

Accounting for Embedded Expiring Measures in the EE Forecast



Energy Efficiency Forecast Working Group

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LOAD FORECASTING, SYSTEM PLANNING



Introduction

- The energy efficiency (EE) forecast works in tandem with the gross load in the development of the net load forecast
- The gross load forecast is intended to be a forecast of demand absent reductions from EE that participates as supply in the Forward Capacity Market (FCM)
- Recent changes to the reconstitution methodology used for energy efficiency (EE) resources in the gross load forecast have significantly changed the accounting needed in the annual EE forecast
 - Refer to the Appendix for a review of the new reconstitution methodology
- New reconstitution is calibrated to the EE Capacity Supply Obligations (CSOs) from the most recently completed Forward Capacity Auction (FCA), resulting in improved accounting for:
 1. The amount of EE that participates in FCA, and not EE installations in excess of their CSO
 2. EE expiring measures that are no longer participating as supply in FCA



Impacts of the New EE Reconstitution Methodology on the Gross Load Forecast

- As a result of the new methodology, the following are both reflected as load reductions in the gross load forecast:
 1. EE installations in excess of their CSO
 2. Cumulative EE expiring measures that no longer participate as supply in FCM up through the most recently held FCA
- An example of the impact this methodology **would have had** were it in place for the 2020 gross load forecast is shown
 - Changes are relative to the CELT 2020 forecast

Impacts to CELT 2020 New England Summer 50/50 Forecast	
Year	Change (MW)
2020	-647
2021	-713
2022	-784
2023	-856
2024	-936
2025	-1,016
2026	-1,095
2027	-1,175
2028	-1,256
2029	-1,336

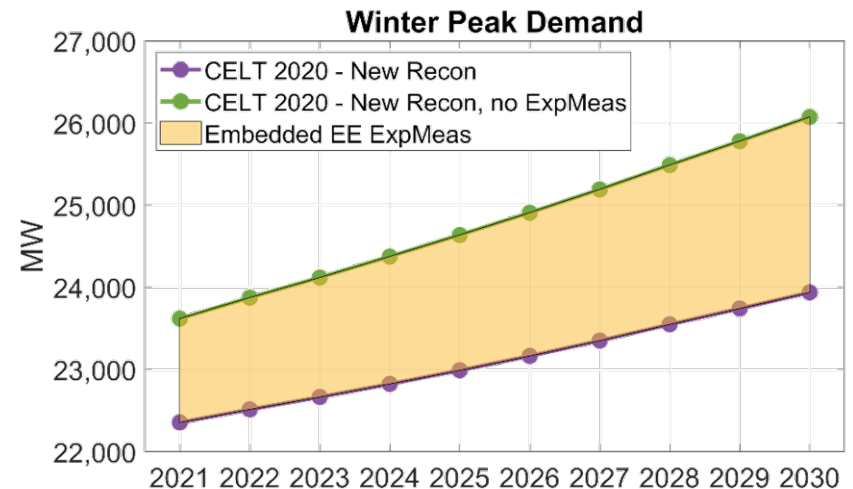
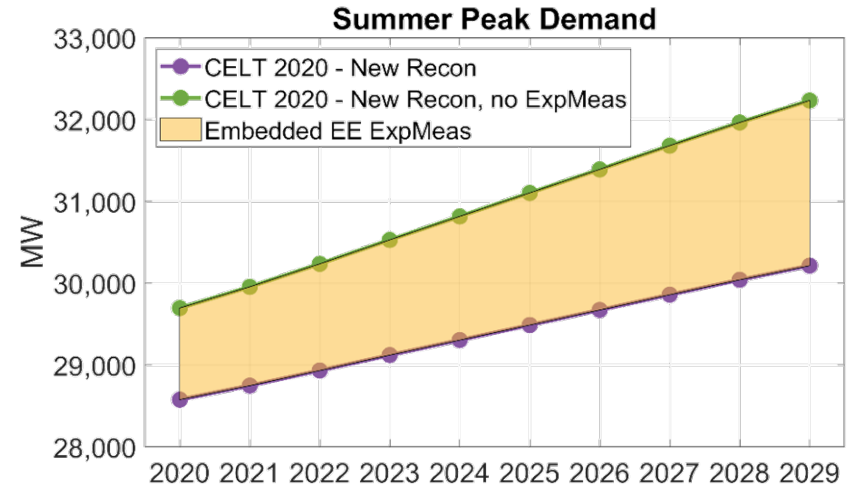


