



# MA21DR05-E-C&I - 2021 Cross-State Summer Demand Response Program - Final Impact Evaluation Results

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## 1 INTRODUCTION

This memo provides final impact results for the 2021 summer season of C&I demand response programs for the following PAs:

- Eversource MA
- Eversource CT
- National Grid MA
- CLC MA
- Unitil MA

### 1.1 Battery Storage

This section provides the impact results for the targeted and daily dispatch battery participants by PA. The load reductions listed in the tables below are the average kW load reductions based on the battery discharge during the event window.

#### 1.1.1 Cape Light Compact

**Table 1. Cape Light Compact - MA – Targeted Battery Storage - Impact Summary**

Event Date		6/29/21		6/30/21	8/12/21	8/26/21	Overall Average
Result		Average	ICAP	Average	Average	Average	
MW	Enrolled Capacity	0.280	0.280	0.280	0.280	0.280	0.280
	Reported Performance	0.152	N/A	0.139	0.153	0.152	0.149
	Evaluated Performance	0.149	0.107	0.140	0.150	0.150	0.147
MWH	Net Energy	N/A	N/A	N/A	N/A	N/A	10.686
Ratio	Discharge / Charge	N/A	N/A	N/A	N/A	N/A	71.9%
Retrospective Realization Rate		98.0%	N/A	100.6%	98.0%	98.5%	98.8%
Accounts		1	1	1	1	1	1



## 1.1.2 Eversource MA/CT

**Table 2. Eversource - MA - Targeted Battery Storage - Impact Summary**

Event Date		6/29/21		6/30/21	8/12/21	8/13/21	8/26/21	Overall Average
Result		Average	ICAP	Average	Average	Average	Average	
MW	Enrolled Capacity	0.940	0.940	0.940	1.057	1.057	1.057	1.010
	Reported Performance	0.452	N/A	0.329	0.517	0.534	0.700	0.506
	Evaluated Performance	0.453	0.344	0.329	0.517	0.534	0.700	0.506
MWH	Net Energy	N/A	N/A	N/A	N/A	N/A	N/A	14.166
Ratio	Discharge / Charge	N/A	N/A	N/A	N/A	N/A	N/A	60.1%
Retrospective Realization Rate		100.2%	N/A	100.0%	100.0%	100.0%	100.0%	100.0%
Accounts		6	6	6	7	7	7	6.6

**Table 3. Eversource - MA – Daily Battery Storage - Impact Summary**

Event Date		6/29/21	Daily
Result		ICAP	Average
MW	Enrolled Capacity	5.246	5.246
	Reported Performance	N/A	4.262
	Evaluated Performance	1.541	4.252
MWH	Net Energy	N/A	229.269
Ratio	Discharge / Charge	N/A	81.7%
Retrospective Realization Rate		N/A	99.8%
Events		N/A	35
Accounts		9	9

**Table 4. Eversource - CT – Daily Battery Storage - Impact Summary**

Event Date		6/29/21	Daily
Result		ICAP	Average
MW	Enrolled Capacity	0.200	0.200
	Reported Performance	N/A	0.161
	Evaluated Performance	0.006	0.161
MWH	Net Energy	N/A	6.919
Ratio	Discharge / Charge	N/A	85.0%
Retrospective Realization Rate		N/A	99.9%
Events		N/A	35
Accounts		1	1



## 1.2 Thermal Storage

This section provides the impact results for the C&I thermal storage participants by PA.

### 1.2.1 Eversource MA/CT

**Table 5. Eversource - MA - Targeted Thermal Storage - Impact Summary**

Event Date		6/29/21		8/12/21	8/13/21	8/26/21	Overall Average
Result		Average	ICAP	Average	Average	Average	
MW	Enrolled Capacity	0.300	0.300	0.300	0.300	0.300	0.300
	Reported Performance	0.300	N/A	0.300	0.300	0.300	0.300
	Evaluated Performance	0.129	0.088	0.217	0.269	0.273	0.222
Retrospective Realization Rate		43%	N/A	72.3%	89.7%	91.0%	74.0%
Accounts		1	1	1	1	1	1

