

# October 2017 Severe Windstorm

Peter J. Clarke - Senior Vice President

Penni M. Conner - Senior Vice President

Michael F. Hayhurst - Vice President

John A. Arsego - Manager

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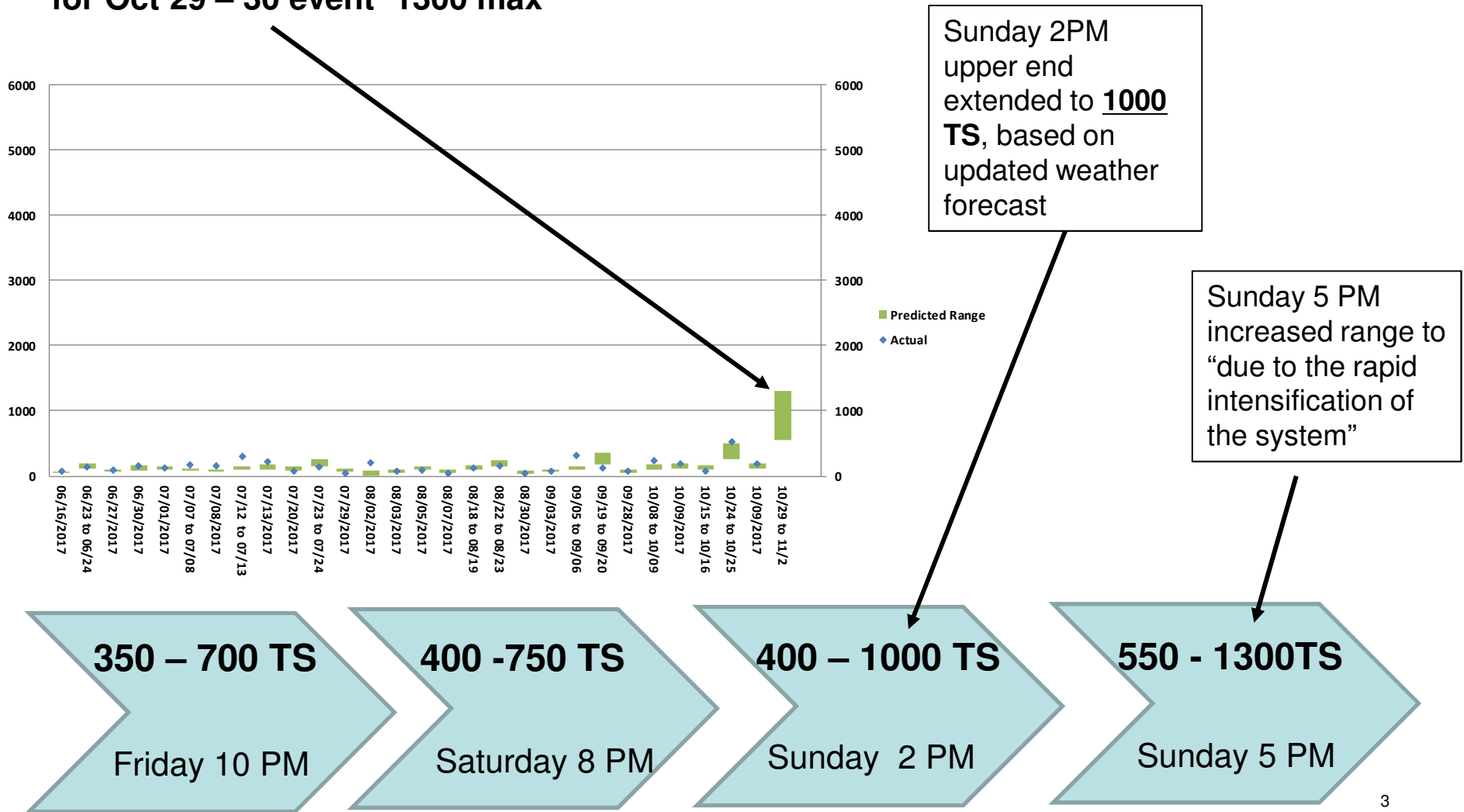
# Subscribed DTN

## Weather Service Forecast

- Friday gust forecast Sunday night into Monday 35-45 mph common & 45-50 mph peak
  - some model disagreement in the placement of the low pressure. If the low were to set up further west, somewhere in the Hudson Valley of New York, winds will last longer in duration and be stronger and more widespread in coverage
- Saturday gust forecast 40-55 mph common & 50-60 mph peak
  - model agreement good with the surface low expected to track into southwestern New England/southeastern New York providing a greater risk for stronger and longer lasting gusts.
- Rainfall amounts 1 – 5 inches, ground wet from recent rains; leaves on trees

