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DISTRIBUTED WIND ENERGY ASSOCIATION

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Distributed Wind & Rural Electric Cooperatives

Applications

Distributed wind, commonly referred to as small and community wind, is the use of smaller wind turbines at residential, agricultural, commercial, industrial, and community sites to offset all or a portion of onsite energy use. Distributed wind systems can range in size from a 1-kilowatt turbine at a home to a 2-megawatt (MW) turbine at a manufacturing facility. Distributed wind systems are connected on the customer side of the meter and sized to appropriately meet the onsite energy load. Other applications of distributed wind may include one system directly serving community members or systems connected to micro grids to support grid operations and offset large nearby loads.[1]

A Dakota Turbines DT-30 30 kW wind turbine installed at a farm in North Dakota reduces the farm's operating costs by generating an average of 80,000 kilowatt-hours of clean electricity per year. Photo: Dakota Turbines

Benefits

Distributed wind can help address many of the nation's most pressing energy and electric power problems, including blackouts and brownouts, energy security concerns, power quality issues, tighter emissions standards, and the desire for greater control over energy costs.[2] Today, more than 90 percent of the nation's 900-plus rural electric cooperatives (co-ops) provide electricity generated using renewable energy resources. The nation's greatest wind resources can be found in rural America, providing opportunities for onsite distributed wind systems to alleviate demand on co-ops. Co-ops are also ideally situated to take advantage of wind resources by investing in community wind projects.[3]

Distributed wind also provides a driver for economic development in rural and agricultural communities, diversifying the job market, and providing long-term opportunities in a growing industry. The construction, operation, and maintenance of distributed wind systems require the hiring of local civil and technical labor to execute tasks such as such as excavating, forming, reinforcing, and pouring foundations as well as installing the electrical infrastructure for the system. Ongoing maintenance of these distributed wind systems provides for long-term job security for skilled laborers. In addition, electric cooperatives that enable the deployment and interconnection of distributed wind systems can support businesses in their territory, whether it be a dairy looking to meet its corporate sustainability goals or a food processor wishing to stabilize its annual energy costs. Distributed wind may be a valuable tool to increase overall load and foster greater member appreciation.

[1] U.S. Department of Energy
[2] U.S. Department of Energy
[3] National Rural Electric Cooperative Association

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Community Wind

A community wind project is located within a community and the energy generated is allocated and credited to local residents and businesses as an offset to their onsite energy usage. There are several business models whereby a community wind project is owned, managed, and maintained. Co-ops and municipal utilities can own community wind projects and use them to diversify their portfolios and reduce demand charges on electricity purchased from other providers to meet peak demands. Community wind projects may also be owned and operated by a third-party developer, but be managed in collaboration with a co-op. Nearly any type of community member can benefit from signing up for community wind, including schools, hospitals, businesses, farms, ranches, and community facilities.[4]

A Bergey Windpower 10 kW turbine installed on a Minnesota farm offsets the farm's energy usage and lowers operating costs.

Rural Co-ops Support Renewable Energy

Though traditionally co-ops have been highly coal-dependent, they are increasingly turning towards renewable energy, and specifically distributed wind, for several reasons:

- **Rural**: Distributed wind systems are the ideal technology in rural communities where there are large expanses of open land and great wind resources. Co-ops serve communities with these characteristics.
- **Member demand**: Co-ops are owned by their members and responsive to member needs. Members are calling for economic development and environmental benefits through local clean power and co-ops are responding.
- **Economics**: Distributed wind systems' installed costs are trending downward. The levelized cost of energy from distributed wind is now competitive with non-renewable energy in certain markets. Given recent price declines, distributed wind can save co-ops money.
- **Portfolio diversification**: Distributed wind can protect co-ops and their members against volatile energy prices.

Co-ops take a variety of approaches to renewable power. Some are signing contracts with utility-scale wind projects, but an increasingly popular option is to purchase power from community-scale wind projects.[5] Nationally, co-ops are actively investing in distributed generation**.** Currently:

- 67% of co-ops interconnect with member-owned generation
- 75% have interconnection policies, up from 45% in 2009
- 45% purchase excess power from member-owned generation, up from 20% in 2009
- 47% offer net metering, up from 28% in 2009[6]

[4] U.S. Department of Energy
[5] Rocky Mountain Institute
[6] National Rural Electric Cooperative Association