the groundwater wells in the Central Plateau outer zone.

Award(s): 4 totaling $383.9 million, Hanford River Corridor D&D Recovery Act Project
Location: Richland
CH2M Hill Plateau Remediation Company, Washington Closure Hanford, LLC and Advanced Technologies and Laboratories (Atl) International received a combined total of $383.9 million to support nuclear facility deactivation and demolition along the River Corridor at Hanford's Office of River Protection.

Award(s): $72.4 million, Hanford River Corridor Soil and Groundwater Recovery Act Project
Location: Richland
Washington Closure Hanford, LLC, in Richland received $72.4 million for the Hanford River Corridor Soil and Groundwater Recovery Act Project. This project supports the remediation of the Burial Ground 618-10 Trench in accordance to the 300-FF-2 Record of Decision. The burial ground contains radioactive and hazardous constituents which are a risk to the Columbia River and is located adjacent to an operating nuclear power plant.

Award(s): $241.2 million, Hanford TRU Waste Recovery Act Project
Location: Hanford Works
CH2M Hill Plateau Remediation Company in Hanford Works received $241.2 million. This project accelerates retrieval and repackaging of transuranic (TRU) waste and solid waste while creating jobs for the local workforce. Additionally, this project will clean up areas of the Hanford Site located in the Central Plateau and Columbia River Corridor to a condition suitable for preservation, conservation, recreational and industrial uses. This project will permit reuse of the Hanford infrastructure for other energy missions and community reuse.

Award(s): 2 totaling $325.2 million, Office of River Protection (ORP) Recovery Act Project
Location: Richland

- **Washington River Protection Solutions, LLC, Richland - $322.2 million**
  Washington River Protection Associates, LLC, in Richland received $322.2 million to upgrade the tank farm and support the facility infrastructure necessary to provide the tank waste feed from the tank farms to the Waste Treatment and Immobilization Plant beginning in FY2019.

- **Longenecker and Associates, Inc., Richland - $3 million**
  Longenecker and Associates, Inc., in Richland received $3 million to provide tank farm permitting support at the Office of River Protection.

Award(s): $1.3 million, Title X Uranium / Thorium Reimbursement Program
Location: Ford
Dawn Mining Co., LLC, in Ford received $1.3 million for the Title X Uranium / Thorium 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 Recovery Act may enable the licensees of these sites to accelerate cleanup programs and limit environmental risks at these sites.

SCIENCE AND INNOVATION – 16 projects totaling $151.5 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): $60 million, ARM Climate Research Facility Initiative
Location: Richland
Battelle Memorial Institute in Richland received $60 million to support the acquisition of capital equipment and MIEs. The funds support the development of the next generation ARM Climate Research Facility (ACRF). The resulting data will accelerate progress in the development and evaluation of high resolution climate models. This project will contribute to making the U.S. a leader

in climate change research. Pacific Northwest National Laboratory (PNNL) is issuing individual equipment procurements, awarded by subcontract to equipment vendors. The new equipment provides three-dimensional data on clouds, enhanced aerosol measurements and enhanced surface flux information at the sites. The new instruments will be deployed to all fixed and mobile facilities.

Award(s): $860,000, Computational Partnerships (SciDAC-e)
Location: Richland
Battelle Memorial Institute in Richland received $860,000 for Computational Partnerships (SciDAC-e). This project supports a one-time stimulus of research efforts in applied mathematics and computer science to establish the computational foundation and insight needed to advance the Department's mission across a wide range of areas, including developing novel, renewable and / or ecologically friendly energy sources and developing Smart Grids. Focus is on applied mathematics and computational partnerships in areas that directly impact the Department's energy mission. This project contributes to many of the mid- and long-term solutions identified in the President's Energy Plan, especially in the areas of diversifying our energy sources and developing the Smart Grid.

Award(s): $748,000, Concentrating Solar Power
Location: Richland
Battelle Memorial Institute in Richland received $748,000 for Concentrating Solar Power. This project develops thermochemical energy storage for dish-based CSP systems. If successful, this project has the potential to double the number of total Kwh these systems can generate and result in a 20 percent reduction in the cost of solar-generated electricity, making them competitive for intermediate-load power generation.

Award(s): $100,000, Energy Frontier Research Centers
Location: Richland
Battelle Memorial Institute in Richland received $100,000 to develop a comprehensive understanding of how chemical and electrical energy contained in fuels is exchanged, stored and released.

Award(s): 2 totaling $8.3 million, Energy Sciences Fellowships and Early Career Awards
Location: Richland, Pullman

- **Battelle Memorial Institute, Richland - $7.5 million**
  This project is to create graduate, post-doctoral and early career fellowship awards to stimulate research careers in energy, environmental and climate change sciences. Researchers at the Pacific Northwest National Laboratory are studying biomimic catalyst designs, targeted imaging probes for systems biology and reducing the scale dependence of physics parameterizations for global cloud resolving climate models.

