MICROGRID KNOWLEDGE

Virtual Conference

Will COVID-19 Impact Microgrid Policy Progress?

Agenda

Moderator: Matt Roberts (Microgrid Knowledge) Director of Strategic Development

Speakers:

1. Joseph Sullivan (Concord Engineering) Vice President Energy Policy and Development
2. *Jason Burwen, Energy Storage Association, Vice President of Policy*
3. *Richard Stuebi, Future Energy Advisors, President*

Resources:

- Speaker Bios
- Ask the Experts: Q&A at End
- Microgrid Resources Library

Why I Hate My Microgrid in a Pandemic

Joseph Sullivan Vice President

CONCORD ENGINEERING

Issues We Are Facing:

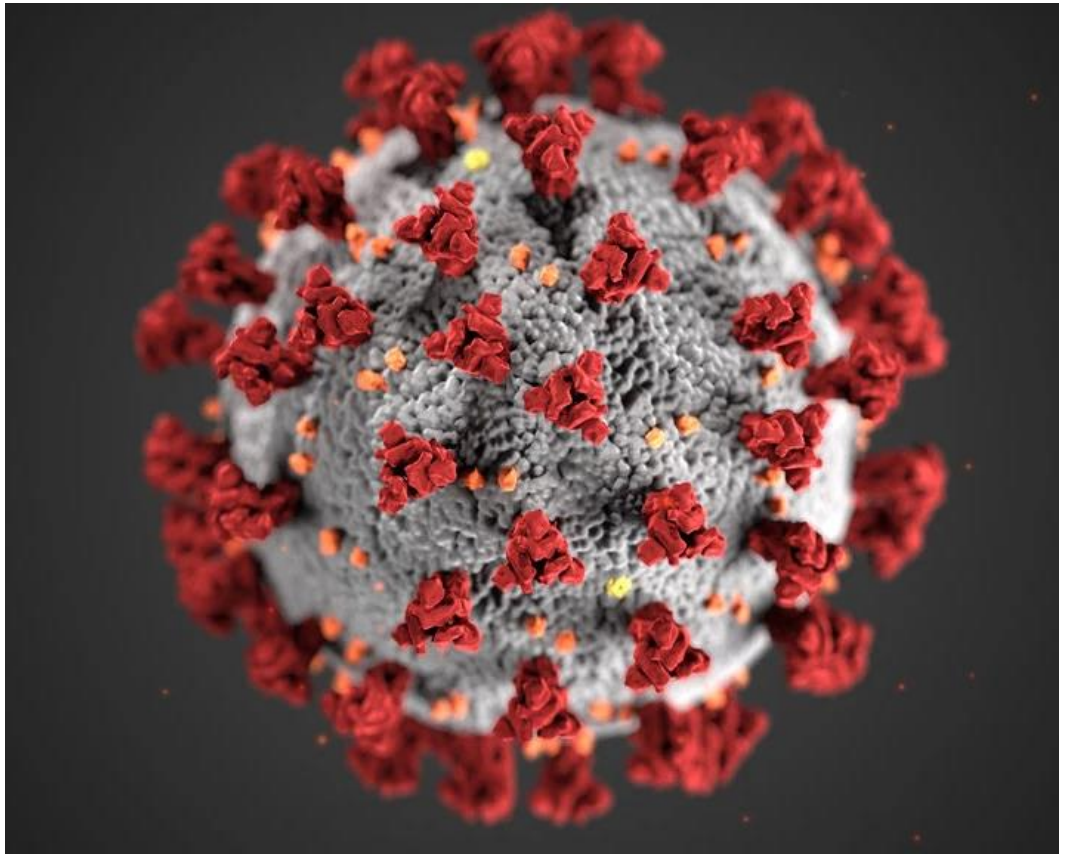
1. Issue #1 What Disaster Did We Plan For?
2. Issue #2 What Do We Need During The Current Crisis
3. Issue #3 Is My Microgrid Relevant

What Disaster Did We Plan For

- Grid Power Supply Interruption
  - Hurricanes
  - Cyber Attack
  - Ice Storms
  - Carbon Taxes
  - Wild Fires

This Is the Disaster we Got

1. Depressed Electric Demand
2. Different Daily Peak Load Curve
3. Most Traditional C&I as well as Campus Loads Diminished



Last Comments

This is a real Crisis and probably the most disruptive event in our lifetimes.