# UConn Outage Prediction Model (OPM)

Predicted range of Trouble Spots (TS)  
for Oct 29 – 30 event 1300 max



# Eversource Preparedness Actions

## Operations Planning Call

- Weather forecast
- Resource availability
- Team notifications
- Electric system configuration

## Operations Planning Call

- Weather forecast
- ERP and Incident Management Team (IMT) activated
- Pre-staging notification to PURA declaring a ERP Level 5 event
- Regional EOCs & Berlin Incident Command Center to open Sun 4PM
- All lineworkers and substation personnel placed on call
- Local contractors and tree crews secured
- Outreach to communities initiated
- Preparedness messaging on Eversource.com and social media channels in place
- Customer Contact Center staffing plan in place for Sunday evening

## Incident Management Team Call

- Weather forecast. No significant changes to forecast since Friday.
- Finalize staffing plan for Sunday.
- Outbound Call initiated to medical - coded customers at approximately 2:30 p.m.
- Two-way interactions with communities continue.

## Incident Management Team Call

- Berlin ICC and 3 Regional EOCs activated at 4 PM
- Staffing at Call Center increased
- Outbound medical calls completed.
- 2nd Preparedness Briefing issued to internal and external stakeholders.

Thursday  
10/26/2017

Friday  
10/27/2017

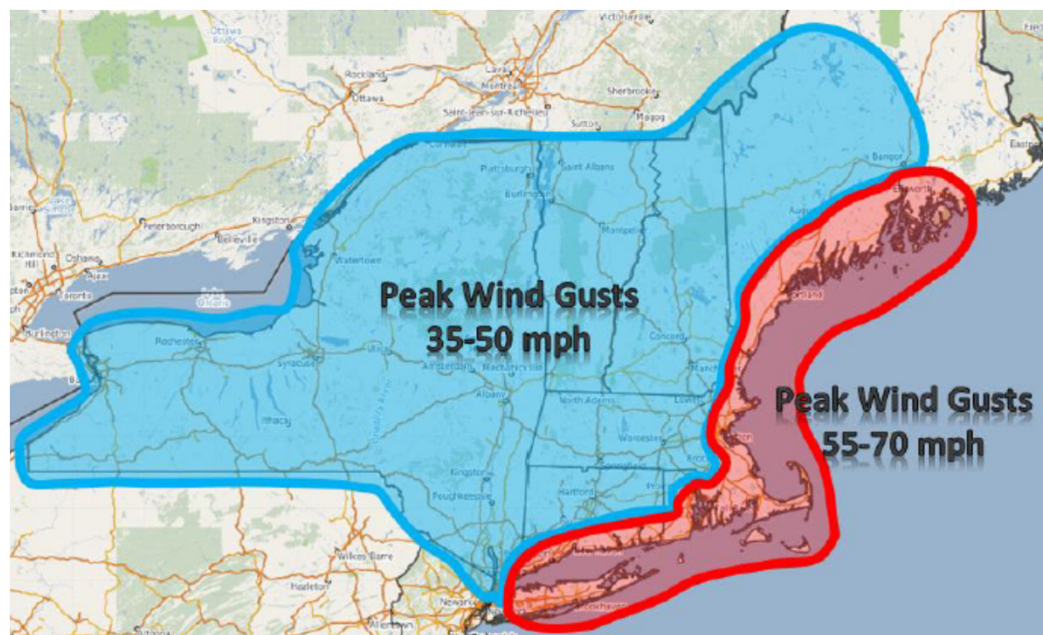
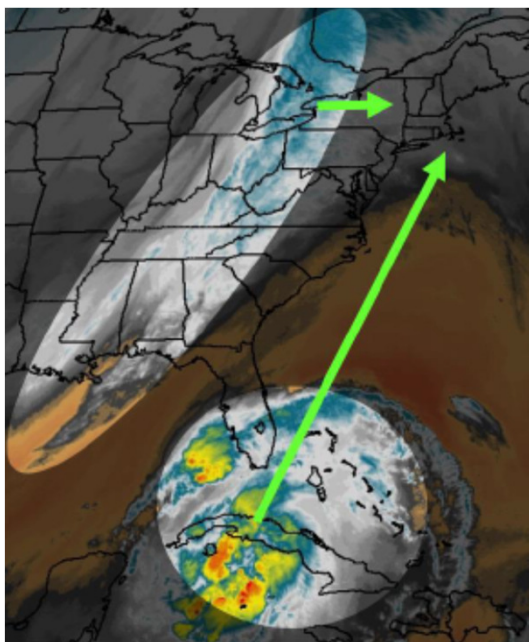
Saturday  
10/28/2017

