

Microgrid Implementation Panel

David Chiesa - Chair

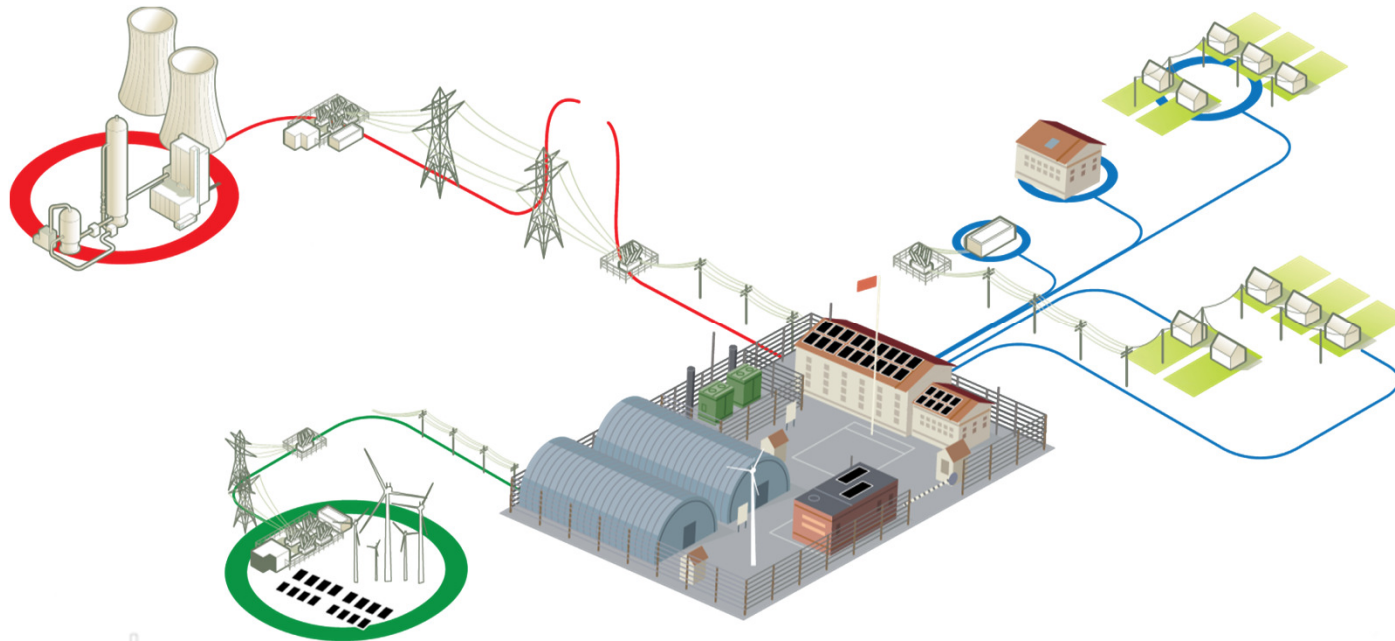
Director of Microgrids

S&C Electric Company

What is a Microgrid?

Per U.S. Department of Energy, a microgrid is:

“A localized grouping of distributed electricity sources, loads, and storage mechanisms which can operate both as part of the central grid or independently as an island.”

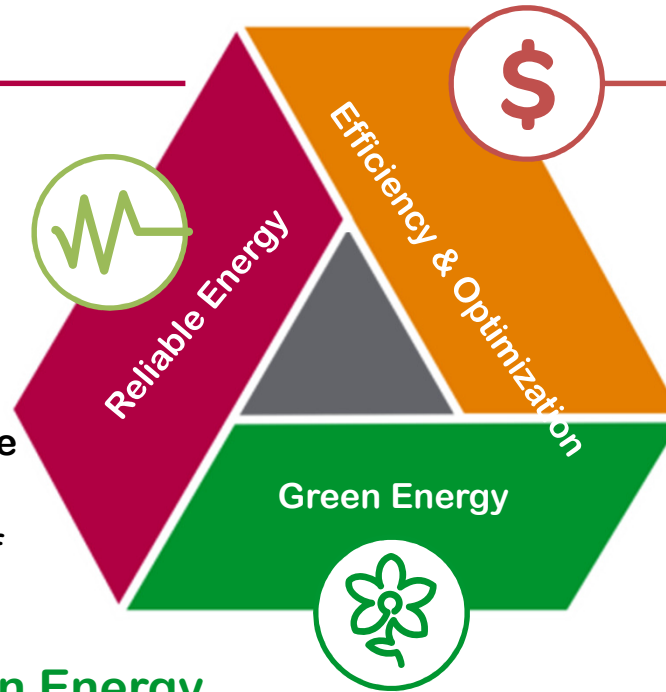


Why Would Anyone Want to Build One of These?

