

Utility Summer Preparation

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Preparing for Hot Temperatures

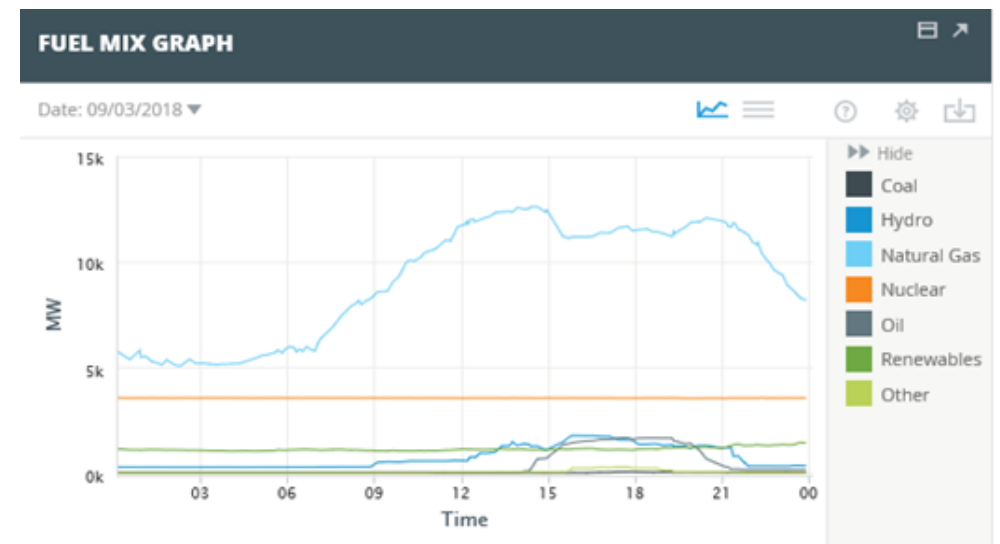
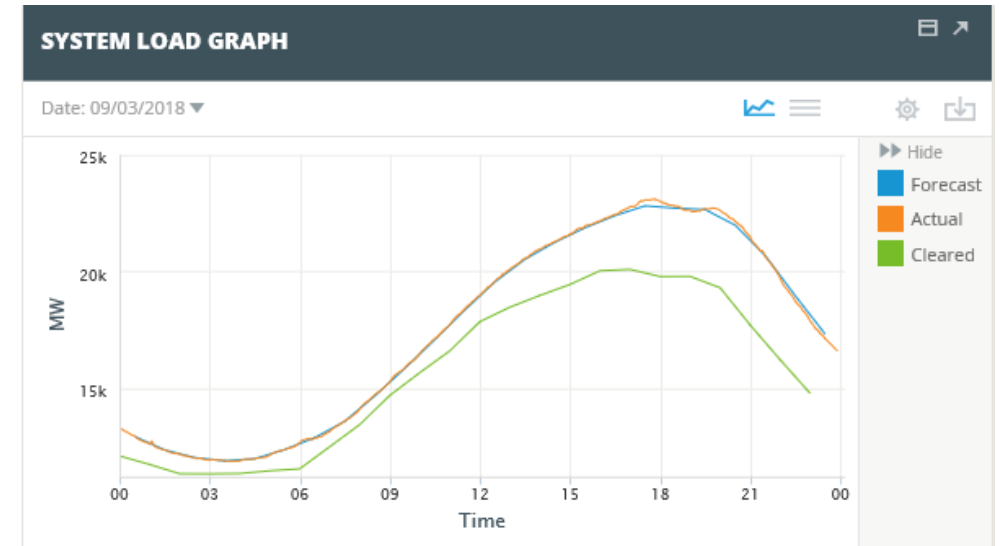
Eversource's Approach to Summer Heat Waves

Topics of Discussion

- Why Heat is an Issue
- Year Round Preparations
- What Happens During a Heat Wave
- Recent Trends During Summer Peak
- Effects of Extended Heatwaves

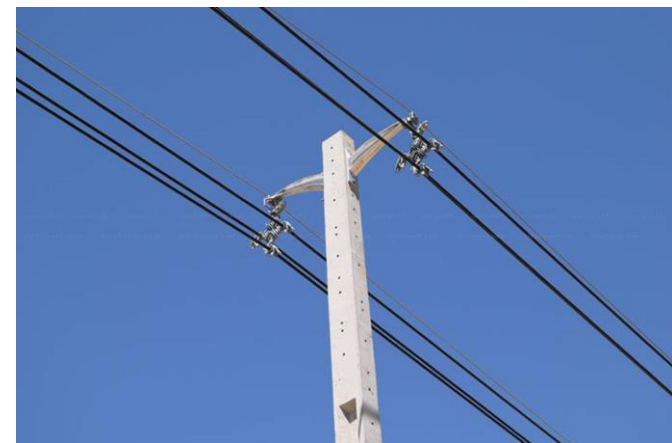
Why Heat is an Issue

- With few exceptions, most of New England is Summer Peaking
- As more homes/businesses have air-conditioning, we see an increase in load during heat waves
- The greatest impact on infrastructure is after 3+ days above 90 degrees
- Increased load puts more stress on electric equipment:
 - Not only is the ambient temperature higher, there is increased heat generated by the higher loads
 - All equipment has a maximum operating temperature before the equipment starts to fail (or age at an accelerated rate)
 - If equipment fails during peak loading, load dispersed among remaining equipment, resulting in additional heating