Sunday  
10/29/2017



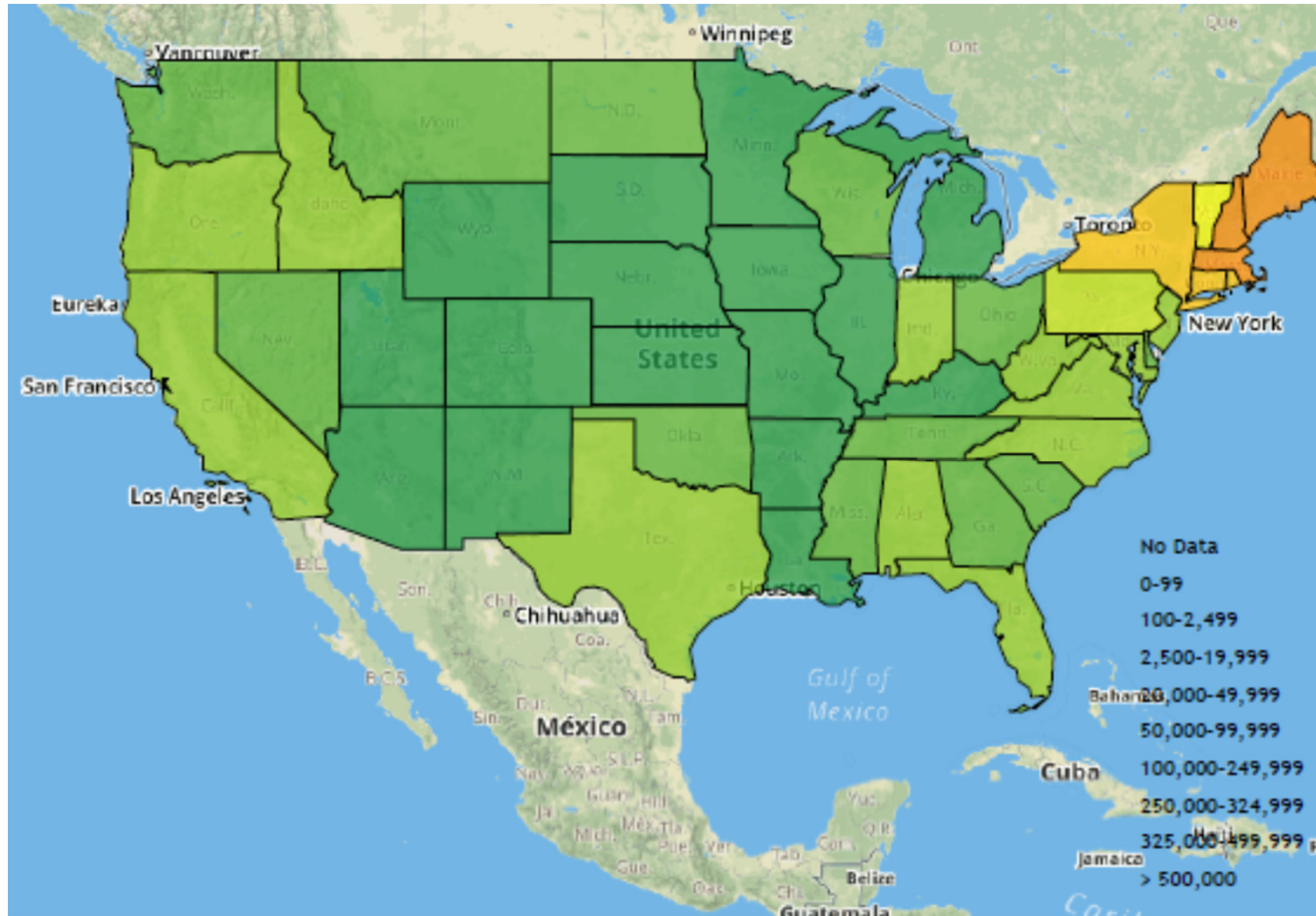
# Weather - Actual

- Sunday morning, October 29th, an extratropical cyclone formed in the Mid-Atlantic from a preexisting frontal system.
- On Sunday afternoon the system underwent explosive cyclogenesis, due to the high sea surface temperature (4–8 degrees F above the climatological value) and the capture of the moisture from the remnants of tropical cyclone Philippe, which approached the southern end of the storm on Monday afternoon.
- The center of the intense cyclone moved northwards across Southeastern NY and Southwestern CT on Sunday evening, bringing severe weather in the Eastern quadrant of the storm, over the entire Northeastern US causing widespread outages and flooding



# Significant Northeast US Impact

## Monday 8:17 am



<u>State</u>	<u>Outages</u>
Massachusetts	328,632
Maine	313,756
New Hampshire	274,010
Connecticut	154,078
Rhode Island	145,610
New York	100,478
Vermont	72,528
Pennsylvania	22,619
New Jersey	16,101
Virginia	15,479
<b>Total</b>	<b>1,443,291</b>

