The Microgrid Policy Agenda

IDEA
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"the economy is a subset of the ecology"

Microgrid Defined

A microgrid is a local electric system (**a local control area**) or combined electric and thermal system:

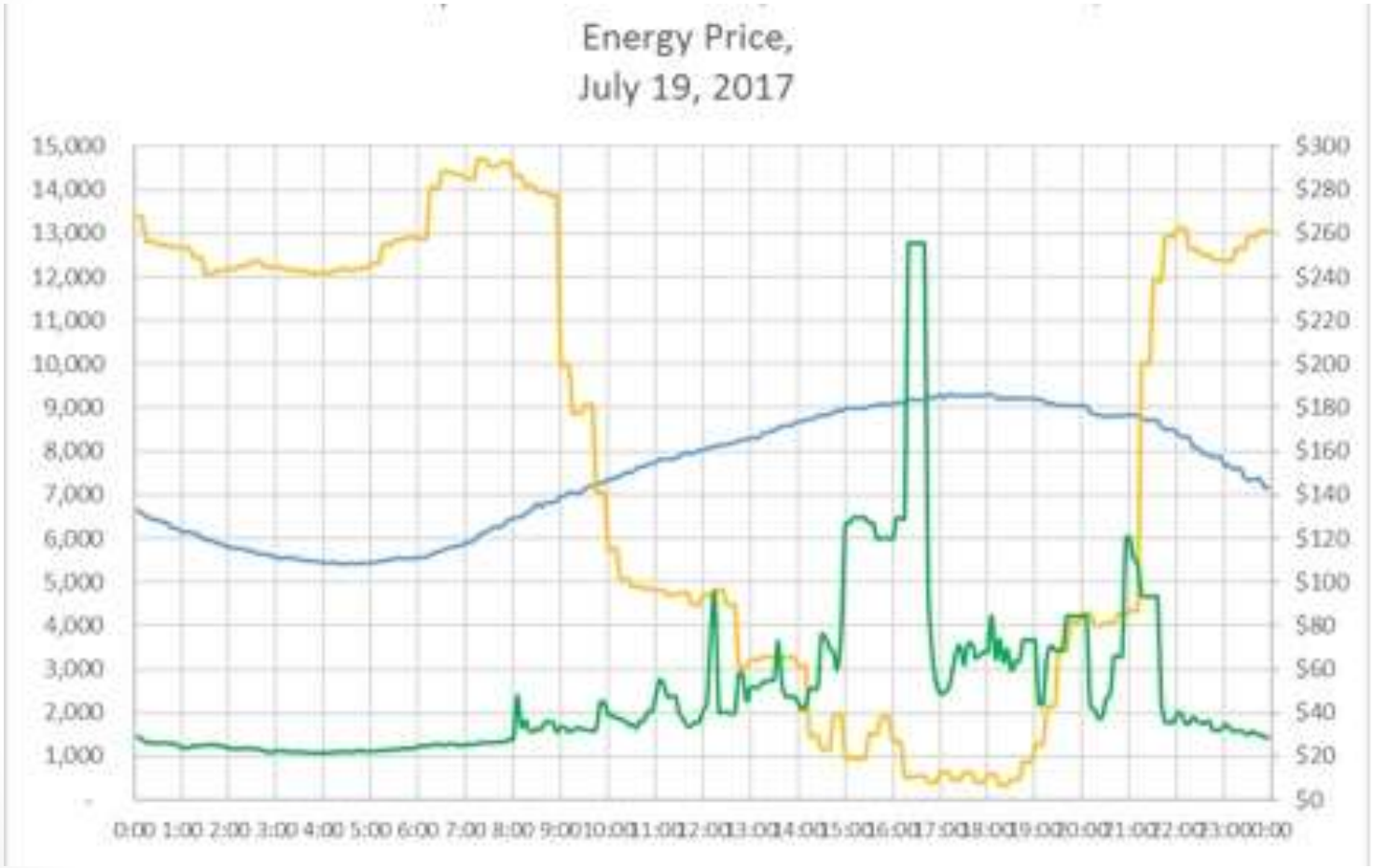
- that includes retail load and the ability to provide energy and energy management services needed to meet a significant proportion of the included load on a non-emergency basis
- that is capable of operating either in parallel or in isolation from the electrical grid
- that, when operating in parallel, can provide energy, capacity or related services to the grid

