



REV Demonstration Project:
Commercial Battery Storage

Q3 2020 Quarterly Progress Report

Dated: Oct 31, 2020

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1.0 EXECUTIVE SUMMARY

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) submits this 3rd quarterly report for 2020 on the progress of the Commercial Battery Storage REV Demonstration Project (the “Project”) it is implementing as part of the Reforming the Energy Vision (“REV”) proceeding, as required by the *Order Adopting Regulatory Policy Framework and Implementation Plan*, issued by the New York State Public Service Commission (“Commission”) on February 26, 2015.¹ Budget information is being filed confidentially with the Commission.

1.1. Project Background

On January 20, 2017, Con Edison submitted the Project for approval by Department of Public Service Staff (“DPS Staff”). On May 18, 2017, DPS Staff approved the Project. Con Edison filed an implementation plan for the Project with the Commission on June 15, 2017.

Using four sites: Caddell, City Island, Woodside and a fourth future location, the Project seeks to demonstrate how distributed, front of the meter (“FTM”) energy storage can provide transmission and distribution (“T&D”) support, earn wholesale market revenues, and increase the market size of participating customers by aligning the interests of the Company, customers, and third-party developers. Con Edison is executing the Project in partnership with GI Energy (“GIE”) and Smarter Grid Solutions (“SGS”).

The effects of the COVID-19 pandemic are listed in the Quarterly Progress section.

¹ Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order Adopting Regulatory Policy Framework and Implementation Plan (issued February 26, 2015).

1.2. Project Overview



Commercial Battery Storage REV Demo Project

The **Commercial Battery Storage** project is designed to demonstrate how distributed, front of the meter (“FTM”) energy storage can be utilized to provide transmission and distribution (“T&D”) support, earn wholesale market revenues, and increase the market size of participating customers by aligning the interests of the Company, customers, and third-party developers. Con Edison is executing the Project in partnership with GIE and SGS.

Project Start Date: January 2017
Project End Date: December 2021
Budget: \$11.7M
Q3 2020 Spend: *Filed Confidentially*
Cumulative Spend: *Filed Confidentially (on budget)*



Lessons Learned: Customers

- Engagement with the City is ongoing and important to find potential resolution for future projects.
- The lack of interval data for most viable project sites, serves as an incentive to scale the FTM model in non-BTM locations.
- Site leases are becoming more competitive with multiple storage companies offering leases

Lessons Learned: Utility

- The Project team is a test case for Q3 2020 battery aggregation rules. This collaboration will benefit the Project and the larger New York battery market.
- NYC DOB’s zoning determination has clarified treatment for non-accessory uses
- Warranty restrictions need to be balanced with operational needs and use cases.
- Unpredictable permitting requirements such as the Peer Review contribute to project delays

Application of Lessons Learned: *TBD based on City engagement and NYISO collaboration. Zoning considered carefully during site acquisition.*

Issues Identified: *A DSNY site that had received FDNY and DOB permits dropped out after conversations stalled on contract terms. A zoning determination from DOB could cause the loss of the third site. NYISO’s response to FERC Order 841 delays battery market participation and dual participation to no earlier than Q4 2020.*

Solutions Identified: *Have identified potential replacement sites and exploring variance process timelines. Working with NYISO on pilot for market participation.*

Recent Milestones: *a) The Caddell site in Staten Island is operational and began dispatching as of Feb 6th b) City Island completed majority of commissioning c) Woodside completed all new DOB requirements e) Completed NYISO Pilot f) Tested end-to-end communications for NYISO*

Upcoming Milestones: *First 2 sites operational. Negotiate 4th site lease. Begin construction on 3rd site. Enroll two assets in NYISO pilot program. Complete NYISO communications for dispatching.*

2.0 QUARTERLY PROGRESS

2.1 Activities Overview and Updates

Phase 1, Customer Acquisition: GIE is negotiating a lease in Decatur Street to replace the Amboy site that was formally withdrawn from the Project.

Phase 2, Construction/Commissioning and Integration: The Project faced construction delays at the start of Q2 2020 due to the COVID-19 pandemic, with activities resuming in June 2020.

City Island FDNY permit inspections were completed in Q3 2020. GIE addressed all issues raised as a part of the electrical inspection and received final sign-off in late Q3 2020.

GIE has received New York City Department of Buildings (“DOB”) approvals to begin construction at the site in Woodside, Queens. The peer review and a conditional letter of acceptance from DOB were completed in Q3 2020, and GIE will begin construction in Q4 2020.

The Caddell site is operational as of February 6, 2020.

Phase 3, Dispatch Optimization: NYISO dual participation rules for Energy Storage Resources (“ESRs”) were finalized at the end of Q3 2020. A full end-to-end testing between SGS and Con Edison was completed in Q3. The project team is working through scaling issues found during testing on their SCADA communications to align with NYISO basepoint formatting.

Phase 4, Market Participation: In Q3 2020, GIE received confirmation of NYISO-required communications points. GIE requested ESR registration forms and applied to be a part of August modelling.