**Table 6. Eversource - CT - Targeted Thermal Storage - Impact Summary**

Event Date		6/29/21		6/30/21	8/12/21	8/13/21	8/26/21	Overall Average
Result		Average	ICAP	Average	Average	Average	Average	
MW	Enrolled Capacity	1.250	1.250	1.250	1.250	1.250	1.250	1.250
	Reported Performance	1.250	N/A	1.250	1.250	1.250	1.250	1.250
	Evaluated Performance	0.943	0.945	0.945	1.414	1.241	1.414	1.192
Retrospective Realization Rate		75.4%	N/A	75.6%	113.1%	99.3%	113.1%	95.4%
Accounts		1	1	1	1	1	1	1

**Table 7. Eversource - MA – Daily Thermal Storage - Impact Summary**

Event Date		6/29/2021	Daily
Result		ICAP	Average
MW	Enrolled Capacity	0.300	0.300
	Reported Performance	N/A	0.300
	Evaluated Performance	0.398	0.212
Retrospective Realization Rate		N/A	70.7%
Events		1	35
Accounts		1	1



### 1.3 C&I Targeted Curtailment

This section provides the impact results for the C&I targeted and daily curtailment participants by PA.

#### 1.3.1 Cape Light Compact

- Summer 2021 targeted curtailment retrospective realization rate of 81.6%.
- Not evaluated in summer 2019 study, however, the retrospective realization rate for other program administrators was between 78.3% and 99.8%.
- Winter 2020-2021 retrospective realization rate was 64.5%.

**Table 8. Cape Light Compact - MA - Targeted Curtailment - Impact Summary**

Event Date		6/29/21		6/30/21	8/12/21	8/26/21	Overall Average	
Result		Average	ICAP	Average	Average	Average		
Enrolled	MW	Enrolled Capacity	1.048	1.048	1.048	1.048	1.048	
Settlement		Reported Asymmetric	1.642	N/A	1.494	1.542	1.003	1.420
		Validated Asymmetric	1.296	1.252	1.306	1.195	0.963	1.190
Impact		Evaluated Asymmetric	1.296	1.252	1.306	1.195	0.962	1.190
		Evaluated Symmetric	1.295	1.251	1.149	1.164	0.956	1.141
Retrospective Realization Rate	Evaluated Symmetric / Reported Asymmetric	78.8%	N/A	76.9%	75.5%	95.3%	81.6%	
Accounts		17	17	17	17	17	17	

#### 1.3.2 Unitil MA

- Summer 2021 targeted curtailment retrospective realization rate of 51.2%.
- Summer 2019 retrospective realization rate of 90.8%. MA statewide retrospective realization rate of 81.1%.
- Insufficient data for one out of 3 participants for three events. One out of two participants with sufficient data had a significant downward adjustment, resulting in a low realization rate.



**Table 9. Unitil - MA - Targeted Curtailment - Impact Summary**

Event Date		6/29/21		6/30/21	8/12/21	8/13/21	8/26/21	Overall Average	
Result		Average	ICAP	Average	Average	Average	Average		
Enrolled	MW	Enrolled	0.800	0.800	0.800	0.550	0.550	0.550	0.650
Settlement		Reported	0.575	N/A	0.611	0.410	0.313	0.194	0.421
		Validated	0.575	0.575	0.596	0.410	0.311	0.191	0.416
Impact		Evaluated	0.575	0.575	0.585	0.410	0.311	0.191	0.414
		Evaluated	0.547	0.547	0.563	0.107	0.056	0.047	0.264
Retrospective Realization Rate		Evaluated Symmetric / Reported Asymmetric	95.1%	N/A	92.3%	26.2%	18.0%	24.2%	51.2%
Accounts			3	3	3	2	2	2	2.4

### 1.3.3 Eversource MA

- Summer 2021 targeted curtailment retrospective realization rate of 72.6% in MA.
- Summer 2019 realization rate of 78.3%; by event, realization rate between 64.5% and 90.6%. Winter 2020-2021 realization rate was 67.4%.

