

# 2026 Final Draft Energy and Seasonal Peak Forecasts

## *Load Forecast Committee*



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# Presentation Outline

## *Final Draft 2026 Forecasts*

- [Introduction](#)
- [Background & Review](#)
- [Final Draft Component Forecast Results](#)
- [Final Draft Annual Energy Forecast](#)
- [Final Draft Summer Peak Demand Forecast](#)
- [Final Draft Winter Peak Demand Forecast](#)
- [Gross Load Forecast for Calculating ICR for Upcoming ARAs](#)
- [Next Steps](#)

# Acronyms

|               |  |             |  |
|---------------|--|-------------|--|
| <b>ASOS</b>   | Automated Surface Observing System                 | <b>EIA</b>  | Energy Information Administration                        |
| <b>ARA</b>    | Annual reconfiguration auction                     | <b>EV</b>   | Electric Vehicle   |
| <b>AEO</b>    | EIA's Annual Energy Outlook                        | <b>GCM</b>  | Global Climate Model                                     |
| <b>BESS</b>   | Battery energy storage system                      | <b>FCM</b>  | Forward Capacity Market                                  |
| <b>BTM PV</b> | Behind the meter photovoltaic                      | <b>GWH</b>  | Gigawatt hour  |
| <b>CDD</b>    | Cooling degree day                                 | <b>HDD</b>  | Heating degree day                                       |
| <b>CELT</b>   | Capacity, Energy, Load, and Transmission           | <b>HP</b>   | Heat pump  |
| <b>COP</b>    | Coefficient of performance                         | <b>ICR</b>  | Installed Capacity Requirement                           |
| <b>DER</b>    | Distributed energy resource                        | <b>IPSL</b> | Institut Pierre-Simon Laplace (Climate Modelling Center) |
| <b>DGFWG</b>  | Distributed Generation Forecast Working Group      | <b>LFC</b>  | Load Forecast Committee                                  |
| <b>ECMWF</b>  | European Center for Medium-Range Weather Forecasts | <b>MAPE</b> | Mean absolute percent error                              |
| <b>EE</b>     | Energy Efficiency                                  | <b>MW</b>   | Megawatt   |
| <b>EPRI</b>   | Electric Power Research Institute                  | <b>SAE</b>  | Statistically-adjusted end-use                           |
| <b>ERA5</b>   | ECMWF Reanalysis Version 5                         | <b>SSP</b>  | Shared Socioeconomic Pathway                             |

# Introduction

- The ISO annually develops long-term forecasts of energy and demand that are published as part of the [Capacity, Energy, Loads, and Transmission \(CELT\) report](#) and on the [Load Forecast website](#)
- For CELT 2025, ISO implemented a new hourly forecast methodology, representing foundational improvements to long-term forecast capabilities
  - The hourly long-term load forecast methodology was discussed at the [September LFC meeting](#)
- For CELT 2026, two new load forecast components have been introduced, and additional enhancements have been developed and implemented for already existing components

# CELT 2026 Load Forecast Timeline

## *Working Group and Committee Meetings*

- Load Forecast Committee (LFC)
  - September 26, 2025 – [Ongoing work for CELT 2026](#), [overview of the long-term forecast methodology](#), and [CELT 2025 forecast performance](#)
  - November 7, 2025 – [Update on heat pump forecast enhancements](#) and [updates to the EV adoption forecast methodology](#)
  - December 12, 2025 – [Draft 2026 electric vehicle forecast](#) and [draft 2026 heat pump forecast](#)
  - February 20, 2026 – [Draft annual energy and peak demand forecast](#), [update on large loads in the 2026 forecast](#)
  - March 27, 2026 (today) – Final draft large load forecast, final draft annual energy and seasonal peak forecasts, gross load forecasts for ARAs
- Distributed Generation Forecast Working Group (DGFWG)
  - October 24, 2025 – [2026 DER forecast enhancements](#)
  - December 8, 2025 – State DG policy updates from [MA](#), [CT](#), [RI](#), [VT](#), [NH](#), and [ME](#), [DER Forecast Updates](#)
  - February 9, 2026 – [Draft 2026 DER forecast](#) (including BESS forecast) and [DER BESS hourly modeling](#)
  - March 23, 2026 – [Final draft 2026 DER forecasts](#), [end of 2025 DER installations update](#)

# BACKGROUND & REVIEW



# Long-Term Forecast Components for CELT 2026

- Six load components entail distinct modeling steps
- BTM BESS and large load forecasts are new for CELT 2026
- The base load, HP, EV, and BTM PV forecasts have undergone improvements as part of CELT 2026

## Base Load Forecast

- Statistically modeled based on historical load reconstituted for BTM PV
- Combined with electrification forecasts to yield the gross and net load forecasts

## BTM PV Forecast

- Adoption forecasting based on NREL's dGen™ tool
- Demand reductions derived using zonal, historical hourly capacity factors

## BTM BESS Forecast

- Adoption forecasting based on NREL's dGen™ tool
- Profiling based on retail-based seasonal peak shaving framework

## Heat Pump (HP) Forecast

- Adoption forecast along possible heating pathways
- Demand based on weather-dependent building heating needs and HP coefficient of performance (COP) curves

## Electric Vehicle (EV) Forecast

- Policy-based adoption forecast (5 vehicle types)
- Demand based on weather-sensitive battery efficiency curves and daily charging profiles

## Large Load Forecast

- Large load additions based on Transmission Owner surveys
- Profiling based on operational characteristics provided via surveys, or similar class-based characteristics

# Key Elements of the Forecast Methodology

## Load Definitions

- $Load_{Gross} = Base + EV + HP + LargeLd$
- $Load_{Net} = Load_{Gross} - BTM\ PV - BESS$

## Temporal Granularity

- Modeling simulates all load components hourly, enabling the forecast to capture the dynamic interplay between components and their profiling

## Hierarchical Forecasting

- Regional forecast is the sum of zonal forecasts to capture the spatial diversity of weather and load characteristics
- Zonal EV, HP, and DER forecasts start at the county-level

## Base Load Modeling

- Daily energy model feeds 24 individual hourly models
- Model input features include a variety of transformations of weather, calendar, and trend variables

## Weather Data

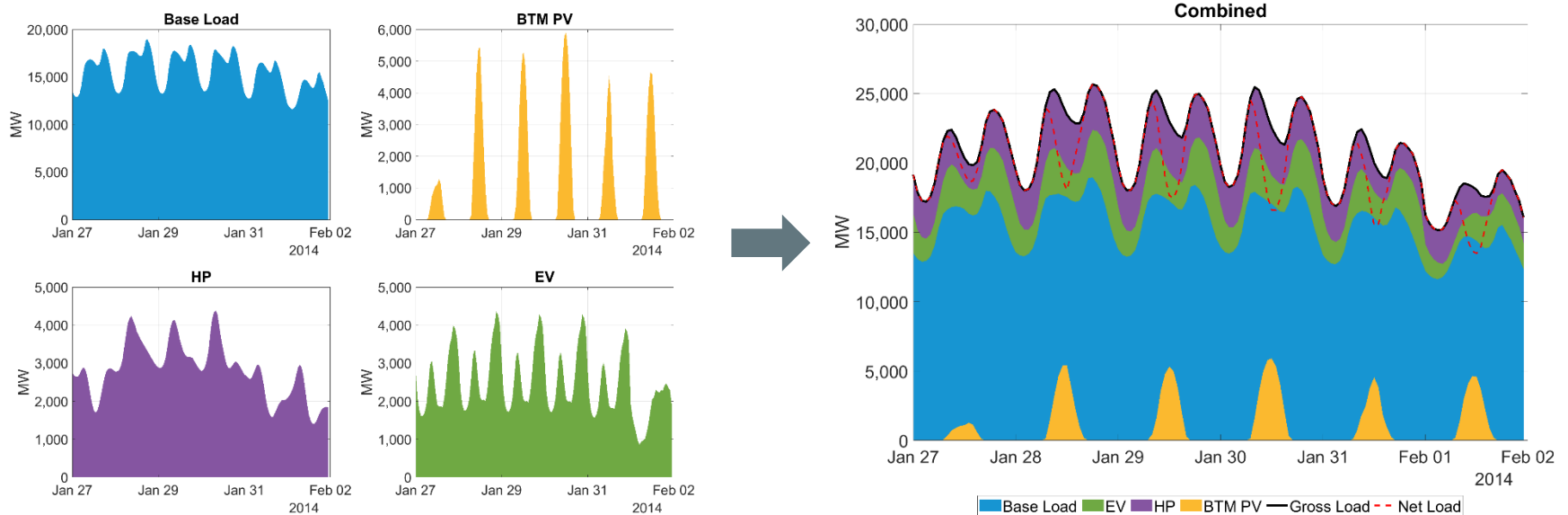
- Historical ERA5 reanalysis weather data from ECMWF
- Climate-adjusted weather data reflecting 70 weather years
- 23 weather locations, 8 weather concepts

## Forecast Horizon

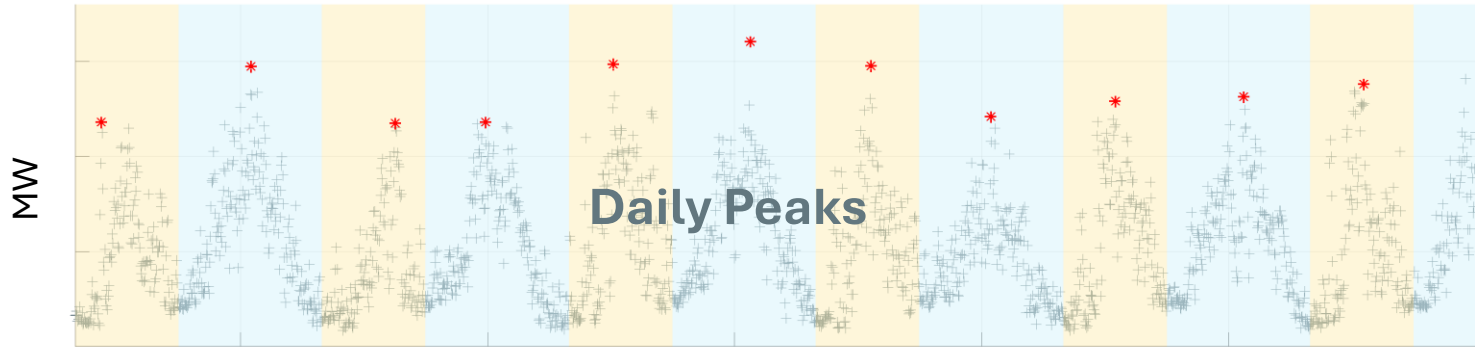
- All forecast components extend 20+ years into the future, enabling support for longer-term planning studies

