

Microgrid Definitions

Definitions

Term	Definition	References
community choice aggregation	An alternative to the investor owned utility energy supply system in which local entities aggregate the buying power of individual customers within a defined jurisdiction in order to secure alternative energy supply contracts. CCA is sometimes described as a microgrid but this usage is generally inappropriate because the CCA typically uses the wiring of the utility grid and cannot island .	Wikipedia Yale
demand response	The process by which a load changes its electricity consumption patterns in response to price or other incentive signals from the electric power system that provides its electricity or other service providers using rules established by the customer.	Wikipedia DOE
distributed energy resource	Source of electric power that is not directly connected to a bulk power transmission system including both generators, renewable sources such as PV and energy storage technologies.	Wikipedia CleanPower
electric power system	Facilities to deliver electric power to one or more loads. The term is typically used as a generalized label for a wide area grid such as a national power grid but can also refer to a single power entity such as an investor owned utility.	Wikipedia EIA
electric vehicle	A vehicle whose primary propulsion is from electric motors typically powered by batteries.	Wikipedia
energy management system	A system of computer-aided tools used to monitor, control, and optimize the performance of the generation, transmission and distribution of electric power.	Wikipedia DOE CERTS
energy storage system	A system for storing energy delivered as electric power. In microgrids, an energy storage system typically consists of batteries and charging electronics but the term can be applied to many other forms of energy storage.	Wikipedia DOE
grid-tie inverter	A type of inverter that uses incoming power from a utility grid as a voltage and phase reference for the ac power it creates. It deliberately shuts down if there is no ac reference available to prevent islanding that might be hazardous to grid maintenance workers.	Wikipedia Liu et al
independent system operator	A federally regulated entity that coordinates, controls, and monitors the operation of the electric power system, usually within a single US state, but sometimes encompassing multiple states.	Wikipedia FERC
inverter	An electronic device that converts dc power to ac power typically used to supply power from a PV system to a microgrid or utility grid but can also be used to power ac devices from a dc microgrid, or to back-feed power from a dc grid to the utility grid. The opposite of a rectifier .	Wikipedia
investor owned utility	A private company owned by stockholders that provides power as part of a utility grid, distinguished from a cooperative that is owned by its members or a public utility such as LADWP .	Wikipedia
islanding	The process by which a power system is split into two or more segments, each operating autonomously with its own energy resources such as occurs when a microgrid disconnects from the utility grid .	Wikipedia
microgrid	A group of interconnected loads and distributed energy resources with clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid that may connect and disconnect from the grid to enable it to operate in both grid-connected or island modes.	Wikipedia DOE
microgrid controller	A device that implements a microgrid control system . Can also refer to the system itself when the functionality is distributed between multiple devices.	NREL Joos et al
microgrid control system	A system of control functions that permits a microgrid to manage distributed energy resources and loads to maintain acceptable frequency and voltage, operate autonomously and connect or disconnect from a utility grid, including its energy management system.	IEEE 2030.7
microgrid energy management system	The energy management system used by a microgrid.	Zia et al
microservices architecture	A style of application architecture in which the functionality of an application is partitioned into cooperating, fine-grained services accessed via lightweight network protocols.	
nanogrid	A single domain of power—for voltage, capacity, reliability, administration, and price.	Nordman
photovoltaic system	A type of distributed energy resource where the power is created by one or more solar panels connecting to an electric power system such as a microgrid using an inverter for ac or charge controller and batteries for dc	

point of common coupling	The point where a microgrid attaches to a wider area grid such as a utility grid .	
point of interconnect	See: point of common coupling .	
power purchase agreement	An agreement between a seller that generates electricity and a buyer that consumes electricity. Can be used by an independent producer to source power to a utility grid or between a consumer and some non-standard seller such as a CCA .	Wikipedia
rectifier	An electronic device that converts ac power to dc power. In a microgrid context, a rectifier is typically used to provide power to a dc microgrid from a utility grid at the point of common coupling . The opposite of an inverter .	
utility grid	A wide area grid where the power is primarily produced by regulated utility companies. Most microgrids connect to a utility grid when they are not islanding .	

Acronyms

Acronym	Definitions
CCA	community choice aggregation
DER	distributed energy resource
DR	demand response
EMS	energy management system
EPS	electric power system
EV	electric vehicle
ESS	energy storage system
IOU	investor owned utility
ISO	independent system operator or International Organization for Standardization
MEMS	microgrid energy management system
PCC	point of common coupling
POI	point of interconnect
PPA	power purchase agreement
PV	photovoltaic, usually referring to a photovoltaic system