

FEBRUARY 19, 2014 |

ISO NEW ENGLAND

Preliminary ISO-NE Annual Energy & Seasonal Peak Forecast 2014-2023

Planning Advisory Committee



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Notes

- RSP and CELT are used interchangeably when referring to the load forecast.
- FCM is short hand for the passive demand resources (PDR) from the Forward Capacity Market.
- When the forecast is labeled CELT it means the “gross” forecast before the PDR have been netted out.



Agenda

- Highlights
- 2013 Weather Normal Energy and Summer Peak
- Economic Forecast
- Preliminary 2014 CELT/RSP ISO-NE Annual Energy & Seasonal Peak Forecast
- State and Subarea forecasts will be developed over the next six weeks

Highlights

- Compared to RSP13, the economic forecast shows less growth in 2012-2014, higher growth 2015 , and the similar growth for the remaining years.
- The RSP14 forecast continues to use real gross domestic product (GDP) for energy forecasting, with federal efficiency standards subtracted from the energy forecast.
- Updated economic and historical weather inputs have resulted in: forecasts that have slightly lower growth rates than last year; and, the summer peak is about 300 MW lower than last year by 2022.
- The Load Forecast Committee reviewed the forecast on February 12 without objection.
- No changes in forecast methodology used for RSP14.

2013 Weather Normal Energy and Summer Peak

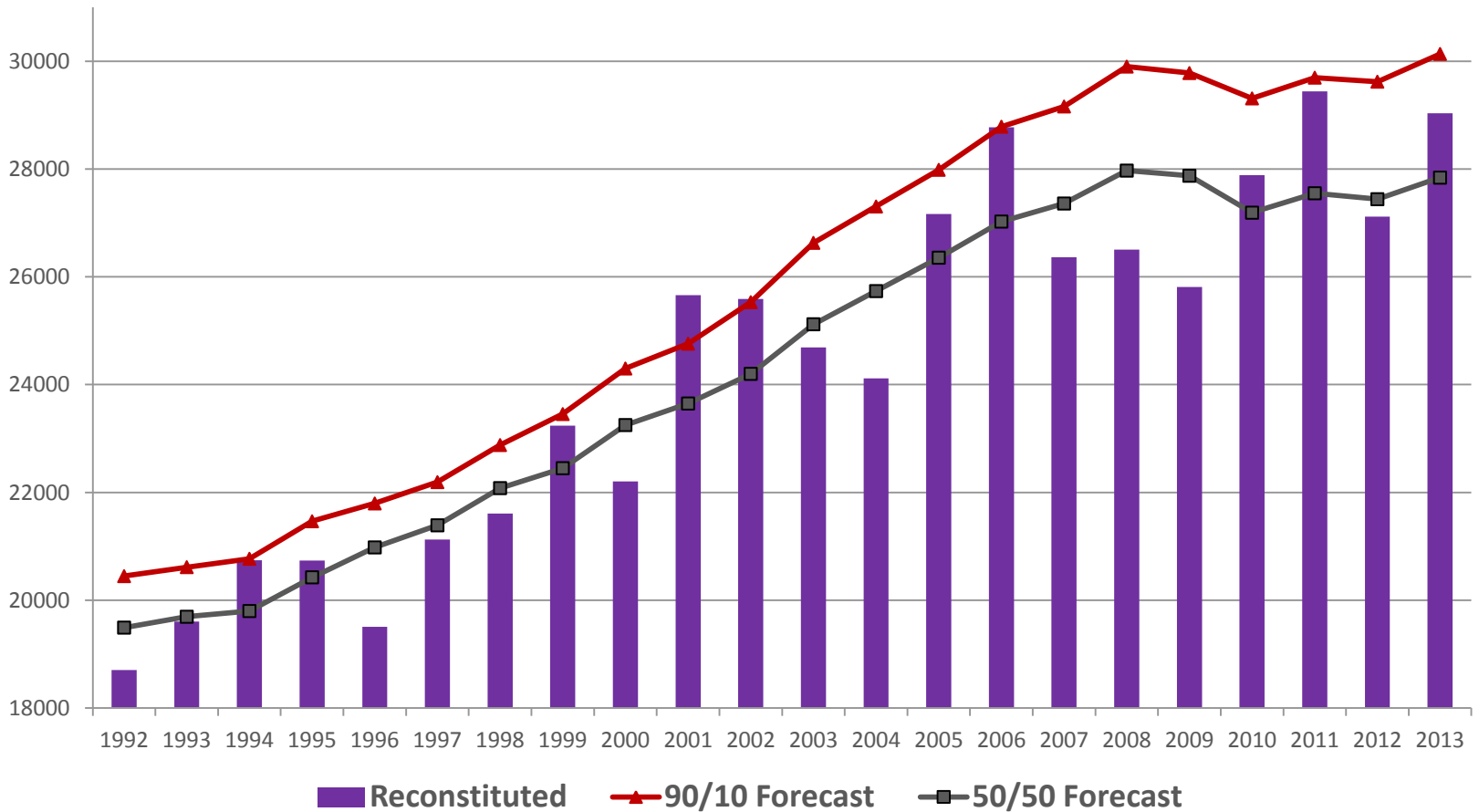


Weather Normal 2013 Summer Peak Load

- The 50/50 weather normalized peak load for the summer of 2013 is 27,835 MW
 - 0.02% (5 MW) lower than the 2013 CELT 50/50 summer forecast of 27,840
- The 90/10 weather normalized peak load for the summer of 2013 is 30,115 MW
 - 0.07% (20 MW) lower than the 2013 CELT 90/10 forecast of 30,135 MW
- The ISO New England Control Area actual summer peak load of 27,379 MW, occurred on July 19 at the end of an extended heat wave.
 - After reconstitution for the OP4 active demand resources, the FCM passive demand resources, and the Energy Market Price Responsive Demand the peak was 29,065 MW.

ISO-NE Summer Peaks (MW)