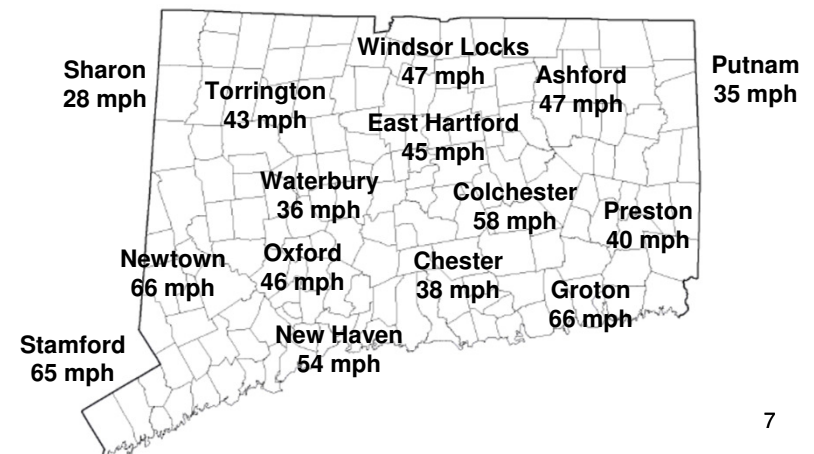


# Weather - Actual

- Strong, hazardous wind gusts 55-70 mph Sunday night into Monday
- Second period of wind gusts and sustained winds continued thru Monday afternoon prolonging the event, downing additional trees and branches



## Peak Winds



# UConn OPM Post-Event Self Analysis

## Actual

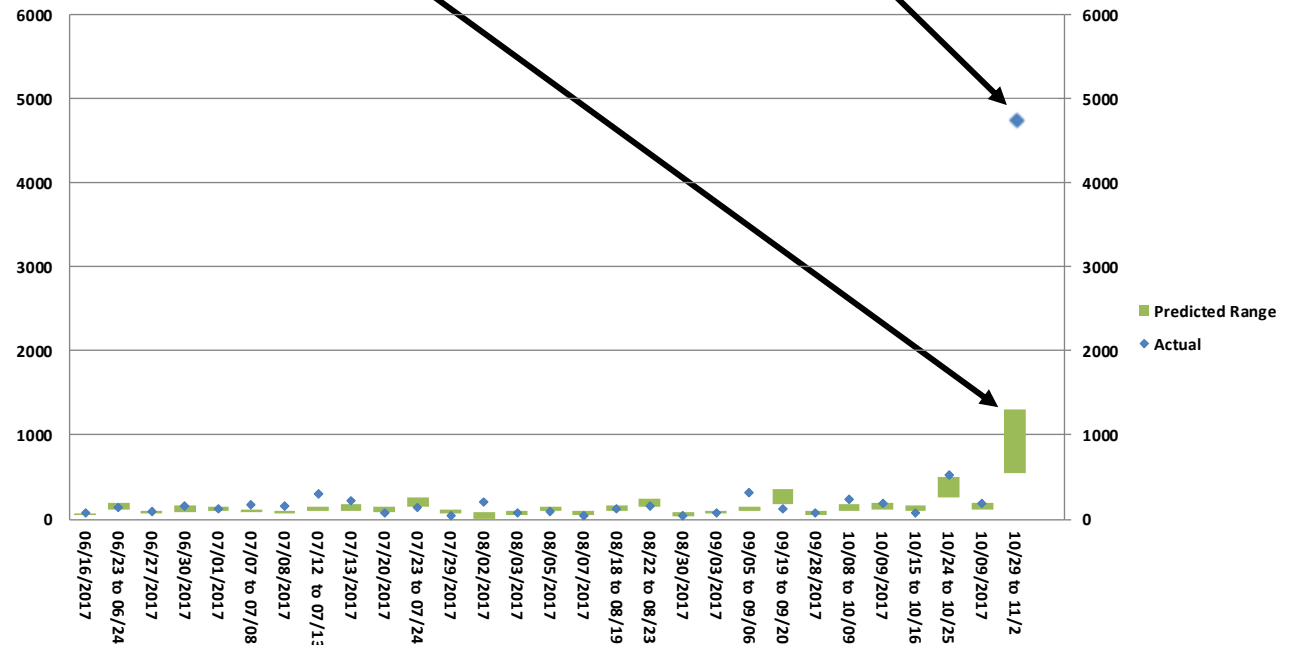
4815 trouble spots in CT

Sustained winds underestimated in some locations, with 51 mph winds reported in New Haven County, 48 mph in New London County and 39 mph in Middlesex County.