Updated Accounting in 2021 EEF

- Starting in the 2021 CELT, the EE forecast is now a projection of EE described as follows:
 1. The trend line of market-facing EE reflected in the new reconstitution up through the most recent FCA's Capacity Commitment Period (CCP)
 2. A forecast of market-facing EE **that will further reduce load beyond the most recent FCA's CCP**
- Improved accounting for EE expiring measures in the gross load forecast raises a need to examine the degree to which future EE expiring measures are now “embedded” as load reductions in the gross load forecast, and how this impacts the accounting in the annual EE forecast
 - Important to ensure EE is not double-counted as a load reduction in the net load forecast

Estimating Expiring Measures Embedded in Gross Load Forecast

- To determine the amount of EE expiring measures embedded as load reductions in the gross load forecast
 1. Use the new reconstitution methodology to recreate the historical reconstitution that reflects no EE measure expiration
 - I.e., the most recent FCA CSOs plus all cumulative EE expiring measures up through the most recent FCA's CCP
 2. Use this reconstitution to develop a gross load forecast that reflects no EE measure expiration
 3. The differences between this version of the gross load forecast and the actual gross load forecast are the amount of expiring measures embedded over the forecast horizon
- An example of the estimated embedded expiring measures is shown for CELT 2020 in the adjacent plots

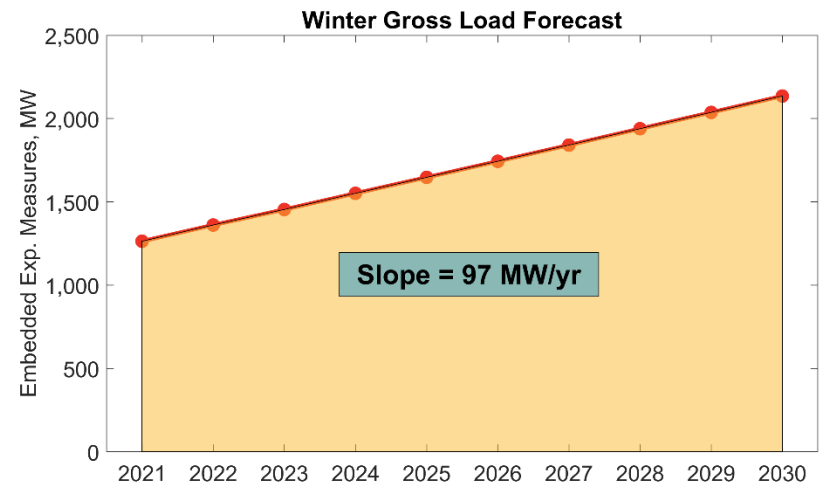
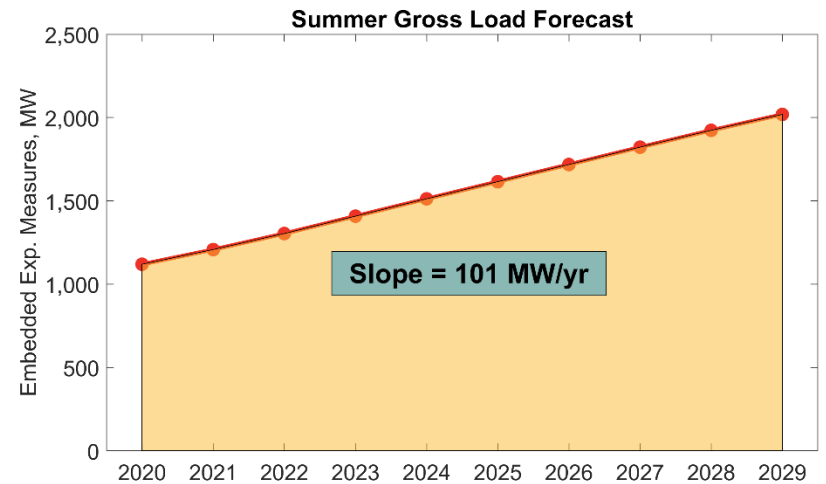