# Load Forecast Compilation

- Each forecast component (base load, EV, HP, BTM PV, BTM BESS, large loads) reflects coincident weather over a 70-year simulation period and are combined into forecasts of net and gross load for each zone and the region

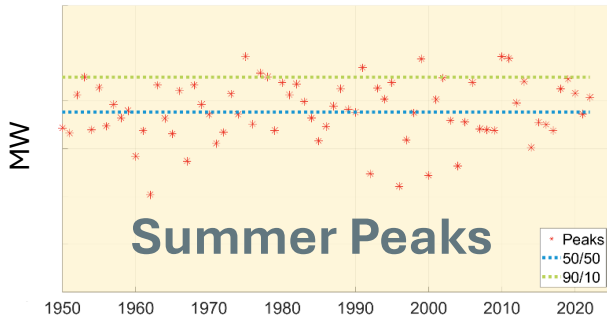


# Calculation of Seasonal Peaks



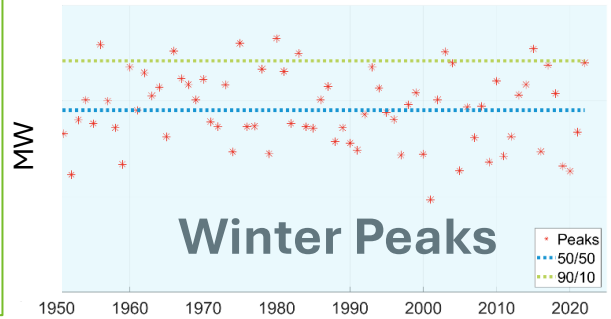
Nov 1953... 2009 2010 2011 2012 2013 ...Oct 2023

Summer Winter



## Seasonal Peak Methodology

1. For a given forecast year, select seasonal peaks from each simulation year (70 values)
2. Calculate 50<sup>th</sup> and 90<sup>th</sup> percentiles from resulting seasonal peaks
3. Repeat for each forecast year



# Demand Impacts of Load Components

## Waterfall Approach

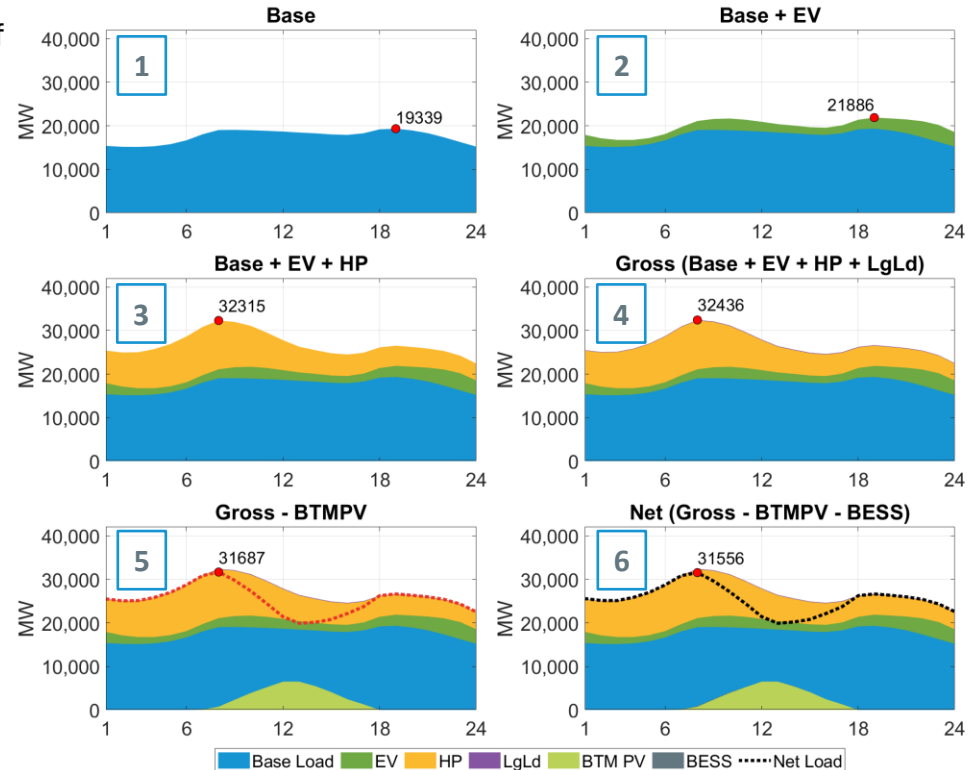
- The hourly forecast results in a dynamic interplay of modeled load components
  - Peak hour shifts due to the growth of one component affect the peak attribution of other components
  - Attribution of peak load values to components is path dependent

- A waterfall approach to the attribution of peak load contributions is used to standardize this forecast accounting

- Waterfall method steps (refer to plot):

- Base = Base peak load value  
19,339 MW
- EV = (Base+EV) – Base  
21,886 – 19,339 = 2,547 MW
- HP = (Base+EV+HP) – (Base+EV)  
32,315 – 21,886 = 10,429 MW
- LargeLd = (Base+EV+HP+LargeLd) – (Base+EV+HP)  
32,436 – 32,315 = 121 MW
- BTM PV = Gross – (Gross-BTM PV)  
32,436 – 31,687 = 749 MW
- BTM BESS = (Gross-BTM PV) – Net  
31,687 – 31,556 = 121 MW

### Example Winter Peak Day, 2038



# FINAL DRAFT COMPONENT FORECASTS

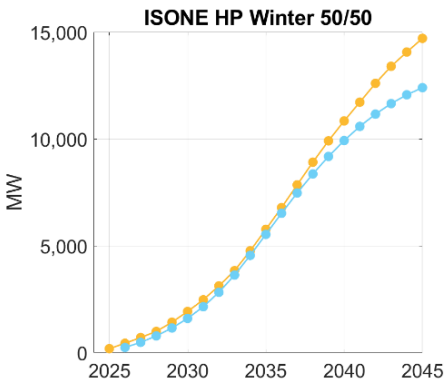
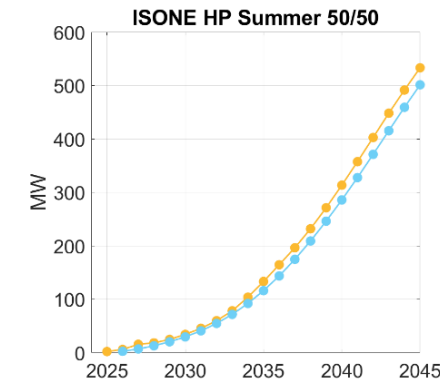
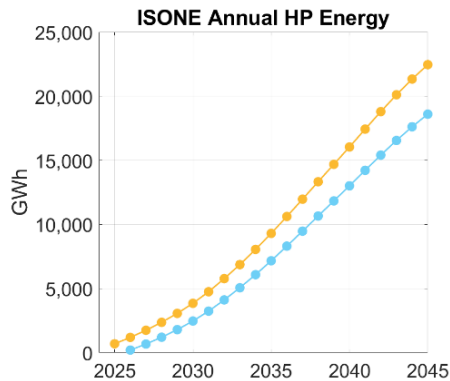
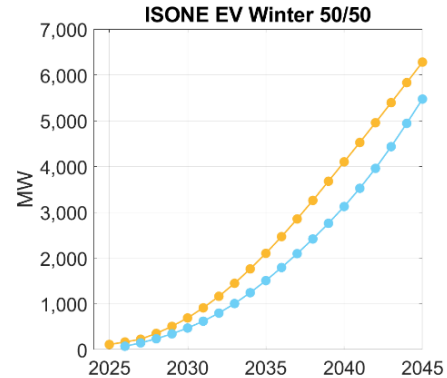
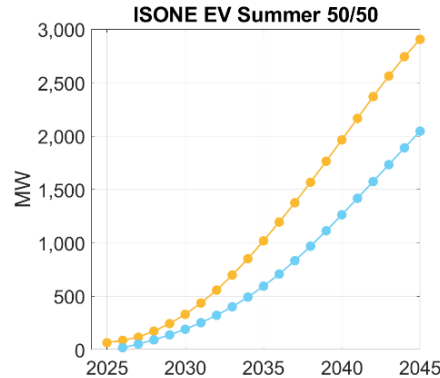
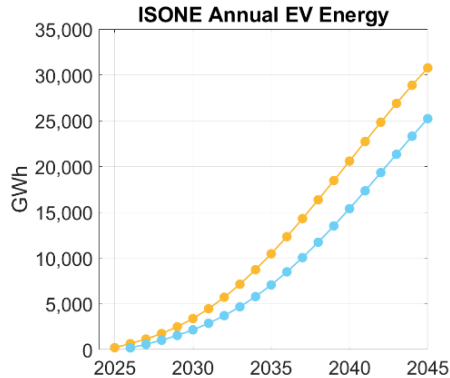


# Final Draft Component Forecasts

- The following forecast activities were performed since the February LFC meeting
  - Re-estimated base load model using most recent load and weather data through the end of 2025
  - Finalized 2026 BTM PV forecast
  - Finalized 2026 BTM BESS forecast
  - Finalized 2026 large load forecast
  - Applied waterfall process to develop probabilistic forecasts for all load components

