NE Electricity Restructuring Roundtable

Matthew Nelson
Massachusetts DPU

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Energy Efficiency

Energy Efficiency is evolving drastically

- Low hanging fruit is gone
- New focus on Demand Response, Storage, Customer Engagement, Heat Pump installations
- Demand Response for EVs in pilot phase
- Gas EE important but hasn’t evolved

Massachusetts EE is the single largest driver to declining load

- ISO Rule changes could hurt EE’s market performance
Grid Modernization

This terms means many things to many people

**Grid Facing**
- Aging Infrastructure
- Distribution Automation
- Climate Hardening
- Two Way Power flow
- DER integration and support
- Flexible System Planning
- Cybersecurity

**Customer Facing**
- Increased Visibility
- Consumer Market Access
- Access to dynamic pricing
- Third party data access issues

- We also know that it will mean increased investment into the system
- DPU will focus on what paths will lead to the most value to the system
Large Scale Renewables

- Solar, Offshore Wind, Hydro, and Storage coming online
  - Many of the larger projects still in approval stage
- ISO markets are in flux as we transition away from fossil fuels
  - CASPR allows a method to “swap” capacity
- Planning and Engagement are central
  - Need a transmission and distribution system to deliver the generation to the demand.
Distributed Generation

• Massachusetts is highly saturated with DG → resulting in the need for studies to determine distribution and transmission infrastructure upgrades

• Starting in 2018 → “Cluster Study” in central and western Massachusetts

• Since February → study has progressed and 90 MW have been cleared for interconnection. Phase I results will be released in November.
  • Phase I = 282 MW; Phase II = 490 MW
DG and Interconnection

Challenges Remain:

• Future affected system operator studies
• High volume interconnection queues and application processing delays
• Planning for infrastructure upgrades
• Application standards and metering of energy storage systems
• Providing access for low income customers

What the DPU is doing:

• D.P.U. 19-55 - Inquiry into DG Interconnection
• Implementation/oversight of qualifying facilities (“QF”), net metering, DG interconnection, and SMART program tariff
• Coordinating with EDCs, AGO, DOER, Stakeholders, ISO-NE, TSRG
• Other relevant dockets: D.P.U. 17-22 (net metering inquiry), 17-54 (QF rulemaking), 17-146 (net metering inquiry), 17-164 (interconnection group study)
Electric Vehicles are here

- Manufacturers are switching R&D money
- Electric Cars are far superior to gas cars
  - Lower maintenance & fuel costs
  - Gas stations are objectively awful
  - Range is good, engine is fast

- EV market is going to develop more rapidly
  - Are we ready for fleet charging?
  - Are we prepared to shift charging?
  - Massive shift in traditional auto channels.
Electrification

What do consumers think Electrification is?

• When you provide electricity to places that don’t have it yet?
• I have no idea, I don’t take physics!
• Isn’t that what they do to criminals in Texas?

Source: Information taken from Bill LeBlanc of ESource
Is the System ready for Heating and Transportation?

- EV market – rapidly developing

- Home Heating Market –
  - Mini-split systems cannot heat most homes
  - Weather conditions remain a concern for Air-Source Heat Pumps

- Infrastructure –
  - Not designed for EV or Home heating load
  - Currently massive challenges in siting infrastructure

- System planning is way behind
  - Oil & Natural Gas remain critical to generation
Gas Clean Energy Goals

- We haven’t done anything and we’re all out of ideas.
  - Renewable Gas
    - Some promise, but scope is limited
    - Is it cost effective?
  - Gas Demand Response
    - Something that needs to be explored – but what is the goal?
  - Geothermal Heating
    - Scale, Scope, and Safety