Consequences of New Reconstitution Method

- Improved accounting for EE measure expiration in the new reconstitution methodology results in a gross load forecast with a lower slope (i.e., less gross load growth over time)
 - Effectively, this is due to expiring measures becoming “embedded” as load reductions in the gross load forecast
- As a result, the EE forecast should be a projection of EE **net of the cumulative impacts of embedded expiring measures**
 - These impacts are appropriately captured within the reconstitution trend line that serves as the first four years of the EE forecast
 - **However, there is a need for addressing the gap in accounting for embedded expiring measures in years beyond the most recent FCA’s CCP**

Accounting for Embedded Expiring Measures

- The annual growth in embedded EE expiring measures is represented by the seasonal slopes
 - Seasonal slopes shown in figures are based on CELT 2020 data
- The effects of embedded expiring measures accumulate each year beyond the most recent FCA's CCP



Accounting for Embedded Expiring Measures

- Since the growth of embedded expiring measures occurring beyond the most recent FCA's CCP corresponds to reductions to the gross load forecast, it should also be factored into EE forecast accounting
- To accomplish this for years after the most recent FCA's CCP, the EE forecast will be calculated as the EE forecast model output **minus** the cumulative embedded EE expiring measures
 - The cumulative embedded EE expiring measures are equal to the slope of the embedded expiring measures multiplied by the number of years after the most recent FCA's CCP
- An example of this accounting is tabulated on the next slide



2020 EE Forecast – Summer Demand

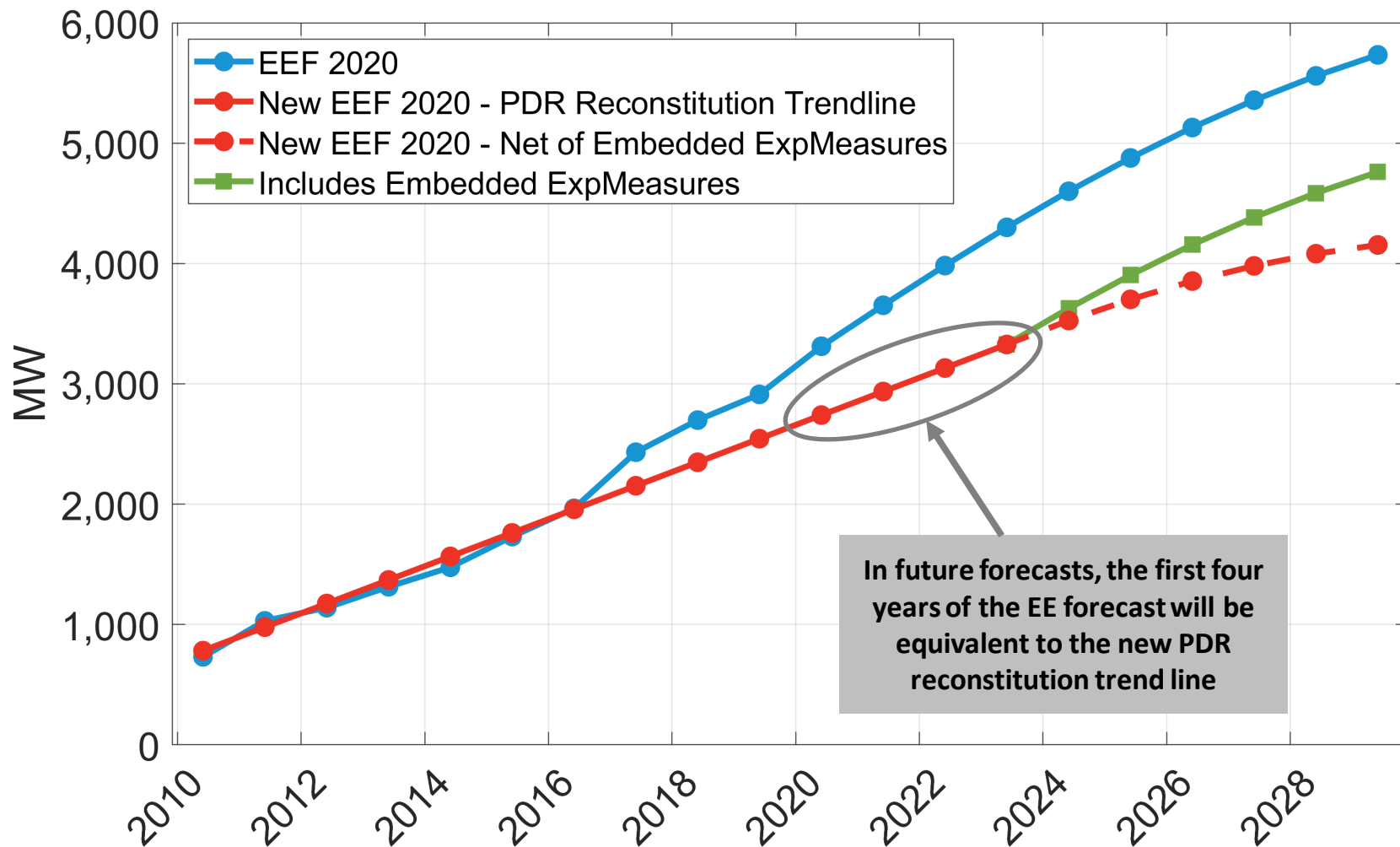
Example of Proposed Accounting for Embedded Expiring Measures

