

# RENEWABLE ENERGY IMPROVING COMMUNITIES

From 2009 to 2015, the Rural Utilities Service (RUS) Electric Program has funded more than \$1.1 billion in renewable energy projects to strengthen local economies and foster sustainable communities..



The mission of USDA Rural Development is to help improve economic development and the quality of life in rural America. Through our Rural Utilities Service (RUS) Electric Program, we help rural America build and modernize its electrical infrastructure by offering loans, grants, and loan guarantees to support essential electric system functions such as generation, transmission, and distribution. The RUS Electric Program has a \$43 billion loan portfolio of which \$1.1 billion was obligated for renewable energy projects.

Rural Utilities Service (RUS) Electric Program Renewable Energy Projects Approved Since 2009					
TOTALS	# of Projects	MW Capacity	RUS Loan Amount (\$M)	Equiv. Homes Powered	Annual CO2 Avoided (metric tons)
Wind	5	288.0	384.5	80,858	608,184
Biomass	7	191.9	521.1	130,725	983,261
Hydro	2	38.6	157.0	15,482	116,448
Solar	12	57.5	80.8	17,547	131,984
<b>Total</b>	<b>26</b>	<b>576.0</b>	<b>1143.4</b>	<b>244,612</b>	<b>1,839,877</b>

The RUS Electric Program has shown its commitment to renewable energy projects by

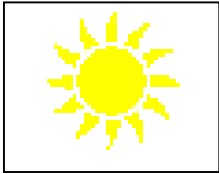
providing capital to eligible projects to enhance the electric grid and provide access to reliable and affordable electricity. Renewable energy projects create an environmentally-friendly energy infrastructure and can help create new jobs to deliver a stronger local economy. We continue to look forward to provide needed capital for new renewable energy projects that will diversify the energy supply and sustain a vibrant rural America.

Since 2009 the USDA RUS Electric Program has been able to provide more than \$1.1 billion in financing for 26 renewable energy projects for the residents of rural America; moreover, these projects have avoided the release of more than 1.8 million metric tons CO<sub>2</sub> into the environment. For comparison, the average gasoline-powered automobile emits 6 metric tons of CO<sub>2</sub> per year; therefore, RUS renewable energy projects have reduced the amount of CO<sub>2</sub> emissions that is equivalent to taking 306,500 automobiles off the road annually.

RUS Electric Program loans are available for several types of renewable energy projects which include wind, solar, biomass, hydroelectric, and geothermal resource-based projects. Select renewable energy project summaries are presented.

## Selected Renewable Projects Financed by the RUS Electric Program

### Solar



Solar energy is created by utilizing solar photovoltaic panels to convert the sun's light into usable solar electricity.

#### **Montgomery Solar Owner, LLC (North Carolina), 2015**

The RUS Electric Program provided a \$20 million loan for a 20 megawatt solar farm. This solar project occupies about 120 acres of land and will supply electricity to the equivalent of more than 4,000 homes and annually; furthermore, when fully operational the facility will avoid the creation of 30,168 metric tons of CO<sub>2</sub>. The Montgomery Solar project was the largest solar loan approved by Electric Program to date.

#### **Solar Projects for O2 EMC (North Carolina), 2015**

Developer, O2 EMC received RUS loans for three solar projects in 2015. The RUS Electric Program provided loan funds of \$22.7 million for the three projects. Each 5 megawatt solar farm will generate electricity using solar photovoltaics. These three solar farms will power the equivalent of more than 1,000 homes in rural North Carolina and avoids annual carbon dioxide emissions of 22,626 metric tons.

### Wind



Wind power involves converting wind energy into electricity by using utility-scale wind turbines.

#### **Wind Projects for Basin Electric Power Cooperative (North Dakota), 2010 & 2011**

Basin Electric Power Cooperative received RUS Electric Program loans totaling \$357.5 million for three wind projects that will produce 271 megawatts of electricity collectively. The three wind energy projects are capable of powering an equivalent of 76,075 typical homes. North Dakota has the most RUS-funded wind power capacity than any other state.

#### **Fox Islands Wind Project (Maine), 2009**

The Fox Islands Wind project on the island of Vinalhaven received financial assistance from the RUS Electric Program. RUS provided a loan for \$9.5 million and a High Energy Cost Grant of \$0.5 million for the 4.5 megawatt wind project. The turbines annually generate around 11,600 megawatt hours of electricity which provides energy to 1263 homes; moreover, the amount annually generated is slightly larger than the Fox Islands' yearly use of electricity, which is approximately 10,500 megawatt hours.



### **Hydroelectric**

Hydroelectricity is the production of electrical power through the use of falling or flowing water. Hydroelectric power is the largest source of renewable power in the United States.