Precipitation exceeding 5 inches was reported in Fairfield County, New Haven County, New London County, Litchfield County, Windham County and Hartford County

Actual number of Trouble Spots for Oct 29 – 30 event - 4815

Predicted range of Trouble Spots for Oct 29 – 30 event 1300 max



Tropical storm winds are 39 – 73 mph; Hurricane force winds are 73 mph



# Severe System Impacts in CT

- 201,222 customers at peak, over 311,318 impacted overall
- 4815 trouble spot locations
- 10 Transmission lines out-of-service, 2 impacting 11,573 customers
- 564 impacted roads
- 231 broken poles
- 2670 primary spans wire down
- 2151 secondary spans wire down
- 420 transformers damaged
- 1773 trees to be cleared
- 1261 single services





# Substantial Tree Damage & System Impacts



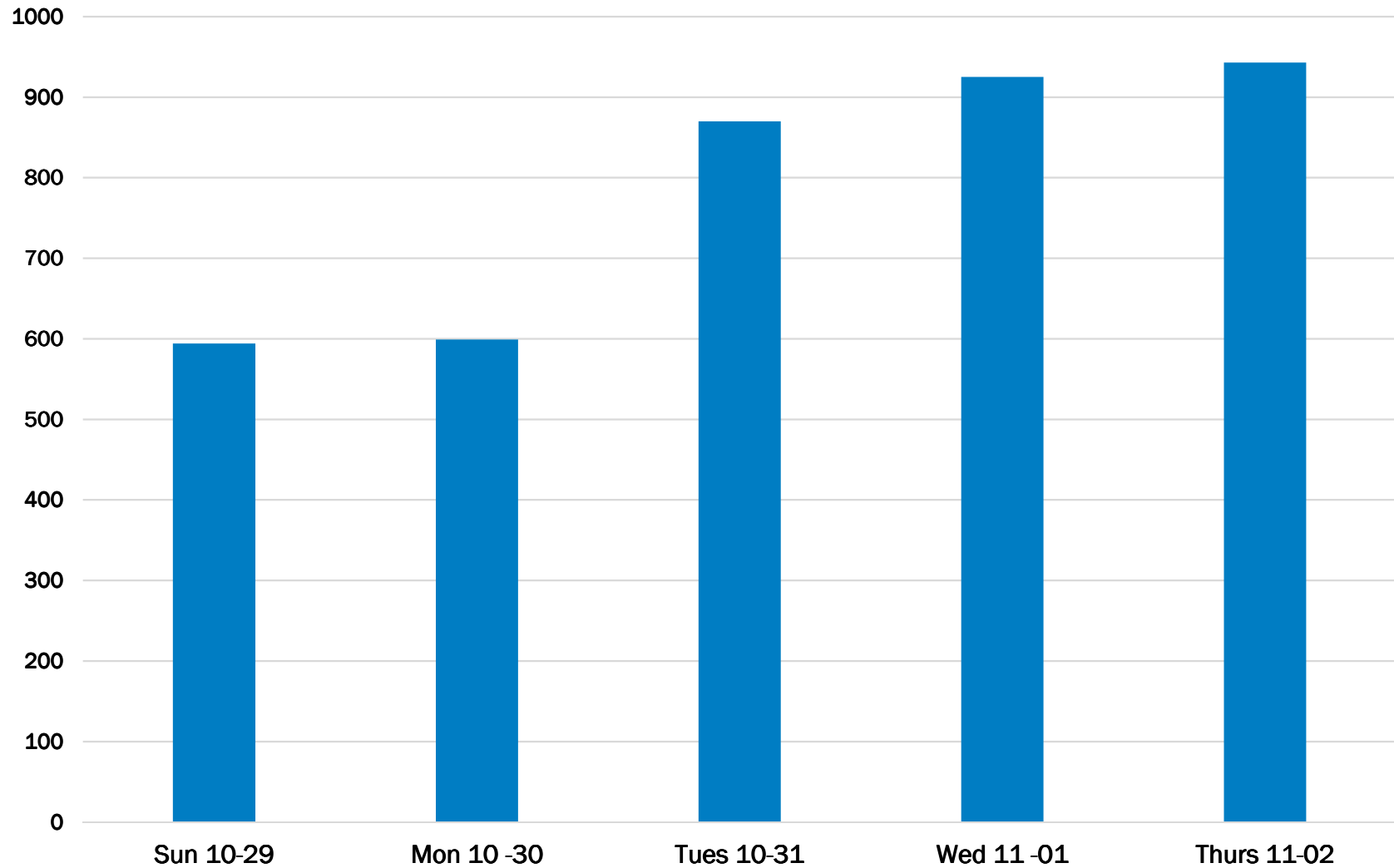


# Eversource Response

- 560 line personnel in place or scheduled to provide 24x7 coverage
  - Priority focus on public safety including E-911 FPS calls, with over 200 Wire Guards
- Additional 361 Line Resources plus contracted Logistics Provider acquired & brought into Waterford staging area
- 472 pre-staged Vegetation Management resources responded to downed trees and limbs
- Thousands of locations Damage Assessed