# Final Draft HP and EV Forecasts

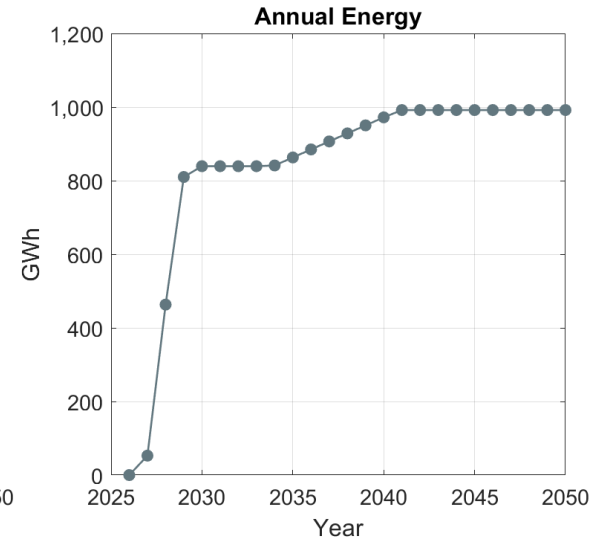
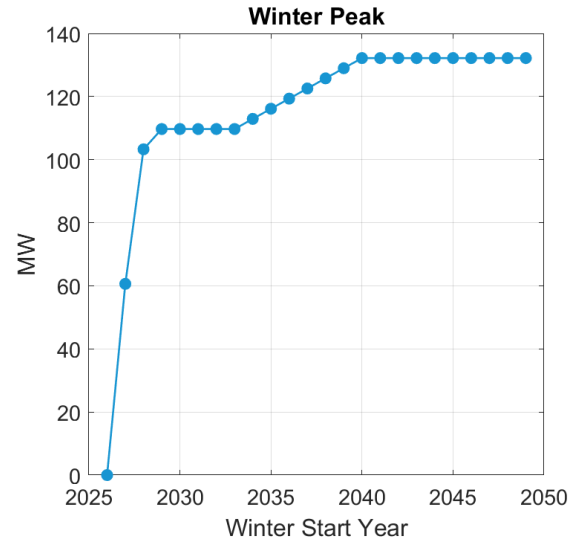
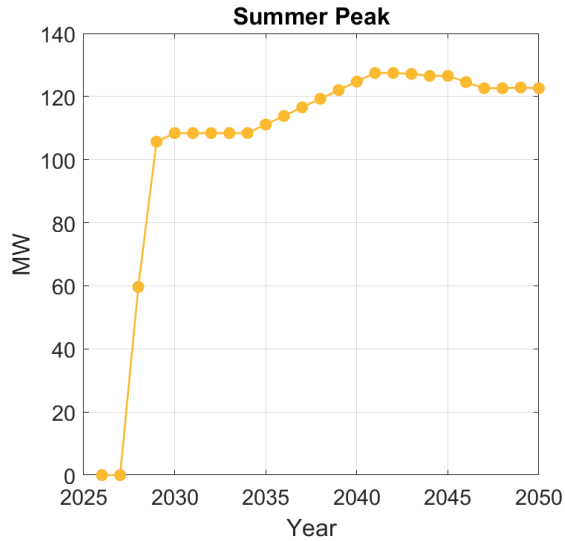
## 50/50 Peak Demand and Annual Energy



— CELT 2025 — Final Draft CELT 2026

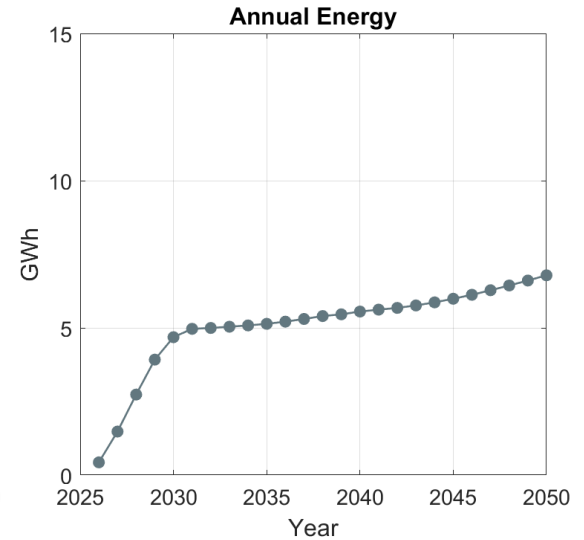
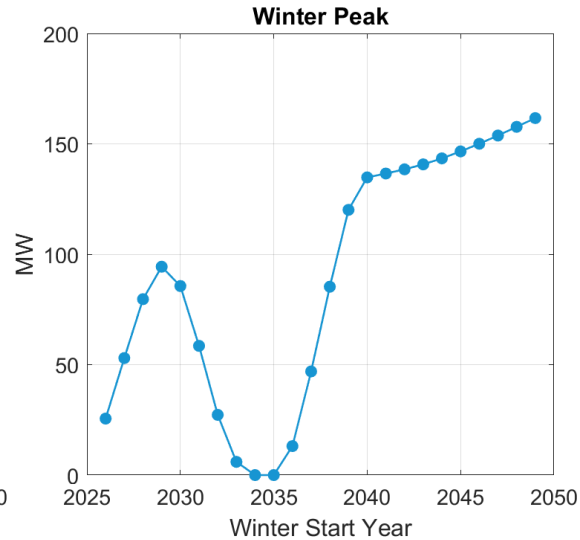
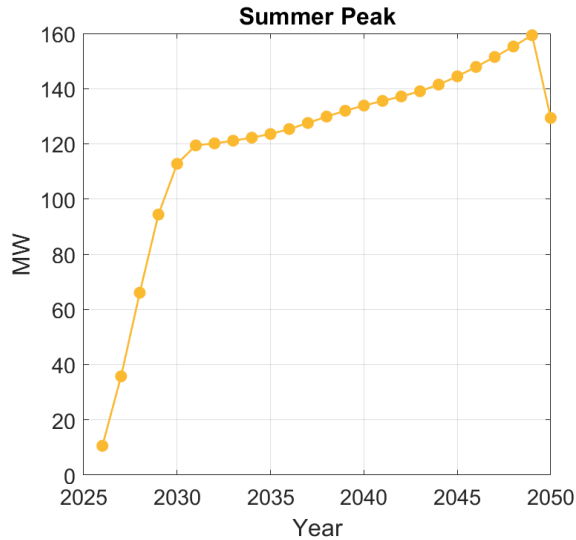
# Final Draft Large Load Forecast

## *50/50 Peak Demand and Annual Energy*



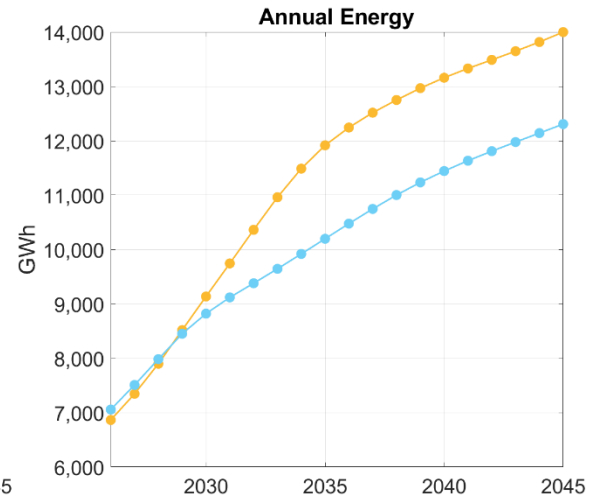
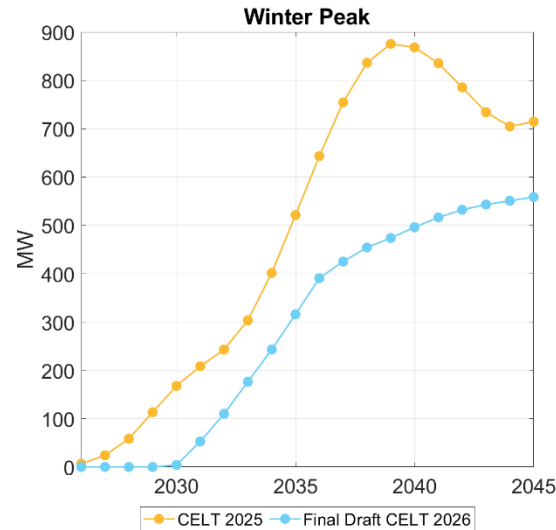
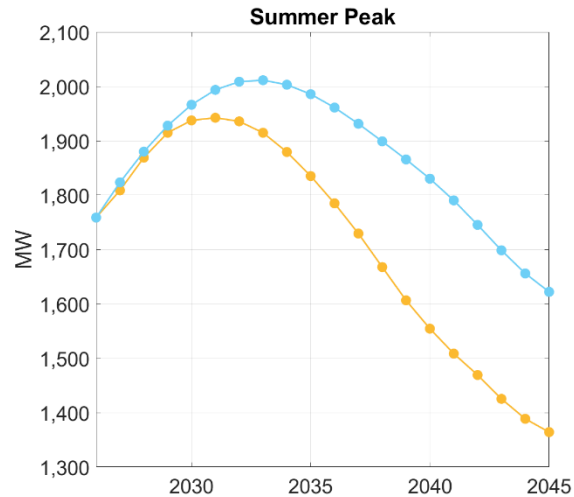
# Final Draft BTM BESS Forecast

