MI Power Grid New Technologies and Business Models Workgroup: Microgrids

Identified Barriers	Possible Solutions
1. There are varying definitions of microgrid.[i]	• Adopt a consistent definition of microgrid.
2. No rate design or planning from the MPSC to move microgrids forward (time of use and demand charges).	• Pilots to allow utilities and customers to experiment and learn about microgrids.[ii] • Support digitization to allow utilities to be more situationally aware.[iii] • Incentivize early adopters.[iv] • Develop regulations
3. Lack of interconnection rule coverage.	• Examine where currently practice of treating microgrid interconnection as a DER interconnection request[v] is sufficient. • Develop interconnection rules and standards for connecting microgrids. •
4. Microgrid project can be viewed negatively by utility due to reduction in demand from the site.	• Find ways to build partnerships with utilities, vendors, engineers, and contractors to avoid adversarial relationship.[vi]
5. Self Service language in Act 3 presents geographical constraints that can prevent a microgrid from being realized.[vii]	• Modify language in Act 3.[viii] • Have utilities allow a certain amount of work arounds.[ix] • Don't call it a microgrid. Call it storage and onsite generation[x]
6. Financial challenges (high cost) due to need for tailored analysis, engineering, and equipment.[xi]	• Grid services help make projects economically feasible.[xii] • Provide market access provided by FERC.[xiii] • Incentivize flexibility through time-based tariffs, other regulatory incentives and rebates.[xiv]
7. Locational challenges (e.g., limitations from infrastructure and grid conditions).	• Planning practices, islanding protection • Hosting capacity analysis/maps to assist with locational challenges.
8. Gap between the utility and customers.	• Collaboration between utilities and developers • Ensure customer benefits of resiliency and sustainability are equitably distributed through regulatory rate designs that allow the stability and resiliency of microgrids to be realized.[xv] • Figure out how to best partner to provide customers solutions, meet demand, and educate regarding safety, control, communication, and cybersecurity standards.[xvi]
9. Resiliency currently not clearly valued. It also lacks standards, unlike reliability.[xvii]	• Legislation clarifying the value of resiliency and vision for Michigan. • Develop microgrid projects to support critical infrastructure like hospitals, communications, water systems, sewage systems. • Analysis of critical infrastructure needs and how microgrids might support them. • Define what resilient outcomes planning should pursue.[xviii]

Identified Barriers	Possible Solutions
	• Different aspects of resiliency can be explored and clarified. Resiliency can be for assets/equipment or for the grid. Resiliency practices can be established for operations as well as standards for development of new systems.[xix]
10. Resilience is a locational value that varies significantly depending on the site and its risks.[xx] However, during times of severe outages, microgrids can export power to support demand and grid stability.[xxi]	• Conduct locational studies that examine local grid conditions and specific project needs when designing microgrid projects.[xxii]
11. Technology is rapidly evolving (faster than utility can keep up with)	• Utility must keep up with changes through pilots and engage with stakeholders to identify needs and wants. • Pilots to understand new, rapidly evolving technologies.[xxiii] • Explore planning processes and necessary studies, like fault studies, to evolve current practices.[xxiv]
12. Developing microgrids for affordable housing is complicated by the difficulties in adding solar to affordable housing due to low-income housing tax credits.[xxv]	•
13. There is community interest in developing microgrids, but there is a lack of knowledge of the necessary processes. Those that do try to develop such projects can find it overwhelming.[xxvi]	• Develop/use virtual modeling as a way to "de-risk" microgrid projects to support customer implementation.[xxvii]
14. Most commercial and industrial customers want to focus on their core business, no operate microgrids, even if they are interested and willing to pay for full backup.[xxviii]	• Look to developers to operate.[xxix]

Applicable and Emerging Business and Ownership Models

- Veridian Living Community Microgrid (Matt Grocoff)
  - Net zero energy neighborhood
  - All electric, no gas
  - Solar panels, EV chargers, batteries, etc.
- Parker Village "Smart Neighborhood Microgrid" (Juan Shannon)
  - Proposed neighborhood with rooftop solar, EV chargers
  - Leasing options for housing
- Everything as a Grid (Eaton Corp.)
- Non-utility ownership of microgrid or microgrid components.

[i] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[ii] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[iii] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.

[iv] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[v] Panel: Utility Microgrid Perspectives. 04/21/2021 panel discussion.
[vi] Ontiveros. 04/21/2021 workgroup PPT. Slide 10.
[vii] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[viii] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[ix] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[x] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[xi] Gagne. 04/21/2021 workgroup PPT. Slide 10.
[xii] Twitchell. 04/21/2021 workgroup PPT. Slide 20.
[xiii] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[xiv] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[xv] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[xvi] Panel: Utility Microgrid Perspectives. 04/21/2021 panel discussion.
[xvii] Twitchell. 04/21/2021 workgroup PPT. Slide 21.
[xviii] Twitchell. 04/2/2021 workgroup PPT. Slide 12.
[xix] Panel: Utility Microgrid Perspectives. 04/21/2021 panel discussion.
[xx] Twitchell. 04/21/2021 workgroup PPT. Slide 10-11.
[xxi] Swinson. 04/21/2021 workgroup PPT. Slide 15.
[xxii] Twitchell. 04/21/2021 workgroup PPT. Slide 13.
[xxiii] Panel: Utility Microgrid Perspectives. O4/21/2021 panel discussion.
[xxiv] Panel: Utility Microgrid Perspectives. 04/21/2021 panel discussion.
[xxv] Grocoff. 04/21/2021. Workgroup PPT.
[xxvi] Shannon. 04/21/2021. Workgroup PPT.
[xxvii] Eaton Corp. 04/21/2021. Workgroup PPT & Q&A.
[xxviii] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.
[xxix] Panel: Business Perspectives on Microgrid Development. 04/21/2021 panel discussion.