Actual Peaks (Reconstituted for OP4 and Passive DR) and 50/50 & 90/10 Forecasts

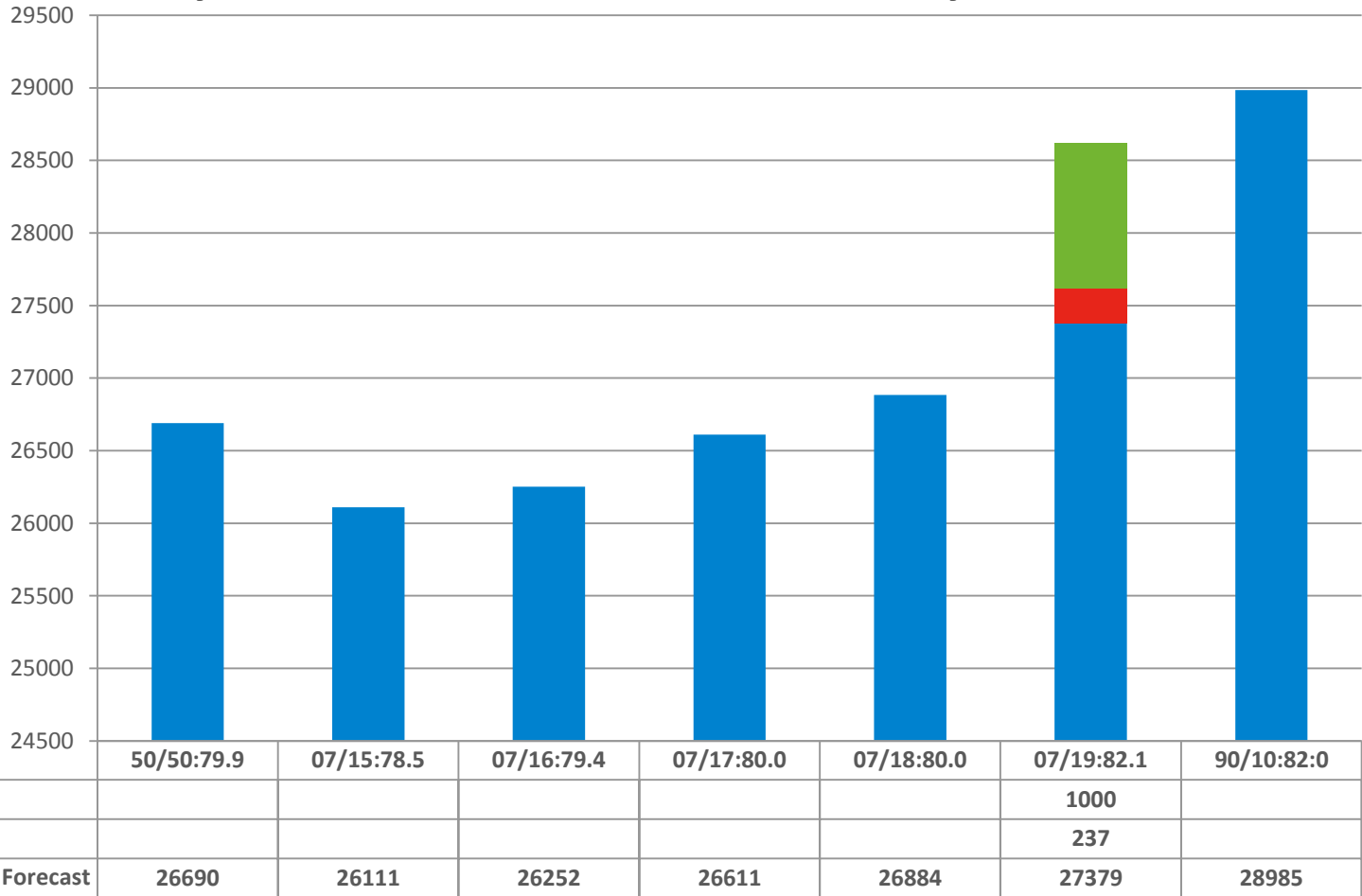


The following slides compare the 50/50 and 90/10 peak forecasts (net of PDR) with selected peak days for the 2013 summer and the 2013/2014 winter.

While the peak forecasts are reasonably close to actual load under the same weather conditions, there is a great deal of random activity that influences actual peaks that can't be captured in a seasonal forecast.



July 15-19, 2013 Daily Peaks 2013 CELT 50/50 and 90/10 ISO-NE Forecasts Net of EE July 19 Reconstituted for OP4 DR and Friday Effect

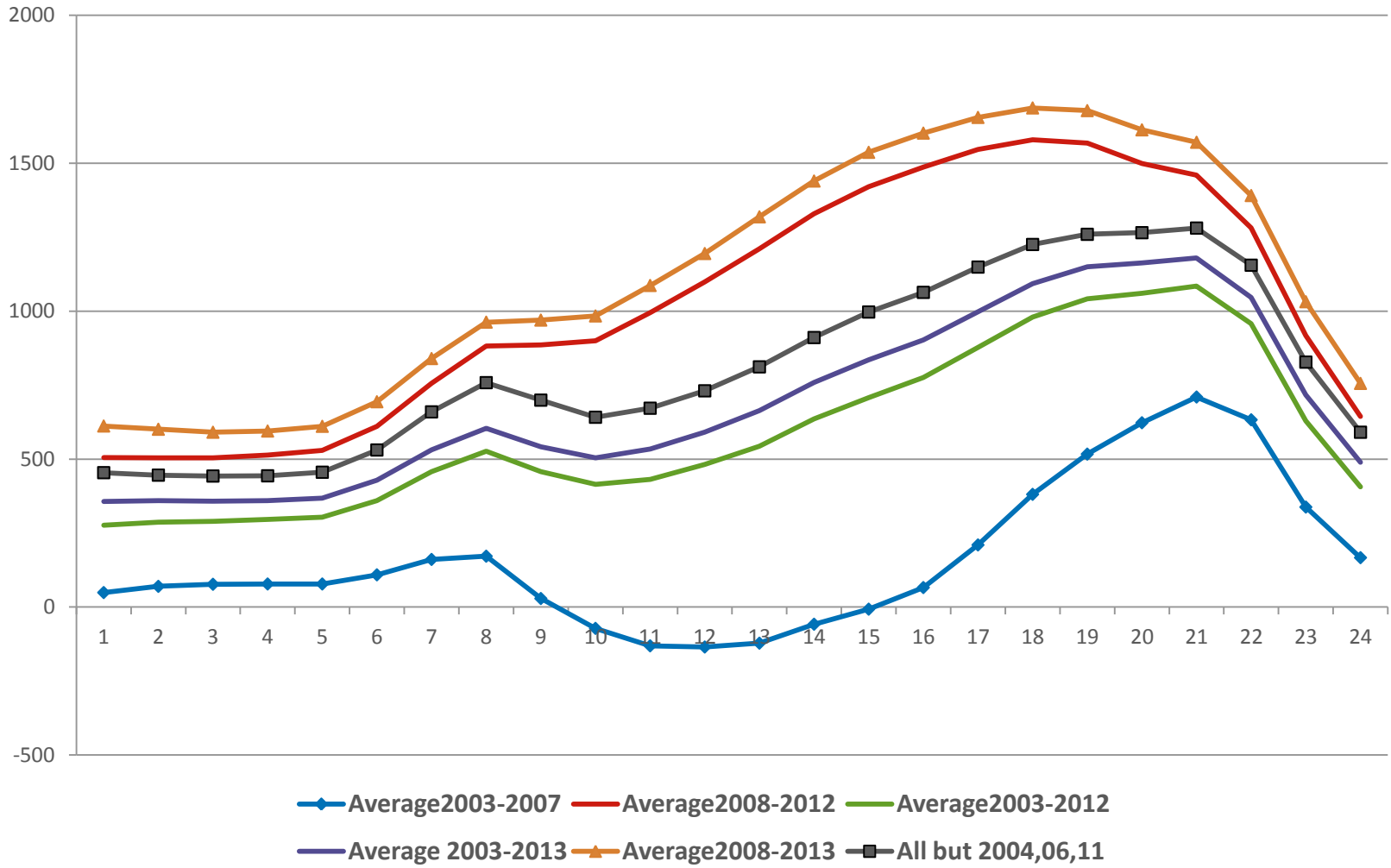


Month/Day : Weather Conditions (Temperature/Humidity Index)



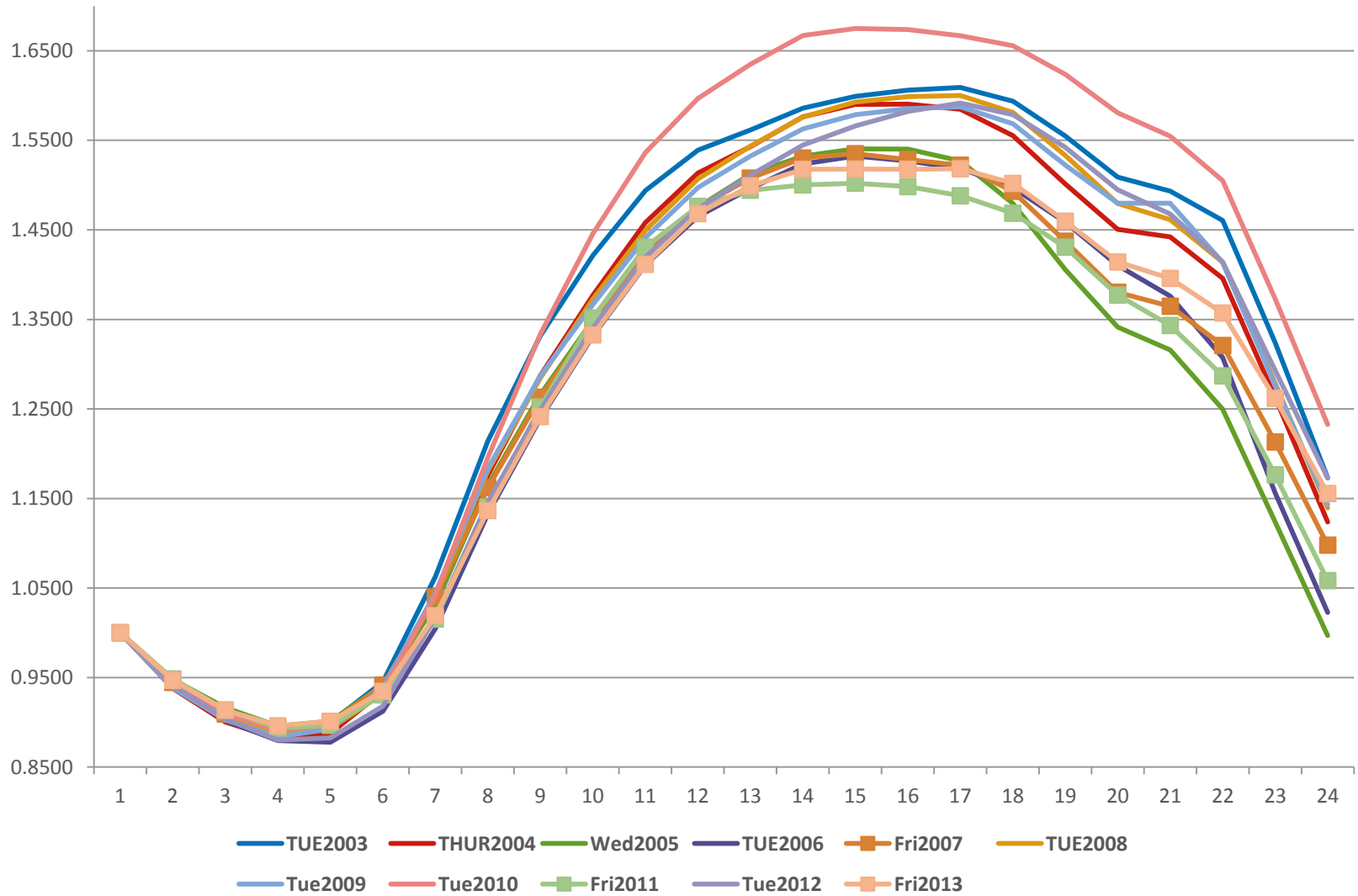
ISO-NE JULY (Excl. Peak Day)