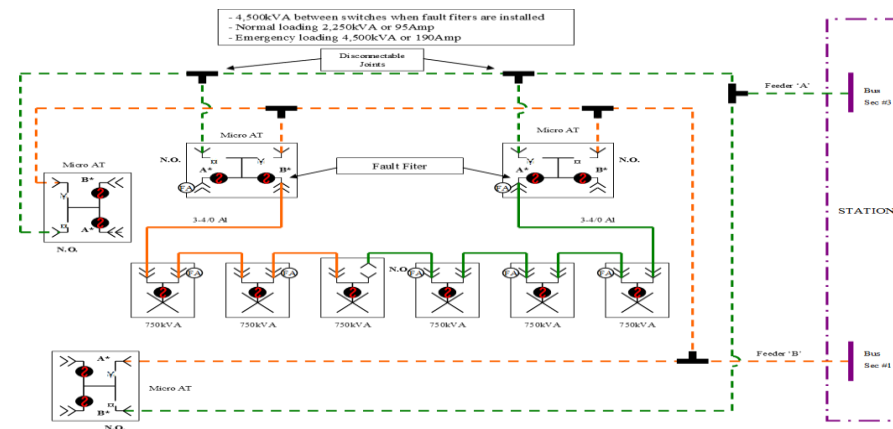
Year Round Preparations

- Operational planning for 2019 summer starts before the end of the summer of 2018
 - Contingencies are run using the latest loads
 - Constraints are identified and plans are put in place
 - Power factor corrections are identified
 - Repair of voltage regulating equipment
 - Anticipated equipment is ordered
- Strategic planning is years ahead of expected needs
 - Capacity projects are identified before the expected overload
 - Installing larger wire
 - Alternate sources
 - Load reduction projects



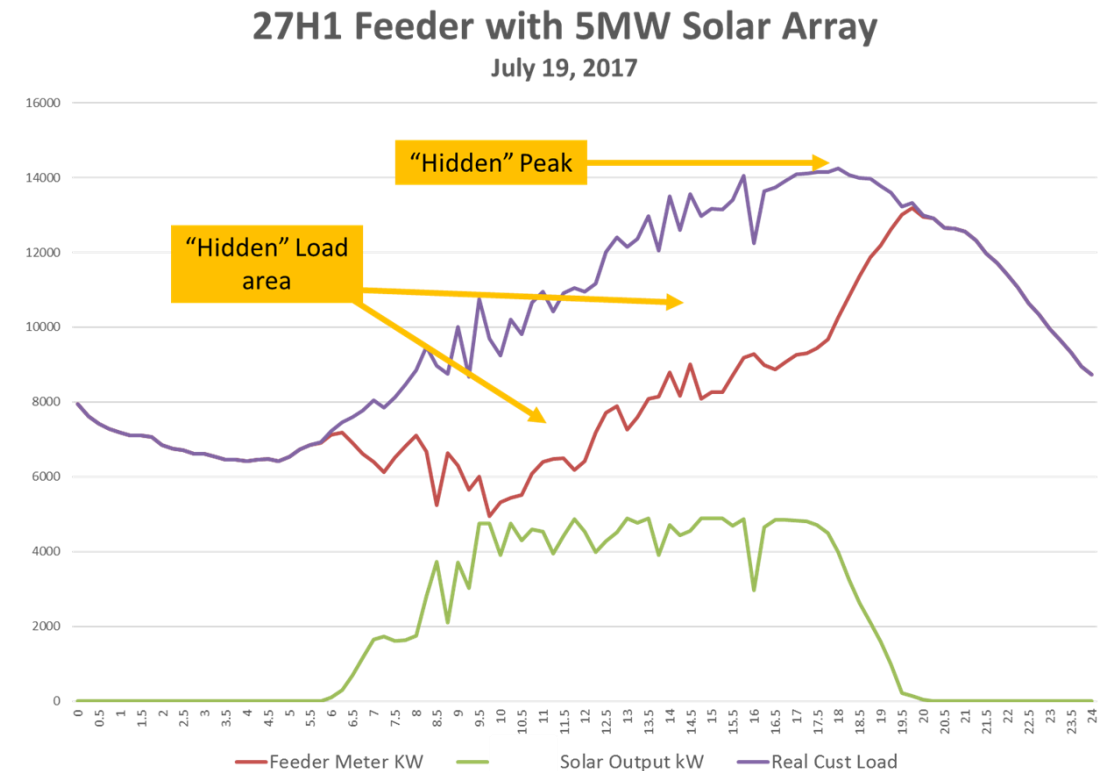
What Happens During a Heat Wave

- Preparations are similar to storms
- Before the heat begins, all attempts are made to make sure the circuit configuration is normal
- Regular calls are implemented
- Additional staff are made available
- If elements of the grid approach ratings, actions are taken to reduce load on that element



Recent Trends During Summer Peak

- Peak load growth is primarily flat (with a few exceptions)
- Positive impacts seen through energy efficiency efforts
- Distributed Energy Resources can help, but must be part of the planning process (availability and later peaks)
- Energy storage has potential to help with peaks



Effects of Extended Heat Waves

- After about 3+ days of heat, the load starts to level out
- Equipment becomes stressed and we see accelerated ageing for the duration of the event
- Leads to extensive infrastructure investment and underutilized assets



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THANK YOU!