*50/50 Peak Demand and Annual Energy*



# Final Draft BTM PV Forecast

*50/50 Peak Demand and Annual Energy*



— CELT 2025 — Final Draft CELT 2026

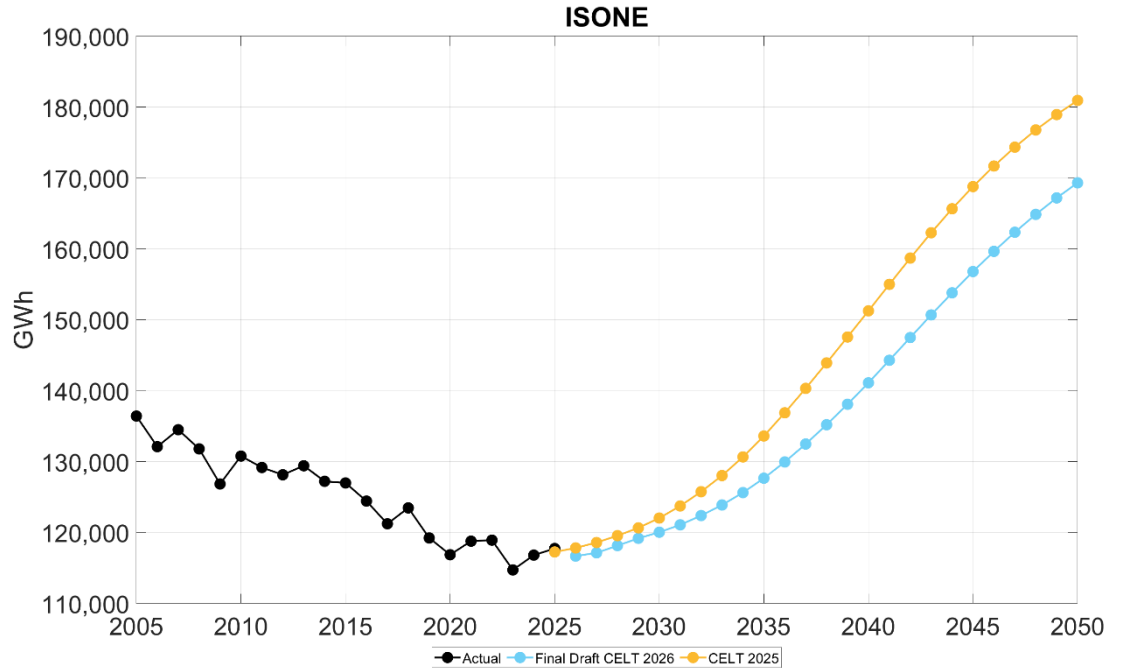
# FINAL DRAFT ANNUAL ENERGY FORECAST



# Annual Net Energy Forecast

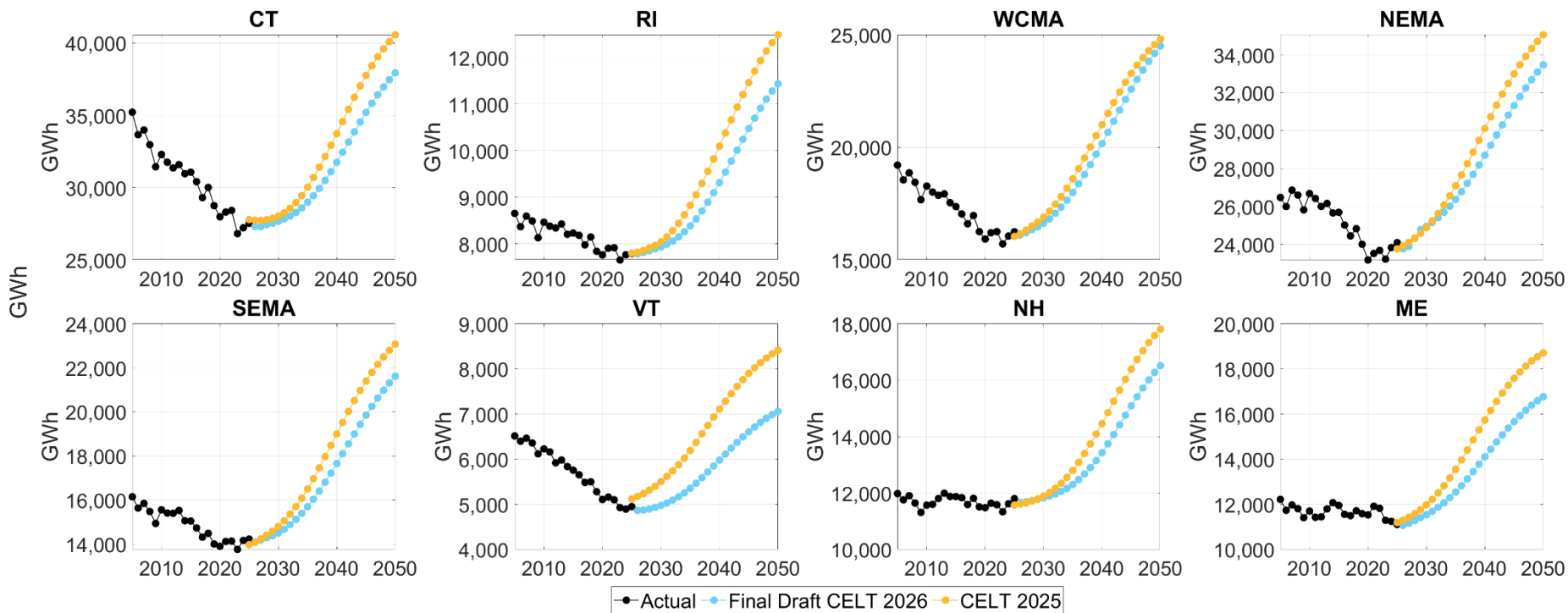
## *New England – Final Draft CELT 2026 Vs. CELT 2025*

| Year | CELT 2025 (GWh) | Final Draft CELT 2026 (GWh) | Change (GWh) | Change (%) |
|------|-----------------|-----------------------------|--------------|------------|
| 2026 | 117,829         | 116,679                     | -1,150       | -1         |
| 2027 | 118,591         | 117,138                     | -1,453       | -1.2       |
| 2028 | 119,559         | 118,156                     | -1,403       | -1.2       |
| 2029 | 120,659         | 119,187                     | -1,472       | -1.2       |
| 2030 | 122,044         | 120,047                     | -1,997       | -1.6       |
| 2031 | 123,747         | 121,088                     | -2,658       | -2.1       |
| 2032 | 125,761         | 122,393                     | -3,367       | -2.7       |
| 2033 | 128,034         | 123,888                     | -4,146       | -3.2       |
| 2034 | 130,665         | 125,633                     | -5,032       | -3.9       |
| 2035 | 133,617         | 127,660                     | -5,957       | -4.5       |



# Annual Net Energy Forecast

Zones – Final Draft CELT 2026 Vs. CELT 2025



# Final Draft 2026 Annual Energy Forecasts

## *New England - Summary*

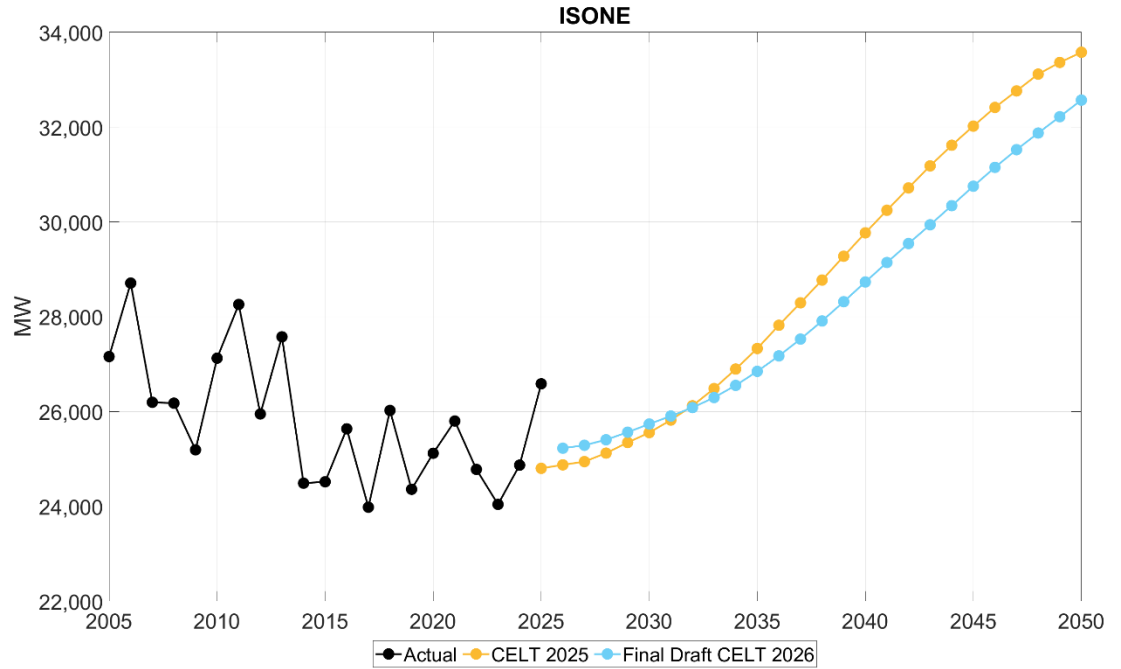
| Year | Base (GWh) | EV* (GWh) | HP* (GWh) | Large Loads (GWh) | Gross (GWh) | BTM PV (GWh) | BTM BESS (GWh) | Net (GWh) |
|------|------------|-----------|-----------|-------------------|-------------|--------------|----------------|-----------|
| 2026 | 123,340    | 195       | 198       | 0                 | 123,734     | -7,056       | 0              | 116,679   |
| 2027 | 123,333    | 588       | 671       | 53                | 124,645     | -7,509       | 1              | 117,138   |
| 2028 | 123,437    | 1,036     | 1,200     | 463               | 126,137     | -7,983       | 3              | 118,156   |
| 2029 | 123,474    | 1,557     | 1,793     | 810               | 127,634     | -8,451       | 4              | 119,187   |
| 2030 | 123,392    | 2,167     | 2,464     | 839               | 128,862     | -8,820       | 5              | 120,047   |
| 2031 | 123,247    | 2,881     | 3,235     | 839               | 130,203     | -9,119       | 5              | 121,088   |
| 2032 | 123,099    | 3,715     | 4,113     | 839               | 131,767     | -9,379       | 5              | 122,393   |
| 2033 | 122,946    | 4,682     | 5,059     | 839               | 133,527     | -9,644       | 5              | 123,888   |
| 2034 | 122,826    | 5,798     | 6,082     | 841               | 135,547     | -9,919       | 5              | 125,633   |
| 2035 | 122,749    | 7,074     | 7,165     | 863               | 137,851     | -10,197      | 5              | 127,660   |