2.2 Key Metrics

In Q3 2020, the Project team continued customer acquisition activities and made significant progress on communications integration activities. The following data

support these Phase 1 metrics; targets were set as 200 potential sites identified, 30 viable project sites, and four final project sites.

3.0 Potential Sites Identified: 670 / 200 (target)

4.0 Customers Approached: 485 / 670

5.0 Customer Intake Forms Collected: 49 / 471

6.0 Walkthroughs Conducted: 45 / 49

7.0 Sites Selected for permitting: 7 / 4 (target)

8.0 Sites with interval data: 5 / 20

8.1 Lessons Learned and Recommendations

There are no new lessons learned during this quarter.

9.0 NEXT QUARTER FORECAST

9.1 Planned Activities

Barring continued impacts from COVID-19, the Project team expects to have two operational sites by Q4 2020. The team expects to begin construction at the Woodside location. GIE expects to complete negotiations for a lease at a fourth site.

End-to-end communications testing with NYISO dispatching for the Caddell and City Island site will be completed in Q4 2020.

10.0 APPENDICES

The following appendices are included at the end of this Quarterly Progress Report:

Appendix A: Description of Phases

Appendix B: Work Plan

Appendix C: Checkpoints and Milestone Progress

Appendix D: Procedures and Policies

Appendix A: Commercial Battery Storage Description of Phases

Phase	0. Project Planning (Ongoing)	1. Customer Acquisition (Ongoing)	2. Construction / Commissioning and Integration (Ongoing)	3. Dispatch Optimization (Ongoing)	4. Market Participation
Milestone (Stage Gate to Next Phase)	<i>Negotiations to be Completed</i> <ul style="list-style-type: none"> • DPS approval • Partner contracts signed 	<i>Successfully execute leases for four customer sites</i> <ul style="list-style-type: none"> • Final site selection • Execute customer lease contracts 	<i>Install and commission 4.2 MW/4.4 MWh</i> <ul style="list-style-type: none"> • Design approval • Obtain permits • Battery installation • System commissioning 	<i>Dispatch for load relief</i> <ul style="list-style-type: none"> • Cyber-secure communication architecture • HMI functionality • Established NOC 	<i>Assets participate in wholesale markets</i> <ul style="list-style-type: none"> • Earn revenues in all market products available for battery participation
Key Elements	<ul style="list-style-type: none"> • Letter of No Objection • Developer contracted • Third-party financing identified and contracted 	<ul style="list-style-type: none"> • Customer lead identification • Complete site Walkthroughs • Complete viable site identification • Final site selection • Market analysis for FTM vs. BTM 	<ul style="list-style-type: none"> • Interconnection and civil design • Interconnection application and study • Permitting • Communications integration • System testing and training 	<ul style="list-style-type: none"> • Assets can be dispatched individually or in aggregate by each party • Fully integrated into SCADA with HMI functionality • Calculate T&D benefit values 	<ul style="list-style-type: none"> • Enroll in NYISO markets allowed today • Continue participation in DER roadmap proceedings to increase participation for ELRs • Quantify market revenues achievable under stacked value model
DER Categories	N/A	N/A	<ul style="list-style-type: none"> • Battery Storage 	<ul style="list-style-type: none"> • Battery Storage • DER Aggregation 	<ul style="list-style-type: none"> • Battery Storage • DER Aggregation