Average TuesThur - Average Friday (MW)

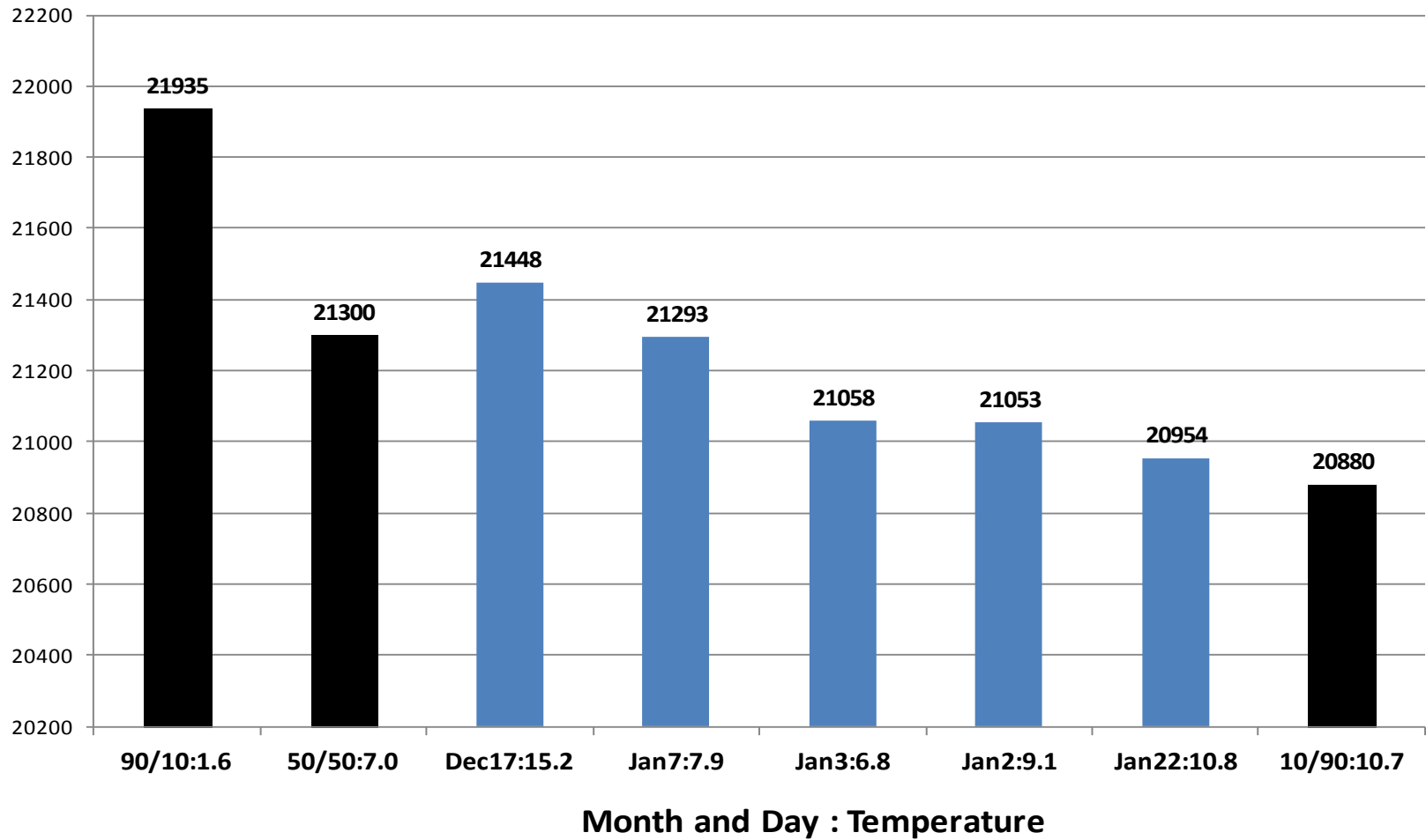


ISO-NE 2003-2013 JULY PEAK DAYS INDEXED TO FIRST HOUR

THREE FRIDAY PEAK DAYS FALL OFF BY EARLY AFTERNOON



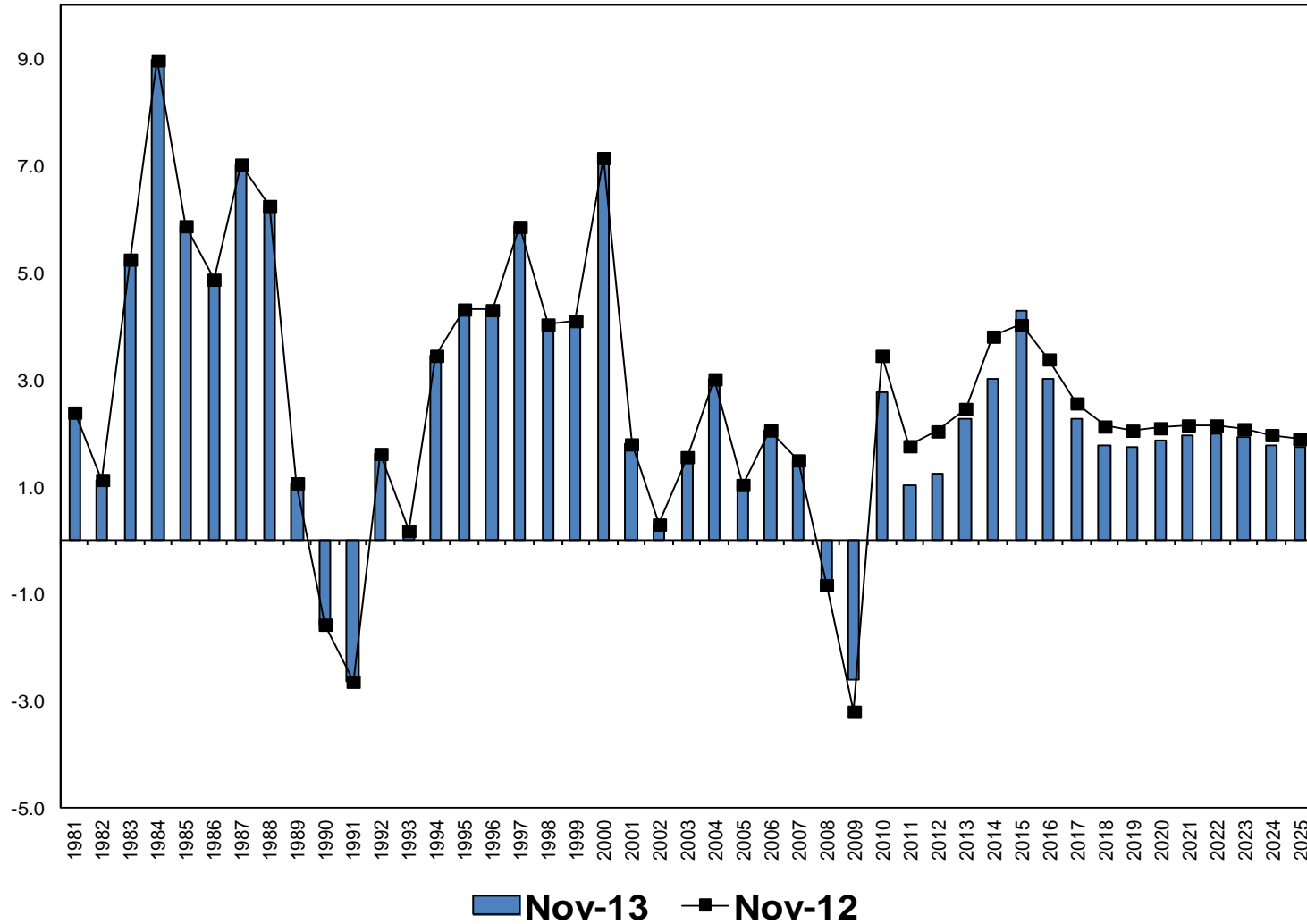
2013/2014 Selected Winter Daily Peaks (MW) 2013 CELT 10/90, 50/50 , and 90/10 ISO-NE Forecasts Net of EE