Customize DER to deliver enhanced reliability; efficiency and optimization; and environmental benefits.

Reliable Energy

- Ability to proactively island from utility and reconnect
- Preserve critical loads 24/7/365
- Repurposing grid tied inverters for island mode operation
- Determine root cause of outages and restore power quickly



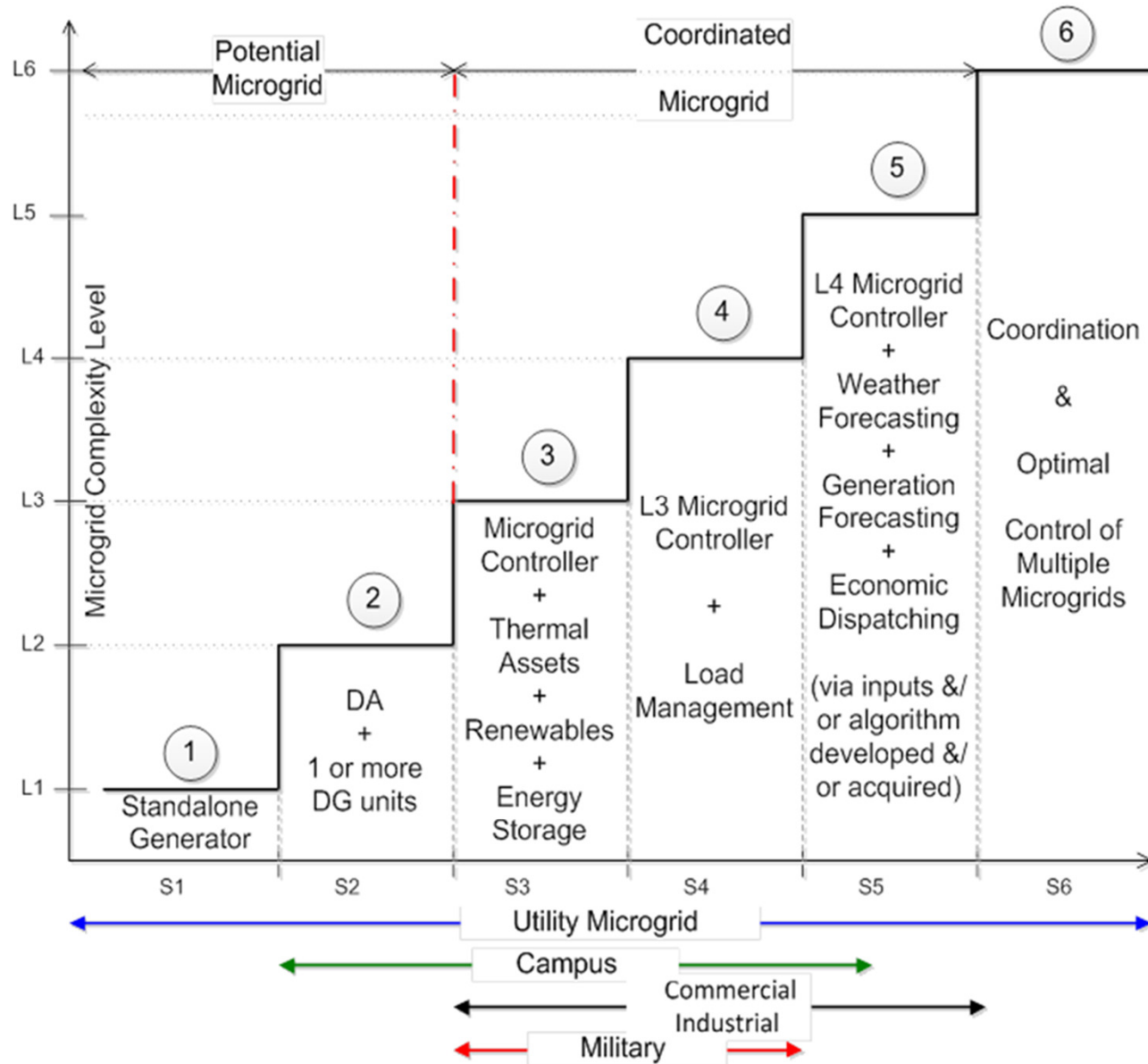
Efficiency & Optimization

- Minimize energy costs through fuel switching, load control and grid services
- Prioritize most critical loads
- Have energy flexibility with the grid
- Harness combined heat and power, maximize incentives