- **Washington State University, Pullman - $751,000**
  Researchers at Washington State University received $751,000 to study feedback in the climate system linking plant stress, biogenic SOA and CCN production.

Award(s): $500,000, Energy, Water and Emissions Reporting
Locations: Richland
Battelle Memorial Institute in Richland received $500,000 to support greenhouse gas protocol development for federal agencies.

Award(s): $2 million, Enhance and Accelerate Federal Energy Management Program (FEMP) Service Functions to the Federal Government
Location: Richland
Battelle Memorial Institute in Richland received $2 million to improve the Pacific Northwest National Laboratory's ability to provide technical assistance to Federal agencies.

Award(s): $400,000, Enhanced Geothermal Systems (EGS) R&D
Location: Richland
The Pacific Northwest National Laboratory in Richland received $400,000 for Enhanced Geothermal Systems (EFS) Research and Development. The goal of this project is to overcome the cycle efficiency limitations imposed by the bulk thermodynamic proper-ties of the working fluid by introducing a metal-organic heat carrier (MOHC) into the system.

Award(s): $60 million, Environmental Molecular Sciences Laboratory
Location: Richland
Battelle Memorial Institute in Richland received $60 million to support the planned multi-year procurement of more than twenty-five capital equipment items for the Environmental Molecular Sciences Laboratory (EMSL), a DOE scientific user facility for molecular-level science located at the Pacific Northwest National Laboratory (PNNL). Recapitalizing EMSL's leading-edge instrumentation provides the scientific community with the most advanced experimental capabilities needed to probe the fundamental physical, chemical and biological processes that underpin the complex energy, science and environmental challenges facing DOE and the nation.

Award(s): $4 million, General Plant Project Funding
Location: Richland
Battelle Memorial Institute in Richland received $4 million for General Plant Project Funding. This project will help revitalize the Pacific Northwest National Laboratory (PNNL) by accelerating funding for non-line item capital improvements to facilities and infrastructure, including electrical upgrades, roofing, fire safety, space renovation, and transformer replacements. These improvements will reduce the laboratory's backlog of general infrastructure needs, ensuring improved readiness to perform mission work.

Award(s): $4.9 million, Integrated Assessment Research
Location: Richland
Battelle Memorial Institute in Richland received $4.9 million for Integrated Assessment Research. The funds enable the procurement of computational data handling, storage, networking and output, and display equipment for the Integrated Assessment Research Program (IARP) at the Joint Global Change Research Institute. This program is collaboration between the Pacific Northwest National Laboratory (PNNL), DOE's lead laboratory in Integrated Assessment (IA) and the University of Maryland.

Award(s): $3.7 million, Residential Buildings
Location: Richland
Battelle Memorial Institute in Richland received $3.7 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): 4 totaling $576,000, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1
Location: Statewide

- **Enertechnix, Inc., Maple Valley - $150,000**
  Enertechnix, Inc., in Maple Valley received $150,000 to develop a groundbreaking terahertz imaging system that will provide improved control capability to boiler operators in the pulp and paper, electric utility and petrochemical industries.

- **Modumetal, Inc., Seattle - $147,000**
  Modumetal, Inc., in Seattle received $147,000 to develop structural materials with melting points higher than that of most metals.

- **G.R. Silicate Nano-fibers and Carbonates, LLC, Federal Way - $145,000**
  G.R. Silicate Nano-fibers and Carbonates, LLC, in Federal Way received $145,000 to develop technologies to capture GHG and carbon dioxide industrial waste from power, steel and cement plants. Captured GHG and carbon dioxide is converted into value added products for energy-efficient building materials and composites for fuel-efficient automobiles.

- **Houghton Cascade Holdings, LLC, Tacoma - $134,000**
  Houghton Cascade Holdings, LLC, in Tacoma received $134,000 to help the pulp and paper industry increase competitiveness and reduce greenhouse gas emissions. The success of this project will further transform the industry into a green workforce.

ENERGYEMPOWERS.GOV

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/Washington

BELLINGHAM

Whatcom County partnership provides weatherization to wide demographic

Two nonprofits in Whatcom County, Wash. have teamed up on a unique effort to expand weatherization and energy retrofits – under a program called the Community Energy Challenge.

The goal of the partnership between Sustainable Connections, which assists businesses in implementing sustainable practices, and nonprofit community action agency, Opportunity Council, is to improve the energy efficiency of 900 homes and 150 local businesses.