Economic Forecast



**MOODY'S 2013 VS 2012 FORECASTS
NEW ENGLAND REAL GROSS REGIONAL PRODUCT ANNUAL PERCENT CHANGE**



Weather Normal 2013 Energy and Changes from Weather Normal 2012 Energy (GWh)

- After adjusting for weather and weekday/weekend, energy demand is down by 0.4% compared to the weather normal 2012 energy
- After reconstituting for FCM PDR, energy demand is up by 0.7% compared to 2012
- The reconstituted 2013 weather normal energy for Passive Demand Resources (PDR) 137,193 GWh, is 0.1% (148 GWh) higher than the April 2013 forecast of 137,045 GWh

| | <u>2012</u> | <u>2013</u> | <u>GWh</u> <u>Change</u> | <u>%</u> <u>Change</u> |
|-----------------------------|-------------|-------------|-----------------------------|---------------------------|
| Weather Normal Energy | 128,249 | 127,754 | -505 | -0.4 |
| Passive Demand Resources | 7,924 | 9,439 | 1,515 | |
| Weather Normal Energy + PDR | 136,173 | 137,193 | 1,020 | 0.7 |

Preliminary 2014 CELT/RSP ISO-NE Annual Energy & Seasonal Peak Forecast



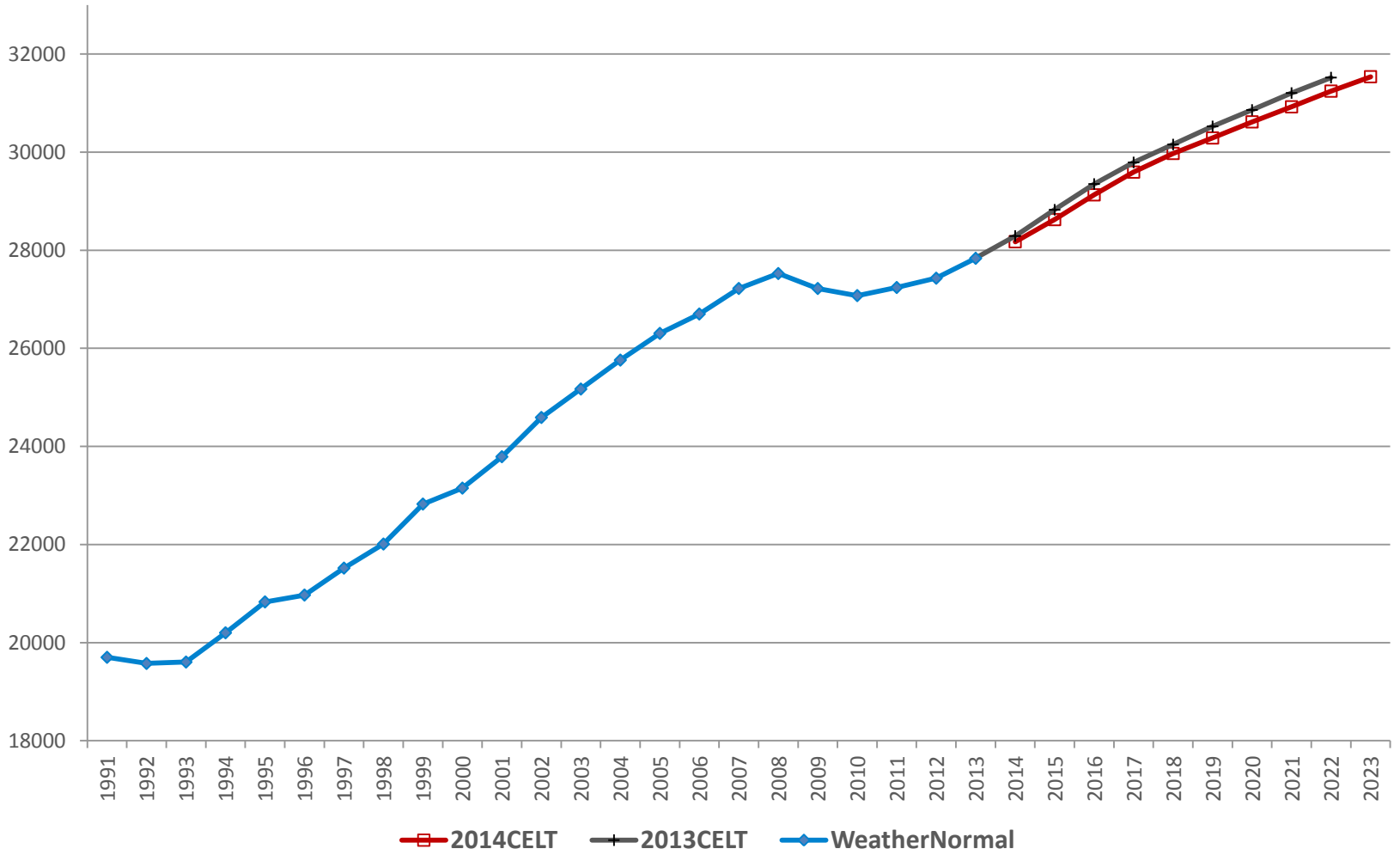
| ISO-NE 2014 CELT & RSP Load Forecast & 2013 Passive Demand Resources | | | | | | | | | | | | | | | |
|--|--------|--------|----------|---------|---------|--|--------|--------|----------|---------|---------|--|--------|----------|---------|
| | Summer | Summer | Summer | Summer | Summer | | Winter | Winter | Winter | Winter | Winter | | Annual | Energy | Annual |
| | 50/50 | 90/10 | Passive | 50/50 | 90/10 | | 50/50 | 90/10 | Passive | 50/50 | 90/10 | | CELT | Passive | Energy |
| | CELT | CELT | Demand | Peak | Peak | | CELT | CELT | Demand | Peak | Peak | | Energy | Demand | Net PDR |
| | Peak | Peak | Resource | Net PDR | Net PDR | | Peak | Peak | Resource | Net PDR | Net PDR | | | Resource | |
| ISO-NE | | | | | | | | | | | | | | | |
| 2014 | 28173 | 30475 | 1361 | 26812 | 29114 | | 22530 | 23200 | 1358 | 21172 | 21842 | | 138723 | 7873 | 130850 |
| 2015 | 28625 | 30958 | 1535 | 27090 | 29423 | | 22746 | 23416 | 1532 | 21214 | 21884 | | 140776 | 9064 | 131712 |
| 2016 | 29129 | 31493 | 1520 | 27609 | 29973 | | 22937 | 23607 | 1519 | 21418 | 22088 | | 142584 | 9520 | 133064 |
| 2017 | 29593 | 31988 | 1737 | 27856 | 30251 | | 23095 | 23765 | 1736 | 21359 | 22029 | | 144084 | 11050 | 133034 |
| 2018 | 29973 | 32398 | 1942 | 28031 | 30456 | | 23227 | 23897 | 1940 | 21287 | 21957 | | 145331 | 12486 | 132845 |
| 2019 | 30289 | 32744 | 2134 | 28155 | 30610 | | 23344 | 24014 | 2132 | 21212 | 21882 | | 146441 | 13835 | 132606 |
| 2020 | 30617 | 33104 | 2314 | 28303 | 30790 | | 23461 | 24131 | 2313 | 21148 | 21818 | | 147551 | 15103 | 132448 |
| 2021 | 30924 | 33441 | 2484 | 28440 | 30957 | | 23582 | 24252 | 2482 | 21100 | 21770 | | 148697 | 16291 | 132406 |
| 2022 | 31244 | 33792 | 2642 | 28602 | 31150 | | 23705 | 24375 | 2640 | 21065 | 21735 | | 149859 | 17406 | 132453 |
| 2023 | 31538 | 34116 | 2788 | 28750 | 31328 | | 23826 | 24496 | 2786 | 21040 | 21710 | | 151012 | 18368 | 132644 |
| CAGR | 1.3 | 1.3 | | 0.8 | 0.8 | | 0.6 | 0.6 | | -0.1 | -0.1 | | 0.9 | | 0.2 |