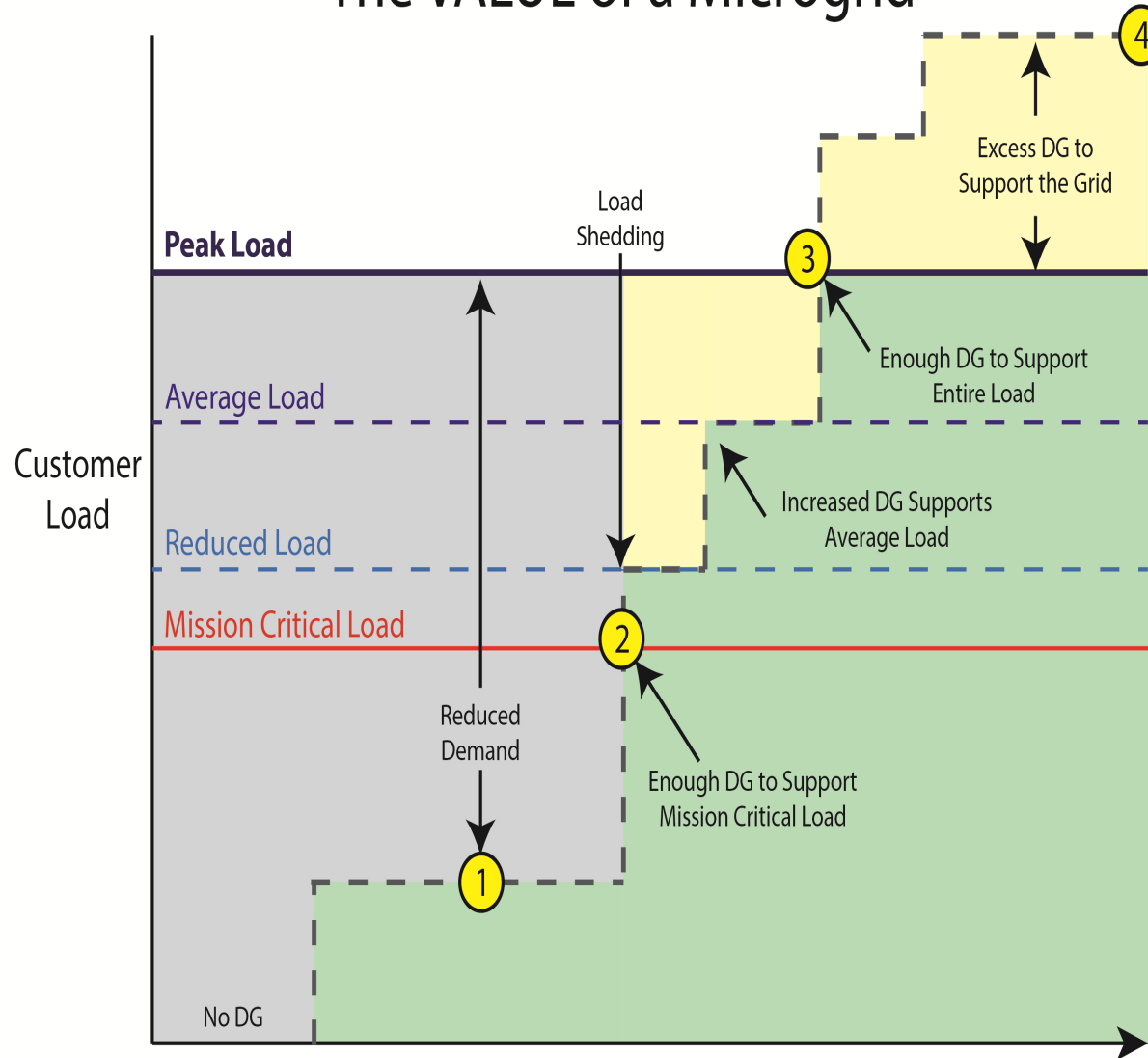
Green Energy

- Incorporate low cost solar, CHP and other Distributed Energy Resources
- Implement net-zero projects, reducing carbon footprint
- Store energy for stability and grid services