- Tabulated below are CELT 2020 cumulative summer demand forecast values that begin in 2024
 - This is the year in which the EE forecast is no longer the reconstitution trend line

Year	Cumulative Gross Load Forecast Changes Due to Reconstitution Changes, (based on CELT 2020)	2020 EE Forecast Demand (Cumulative)	Cumulative Embedded Expiring Measures	2020 EE Forecast With Proposed Accounting
2024	-80	300	101	199
2025	-160	577	202	375
2026	-239	830	303	527
2027	-319	1,057	404	653
2028	-400	1,259	505	754
2029	-480	1,433	606	827

2020 EE Forecast – Summer Demand

Example of Proposed Accounting for Embedded Expiring Measures



Questions



APPENDIX

Overview of the New EE Reconstitution Methodology



Overview of New EE Reconstitution Methodology

- Under the new methodology, which will be used for the 2021 gross load forecast, EE reconstitution will be based on the total CSOs acquired by EE resources in the most recent Forward Capacity Auction (FCA)
- By calibrating to the EE CSOs from the most recently completed FCA, the new reconstitution methodology results in improved accounting for:
 - The amount of EE that participates in FCA, and not EE installations in excess of their CSO
 - EE expiring measures that are no longer participating as supply in FCA
- The new methodology also includes adjustments to account for the difference between EE resources' FCA CSOs and CSOs acquired by EE resources in the annual reconfiguration auctions