# FINAL DRAFT SUMMER PEAK DEMAND FORECAST

# Summer Net 50/50 Peak Forecast

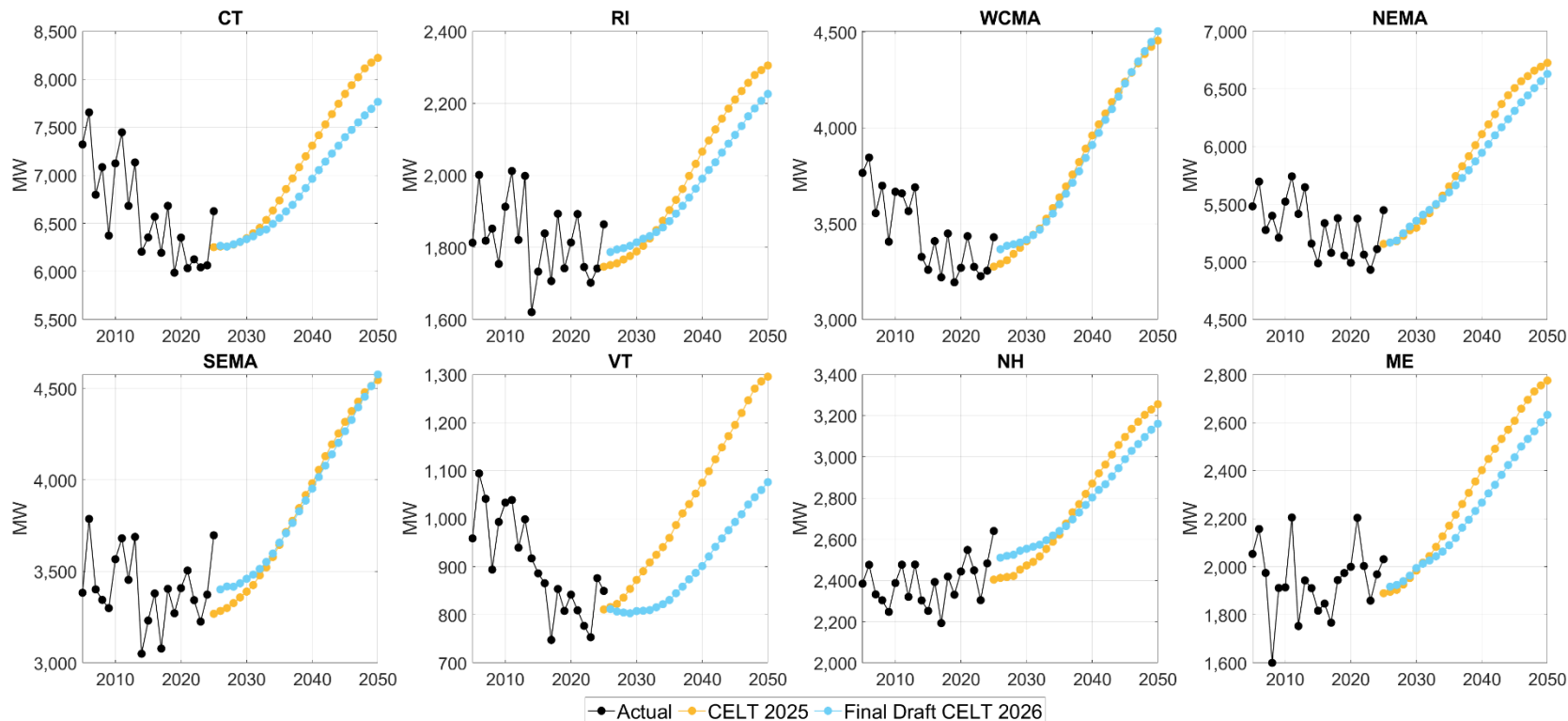
*New England – Final Draft CELT 2026 Vs. CELT 2025*

| Year | CELT 2025 (MW) | Final Draft CELT 2026 (MW) | Change (MW) | Change (%) |
|------|----------------|----------------------------|-------------|------------|
| 2026 | 24,877         | 25,228                     | 351         | 1.4        |
| 2027 | 24,945         | 25,290                     | 345         | 1.4        |
| 2028 | 25,124         | 25,406                     | 282         | 1.1        |
| 2029 | 25,347         | 25,565                     | 218         | 0.9        |
| 2030 | 25,557         | 25,738                     | 181         | 0.7        |
| 2031 | 25,821         | 25,906                     | 85          | 0.3        |
| 2032 | 26,123         | 26,084                     | -39         | -0.1       |
| 2033 | 26,486         | 26,296                     | -189        | -0.7       |
| 2034 | 26,897         | 26,553                     | -345        | -1.3       |
| 2035 | 27,331         | 26,849                     | -482        | -1.8       |



# Summer Net 50/50 Coincident Peak Forecast

## Zones – Final Draft CELT 2026 Vs. CELT 2025



# Final Draft 2026 Summer Peak Forecasts

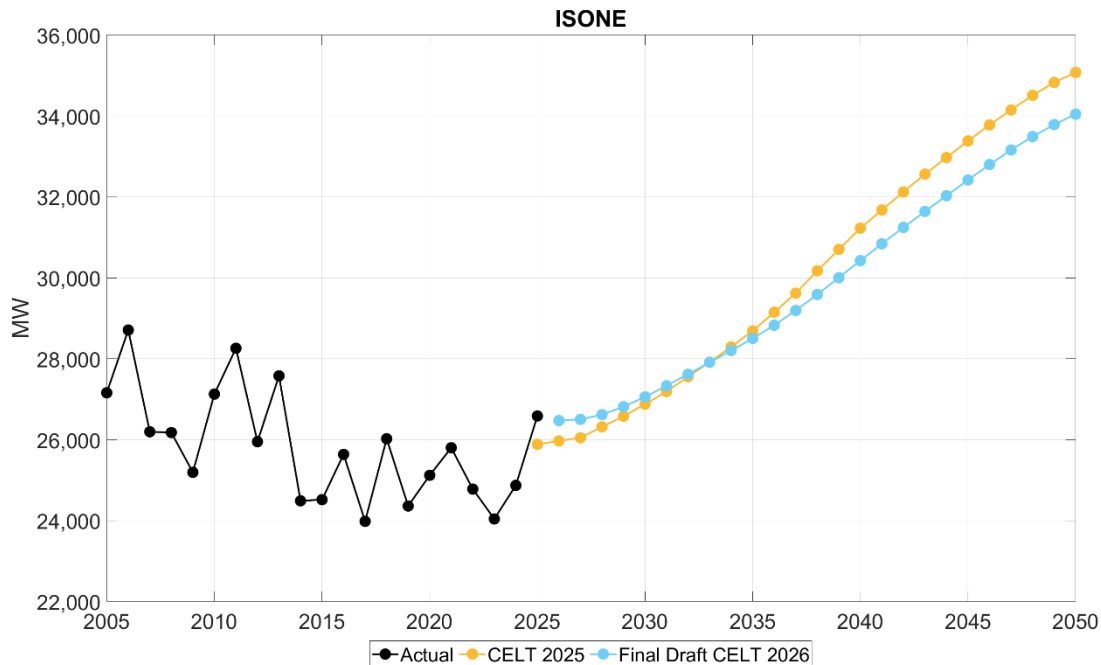
## *New England 50/50 - Summary*

| Year | Base (MW) | EV* (MW) | HP* (MW) | Large Loads (MW) | Gross (MW) | BTM PV (MW) | BTM BESS (MW) | Net (MW) |
|------|-----------|----------|----------|------------------|------------|-------------|---------------|----------|
| 2026 | 26,976    | 19       | 2        | 0                | 26,997     | -1,759      | -11           | 25,228   |
| 2027 | 27,090    | 52       | 7        | 0                | 27,149     | -1,824      | -36           | 25,290   |
| 2028 | 27,187    | 92       | 13       | 60               | 27,352     | -1,880      | -66           | 25,406   |
| 2029 | 27,323    | 139      | 20       | 106              | 27,588     | -1,928      | -94           | 25,565   |
| 2030 | 27,488    | 192      | 29       | 108              | 27,817     | -1,966      | -113          | 25,738   |
| 2031 | 27,618    | 252      | 41       | 108              | 28,019     | -1,994      | -119          | 25,906   |
| 2032 | 27,728    | 322      | 55       | 108              | 28,213     | -2,009      | -120          | 26,084   |
| 2033 | 27,847    | 402      | 72       | 108              | 28,429     | -2,011      | -121          | 26,296   |
| 2034 | 27,985    | 492      | 92       | 108              | 28,678     | -2,003      | -122          | 26,553   |
| 2035 | 28,137    | 594      | 116      | 111              | 28,958     | -1,986      | -124          | 26,849   |

# Summer Net 90/10 Peak Forecast

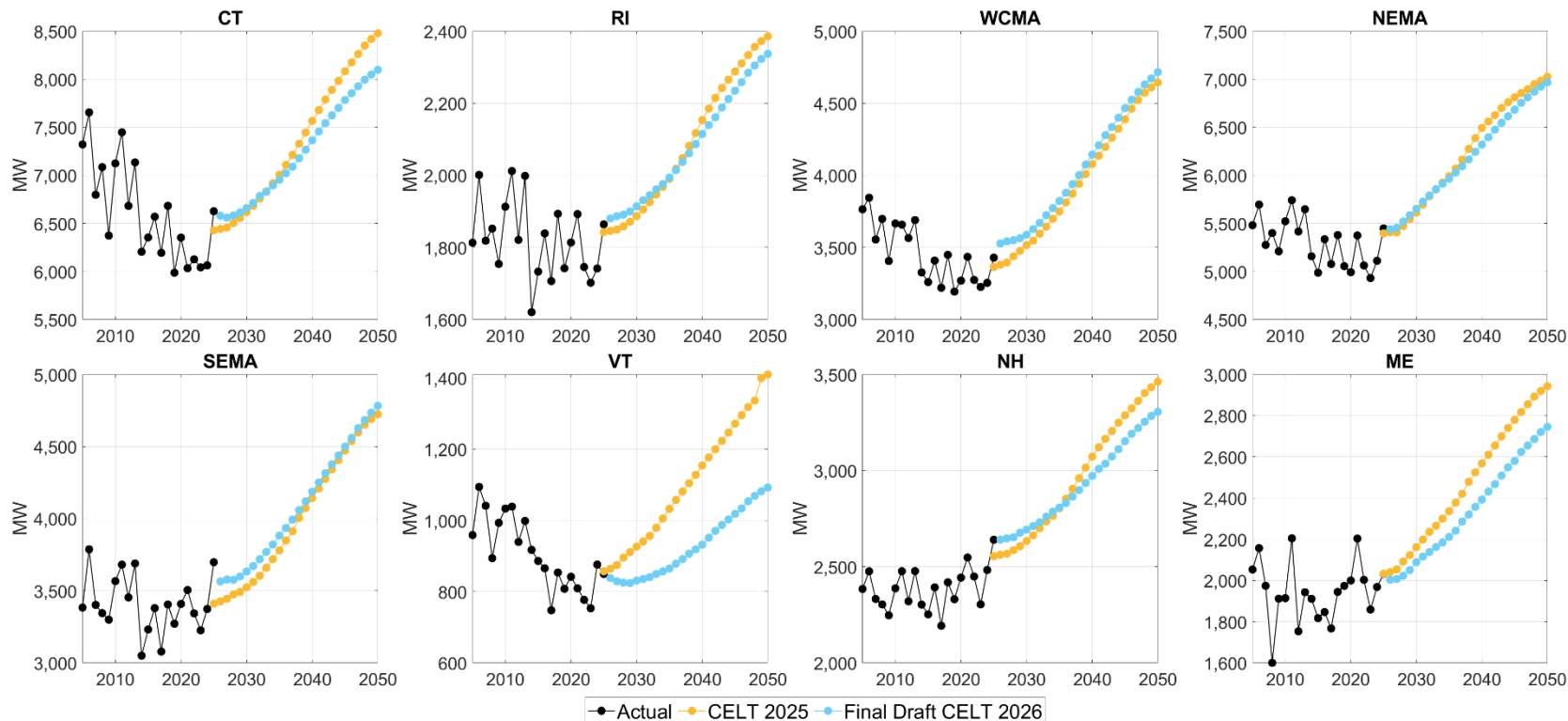
*New England – Final Draft CELT 2026 Vs. CELT 2025*

| Year | CELT 2025 (MW) | Final Draft CELT 2026 (MW) | Change (MW) | Change (%) |
|------|----------------|----------------------------|-------------|------------|
| 2026 | 25,969         | 26,473                     | 504         | 1.9        |
| 2027 | 26,048         | 26,503                     | 455         | 1.7        |
| 2028 | 26,320         | 26,620                     | 301         | 1.1        |
| 2029 | 26,580         | 26,814                     | 234         | 0.9        |
| 2030 | 26,878         | 27,059                     | 181         | 0.7        |
| 2031 | 27,193         | 27,332                     | 139         | 0.5        |
| 2032 | 27,556         | 27,620                     | 64          | 0.2        |
| 2033 | 27,916         | 27,912                     | -5          | 0          |
| 2034 | 28,297         | 28,203                     | -94         | -0.3       |
| 2035 | 28,689         | 28,503                     | -186        | -0.6       |