Microgrid Resources Coalition (MRC)

Grid Edge Resources

- This is not your father's demand response
  - Smart, flexible, visible resources
- Customers and communities with support from technology vendors and private finance are remaking the grid locally to:
  - Achieve hybrid energy efficiency
  - Achieve local resilience
  - Provide competitive services to the grid
- We need a bill of rights for the grid edge

Princeton Load Management



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Serving Included Load

- Is a Microgrid a utility? Is it franchised?
- Self Generation is usually permitted
  - Most states allow a third party supplier on site
- Hard to cross roads or property lines
  - New York Qualified Facility exemption
- Other regulatory options
  - Retail electric supplier, CCA
  - Co-op
  - Landlord, owners association
  - Utility/Private Partnership

Resiliency

- DOE requested support for coal and nuclear units with fuel storage for "resiliency"
  - Fuel adequacy not the primary problem
- FERC rejected DOE rule, opened new docket
  - Asked RTOs about "bulk power system"
- MRC seeks coalition to support local focus
  - Need federal, state, local co-ordination
  - Customers and communities are the point not the enemy
- State support programs are for planning and financial support (NY, NJ, CN, CA)
  - Face regulatory issues for serving load

The Utility of the Future

- A **self-healing grid** in emergencies
  - Can separate into self-supporting **islands**
  - Each is its own **semiautonomous** control area
  - Each supplied by **Distributed Energy Resources** (DER)
  - The islands can support one another
  - Intelligent load shedding
- Microgrids are the **building blocks**
- Utilities supply distributed control (DERMS)
- Smaller local resources and looped support arrangements reduce **contingecies**

Sales to RTOs

- Federal Energy Regulatory Commission (FERC) is empowering grid-edge resources in RTOs
- EPSA v. FERC has given FERC clear authority
  - Wholesale market is not an intrusion on the retail price
- Hughes v. Talen Energy Marketing
  - States have broad power, but can't interfere with wholesale market
- RTO pricing in crisis
  - RECs and ZECs – state subsidies for policy
  - PJM Capacity – two step auction v. MOPR change
  - Carbon Pricing in NY ISO, New England

Sales to RTOs 2

- FERC has opened a new docket on aggregation of DERs
  - Storage NOPR called for "participation model"
  - Raises concerns about "penetration"
  - Doesn't distinguish between visible/flexible and invisible/inflexible
  - Doesn't distinguish between aggregation and hybrid resources with multiple capabilities
- CA ISO rule allows net aggregation
- Need ability to divide resources and bid into different markets

State Action

- MRC has raised concerns about barriers
  - New York REV didn't address microgrids
  - California "roadmap" is a work in progress
  - Other state proceedings - DC, MO
- State action on "non-wires solutions"
  - CA leads with pricing alternatives
- Utility demonstration projects
  - Testing distribution solutions - SDG&E
  - Evading restrictions on generation ownership

State Action 2

- DERs provide distribution support services that avoid the need for "wires solutions"
  - Local Markets
  - Competitive procurement through RFPs
  - Direct proposals (e.g. VA P3 law)
  - Contract supports development
- Separately bid and metered
  - Avoid double counting
- Cost supported by customer driven investment

PURPA

- Public Utility Regulatory Policies Act
  - Requires utilities to purchase energy from Qualified Facilities (CHP and renewables)
  - Exception for RTOs and other areas with markets
- HR 4476 allows utility to just say "no need" or say it runs a competitive energy market
- NARUC asks FERC to expand "competitive markets" by regulation
  - Need to have real markets
  - FERC could expand eligible facilities to all grid edge resources and expand beyond energy

Bill of Rights

- Each customer may:
  - Generate and manage energy behind its meter with the assistance of third parties of its choice.
  - Purchase energy from local suppliers directly or through group or community arrangements.
  - Have access to information regarding its energy use and services it provides.
- Each community may:
  - Act as an aggregator to purchase energy for community members and sell energy services on their behalf.
  - Have access to information about energy use in its community.
- Consistent with energy access to all.

Questions

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