#### **East Texas Electric Cooperative's Hydroelectric Station, 2013**

The RUS Electric Program provided a \$73 million loan for a 24 megawatt hydroelectric station to the R. C. Thomas Hydroelectric Station. The total project costs estimated at \$140 million dollars, which ETEC is funding with the RUS Electric Program loan and Clean Renewable Energy Bonds. This project will be a 24 MW "run of river" facility using the existing Lake Livingston Dam and reservoir located in southwest Texas on the Trinity River. This station will power the equivalent of more than 9,000 homes while avoiding the release of 72,403 metric tons of CO<sub>2</sub> annually when this facility goes online in 2017. This project is also a qualified renewable energy resource that will meet Texas' Renewable Portfolio Standard.



### **Biomass**

Biomass power is carbon neutral electricity generated from renewable organic waste that would otherwise be dumped in landfills, openly burned, or left as fodder for forest fires. In biomass power plants, wood waste is used to make electricity.

#### **East Texas Electric Cooperative Biomass Project, 2012**

The RUS Electric Program partnered with borrower, ETEC, in order to fund the recently completed Woodville Woody Biomass Project located near Woodville Texas. The Woodville project is a 49.9 MW carbon neutral renewable energy facility that burns wood waste from local sources with the best available technology to minimize emissions and particulates. The RUS Electric Program provided a \$151 million loan for this renewable energy project. This facility will power the equivalent of 34,000 homes and avoids 256,427 metric tons of CO<sub>2</sub> annually.

#### **Northern Virginia Electric Cooperative Biomass Project, 2011**

Northern Virginia Electric Cooperative (NOVEC) is completing construction of its new biomass generating plant in South Boston, VA. NOVEC received a \$90 million loan from the RUS Electric Program for a new 49.9 megawatt green facility. The fuel for this plant will be wood chips from wood waste remaining from logging activities in surrounding forests. The new biomass generating plant will use "grey water" from a nearby water treatment plant for evaporative cooling and thereby eliminate release of up to a million gallons per day from the water treatment plant to the Dan River. Energy generated from this plant will be expected to power the equivalent of 16,000 homes while annually avoiding 255,914 metric tons of CO<sub>2</sub>. The project has brought over 500 local construction jobs and will provide 26 permanent jobs at the NOVEC facility; furthermore, an estimated 40 new permanent local jobs will be supported by harvesting, processing, and delivering the wood fuel for the plant.

## **Green Energy Team Biomass Project (Kauai, Hawaii), 2012**

The Green Energy Team (GET) received an RUS Electric Program loan for \$72.9 million for a 7.5 megawatt biomass energy project. The facility provides about 11 percent of the island's electricity which is enough to power 8,500 households and eliminate the need for 3.7 million gallons of imported oil annually. The facility was the first closed-loop, biomass-to-energy plant in the United States, and will rely completely on its own sources of Kauai biomass wood chips. The Green Energy Team's plant is responsible for the creation of 39 permanent operating jobs.

### **RUS Electric Program – Selected High Energy Cost Grants**

In addition to the providing loans for renewable energy projects in rural areas, the RUS Electric Program provides financial assistance to energy providers and other eligible entities in lowering energy costs for families and individuals in rural areas with extremely high per-household energy costs (275 percent of the national average or higher).

#### **Sacred Power Corporation (New Mexico, Arizona, and Utah), 2010 & 2011**

The RUS Electric Program awarded \$2 million under the USDA High Energy Cost Program to a Native-American owned renewable energy system integrator and manufacturer. Two hundred and sixty solar photovoltaic hybrid wind turbine and/ or propane generators were installed to give electricity to over 300 remote homes in the Navajo Nation in New Mexico and Arizona. These systems have helped thousands of needy families that require refrigerated medicine. The difference that these installations have made in these communities is profound.

The Navajo Nation in Arizona was also awarded \$500,656 in loan for a Native American-owned renewable energy system integrator and manufacturer located in New Mexico. This grant will assist the Tonolea Chapter in Arizona provide renewable power for about 25 rural homes currently without electric service. Approximately 18,000 homes on the reservation lack basic electric service because of the high cost of extending electric lines in rugged, rural areas. This grant will provide electricity to many residents currently without electric service.

### **Looking Ahead**

Renewable resources for the generation of electricity are typically most abundant and practical for development in rural areas. This geographic advantage creates an opportunity for rural electric utilities and project developers to invest in renewable energy projects. To capitalize on renewable resources as an economic opportunity, the RUS Electric Program provides a reliable and attractive source of long-term financing. The RUS Electric Program will remain a prominent player in helping to expand the use of renewable energy benefitting rural communities over the next 20 years and beyond.

Under the authority of the Rural Electrification Act of 1936, the Electric Program makes direct loans and loan guarantees to electric utilities (wholesale and retail providers of electricity) that serve customers in rural areas.

For More Information please visit us at:

<http://www.rd.usda.gov/programs-services/allprograms/electric-programs>