



IOWA CHAPTER

Rural Electric Cooperatives Benefit from Distributed Renewable Energy and Energy Efficiency Programs

Rural electric cooperatives (RECs) were developed to provide electricity to agricultural areas and customers living and working in more remote rural areas of the United States. RECs cover large geographical areas and, therefore, have large transmission and distribution grids. This leads to large fixed costs which must be paid for by a smaller customer base, compared to utilities that service large cities. On the other hand because RECs operate in rural areas, the RECs have tremendous potential for taking advantage of renewable energy, including utility-scale wind and solar technology as well as distributed renewable energy projects that are owned by farmers, businesses and home-owners. The rural electric cooperative is owned by the customers it serves; those customers are called members of the cooperative.

Distributed Renewable Energy

The rural electric cooperative can become an active participant in the renewable energy market by becoming a distributor of renewable energy systems, just like some cooperatives sell light bulbs and appliances. They can further take advantage of the renewable energy market by performing site assessments, installations and repairs.



Solar panels on rooftop. Photo Credit: National Renewable Energy Laboratory

When farmers, businesses and home-owners install their own renewable energy systems, such as wind and solar, not only are they meeting their own energy needs but they are also benefiting the REC by reducing both peak load and base load power. Base load is the level of power that customers use day in and day out. Peak load is the highest level of power used by customers.

Peak load is often reached during the hottest days of summer when folks are running air conditioners. Consumer-owned solar systems reduce the need for power during those hot days, which reduces the peak load. Generally the power used during peak load is more expensive than the base load power that is used every day.

Utility companies must have capacity available to generate power at peak load. If the peak load is reduced, the need for extra generating facilities is reduced. Utilities always generate the base load power. If base loads grow, then the utility is under pressure to build additional generation facilities, such as coal, nuclear or natural gas or utility-scale wind. Building those new facilities is costly to the utility and to the bill-payer. Renewable energy systems can reduce both peak load and base load, just like energy efficiency and conservation.



Photo Credit: Dennis Schroeder, National Renewable Energy Laboratory

RECs are rightfully concerned about safety issues when a customer installs renewable energy. Likewise, RECs are rightfully concerned about power quality. That is why a standard interconnection is so important. On the other hand, distributed renewable energy systems provide opportunities to reduce vulnerabilities and fluctuations in the grid. As power is transmitted long distances, some of the power is dissipated as line losses. Locally produced power results in less line loss during transmission since the power is transmitted shorter distances.

Transmission and distribution lines are vulnerable to weather problems, such as ice storms or severe windstorms. When customers have distributed generation, they can continue to power their own buildings. Distributed, renewable energy is a win-win for rural electric cooperatives and their members.

Energy Efficiency

Energy efficiency programs are beneficial to both the utility and the customer/member.

Energy Efficiency programs are beneficial because:

- Reduced energy consumption delays the need for the utility to build new power plants.
- Energy efficiency can help shave peak loads, the point at which the customers are using the greatest amount of electricity at one time. The electricity that the utility provides at peak load is often the most expensive, particularly if the utility has to purchase the power on the open market or if it has to run an inefficient generating plant.
- When less power is generated, pollution is reduced. Burning coal and natural gas creates pollutants that escape into the air. Coal combustion residues hold numerous toxic chemicals. Nuclear waste remains toxic to humans and animals for thousands of years.
- Members of the cooperative save money when they reduce the amount of electricity they use.

Some energy efficiency programs offer an energy audit of a home or business. The audit can be used as a guide in making upgrades to a building. For example, the audit might indicate that the customer's windows are inefficient.



Photo Credit: Dennis Schroeder, National Renewable Energy Laboratory

The energy efficiency programs often include rebates that are given to customers when energy efficient products are purchased, such as dryers, refrigerators and compact fluorescent light bulbs.

The utility might offer a rebate on the purchase of solar panels or wind turbines. Other benefits that might be offered are training programs on energy efficiency.

In order to administer the energy efficiency programs and to pay for rebates, the utility must spend a fixed amount or a percentage of sales on the energy efficiency program. Energy efficiency is much less expensive than a new

power plant; likewise, it is much less expensive than running an inefficient power plant.

By taking advantage of the utility company energy efficiency programs, we all win!