It is not about us it is not about microgrids

Our only opportunity lies in contributing to the economic recovery and hopefully one day soon some return to normalcy.

Storage, Microgrids, and Policy Drivers of Resilience

Jason Burwen, Energy Storage Association, Vice President of Policy

Challenges:

1. (Lack of) Valuing Resilience
2. Delays & Falling Budgets due to COVID
3. Interconnection

Positive Developments

1. FEMA Building Resilient Infrastructure & Communities Program to drive federal funds, spur state/local planning
2. California PUC Self-Generation Incentive Program + Microgrid Proceeding can set precedents for states
3. Adoption of Net System Capacity and other interconnection improvements in Nevada, Maryland, etc. as precedents
4. Value of DER and Bring Your Own Device programs creating precedents for payment-for-service
5. Opportunity Zone financing may hold promise

What ESA Advocates

1. Tax credits / federal funds for resilience deployments
2. State deployment targets and incentive programs
3. Interconnection updates

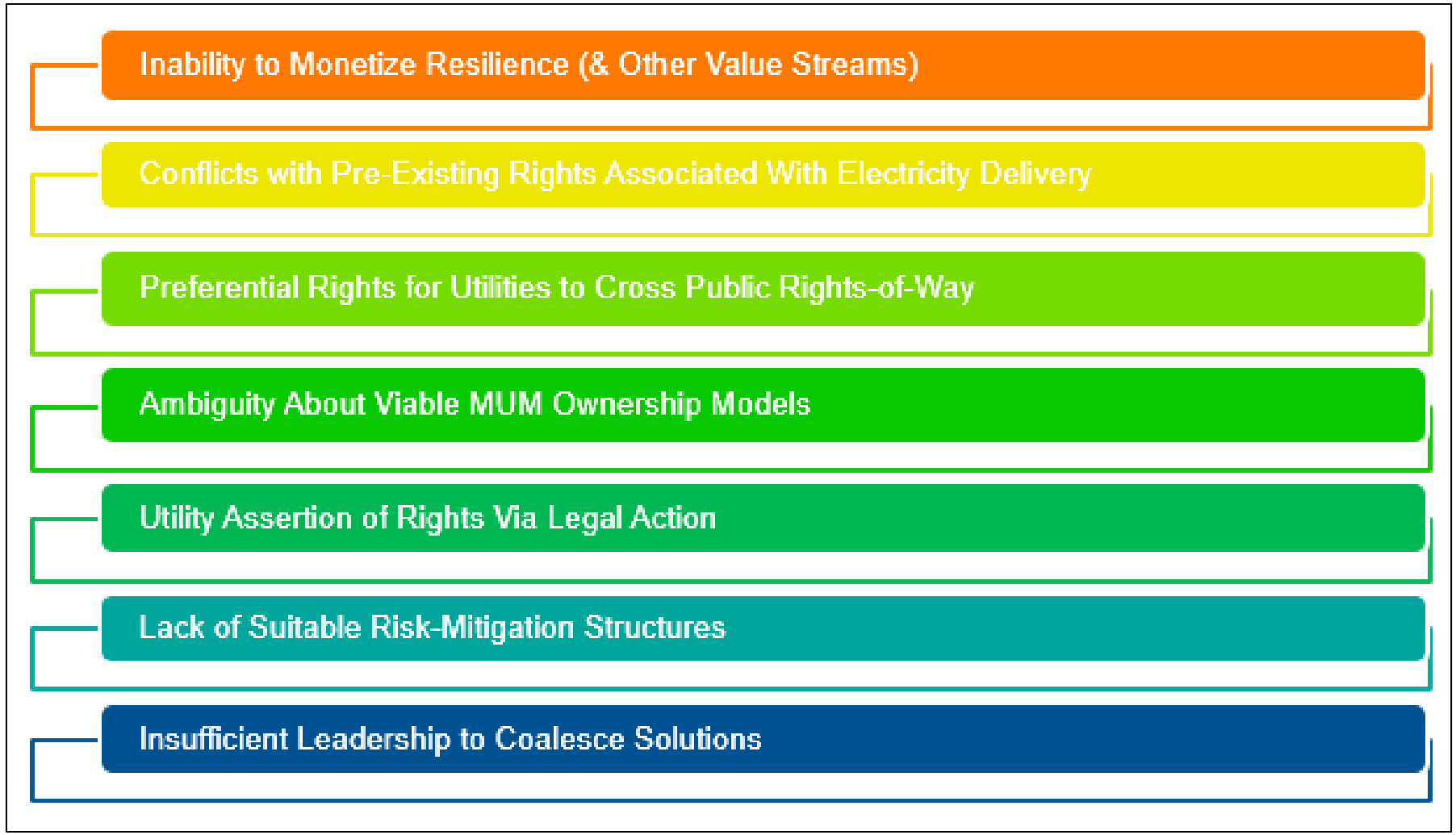
Microgrid Regulatory Policy Status in 2020