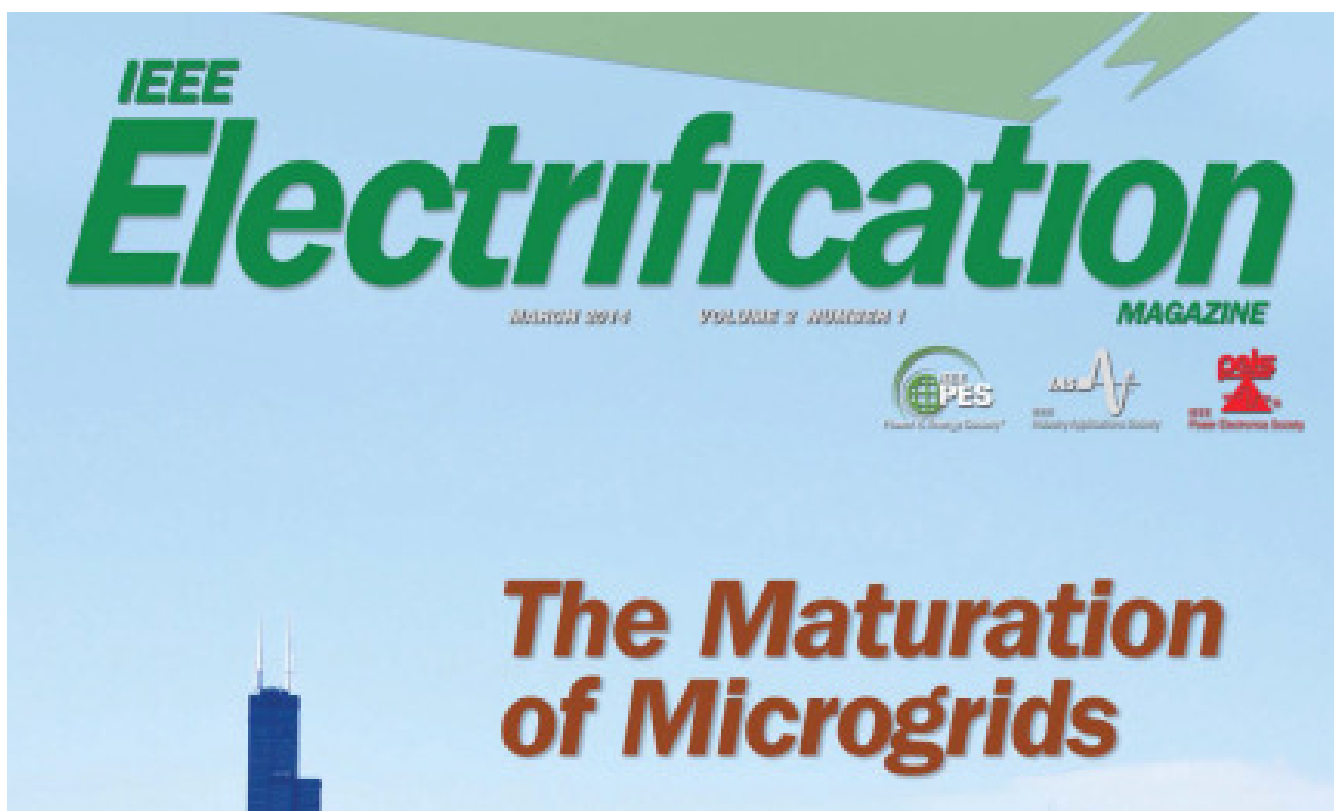
Microgrid Levels



The VALUE of a Microgrid



Our Session is Focused on...



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<http://online.qmags.com/ELE0314?pg=68&mode=2#pg1&mode2>

Specifically, Mythbusting

Microgrids Help More Than They Hurt

By David B. Chiesa and Spencer K. Zirkelbach

WHERE DID THE MYTH THAT microgrids are going to be the end of utilities start? We use the word myth specifically. A myth is a work of fiction, a story that no one can explain or trace back to a fact. We have seen the myth that microgrids are a threat to utilities grow more common in conversations at conferences, in publications, and on social media. We can make assumptions about how the myth was started. Microgrids are becoming a popular idea, with analysts forecasting billions

forcing companies to run their own power grids to support the plants and community infrastructure that make their businesses possible. They make sure that the data centers that run the servers that host the financial transactions of the world's economic markets never ever lose power.

