

Electric Distribution – Barriers and Opportunities to Decarbonization Pathway

MassCEC's Net Zero Grid Planning Lab
Workshop #3

May 11, 2022

  
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Workshop Plans

Three collaborative workshops (Task 1)

February 3rd

Forecasting Future Electric Demand

March 4th

Distribution Planning

 May 11th

Stakeholder Collaboration

... to enable Massachusetts 2050 Decarbonization Roadmap

Today's Agenda

2:00pm – 4:00 pm

- Welcome
- Recap Workshops 1&2
- Stakeholder Panel Q&A Session
- Panelist Open Discussion
- Next Steps

The EDC's want to hear from you!

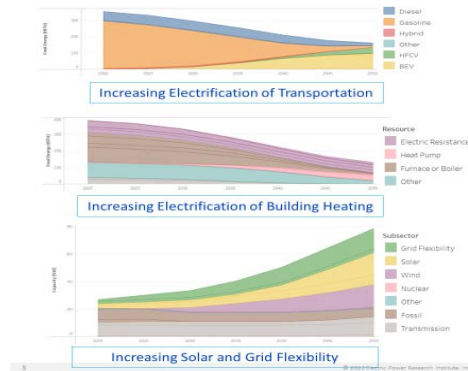


Welcome!
Ariel Horowitz - MassCEC



Recap Workshops 1 & 2

Workshop #1 - Forecasting Electrification Growth



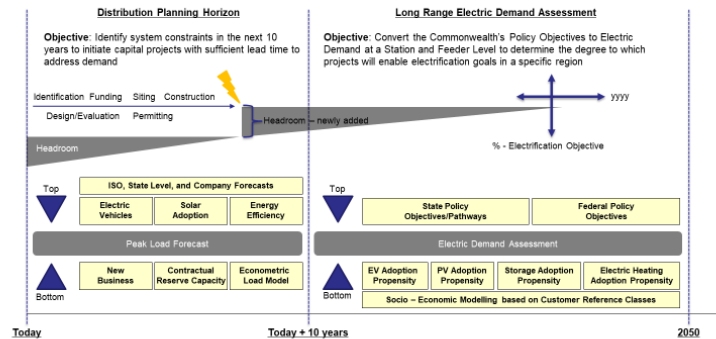
Energy Pathways to Deep Decarbonization

A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study
December 2020

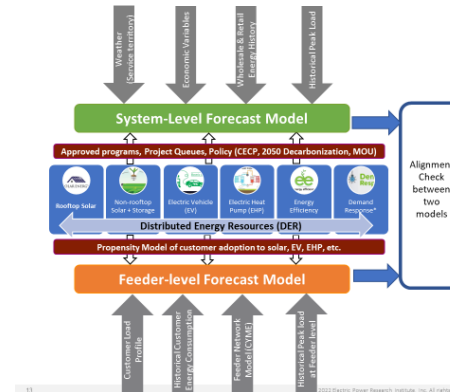
2050 Pathway Elements Distribution Planning Considerations

- Magnitude of Demand (kW)
- Energy Requirement (kWhr)
- Load Profile (daily, weekly, monthly)
 - Temporal Coincidence
 - Intermittency
- Location and electrical connectivity
- Flexibility
 - Alignment to local needs

Eversource – Advanced Forecasting



National Grid - 8760 Electric Load & DER Forecasting for 15-year projections



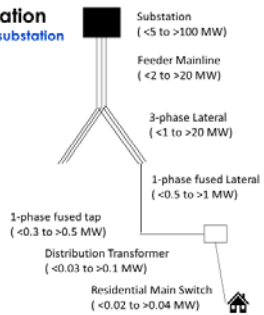
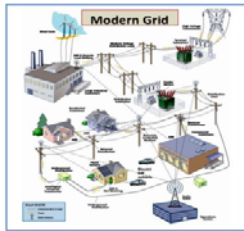
- DERs Scenarios
- Base, High and Low
 - Probabilities