Richard Stuebi, Future Energy Advisors, President

Key Messages:

1. Lack of standardized regulation implies bespoke microgrid business models, increased development cost
2. Hawaii's first-of-a-kind microgrid tariff proceeding could set precedents, expediting standardization
3. Microgrid development will be impeded until value of resilience can consistently be monetized

Barriers to Multi-User Microgrids



Source: Multi-User Microgrids: Obstacles to Development and Recommendations for Advancement, BU-ISE and NECEC, Nov. 2018

Hawaii Microgrid Tariff Proceeding

3/30/2020 HECo proposal

- Tariff applies to two types of microgrids (<3 MW on Oahu, <1 MW elsewhere):
  - Customer microgrid: only non-utility infrastructure behind PCC (microgrid becomes customer of HECo)
  - Hybrid microgrid: both utility and non-utility infrastructure behind PCC
    - Owner/operator and all customers must have accounts with HECo
- Tariff compensation terms:
  - Microgrid customers pay standard HECo rate schedules during both grid-connected and islanded mode
  - If desired, microgrid pays HECo $5/kW-month charge for dispatch and islanding service

Concerns raised by intervenors

- Challenges associated with fundamental business model underlying microgrid definition
- Ambiguity on how existing HECo rate schedules and programs would actually apply to microgrids
- Undue technical/operational restrictions on microgrids operating in island mode
- No opportunity for microgrid to be compensate for key services:
  - Resilience value
  - "Islanding as demand response"
- Interconnection process remains vaguely defined (probably still too cumbersome)

Source: HPUC Docket No. 2018-0163

Value of Resilience Still Unresolved

Quantifying Resilience

A resilience metric measures how resilient an energy system is. Performance-based metrics quantify the consequences that could be avoided as a result of a resilience investment:

- Customer outage time (hours)
- Load not served (kilowatt-hours)
- Number or percentage of customers experiencing an outage (# or %)
- Number of critical services (e.g., hospitals or fire stations) without power (#)
- Time to recovery (hours)
- Cost of recovery ($)

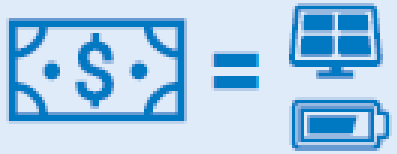
Valuing Resilience

$$$

Determining the value of a resilience investment (in dollars) is an essential component of cost-benefit analysis. An accurate resilience value involves determining the avoided costs of an outage, including the direct and indirect costs incurred by the service provider, customers, and society:

- Loss of utility revenue ($)
- Cost of grid damages ($)
- Cost of recovery ($)
- Avoided outage cost ($)
- Loss of assets and perishables ($)
- Business interruption costs ($)

Monetizing Resilience



Resilience monetization determines what portion of the resilience value can be realized in cash flow to finance project implementation. Beyond the improved resilience itself, such an evaluation should consider all available revenue streams associated with the investment:

- Reduced insurance rates
- Reduced mortgage rates
- Government incentives
- Grid services value
- Resilience payment from site host

Source: Valuing Resilience in Electricity Systems, NREL, Sept. 2019

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Ask the Experts: Q&A Session

Type your questions in to the Q&A box

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Recommended Resources

Microgrid Resource Library

- www.ThinkMicrogrid.com

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Finance Session: *Microgrids Have Leapt 'the Chasm.' What's on the Other Side?*

- Plus 90 speakers in 30+ sessions on best practices
- 35 exhibitors
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Thank You!

Next Session: *Healthcare & Microgrids: Ensuring Power When the Value of Resiliency is Immeasurable @ 2 PM Eastern*

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