# Summer Net 90/10 Coincident Peak Forecast

## Zones – Final Draft CELT 2026 Vs. CELT 2025

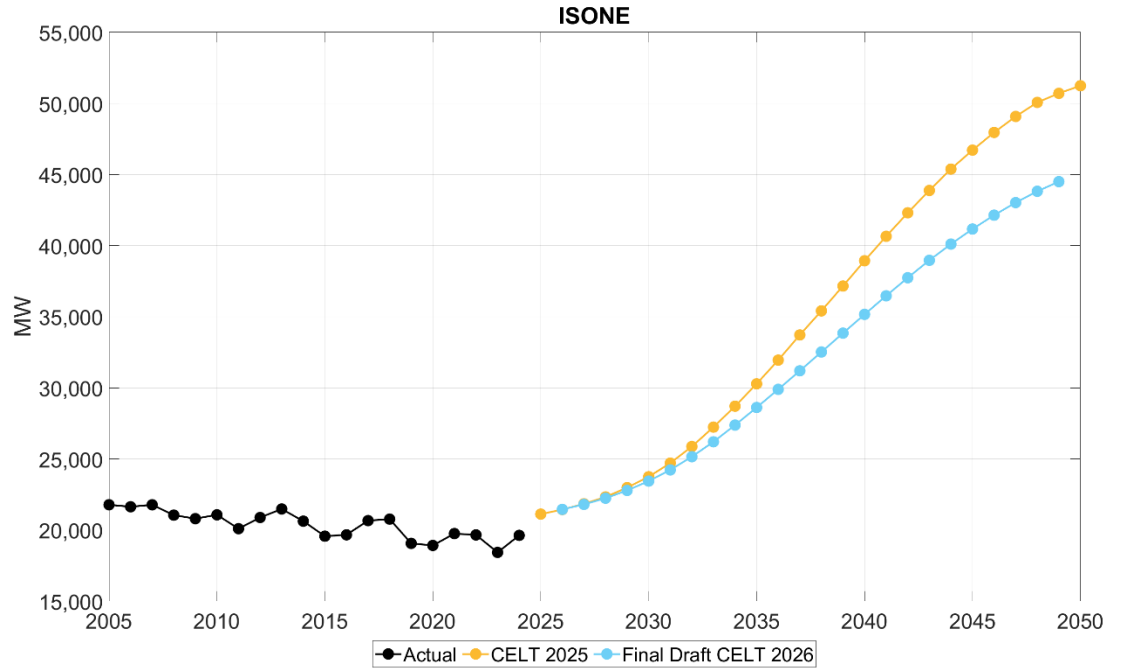


# FINAL DRAFT WINTER PEAK DEMAND FORECAST

# Winter Net 50/50 Peak Forecast

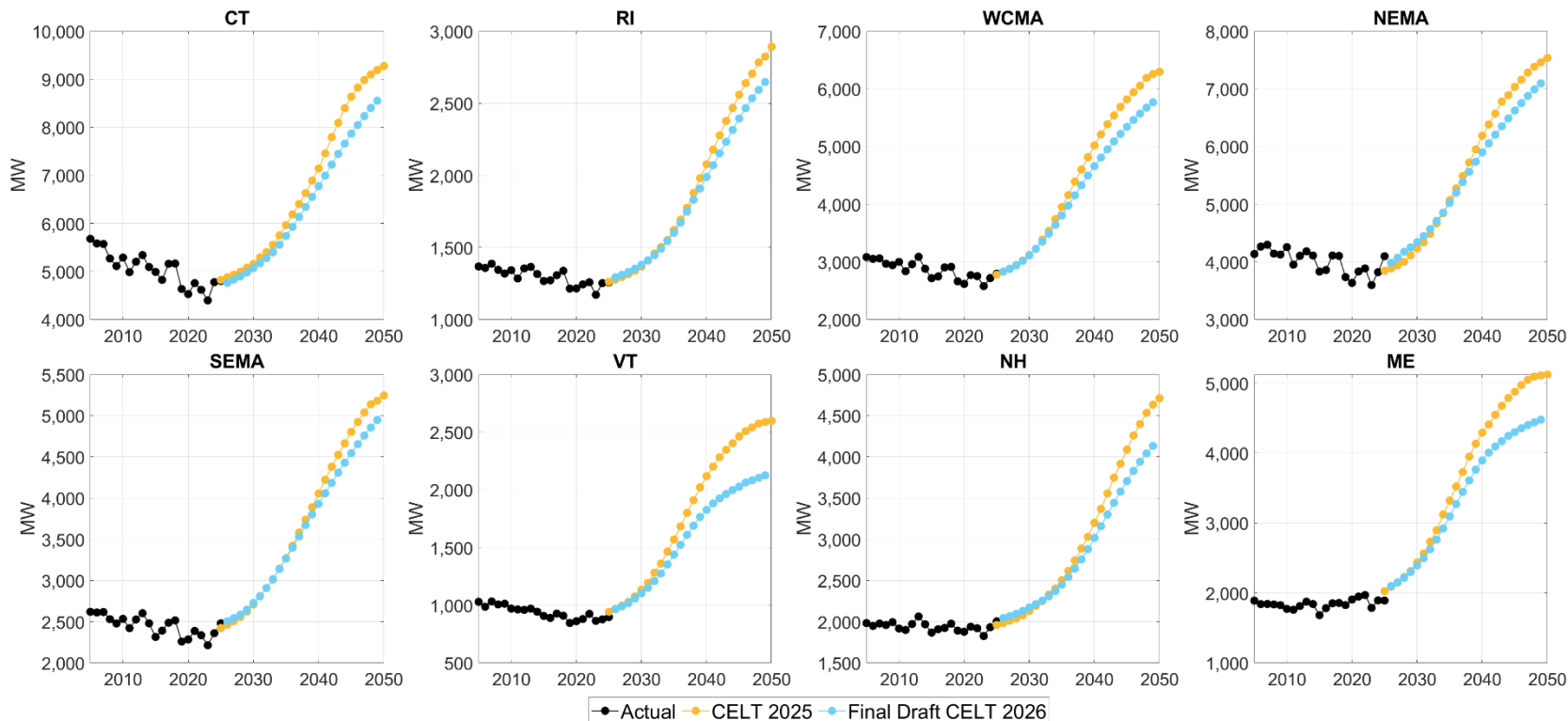
*New England – Final Draft CELT 2026 Vs. CELT 2025*

| Year | CELT 2025 (MW) | Final Draft CELT 2026 (MW) | Change (MW) | Change (%) |
|------|----------------|----------------------------|-------------|------------|
| 2026 | 20,371         | 20,483                     | 111         | 0.5        |
| 2027 | 20,707         | 20,839                     | 132         | 0.6        |
| 2028 | 21,101         | 21,257                     | 157         | 0.7        |
| 2029 | 21,638         | 21,731                     | 93          | 0.4        |
| 2030 | 22,284         | 22,296                     | 12          | 0.1        |
| 2031 | 23,021         | 22,918                     | -102        | -0.4       |
| 2032 | 23,902         | 23,636                     | -266        | -1.1       |
| 2033 | 24,856         | 24,452                     | -404        | -1.6       |
| 2034 | 26,020         | 25,380                     | -640        | -2.5       |
| 2035 | 27,272         | 26,411                     | -861        | -3.2       |