**Table 10. Eversource - MA - Targeted Curtailment - Impact Summary**

Event Date		6/29/21		6/30/21	8/12/21	8/13/21	8/26/21	Overall Average	
Result		Average	ICAP	Average	Average	Average	Average		
Enrolled	MW	Enrolled Capacity	94.286	94.286	94.286	95.158	95.158	95.296	94.837
Settlement		Reported Asymmetric	94.664	N/A	86.865	61.197	75.735	85.017	80.696
		Validated Asymmetric	95.764	95.177	87.270	60.139	74.950	84.404	80.505
Impact		Evaluated Asymmetric	93.707	94.048	85.553	55.997	73.502	83.184	78.389
		Evaluated Symmetric	61.782	62.030	55.669	49.456	53.134	70.221	58.052
Retrospective Realization Rate		Evaluated Symmetric / Reported Asymmetric	65.3%	N/A	64.1%	80.8%	70.2%	82.6%	72.6%
Accounts			288	288	288	306	306	307	299

### 1.3.4 Eversource CT

- Summer 2021 targeted curtailment retrospective realization rate of 83.9% in CT.
- Summer 2019 realization rate of 87.6%; by event, realization rate between 86.7% and 88.9%. Winter 2020-2021 realization rate was 65.7%.

**Table 11. Eversource - CT - Targeted Curtailment - Impact Summary**

Event Date			6/29/21		6/30/21	8/12/21	8/13/21	8/26/21	Overall Average
Result			Average	ICAP	Average	Average	Average	Average	
Enrolled	MW	Enrolled Capacity	79.100	79.100	79.100	84.390	84.470	84.470	82.306
Settlement		Reported Asymmetric	55.663	N/A	65.468	57.196	66.534	49.539	58.880
		Validated Asymmetric	56.341	56.233	66.267	57.922	67.247	50.029	59.561
Impact		Evaluated Asymmetric	55.228	55.402	64.462	55.273	65.252	48.992	57.841
		Evaluated Symmetric	49.771	49.827	59.771	47.047	55.368	36.376	49.667
Retrospective Realization Rate	Evaluated Symmetric / Reported Asymmetric	89.4%	N/A	91.3%	82.3%	83.2%	73.4%	83.9%	
Accounts			204	204	204	240	241	241	226

### 1.3.5 National Grid MA

- Summer 2021 targeted curtailment retrospective realization rate of 83.6% for targeted dispatch participants.
- Summer 2019 targeted curtailment retrospective realization rate of 81.9%. Winter 2020-2021 realization rate was 65.9%.
- For dual participants, daily dispatch performance was calculated first, and then the load was reconstituted to calculate the targeted dispatch performance.
- One battery storage customer participated and provided asset level data in the daily dispatch program. That customer's performance is called out separately in Table 13.



**Table 12. National Grid - MA - Daily Dispatch - Impact Summary**

Event Date		6/29/21	Event	
Result		ICAP	Average	
Enrolled	MW	Enrolled Capacity	20.980	20.914
Settlement		Reported Asymmetric	N/A	15.304
		Validated Asymmetric	18.212	19.355
Impact		Evaluated Asymmetric	18.244	19.245
		Evaluated Symmetric	18.181	17.864
Retrospective Realization Rate		Evaluated Symmetric / Reported Asymmetric	N/A	116.7%
Events		N/A	25	
Accounts		26	25.8	

**Table 13. National Grid - MA – Daily Dispatch Battery Storage - Impact Summary**

Event Date		6/29/21	Event
Result		ICAP	Average
MW	Enrolled Capacity	3.200	3.200
	Reported Performance	N/A	1.573
	Evaluated Performance	1.217	1.573
MWH	Net Energy	N/A	380.487
Ratio	Discharge / Charge	N/A	28.9%
Retrospective Realization Rate		N/A	100.0%
Events		N/A	25
Accounts		1	1



**Table 14. National Grid - MA - Targeted Curtailment - Impact Summary**

Event Date		6/29/21		6/30/21	8/11/21	8/12/21	8/13/21	8/26/21	Overall Average	
Result		Average	ICAP	Average	Average	Average	Average	Average		
Enrolled	MW	Enrolled	57.480	57.480	57.446	57.697	55.491	55.540	57.501	56.859
Settlement		Reported	56.942	N/A	59.677	49.204	51.238	54.552	51.753	53.894
		Validated	57.096	56.883	59.841	49.284	51.437	54.549	51.753	53.993
Impact		Evaluated	55.927	51.941	59.963	49.536	51.113	54.907	49.306	53.459
		Evaluated	46.910	42.350	48.427	41.752	43.358	46.885	42.842	45.029
Retrospective Realization Rate		Evaluated Symmetric / Reported Asymmetric	82.4%	N/A	81.1%	84.9%	84.6%	85.9%	82.8%	83.6%
Accounts			428	428	427	436	433	434	437	433