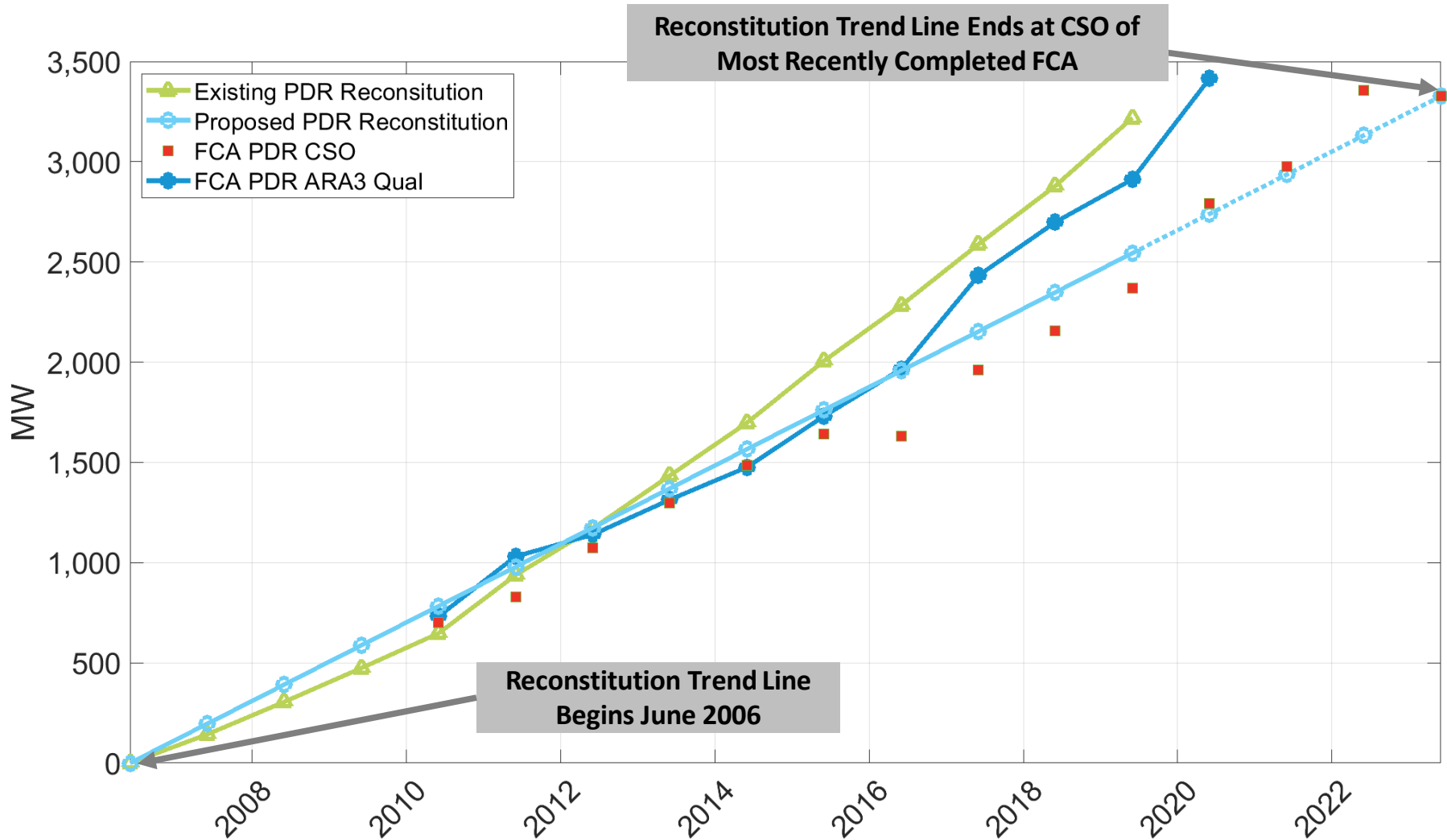
Overview of New EE Reconstitution Methodology

Summer and winter monthly values are determined by the following steps:

1. Applying a linear fit between:
 - a. The time installation of EE participating in FCA 1 began (i.e., when PDR equaled zero)
 - Assumed starting point for Summer is June 1, 2006
 - Assumed starting point for Winter is December 1, 2006
 - b. The total seasonal EE CSO from the most recent FCA for the corresponding Capacity Commitment Period (CCP)
 - June 1st for summer, December 1st for winter
2. Applying the resulting June and December points in this time series to all the appropriate EE performance months by season