# Winter Net 50/50 Coincident Peak Forecast

Zones – Final Draft CELT 2026 Vs. CELT 2025



# Final Draft 2026 Winter Peak Forecasts

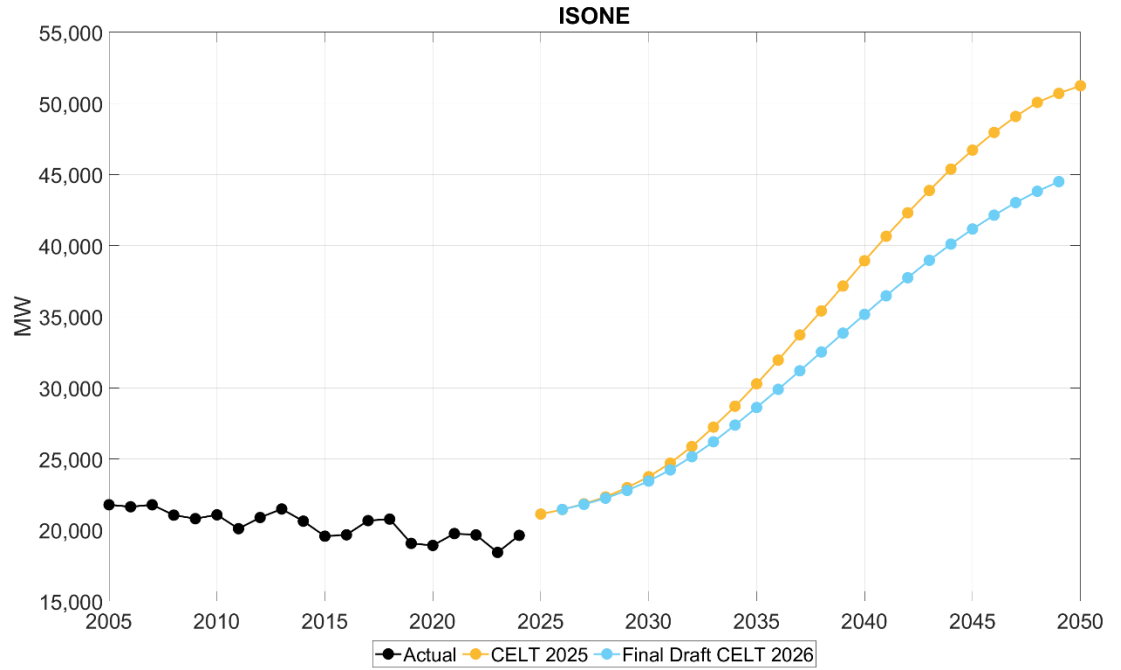
## *New England 50/50 - Summary*

| Year | Base (MW) | EV* (MW) | HP* (MW) | Large Loads (MW) | Gross (MW) | BTM PV (MW) | BESS (MW) | Net (MW) |
|------|-----------|----------|----------|------------------|------------|-------------|-----------|----------|
| 2026 | 20,193    | 75       | 241      | 0                | 20,508     | 0           | -26       | 20,483   |
| 2027 | 20,203    | 148      | 480      | 61               | 20,892     | 0           | -53       | 20,839   |
| 2028 | 20,212    | 239      | 783      | 103              | 21,337     | 0           | -80       | 21,257   |
| 2029 | 20,217    | 346      | 1,152    | 110              | 21,825     | 0           | -94       | 21,731   |
| 2030 | 20,203    | 473      | 1,600    | 110              | 22,385     | 4           | -86       | 22,296   |
| 2031 | 20,149    | 622      | 2,149    | 110              | 23,030     | -53         | -59       | 22,918   |
| 2032 | 20,041    | 799      | 2,823    | 110              | 23,773     | -110        | -27       | 23,636   |
| 2033 | 19,886    | 1,007    | 3,631    | 110              | 24,634     | -176        | -6        | 24,452   |
| 2034 | 19,715    | 1,245    | 4,550    | 113              | 25,623     | -243        | 0         | 25,380   |
| 2035 | 19,569    | 1,509    | 5,533    | 116              | 26,727     | -316        | 0         | 26,411   |

# Winter Net 90/10 Peak Forecast

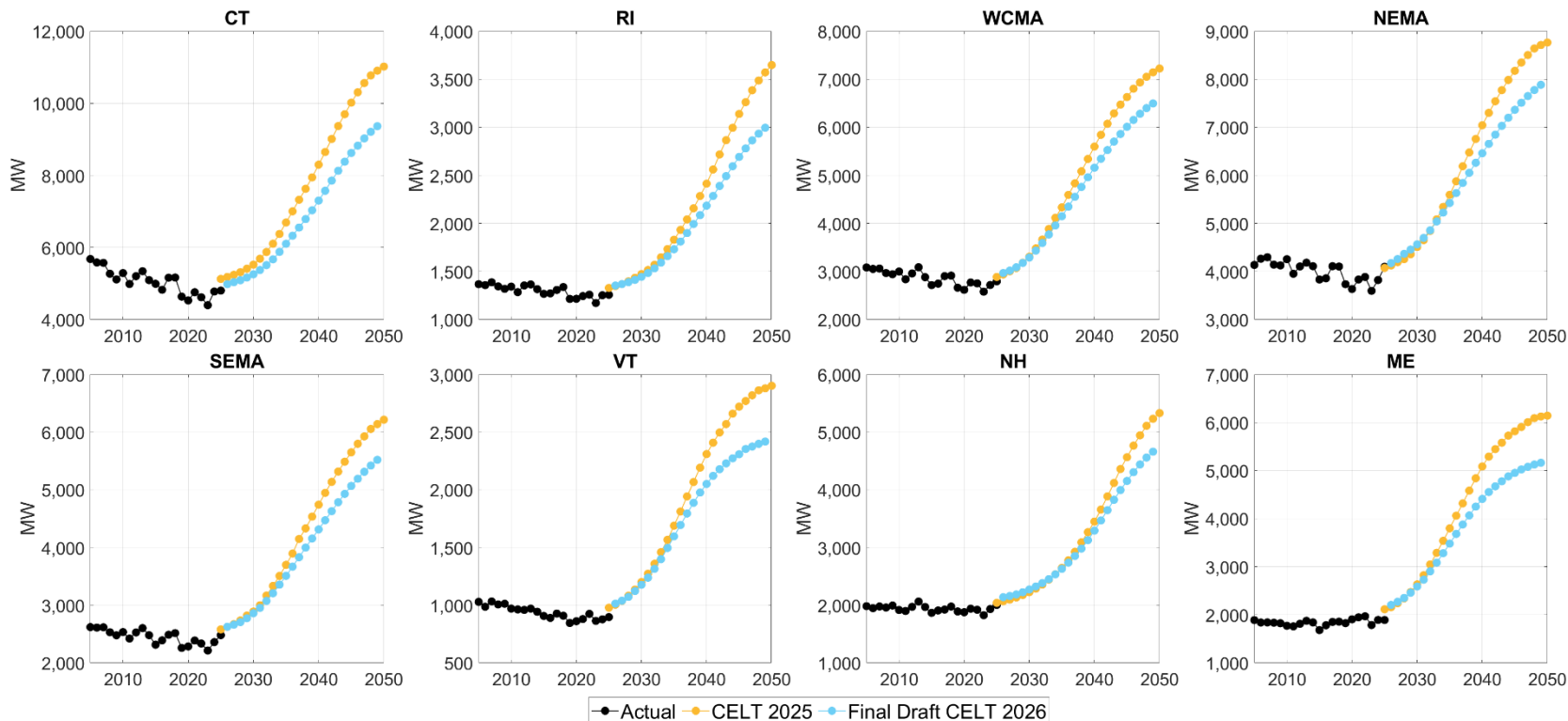
*New England – Final Draft CELT 2026 Vs. CELT 2025*

| Year | CELT 2025 (MW) | Final Draft CELT 2026 (MW) | Change (MW) | Change (%) |
|------|----------------|----------------------------|-------------|------------|
| 2026 | 21,446         | 21,457                     | 11          | 0          |
| 2027 | 21,850         | 21,809                     | -41         | -0.2       |
| 2028 | 22,331         | 22,242                     | -88         | -0.4       |
| 2029 | 22,989         | 22,790                     | -199        | -0.9       |
| 2030 | 23,755         | 23,448                     | -307        | -1.3       |
| 2031 | 24,712         | 24,233                     | -479        | -1.9       |
| 2032 | 25,880         | 25,163                     | -716        | -2.8       |
| 2033 | 27,243         | 26,210                     | -1,032      | -3.8       |
| 2034 | 28,714         | 27,385                     | -1,329      | -4.6       |
| 2035 | 30,284         | 28,623                     | -1,662      | -5.5       |



# Winter Net 90/10 Coincident Peak Forecast

Zones – Final Draft CELT 2026 Vs. CELT 2025



# Final Draft 2026 Winter Peak Forecasts

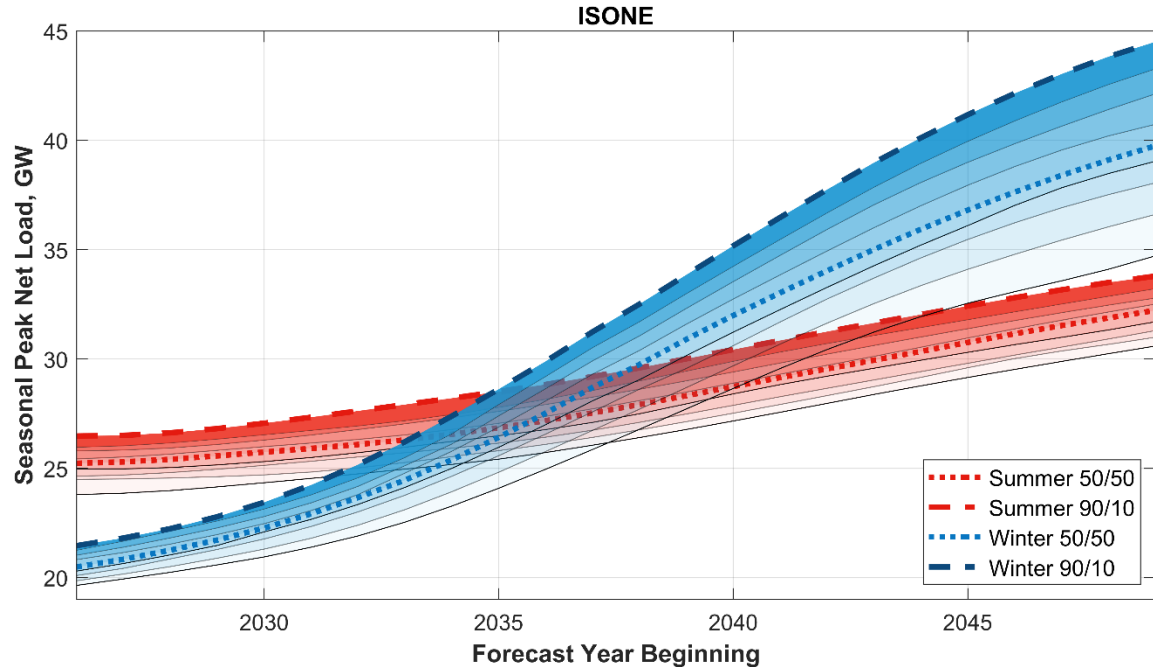
## *New England 90/10 - Summary*

| Year | Base (MW) | EV* (MW) | HP* (MW) | Large Loads (MW) | Gross (MW) | BTM PV (MW) | BTM BESS (MW) | Net (MW) |
|------|-----------|----------|----------|------------------|------------|-------------|---------------|----------|
| 2026 | 21,079    | 93       | 330      | 0                | 21,502     | -19         | -26           | 21,457   |
| 2027 | 20,988    | 185      | 679      | 62               | 21,914     | -51         | -54           | 21,809   |
| 2028 | 20,907    | 294      | 1,135    | 105              | 22,441     | -118        | -80           | 22,242   |
| 2029 | 20,836    | 420      | 1,698    | 111              | 23,065     | -174        | -101          | 22,790   |
| 2030 | 20,768    | 564      | 2,375    | 111              | 23,818     | -257        | -113          | 23,448   |
| 2031 | 20,695    | 728      | 3,177    | 111              | 24,711     | -359        | -119          | 24,233   |
| 2032 | 20,612    | 915      | 4,106    | 111              | 25,743     | -459        | -121          | 25,163   |
| 2033 | 20,513    | 1,126    | 5,146    | 110              | 26,895     | -562        | -122          | 26,210   |
| 2034 | 20,400    | 1,364    | 6,262    | 114              | 28,139     | -632        | -123          | 27,385   |
| 2035 | 20,286    | 1,628    | 7,407    | 118              | 29,440     | -700        | -117          | 28,623   |

\* Electrification and large load forecasts are included in both gross and net peak forecasts.