# Substantial Line Resources Used





# A Mutual Aid Event

Eversource is a member of the North American Mutual Aid Group (NAMAG)

## Monday 10/30

8:00 am NAMAG Call

1:00 pm Neighboring RMAGs respond

Mutual aid resources start arriving in CT

## Tuesday 10/31

9:00 am NAMAG Call

1:00 pm Neighboring RMAGs respond

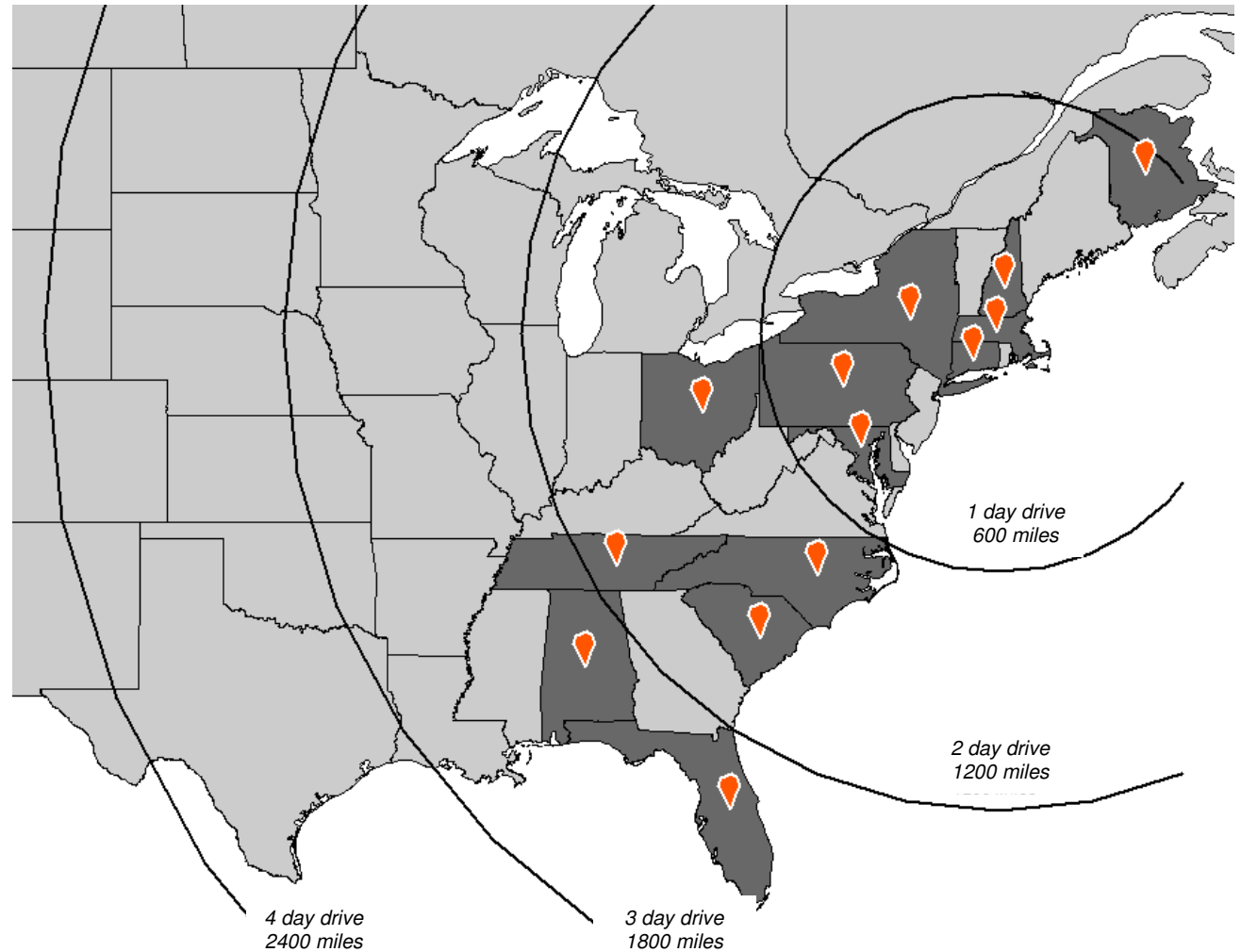
Additional resources arrive in CT

## Wednesday 11/01

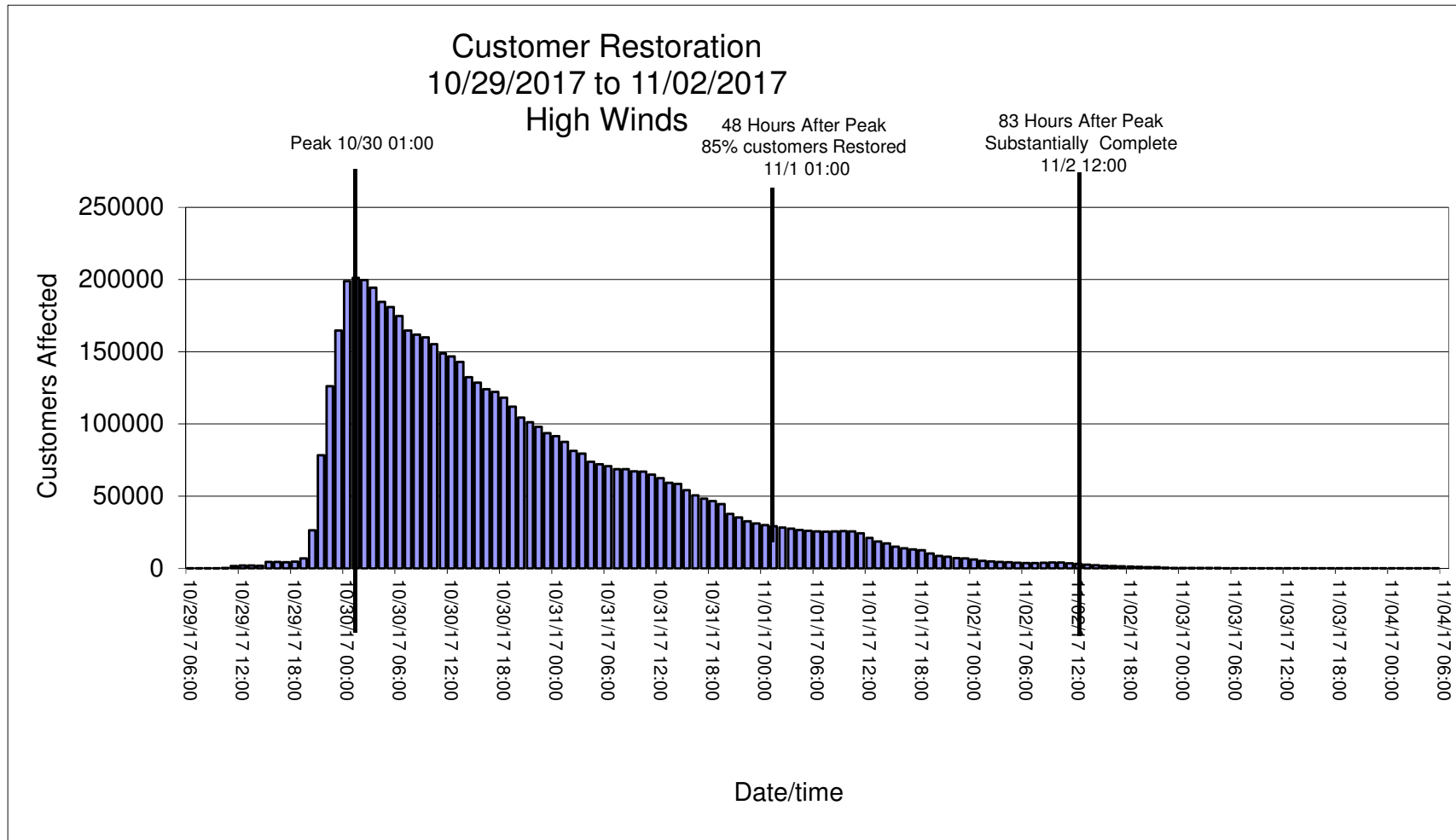
Additional resources arrive in CT

## Thursday 11/02

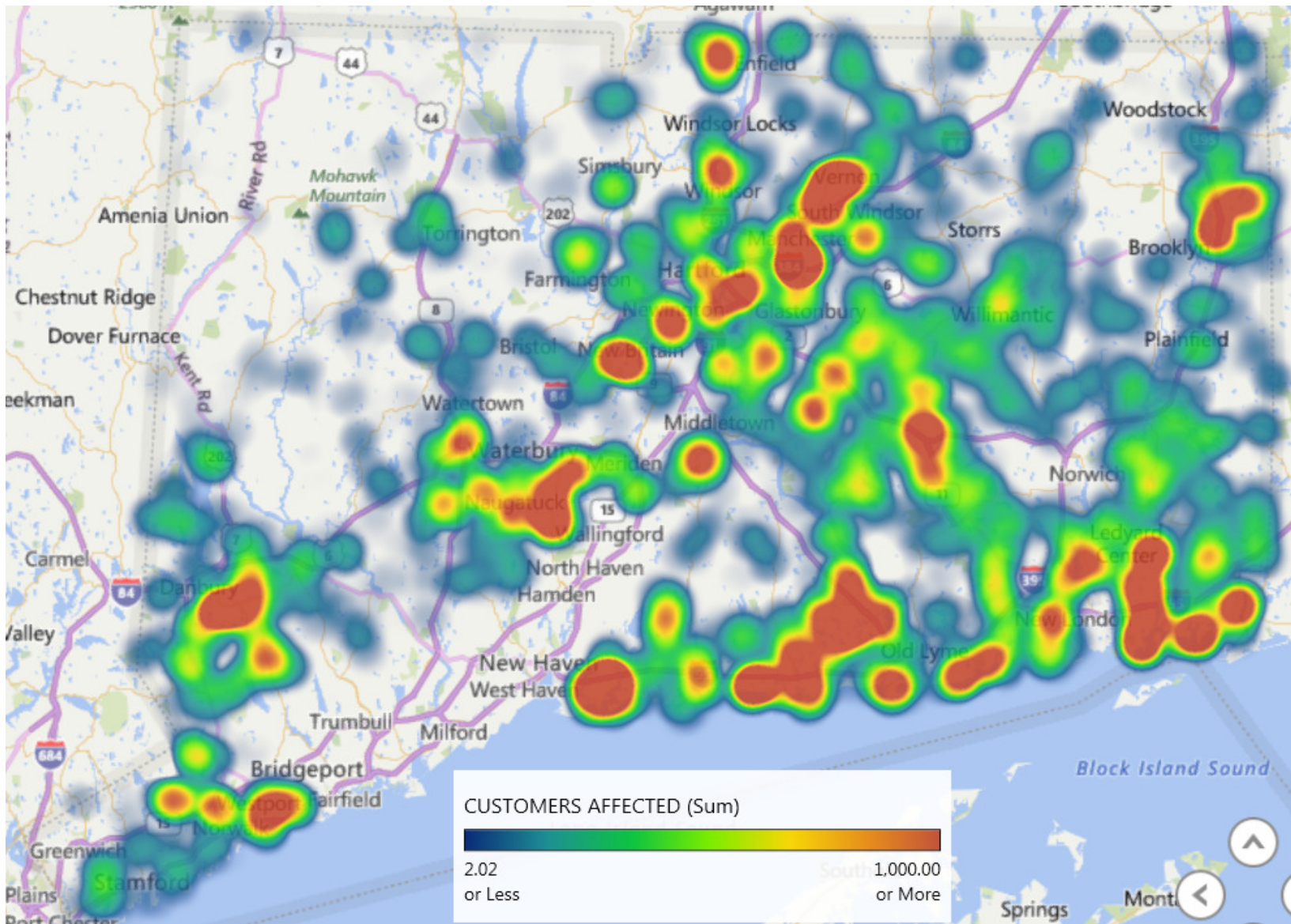
12:00 PM Global ETR met



# Customer Restoration Curve



# Total Customer Outages



# Community Outreach

- Liaison organization communicated with every community that was affected by the storm event.
- Liaison organization further supported all 10 Municipal EOCs across the state that asked for Liaison support with additional liaisons as requested.