Opportunity Council already provides services through the Weatherization Assistance Program (WAP) to homes for low-income residents.

"We are offering the same services – basic energy efficiency measures – to people who make too much money to qualify for WAP," says Alex Ramel, energy and policy manager of Sustainable Connections.

Expectations and results

The Community Energy Challenge received approximately $4 million in funding from six major sources, including the U.S. Department of Energy's State Energy Program and Energy Efficiency and Conservation Block Grant via the American Recovery and Reinvestment Act.

Since June, the first month that weatherization projects began for the Community Energy Challenge, the partnership has completed two residential energy efficiency upgrades and has five more currently in progress. In addition, the Challenge has provided energy assessments for more than 20 homes and 20 businesses. Five local contracting firms are working on the projects, in addition to a variety of subcontracting firms. The Opportunity Council provides on-the-job support for the contractors as well as in-depth training regarding weatherization techniques, building science principles, and diagnostic testing of structures.

According to Ramel, The Community Energy Challenge has already "created about a half a dozen full time jobs" directly attributed to the Recovery Act.

"At present, our primary source of funding for the whole program is the Recovery Act," Ramel says, some of which goes to things like the equipment library, which provides weatherization equipment for participating contractors to help offset the large capital investments needed to start work. Training is also provided to technicians for utilizing tools such as the blower door, infrared camera, and monoxer (carbon monoxide detector).

An energy auditor from Community Energy Challenge helps weatherize a home in Bellingham, Wash. | Photo courtesy of Sustainable Connections

Ramel adds, "The majority of that money will be going into the homes and businesses. And will be matched by investments from the home and business owners."

The partnership

Sustainable Connections is a local nonprofit forum that facilitates sustainable economic development by offering education, connections, and marketplace development to the community.

"The division of labor is essentially that Sustainable Connections is responsible for marketing and outreach for the campaign and for implementing the commercial end of the program," says Ramel. "Opportunity Council is responsible for the being the lead fiscal agent for the Challenge, providing job training to all participating contractors and for implementing the 900 residential efficiency projects county-wide for the program."

Over the last 20 years, community action agency Opportunity Council has weatherized nearly 5,000 homes. This experience, compounded with the agency's training of the weatherization technicians and Sustainable Connection's expansion of the program to

The Community Energy Challenge goals by the end of 2011:

- 900 homes weatherized
- 150 businesses more energy efficient
- 25 jobs created
- 7,000 tons of C02 avoided annually
- 5-30% energy savings

wider demographics, have united the two organizations to thoroughly permeate the benefits of the Recovery Act.

Shawn Collins, Community Energy Challenge Manager of Opportunity Council, notes that by providing necessary training, the Opportunity Council is "able to offer local contractors new skills and opportunities for growth while getting people back to work in the construction field, which has been an industry very hard hit. The benefits of the program are multiplied by providing homeowners with cost savings through efficiency retrofits. It is really a win-win situation."

VANCOUVER

Clark County develops on-the-job weatherization training program

There was a classic chicken-or-the-egg moment in Washington State's Clark County last year when officials learned about the million dollars heading their way for additional home energy upgrades. What comes first, weatherization training or jobs?

"We knew the Stimulus funds were coming…but there was not a huge workforce available," says Todd Oldham, executive director for the continuing education at Clark College in Vancouver, Wash. "So we began to explore."

In a joint effort, Clark College, the county's community services agency, the workforce development council and a local weatherization business decided to go with the egg.

They came up with an on-the-job training program, which is facilitated by the Southwest Washington Workforce Development Council. Richart Family, Inc., a weatherization service based in Vancouver, did the hiring and Clark College trained the workers.

"This is an example of a regional approach to weatherization," Oldham says. "This was a success and has been a result of a lot community interaction."

Richart Family has hired 25 new workers since last September to help with the infusion of weatherization work in the southwestern part of Washington. Half of those workers were from the construction and manufacturing businesses and had no weatherization experience.

The Recovery Act...

- Provided Washington with $30 million to weatherize homes. In April, Gov. Chris Gregoire said the state had met requirements for an additional $30 million.
- Helped the state weatherize over 3,000 homes since last year. The target is 7,100.

A career change

Travis Top, 29, of Vancouver, was part of the first round of people to get hired and go through the training at Clark College, where they received Building Performance Institute (BPI) Energy Analyst and BPI Shell certifications after 12 weeks of classroom time and field training.

After Top was laid off from his job making eco-friendly soaps in 2008, he spent almost two years searching for work at other manufacturing businesses without any luck. "They wanted to pay me $10 an hour," says Top. "But with a family, a wife and four kids, that is just not worth it to me."