# Winter and Summer Peak Convergence

- Plot shows probabilistic seasonal peak forecast distribution
  - Forecasts include impacts of electrification, BTMPV, large loads, and BTM BESS
  - Both seasonal distributions exhibit less demand growth than CELT 2025
- By 2034, the 90/10 net winter demand forecast exceeds the 50/50 net summer demand forecast
- By the late 2030s, electrification causes winter peak demand to become the prevailing peak season



# GROSS LOAD FORECAST FOR CALCULATING ICR FOR UPCOMING ARAS



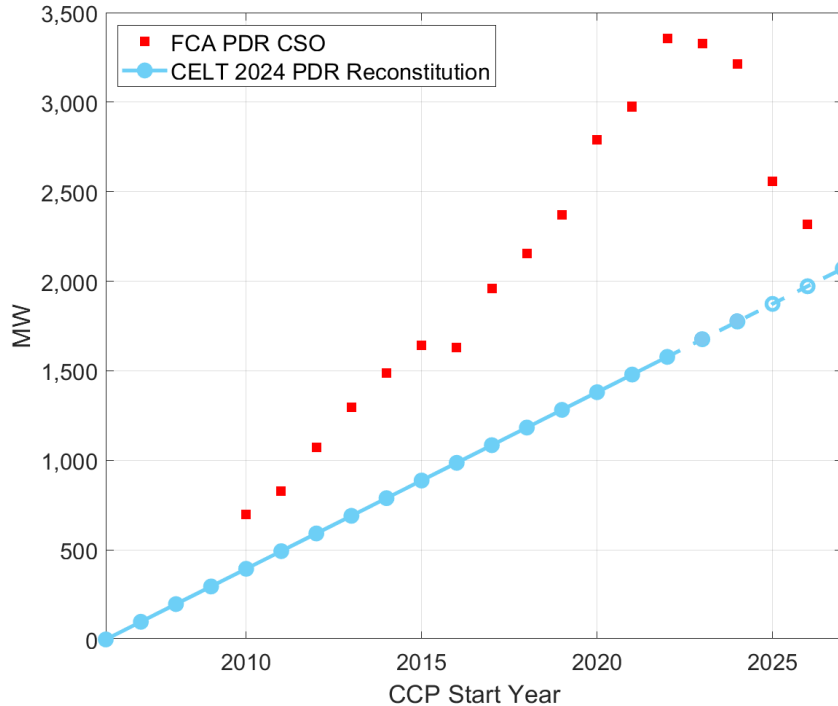
# CELT 2026: Pre-Existing Forecast Methodology

- Calculation of ICR for the remaining FCM ARAs will be supported by a gross load forecast based on the pre-existing (pre-CELT 2025) forecast methodology
  - Gross load stems from reconstituting for BTM PV and PDRs
  - Separate models for energy and seasonal peaks
  - Details on the pre-existing forecast methodology can be found in [this presentation](#)
- Input data
  - Reconstitution for PDR resources based on FCA 18 CSOs
  - CELT 2026 EV, HP, BTM PV, BTM BESS, and large load forecasts
  - Load, weather, economic data through end of 2025
- Includes the two new component forecasts implemented as part of CELT 2026
  - The contribution of large loads to summer 2027 is zero and will not impact summer modeling for CCP 2027-2028
- Reporting of gross load forecast values generated using the pre-existing methodology will be confined to specific tabs within the CELT Report and Forecast Data Workbook

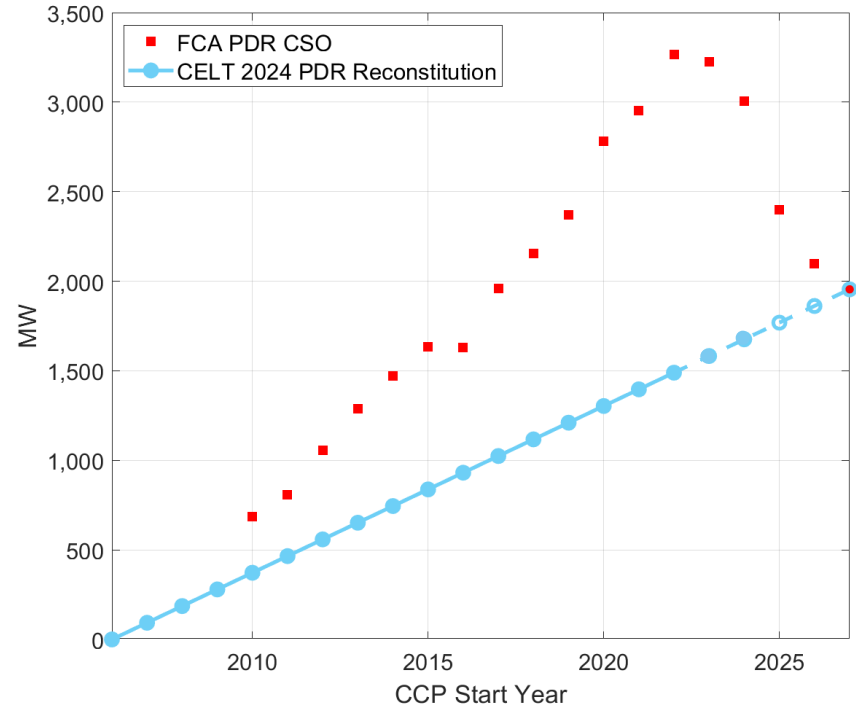
# Pre-Existing Methodology

## CELT 2026 PDR Reconstitution for New England

### Summer (June) PDR CSO



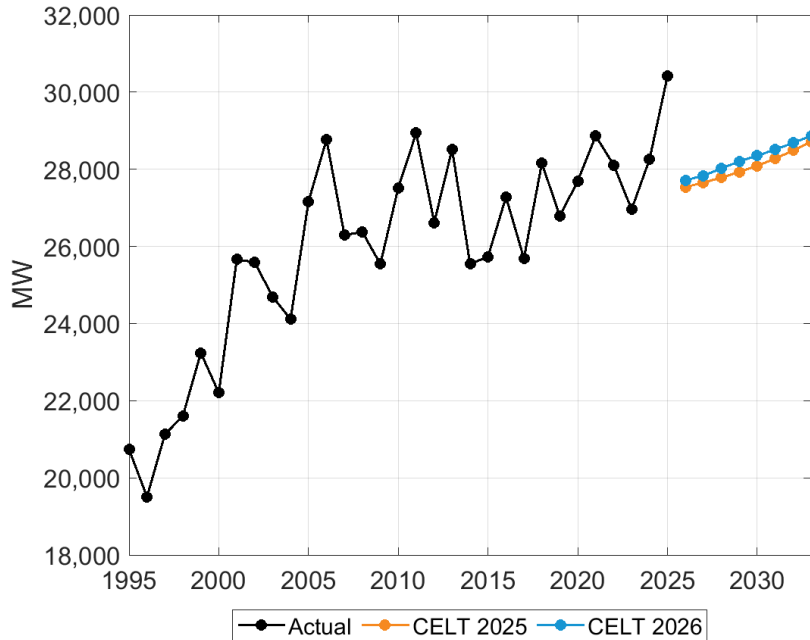
### Winter (December) PDR CSO



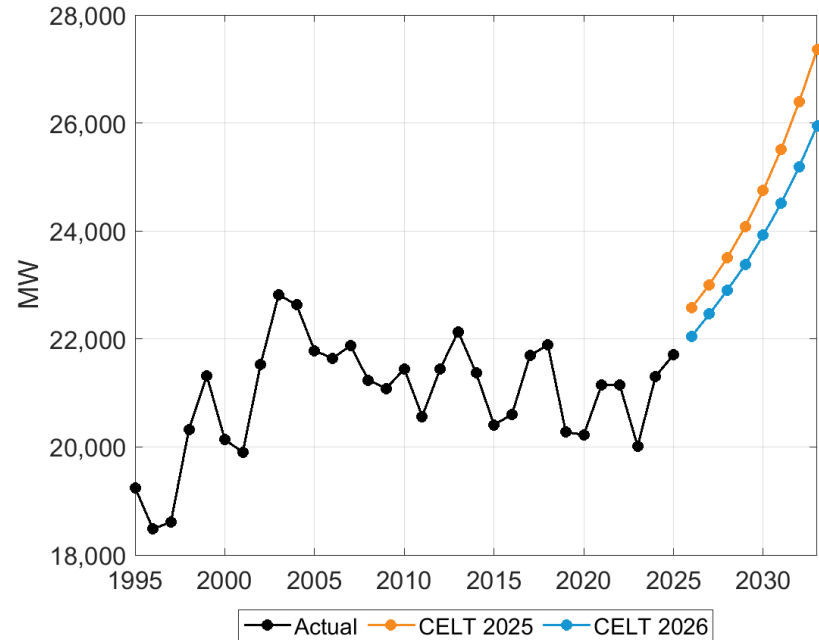
# Pre-Existing Methodology

## CELT 2026 50/50 Gross Peak Forecast

### Summer



### Winter



# Pre-Existing Methodology

## *CELT 2026 Gross Load Forecast Values for ARAs*

- Upcoming ARA event will only use forecast values relevant to the 2027-2028 capacity commitment period (CCP)

| Year<br>(Winter Start Year) | Summer 50/50<br>Peak (MW) | Summer 90/10<br>Peak (MW) | Winter 50/50<br>Peak (MW) | Winter 90/10<br>Peak (MW) | Annual Energy<br>(GWh) |
|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|------------------------|
|                             |                           |                           |                           |                           |                        |
| 2027                        | 27,835                    | 29,778                    | 22,461                    | 23,337                    | 136,064                |

# Next Steps

- The final CELT 2026 forecast will be published on May 1, 2026
  - CELT Report ([CELT webpage](#))
  - Forecast Data workbook ([Load Forecast webpage](#))
  - Slide decks describing the final EV, HP, BTM PV, and BTM BESS forecasts ([Load Forecast webpage](#))

# Questions