Forecast Comparison Table: 2014CELT and 2013CELT

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2014-22 Average Change | 2014-22 Growth Rate |
|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------------------|---------------------------|
| 50/50 Summer Peak (MW) | | | | | | | | | | | | |
| 2014 CELT | 28173 | 28625 | 29129 | 29593 | 29973 | 30289 | 30617 | 30924 | 31244 | 31538 | 384 | 1.3 |
| 2013 CELT | 28290 | 28825 | 29350 | 29790 | 30155 | 30525 | 30860 | 31205 | 31520 | | 404 | 1.4 |
| Difference | -117 | -200 | -221 | -197 | -182 | -236 | -243 | -281 | -276 | | | |
| 90/10 Summer Peak (MW) | | | | | | | | | | | | |
| 2014 CELT | 30475 | 30958 | 31493 | 31988 | 32398 | 32744 | 33104 | 33441 | 33792 | 34116 | 415 | 1.3 |
| 2013 CELT | 30620 | 31185 | 31740 | 32210 | 32615 | 33010 | 33380 | 33755 | 34105 | | 436 | 1.4 |
| Difference | -145 | -227 | -247 | -222 | -217 | -266 | -276 | -314 | -313 | | | |
| 50/50 Winter Peak (MW) | | | | | | | | | | | | |
| 2014 CELT | 22530 | 22746 | 22937 | 23095 | 23227 | 23344 | 23461 | 23582 | 23705 | 23826 | 147 | 0.6 |
| 2013 CELT | 22630 | 22810 | 22970 | 23110 | 23235 | 23350 | 23470 | 23585 | 23700 | | 134 | 0.6 |
| Difference | -100 | -64 | -33 | -15 | -8 | -6 | -9 | -3 | 5 | | | |
| Energy (GWh) | | | | | | | | | | | | |
| 2014 CELT | 138723 | 140776 | 142584 | 144084 | 145331 | 146441 | 147551 | 148697 | 149859 | 151012 | 1392 | 0.9 |
| 2013 CELT | 138915 | 140894 | 142795 | 144469 | 145944 | 147265 | 148531 | 149776 | 151009 | | 1512 | 0.9 |
| Difference | -192 | -118 | -211 | -385 | -613 | -824 | -980 | -1079 | -1150 | | | |

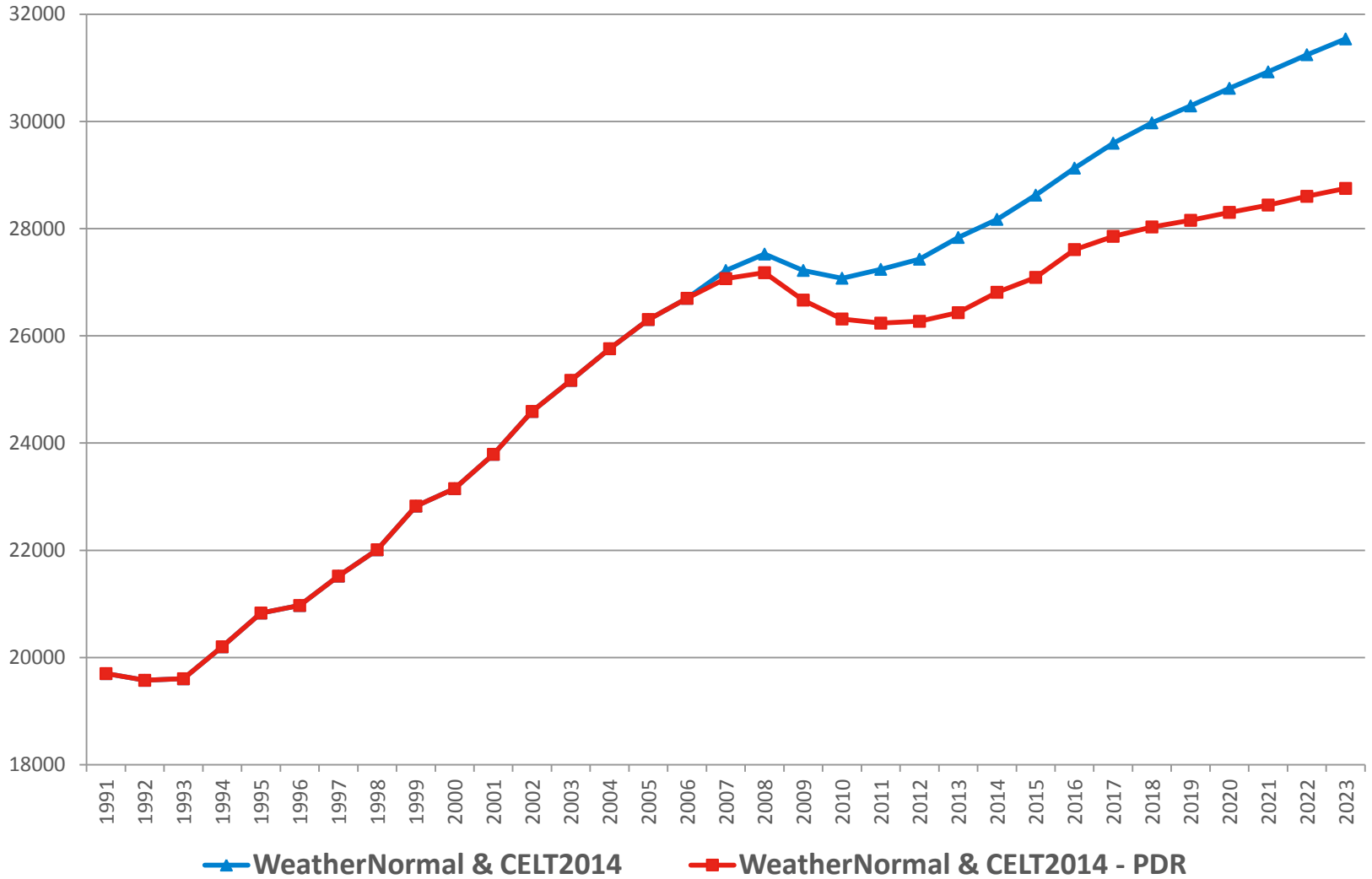
ISO-NE 50/50 Summer Peak Anlysis (MW)