DER	NG Forecast projections
Solar PV	Base: Meet pro-rata of CECP goal by 2030
Energy Storage	Base: Meets state's 2025 targets. No explicit: State target in CECP
Electric Vehicles (EVs)	Base: Meet CECP goal (50% by 2030 and 100% by 2035)
Electric Heat Pumps (EHP)	Base: Delayed achieve CECP goal by 2036 High: On-target by 2030

Transforming Pathways to Forecasts

Workshop #2: Distribution Planning

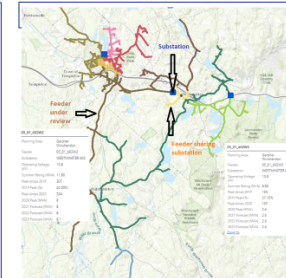
Distribution Capacity varies by location Tends to decrease as you move away from the substation



Capacity is driven by equipment size, protection settings and operating voltage
Distribution primary voltage ranges from 4kV to 35kV

Feeder Overview

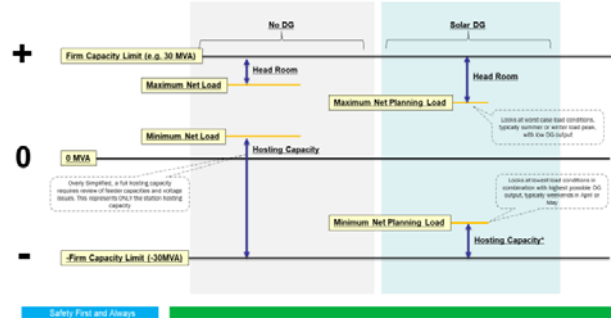
Serves Areas: Westminster, Gardner, Hubbardston, Templeton and Barre.
Length: 69.14 miles
Type: Residential
of Customers : 3332
Feeder Capacity : 11.83 MVA
Substation Transformer Rating: 14MVA
Future Loads Considered: Economic Growth. Improvements in Energy Efficiency will help reduce load. Light Duty Electric Vehicles and Residential Heating.
Future Generation Considered: Roof top solar and Ground Mount Solar.



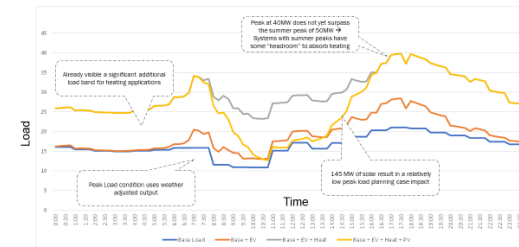
<https://ngrid.apps.nationalgrid.com/NGSysDataPortal/MA/index.html>

45

Definitions (Headroom and Hosting Capacity)



Combined Profile – Winter 2030 Industrial Park



Location, Location, Location!



Stakeholder Panel & Roundtable

Panel & Roundtable

Today's Panelists

- Rob Sheridan – Moderator
- Joanna Troy – Department of Energy Resources
- Jeremy McDiarmid – Northeast Clean Energy Council

Roundtable includes

- EEA, DOER & MassCEC
- Coalition for Community Solar Access
- Metropolitan Area Planning Council
- Attorney General's Office
- National Grid & Eversource





Stakeholder Roundtable

A question to the full audience at today's workshop....

Is there anything from the previous workshops that you would like to highlight or comment on today?

Please introduce yourself by describing what role your organization has in achieving the Commonwealth's Net Zero goals...

And

Please share how you and your team expect to be engaged with the EDCs to ensure the distribution system is developed appropriately to enable those goals.

What does your policy and/or regulatory engagement process look like?

How do you decide what topics to address and what positions to take?

What information do you look for from the utilities, and when do you need that information, to be successful in achieving your goals?

Is there information you may be able to provide the utilities to support distribution system planning?

Do you have specific concerns about:

- a) the current state of the distribution system, and
- b) the regulatory processes necessary to achieve the Commonwealth's policy goals?

What issues would you like to see greater focus on, or priority given to, within the distribution plan? (i.e.; cost, transparency, accountability, pace, reliability/resiliency, equity, etc.)

What one or two things would you most like to see changed to impact the future electric distribution system?

Is there something concrete—even if it's small—that you would like to propose for this group that would help support the distribution planning process going forward? (i.e.; additional meetings, working groups, facilities tours etc.)

Summary and Next Steps



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