Proposed Summer EE Reconstitution

New England

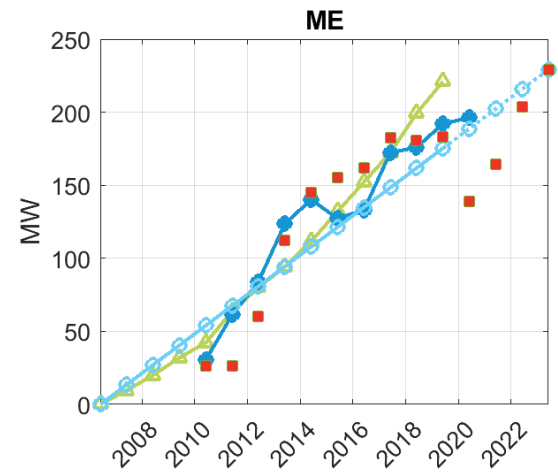
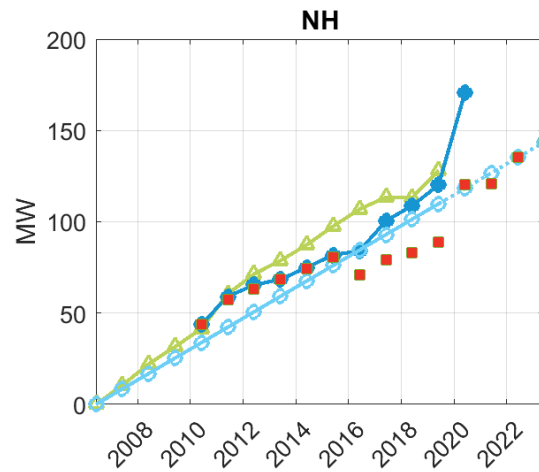
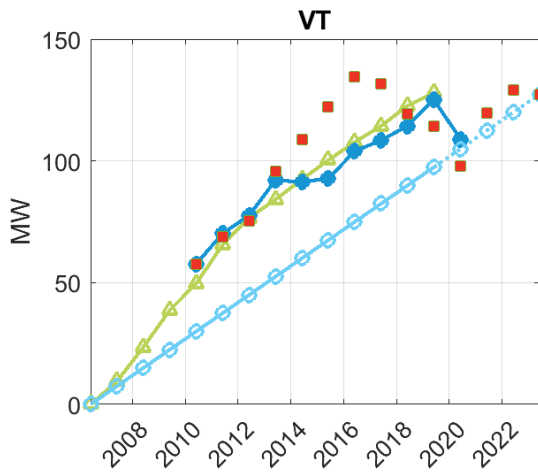
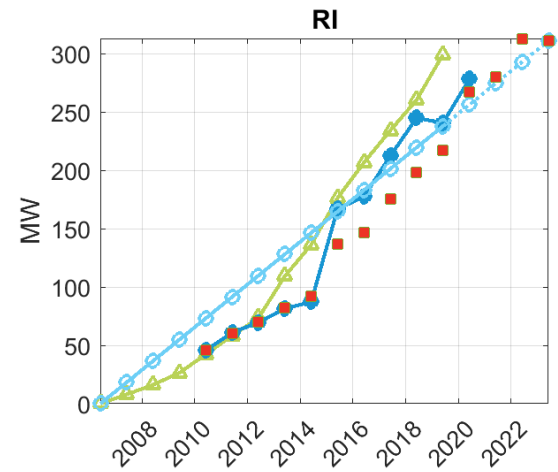
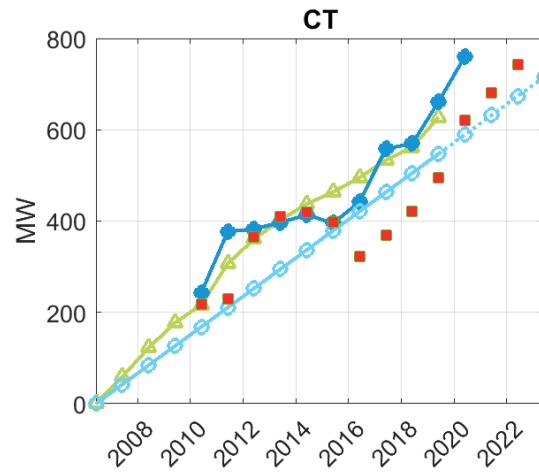
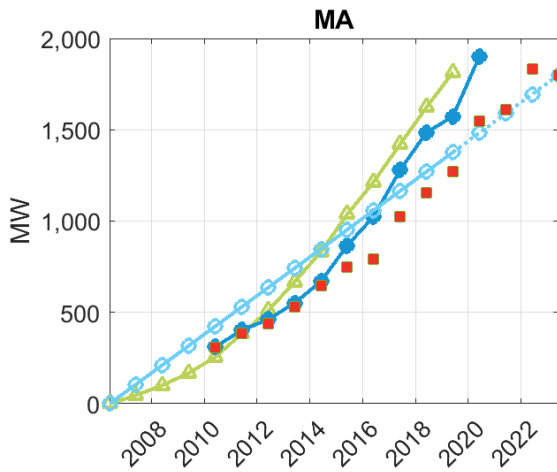


Reconstitution Trend Line Ends at CSO of Most Recently Completed FCA

Reconstitution Trend Line Begins June 2006

Proposed Summer EE Reconstitution

States



▲ Existing PDR Reconstitution
 ● Proposed PDR Reconstitution
 ■ FCA PDR CSO
 ◆ FCA PDR ARA3 Qual