History 1980-2013 2013CELT 2013-2022 2014CELT 2014-2023

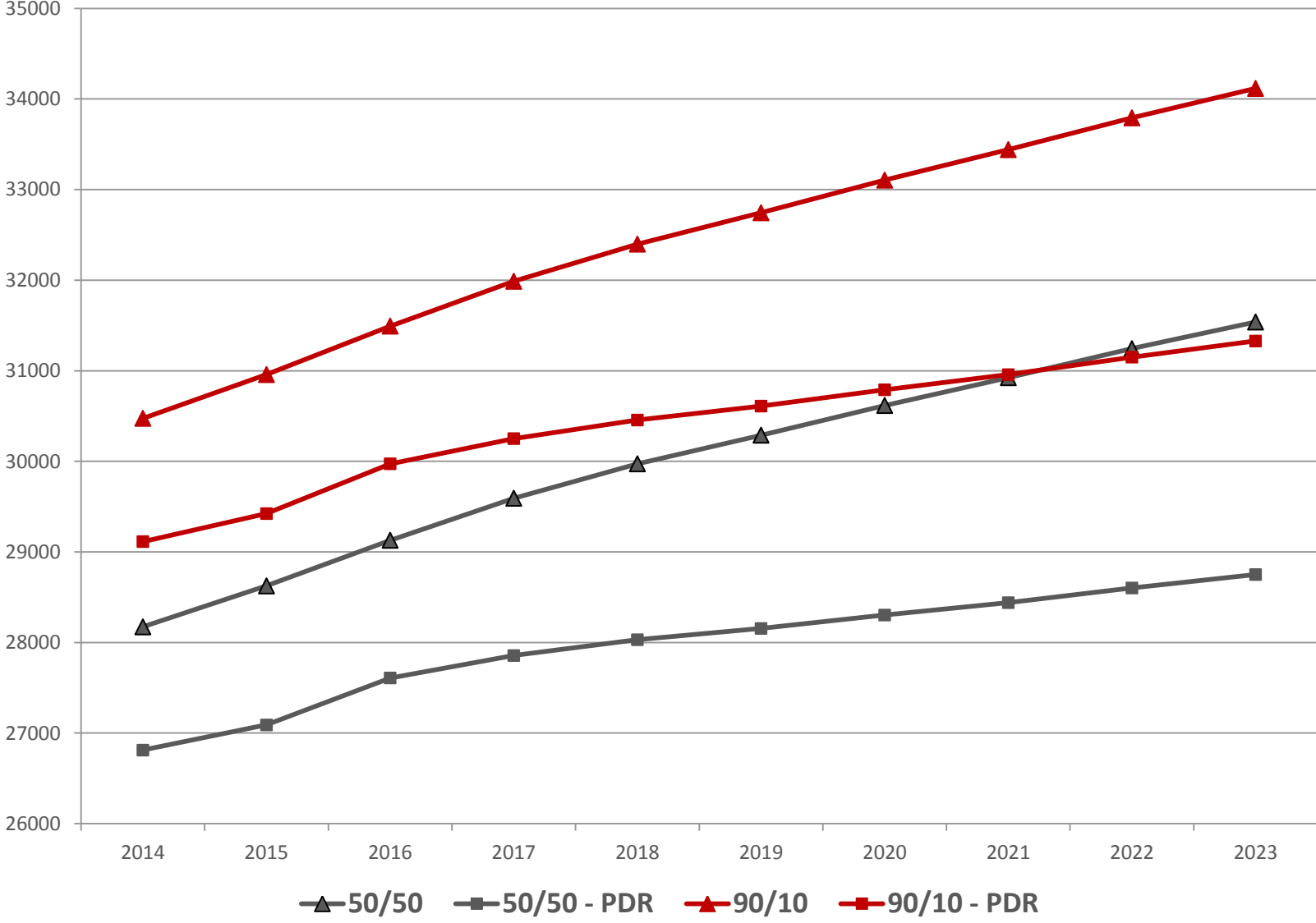


ISO-NE 50/50 Summer Peak Forecasts (MW)

WeatherNormal History 1991-2013 & Prelim 2014-2023

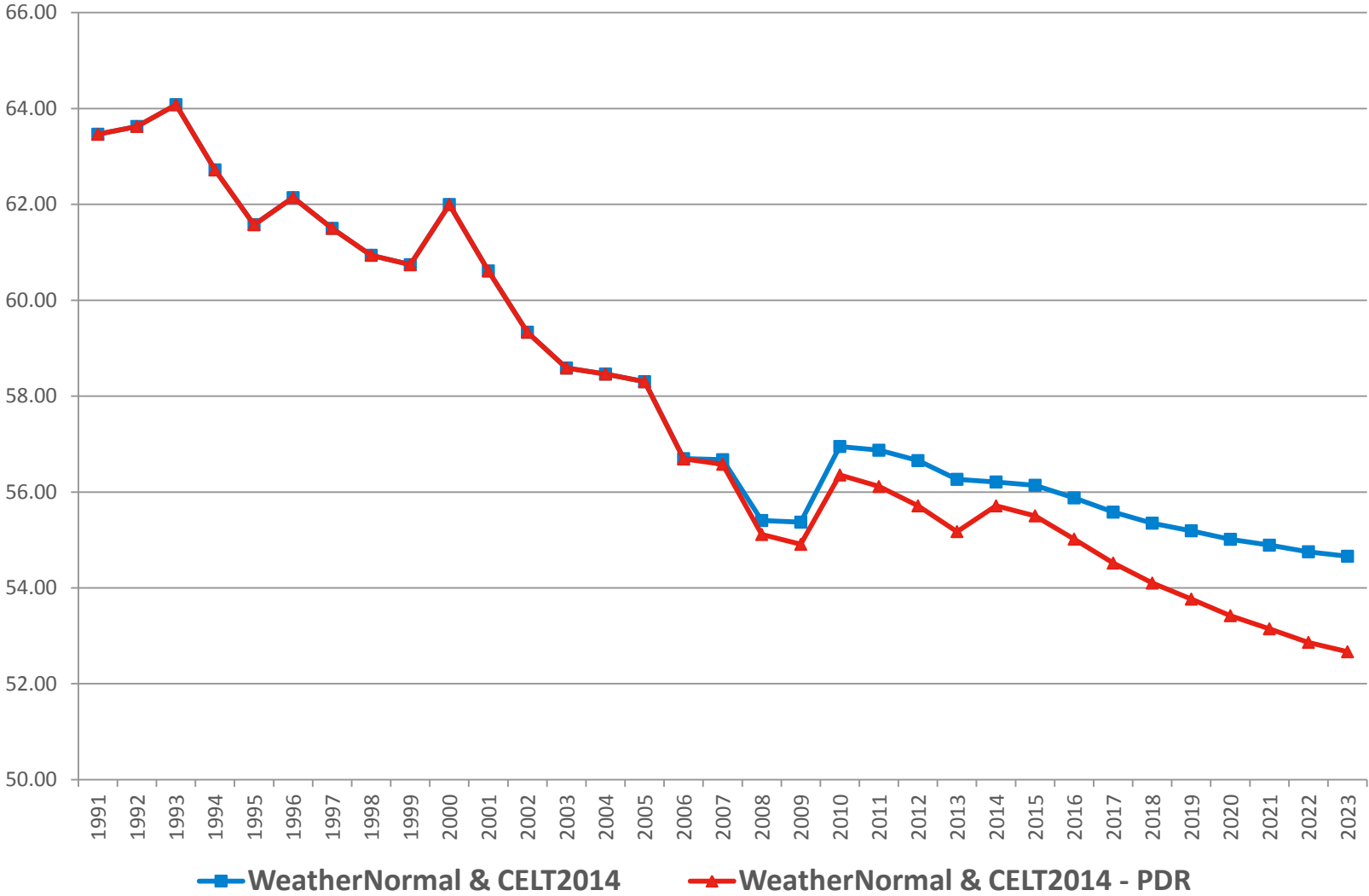


Preliminary 2014 CELT ISO-NE Summer Peak Forecast (MW)



