ONE ENERGY
WIND FOR INDUSTRY®

WIND TERMS

Distribution system: A power-line system that comprises the parts of an electric power system between the sub-transmission system and the consumers' service switches. Typically, these are the power lines installed on wooden poles that actually connect to your facility.

Gear box: Gears connect the low-speed shaft of the rotor to the high-speed shaft and increase the rotational speeds from about 30 to 60 revolutions per minute (rpm) to about 1200 to 1500 rpm, which is the rotational speed required by most generators to produce electricity. The gear box is a heavy and expensive part of the wind turbine. Some turbines now utilize "direct-drive" generators that operate at lower rotational speeds, therefore eliminating the need for gear boxes.

Generator: Turbines usually use off-the-shelf induction generators that produce 60-cycle alternating current (AC) electricity.

Green Campus℠ alternative energy facility: The physical premises and layout of a *Wind for Industry®* project.

Hub: A cast structure to which the blades are attached, creating the rotor (hub + 3 blades = rotor).

Independent System Operator (ISO): An organization formed at the direction or recommendation of the Federal Energy Regulatory Commission (FERC). In the areas where an ISO is established, it coordinates, controls, and monitors the operation of the electric power system.

Kilowatt (kW): A unit of power equivalent to 1,000 watts.

Kilowatt hour (kWh): A kilowatt hour (kWh) is equal to 1,000 watts of electricity used for one hour.

Megawatt (MW): A unit of power equivalent to 1,000,000 watts.

Megawatt hour (MWh): A megawatt hour (MWh) is equal to 1,000 kilowatt hours (kWh). It is equal to 1,000 kilowatts of electricity used for one hour.

Modified Accelerated Cost Recovery System (MACRS): The current method of accelerated asset depreciation allowed for wind turbines by the United States income tax code.

Nacelle: The cover that houses the generating components of a wind turbine, including the generator, gearbox, low and high speed shafts, controller, and brake assembly.

Nameplate capacity: The amount of power a wind turbine can produce at its rated wind speed. The definition of rated wind speed can be found below.

Net metering: A series of state laws that state, for a given customer with a given generator (usually a clean energy generator), that the utility company can only bill based on the NET electricity consumed at the end of the billing period. This means it does not matter when you use the energy

or when you produce it, because you are only billed on the net difference. In some cases, utilities are required to pay for net excess generation. Laws vary widely throughout the country.

On-site generation wind energy: The use of a wind turbine to directly offset a facility's electricity consumption under net metering rules.

Rated wind speed: The wind speed at which the turbine produces its nameplate-rated power.

Renewable Energy Agreement (REA): A contract between two parties: one who generates electricity for the purpose of sale (the seller), and one who purchases the electricity (the buyer).

Renewable Energy Credit (REC): A certificate that is proof that one megawatt hour (MWh) of electricity was generated from a renewable energy resource. Once the electricity provider has fed the electricity into the grid, the REC they received can then be sold on the open market as a commodity. RECs provide an additional income stream to the energy provider, thus making it a bit more attractive to produce "green" energy.

Rotor: The blades and the hub together are called the rotor.

Tower: Towers are made from tubular steel. Because wind speed increases with height, taller towers enable turbines to capture more energy and generate more electricity.

Transmission: The electric grid that connects generators to distribution substations.

Transformer: The transformer is a piece of electrical equipment used to step up or step down voltage. Most turbines have a dedicated transformer to step up their voltage to the grid voltage.

Turbine: A device for converting the flow of a fluid (air, steam, water, or hot gases) into mechanical motion that can be used to produce electricity.

Wind Campus® wind generation facility: the technical facilities and mechanisms used for wind energy generation at a *Wind for Industry®* project. Typically, a Green Campus℠ alternative energy facility encompasses a Wind Campus® wind generation facility.

***Wind for Industry®*:** A wind energy project designed to achieve a significant reduction of an industrial facility's electrical consumption from the grid. These projects involve installing one or more utility-scale wind turbines and interconnecting them on the facility's side of their utility meter.