Microgrids: Back to the Future?

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What I’ll cover:

- Quick intro (Who am I ... and why am I here?)
- Definition of Microgrid
- What is NOT in the definition of Microgrid
- Where does ‘Safety’ fit in to the discussion?
- Identify some of the issues/problems we need to solve
Microgrid Definition – per US DOE

Microgrids are localized grids that can disconnect from the traditional grid to operate autonomously. Because they are able to operate while the main grid is down, microgrids can strengthen grid resilience and help mitigate grid disturbances as well as function as a grid resource for faster system response and recovery.
Examples of typical Microgrids:

DOE’s Office of Electricity Delivery & Energy Reliability
http://energy.gov/oe/services
Words **not** in the definition:

**Costs**: No where does it say microgrids are less expensive to operate.

**Reliability**: Although `Reliability` is hard to define, a microgrid does not guarantee reliability.

**Environmentally Friendly**: Although there could be examples of a better carbon footprint, in many cases, DG/Microgrid could be worse for the environment.
Words not in the definition (con’t):

**Smart**: No where does it say microgrids need to be smart. Although quite helpful in making the most of your system, there’s some great examples of microgrids that are dumb…. and awesome.

**Power Quality**: Similar – but different – from Reliability. When talking AC – there’s no replacing ‘rolling inertia’.

**Safety**: One item that seems to be missing when we discuss microgrids......who’s standard applies? Are there standards? Is it negotiable?
Safety and regulation questions:

- Safety of the public
- Safety of the employees
- Safety of others – fire, telecom, etc.
- Regulation of installation (Jurisdiction)
- Regulation of equipment
- Regulation of rates
- Regulation of service quality
- Regulation of generation
Safety: Possible National Electrical Safety Code ("NESC") Matters

- Utility or private ownership of facilities? I.e. NESC or NEC governs?
Call to action:

**Education**: Need real and honest dialog on the plus’s and minus’s of microgrid installations. Education of regulators, consumers, and the public.

**NESC vs NEC**: need to engage at all levels. State, county, city, etc. Safety must be in the discussion.

**Flexibility**: Need to understand that the electric delivery system is changing. Possibly in ways that we haven’t thought of yet. It’s time to bring the discussion of the future grid to today’s code experts.
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