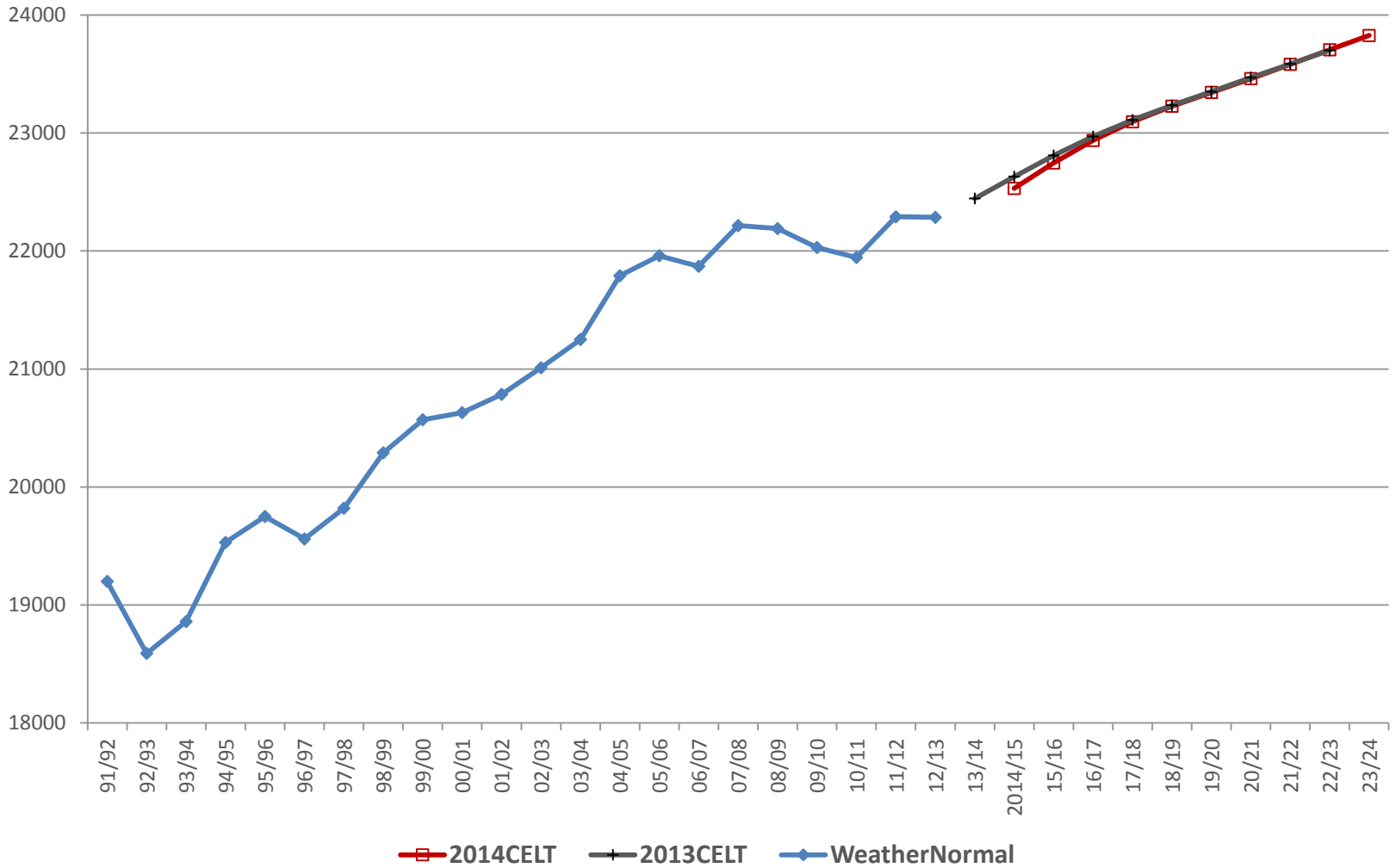
ISO-NE 50/50 Summer Peak Load Factor Analysis

WeatherNormal 1991-2013 2014CELT 2014-2023

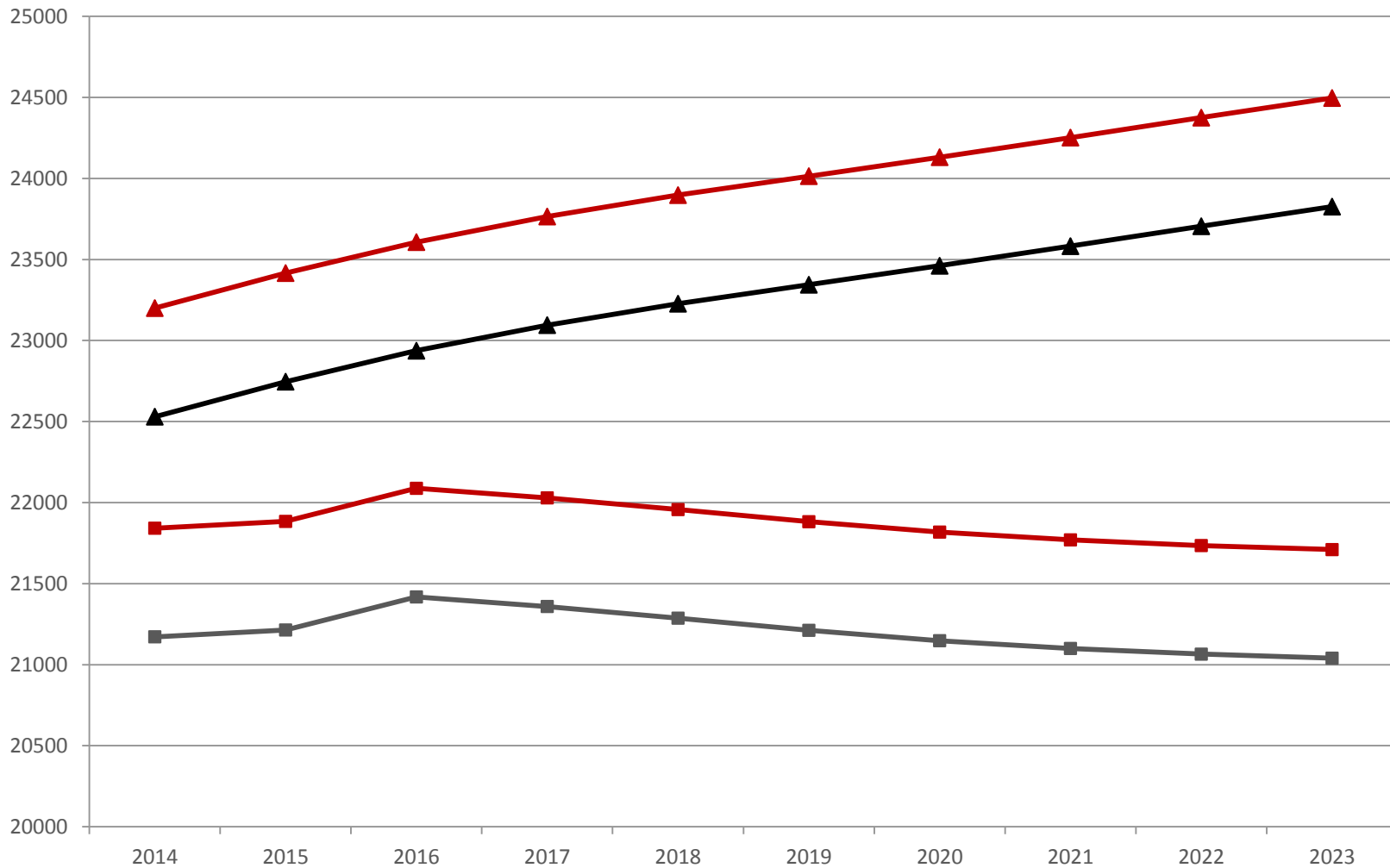


ISO-NE 50/50 Winter Peak Anlysis (MW)

