

Net Metering/Interconnection



Net metering is a special metering and billing arrangement between a utility and customers who choose to install small renewable generation systems like wind turbines and photovoltaic (PV) panels and interconnect them to the utility. Net metering encourages the development of small-scale renewable energy systems by providing increased savings to customers. It also ensures that customers have a reliable source of energy from their utility during times when their renewable generators are not producing energy.

Net metering refers to billing practices that allow energy charges to be assessed by a utility based upon the difference between how much energy the customer-generator takes from the utility and how much it delivers to the utility over the entire billing period. This is sometimes called “letting the meter spin backwards.” Net metering allows a customer-generator to “store” excess generation with the utility for use at a later time, or to replace energy previously “borrowed” from the utility. This service is offered without incurring any additional charges from the utility for that service.

Missourians supporting and passing Proposition C in November 2009 clearly established that Missouri wants to encourage the installation and use of renewable energy generators. These systems encourage diversification of the current energy portfolio and help lessen the environmental footprint associated with electrical generation and consumption. In addition, customers with net metering systems tend to be much more aware of their energy consumption, so they usually consume less energy than the average retail customer. Net metering can also help increase the energy in the power grid, which helps the utility keep up with increases in demand during peak power-use times.

UE's net metering tariff is available on www.ameren.com. For a more detailed description of net metering policies in other states and links to the authorizing legislation, see dsireusa.org.

Missouri law makes it clear that a customer may not operate a generator tied to the utility without the utility's prior approval. It is in everyone's interest to ensure that a customer's generator and the utility system work together in a safe and reliable manner.

“Interconnection” is the process of sharing information with and receiving approval from the utility before the generator begins operating.

Systems Utilized for Net Metering

Wind Systems: For hundreds of years, people have captured the energy of the wind, using windmills to grind grain and pump water. The modern equivalent of windmills — wind turbines — capture the wind using two or three propeller-like blades mounted on a shaft to form a rotor. When the wind blows, it spins the rotor like a propeller, and the turning shaft spins a generator to make electricity. For additional information please see the Small Wind Electric System US Consumer's Guide at www.nrel.gov/docs/fy07osti/42005.pdf.



Photovoltaic (PV) Systems: Photovoltaic systems use solar cells to convert sunlight directly into electricity. The cells are made of semiconducting materials that generate electricity when exposed to sunlight. The simplest solar cells power small electronic devices, like watches and calculators. Solar cells do not store electricity – they just generate electric current when sunlight is available. Batteries are often included as part of the complete PV system. In a rooftop PV system, the electricity generated by a multitude of solar cells is channeled into an inverter and converted into a usable alternating current (AC) power source. To find solar developers in your area see www.findsolar.com.

Missouri Requirements for Metering an Electric System of 100 kW or Less

Interconnection Requirements: If you choose to install a photovoltaic (PV) or wind power source and operate it in parallel with the AmerenUE distribution system, the following is required for interconnection:

- UE must review your project, *before* operation, to determine whether the PV or wind system could adversely affect the safety, reliability or quality of local electric utility service. Please contact 314-554-2649 or lcosgrove@ameren.com to request a copy of the MO Net Metering Tariff - Interconnection Application/Agreement for Net Metering Systems with Capacity of 100 kW or Less to start the process.
1. UE engineers will perform an Interconnection Study to review your project. Your system must include all necessary equipment to properly protect UE's employees and other customers from any disruption or hazardous condition that could be caused by your PV or wind system. Requirements can vary depending on the size, type and location of your PV or wind system.
 2. A Parallel Operating Agreement must be executed. This is a contract between you and UE that authorizes you to operate your PV or wind system in parallel with the UE system.
 3. A Missouri licensed electrician or Missouri licensed engineer must inspect and sign your agreement with UE stating the customer-generator system satisfies all requirements in Section C - Quality of Service of the agreement.
 4. Once your system is installed, UE may conduct a final inspection before allowing parallel operation of the PV or wind system.

- Your PV or wind system must comply with all applicable codes, laws and regulations.
- Your PV or wind system must be capable of automatically disconnecting from the company system. During an outage on the utility system, an interconnected PV or wind system can back-feed a UE line, creating a hazardous condition for utility workers and others. To prevent backfeed, the PV or wind system must either automatically disconnect from or cease to energize UE electric lines when a loss of the utility company's supply occurs. Your PV or wind system must be installed in accordance with current IEEE standards and be UL-listed.
- Non-islanding inverters are required.
- For PV or wind systems greater than 10kW output, you must submit operating and instruction manuals for the specific model of equipment being installed to UE for review prior to connection of the equipment.
- Your system must include a manual visible AC disconnect, located near the electric meter, that is accessible to UE staff and lockable with UE locks. This allows utility company crews to disconnect the PV or wind system from the utility company system for maintenance, reliability and safety concerns.

Your system must include appropriate wiring and metering if you want to sell excess electricity from your PV or wind system back to the UE system. It is strongly recommended that you discuss the details of your project with UE personnel at the earliest possible time and investigate all state and federal agency requirements before proceeding.

