



Understanding Distributed Generation

As the United States looks for ways to provide more electricity to fulfill our growing needs, finding ways to make the power system more secure and reliable have become priorities. One way to accomplish this may be through the development and use of distributed generation technologies.

What is distributed generation?

Distributed generation is the use of small-scale power sources on-site and has the ability to supply energy to a utility's distribution system. Examples include backup generators like those used at hospitals, solar photovoltaic systems on rooftops or combined heat and power systems used at some large manufacturers and universities.

What differentiates distributed generation from traditional large-scale electricity supply is energy efficiency, location, capacity and connection to the electric system. Applications such as combined heat and power are very energy efficient because they use the waste heat created during the production of electricity. With efficiency ratings between 60 percent and 80 percent, distributed generators are twice as efficient as traditional power plants whose efficiency ratings are about 35 percent.

Most distributed generation systems range from producing a few kilowatts to several hundred megawatts and are located close to the point the elec-



tricity will be used. They are typically owned and operated by residential consumers or businesses that use them to produce electricity to meet a portion of their demand or to improve the reliability of the entire electric system. The number of consumers who utilize distributed generation is still relatively small in Ohio but those who do can connect to their utility provider's electric grid and take advantage of net metering regulations.

The American Recovery and Reinvestment Act has included funds to help residential consumers purchase different types of distributed generation sources. In Ohio, the Department of Development also offers grant money for these systems. With a new law that requires electric utilities to produce a percentage of their electricity through renewable energy, programs are in development to purchase renewable energy credits from qualifying distributed generation projects.

Utilizing distributed generation

[Net metering](#) is a program offered by a utility company for customers who install renewable energy systems to generate their own electricity. The power produced can be used to offset all or a portion of the electric energy provided by the utility. Any excess energy generated by the customer during the monthly billing cycle is sold to the utility company and credited to the customer at the utility's generation rate.

Solar cells, wind turbines and biomass

> *continued on other side*

> *continued from other side*

applications are the most realistic options of distributed generation available to residential and rural consumers. Cost is a major consideration when deciding whether distributed generation is a feasible option. Small wind turbines cost between \$6,000 to \$22,000 installed, depending on size, application and service agreements with the manufacturer. A typical 3 kW residential solar application costs about \$27,000 installed. These costs are before the 30 percent [federal tax credit](#) or [state incentives](#) are applied. When considering an investment in distributed generation technologies, the long-run average costs of electricity are a more important factor than the initial capital costs in that decision.

The benefits

As a complement to traditional electric service, distributed generation has many benefits for individuals and the nation as a whole. It could lower the overall costs of producing and delivering power and promote the development and wider use of renewable energy, which can improve the environment and create new jobs.

By developing distributed generation throughout Ohio and the United States, greater reliability may be achieved and congestion on power lines may be relieved resulting in less brownouts and blackouts. With small-scale power sources planted throughout the state, Ohio also can improve the security of its energy supply. Distributed generation currently represents less than 1 percent of the electricity produced in Ohio but the benefits have been documented in several European nations where some get half of their power from distributed generation.

Distributed generation faced many barriers prior to the implementation of Ohio's electric energy law and the corresponding rules finalized in April 2009. The law provides outlines of how distributed generation will be implemented in Ohio. This electricity

production method is considered an acceptable resource to meet the utilities' requirements in both advanced and renewable energy resources. Utilities will be able to purchase the renewable energy credits produced from these systems to satisfy their portfolio standards under the energy law. Distributed generation that is owned by a third party and installed under a power purchase agreement also will qualify to meet the benchmarks.



In order for distributed generation to work, consumers will need to have net metering agreements with their electric utility. [Net metering](#) is required for all four major electric utilities in Ohio. Previously, a cap of 1 percent of a utility's peak demand prevented widespread adoption of distributed generation; it has since been removed meaning any distributed generation customer will be eligible for net metering. Ohio has carefully crafted policies that govern the use and development of distributed generation, including net metering, interconnection, and standby service so that it can now be an effective option for the future of the energy supplies in Ohio.

Distributed generation may be a way to provide highly reliable service in a cost-effective manner while giving consumers an option to control their energy costs. With a new electric energy law and the required benchmarks for advanced and renewable energy, a mix of power supplies including distributed generation could be a part of the long-term solution to achieve reliability and pricing goals.

Who can help?

For more information on distributed generation or other ways you can take control of your energy usage, contact the OCC toll free at 1-877-PICKOCC (1-877-742-5622) or visit www.pickocc.org.

For additional information from the Office of the Ohio Consumers' Counsel:

Call: 1-877-PICKOCC (1-877-742-5622) toll free or (614) 466-8574

Write: 10 West Broad Street, Suite 1800, Columbus, Ohio 43215-3485

E-mail: occ@occ.state.oh.us • Internet Address: www.pickocc.org