  - Provided support and resolution to 70 communities regarding 564 community impacted roads throughout the state.
  - Provided support and resolution in identifying 31 schools for restoration or clearing of impacted roads.
- Liaison Organization responded to information requests from State of Connecticut Emergency Management Teams including DEMHS.

# Customer Service is a core element of our ERP

- Customer team activated staffing and communications per ERP plan.
- Customers experienced intermittent disruptions to self-service on Mon. 10/30.
- Customers migrated to call center agents to report outages and experienced long hold times due to volume.
- Remediation was prompt and per plan.
  - Information Technology (IT) ‘Critical’ incident at 7:35 am on 10/30/17, which is highest level, and followed protocol to diagnose and correct.
  - Additional call center and social care staff employed to support increased inbound call volume – ramped up to 375 agents
- Technology issue affecting call center wait times fixed at 3 p.m. on 10/30/17, which resulted in immediate customer experience improvement, and we continued to work to address other technology challenges
- 125K calls handled during event, including 76K handled by self-service IVR. On Mon, 10/30, call center handled 71K calls; & handled 7K inbound posts.

# Conclusions

- We prepared for the storm consistent with weather and outage predictions; and reacted when the actual storm impact was greater than predicted acquiring additional line resources
- Over 311,000 customers affected in Connecticut.
- Our restoration was consistent with our ERP
  - Duration of restoration - 85% restored in 48 hours
  - Number of line resources used
  - Timeframe for issuing global ERT
- We continue to monitor customer communication channels and continue to make improvements
- We are conducting post-storm reviews with our communities