In fact, our entire power infrastructure began as a series of microgrids. The story of the first microgrid reaches back to 1882 when Thomas Edison built the Pearl Street generating station in New York City. Pearl Street was

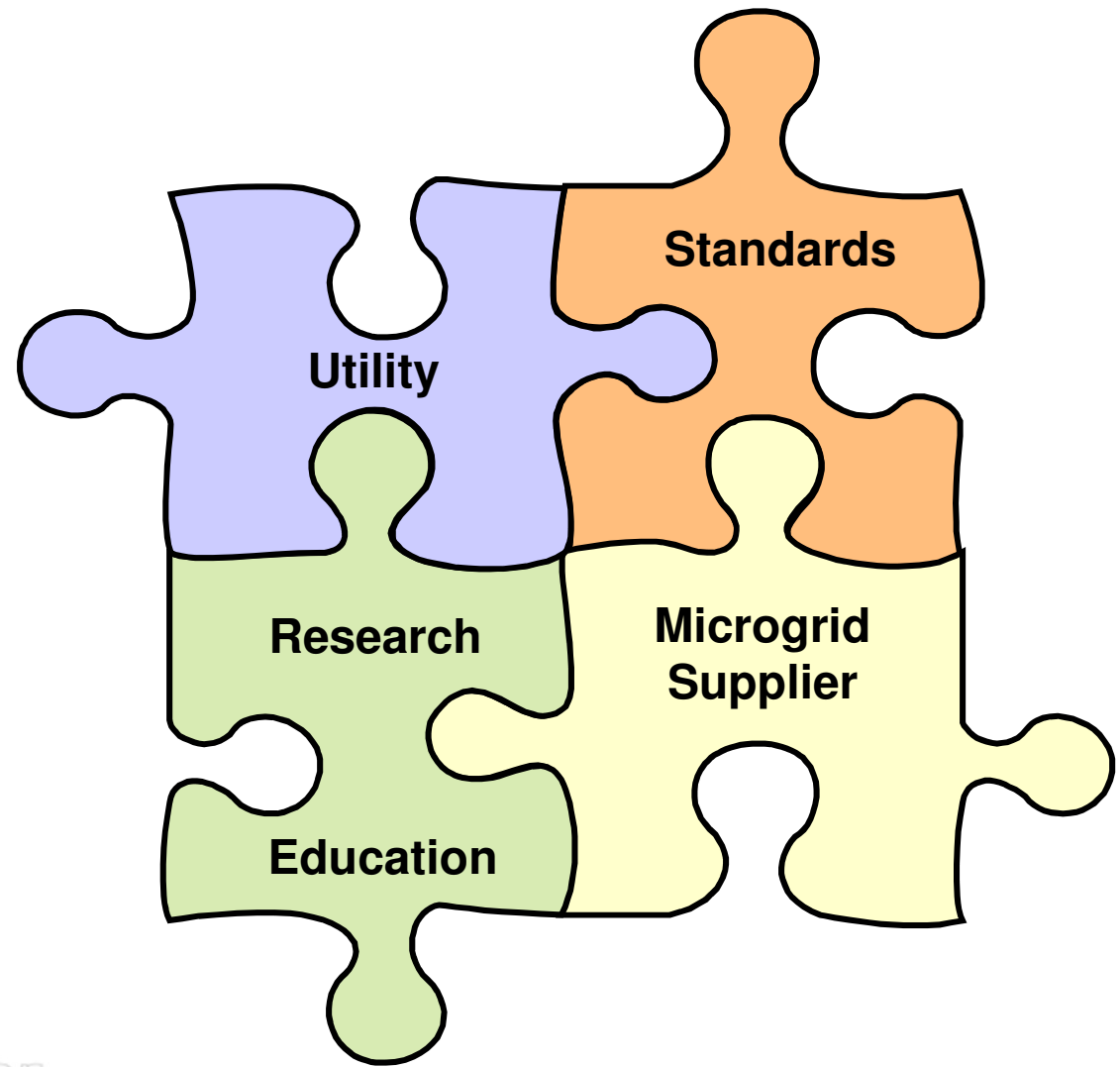
with larger sources of generation, and the grid as we know it was born.

This historical review is important because it provides the backdrop of history against which we can view the myth of microgrids destabilizing utilities. If all electrical usage started out as microgrids and early small systems had to generate and distribute their own electricity, why was it necessary for utility companies to be formed in the first place? The answer is cost. It was, and still is, vastly more economical to generate power in mass than

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Perspectives



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Moderator: David Chiesa, Director of Microgrids and Commercial & Industrial Market Segment , S&C Electric Company

- Paul Gogan, Manager, Electric Distribution Reliability & Planning, WE Energies
- John Kelly, PEER Program Lead, Green Building Certification Institute
- Phil Rector, Manager National Solutions Sales, Schneider Electric
- Parviz Famouri, Professor, Lane Department of Computer & Electrical Engineering, West Virginia University