History 1980-2013 2013CELT 2013-2022 2014CELT 2014-2023



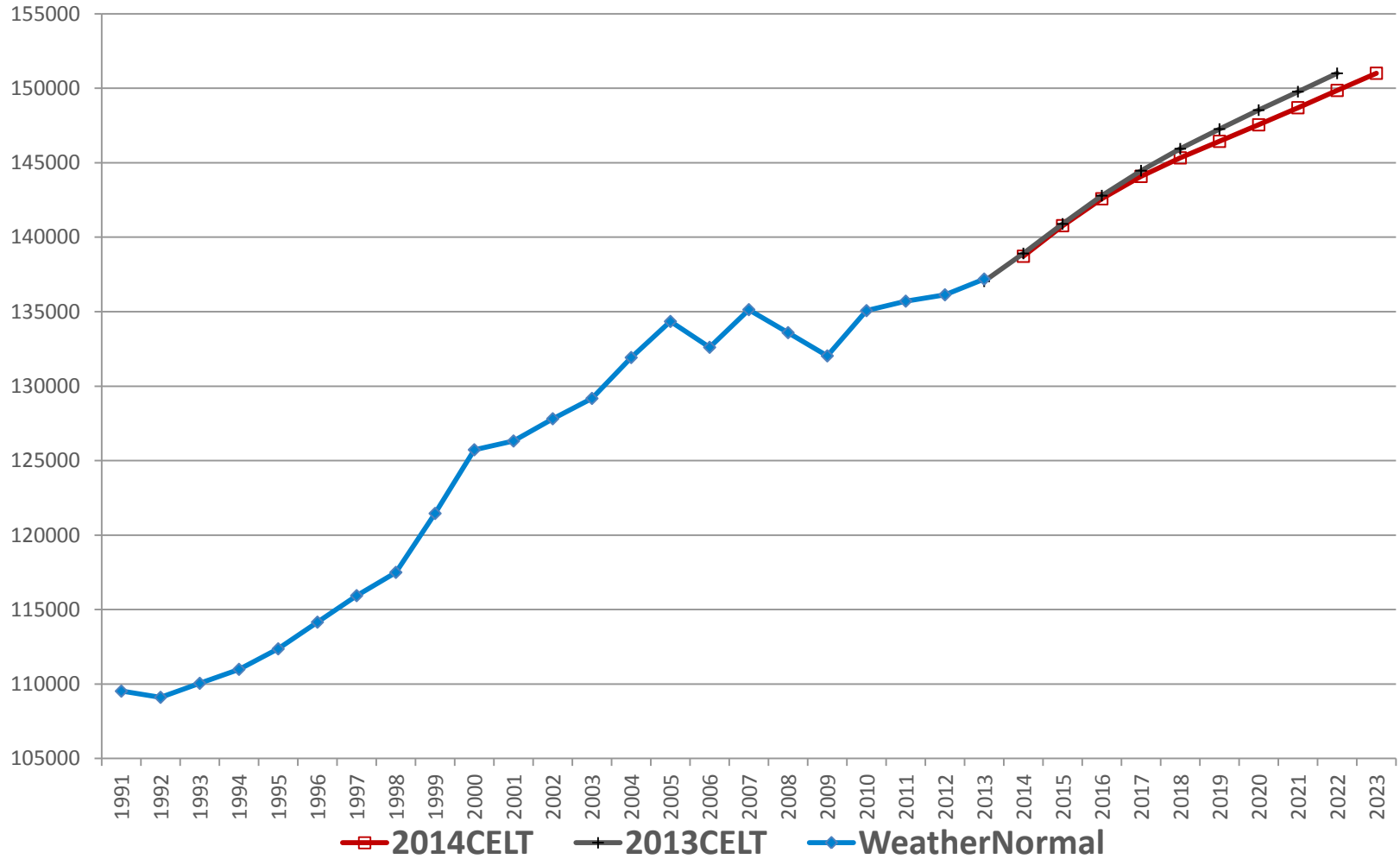
Preliminary 2014 CELT Winter Peak Forecast (MW)



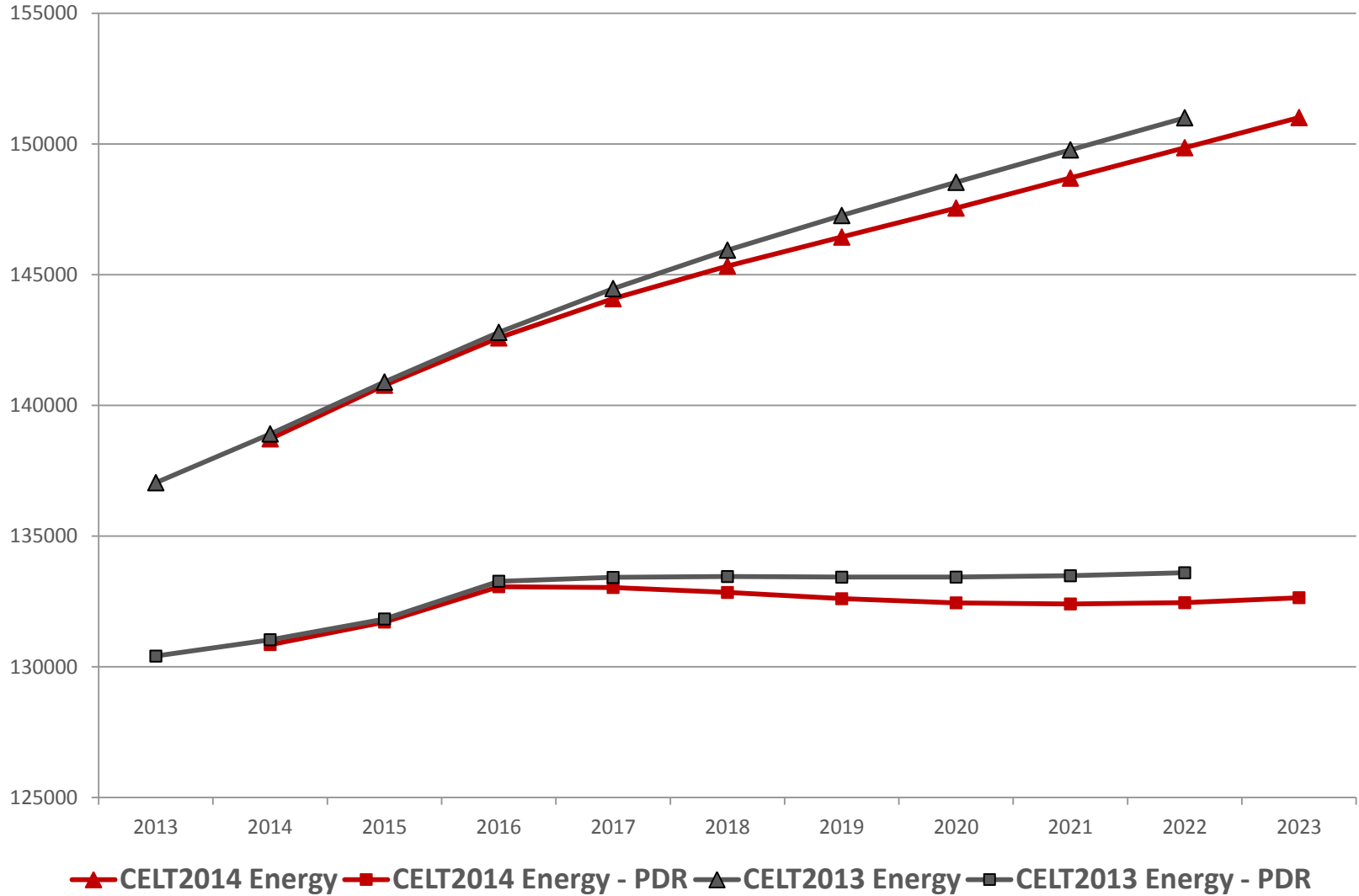
▲ 50/50 ■ 50/50 - PDR ▲ 90/10 ■ 90/10 - PDR

ISO-NE Annual Energy Analysis (GWh)

History 1980-2013 2013CELT 2013-2022 2014CELT 2014-2023



ISO-NE Annual Energy Forecasts (GWh) Preliminary CELT2014 and CELT2013



Summary

- Updated economic forecast and historical load and weather inputs have resulted in: slightly lower energy and peak forecasts; and, the summer peak is about 300 MW lower by the end of the forecast period.
 - Energy growth decreases from 1.1% to 0.9% over the 10 year forecast horizon. After allowing for FCM energy efficiency and the EE forecast energy growth is minimal at 0.2%.
 - Summer peak growth decreases from 1.4% to 1.3%. After allowing for FCM energy efficiency and the EE forecast, summer peak growth slows from 1.3% to 0.8% over the 10 year forecast.
 - Winter peak growth is approximately the same over the 10 year forecast horizon. After allowing for FCM energy efficiency and the EE forecast, winter peak growth slows from 0.6% to -0.1% over the 10 year forecast.