His hunt for a job ended at Worksource, a career center for unemployed and dislocated workers, where he found out about the training program. He now makes more than $25 an hour at Richart Family.

For five months at Richart Family, he helped the company weatherize homes, acting like an apprentice before he received his BPI certifications.

"Before I took the class, I was weatherizing homes, and I didn't understand why—all the stuff did not click," says Top. "Now that I went to the classes, I know why I am doing my job…It's the knowledge."

Top says he weatherizes about two or three homes a week.

By August, Clark College hopes to have trained a total of 43 students who are either new hires or existing employees at Richart Family.

"In less than six months, a large majority of the twelve disadvantaged worker new hires have evolved into highly effective, fully employable weatherization workers making living wage and now carrying certifications," said Mike Richart, an executive with Richart Family. "A true success story in anyone's book."

SPOKANE

Hydrogen fuel cells providing critical backup power

Customers of AT&T Wireless and Pacific Gas & Electric Company will enjoy service that's both cleaner and more reliable, thanks to backup power provided by about 200 hydrogen fuel cells. The two companies are becoming early adopters of hydrogen fuel cells as backups for the main power grid.

Both projects are funded by an $8.5 million Recovery Act grant to ReliOn, Inc. of Spokane, Wash., which specializes in hydrogen fuel-cell backups for businesses that need to stay functional during power failures. For utilities like PG&E, which serves about 15 million people in California, backup power is critical because it helps them locate problems at substations, allowing them to get the infrastructure back online quickly. Telecom companies like AT&T need backup power to keep cellular towers working in an outage.

This project will help meet those goals, reinforcing America's infrastructure and creating about 14 jobs. But Sandra Saathoff, of ReliOn, says it's also an attempt to transform the market by speeding up businesses' acceptance of fuel cells.

"Fuel cells are a new technology to most of our customers," she says. "Because it's new and it's really important to keep equipment functioning, they're really cautious about introducing new technology to their networks."

As a rule, Sandra says, businesses that need these backups prefer to slowly introduce the technology after much testing. Companies typically budget for backup power, but in the form of batteries or diesel generators. Paying for fuel cells means raiding other parts of the budget. All of this makes businesses reluctant to become early adopters.

The project seeks to reassure businesses by demonstrating the equipment will perform well and be cost-effective. Some cells will be analyzed for performance.

Sandra says fuel cells can be cheaper than conventional backups

in the long run, in part because of federal tax incentives and lower maintenance costs. "If you're looking at maintenance costs for a ReliOn fuel cell, it's changing an air filter every 400 run-hours. That ends up being a couple hundred dollars," she says. "Maintenance costs on generators are in the thousands per year."

Hydrogen fuel cells are also cleaner. Generators used for backup usually burn diesel fuel. In fuel cells like ReliOn's, hydrogen is broken down into electrons and positively charged ions, producing electricity. The two particles are later recombined and mixed with oxygen from the air, generating water as the only waste product.

BREMERTON

Puget Sound communities promote energy efficiency

Four organizations on Washington state's Kitsap Peninsula are joining forces to improve their energy efficiency. Led by the City of Bremerton, the largest participant city by population and energy needs, the four will hire an expert consultant to find and document ways to save energy in big ways and small.

Pat Coxon, Wastewater Division manager for the city, says the project is still getting started, but reductions in every part of its resource use are on the table. He says the grant was a well-timed opportunity for Bremerton to meet energy efficiency goals it was already pursuing.

"We just finished an energy plan for the city and highlighted a few areas within the city that need to be looked at more in-depth," Pat says. "[When] this grant opportunity came along, we figured it was good timing for us, so we pursued it."

Using a grant funded by the Recovery Act, Bremerton, along with the cities of Poulsbo, Bainbridge Island and the Port of Bremerton plan to hire a shared resource conservation manager, an expert who helps large organizations identify opportunities to reduce wasted energy and other resources. This allows the organizations to put energy-efficiency savings into areas that need revenue, such as public safety. In the case of municipal utilities, an RCM can also save money in residents' energy bills.

RCM programs have already been successful around the state, with support from Washington State University's Energy Program. Typical savings with an RCM range from 5 to 10 percent of costs annually, and 8 to 10 percent would not be unusual. In the Olympia School District, an RCM saved $200,000 in each of the first two years, far outpacing the cost of the program.

Pat praises the program for providing an opportunity Bremerton couldn't pursue on its own. Because the project is in its infancy, he is not sure how much energy savings or financial savings Bremerton is anticipating.

However, the city and its partners are already pursuing smaller energy efficiency projects, such as installing more efficient lamps in a city parking garage. The RCM is expected to bolster those efforts and perhaps free funding for environmentally conscious improvements like alternative-fuel city vehicles.