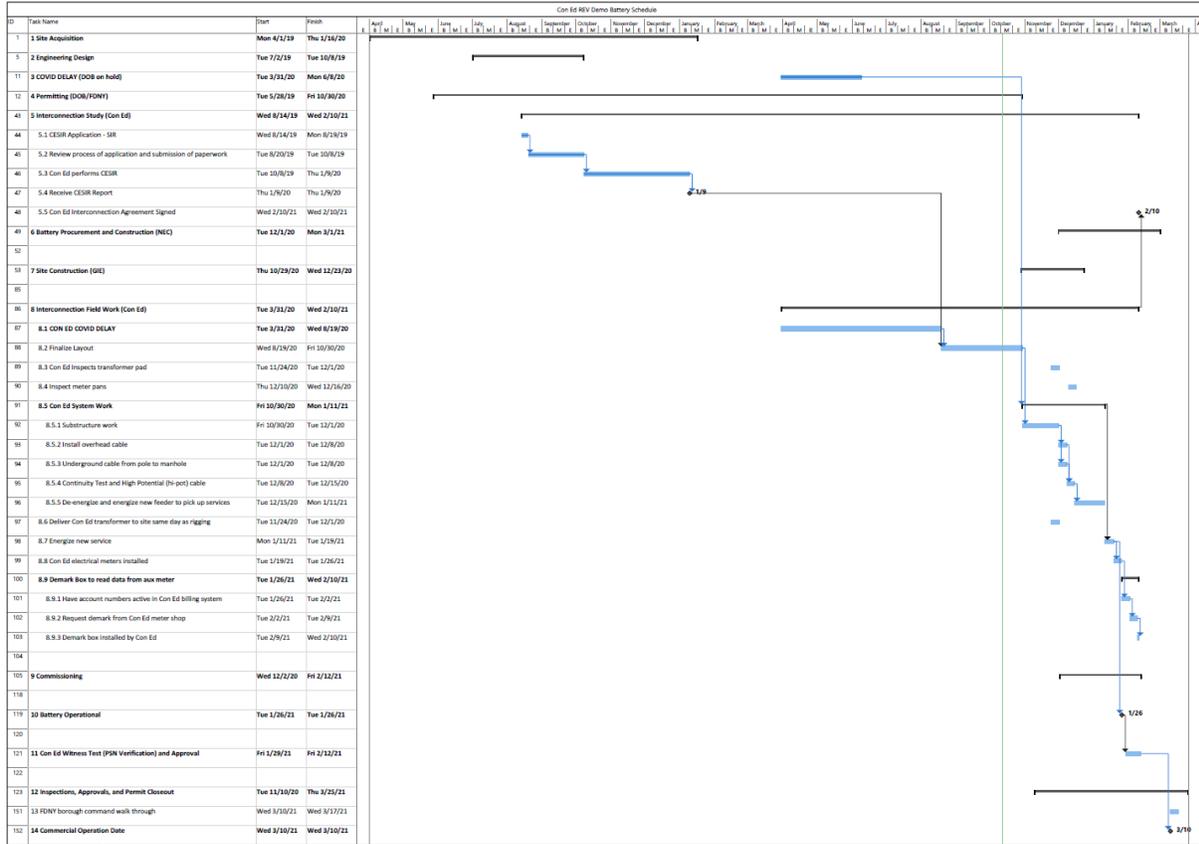
Appendix B: Work Plan

Note: these work plans do not account for delays due to COVID-19, as those are not possible to capture accurately at this time.

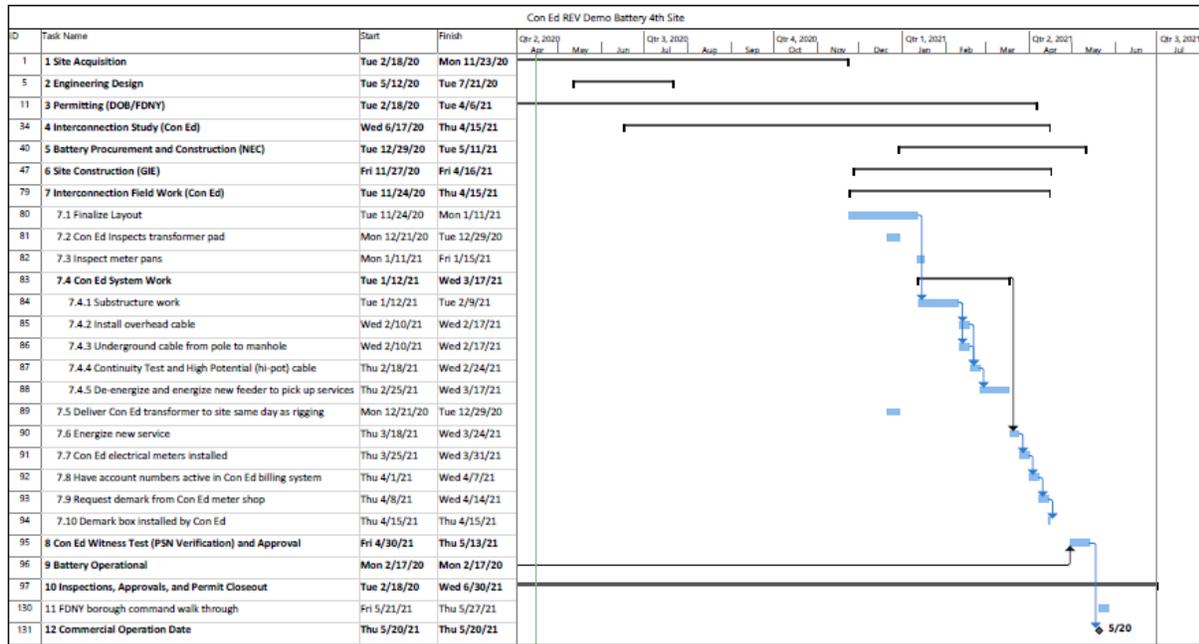
Site 2:

ID	Task Name	Start	Finish	Notes	
1	1 Pre-Contract Work	Mon 1/2/17	Tue 6/12/18		H2
12	2 Communications Build Out (SGS)	Thu 4/5/18	Tue 9/17/19		
31	3 Site 1 - Caddell	Tue 2/20/18	Mon 8/24/20		
172	4 Site 2 - City Island	Tue 2/20/18	Thu 11/12/20		
173	4.1 Site Acquisition	Wed 6/13/18	Tue 7/3/18		
175	4.2 Design/Permitting (DOB/FDNY)	Tue 6/5/18	Wed 12/18/19		
187	4.3 Contractor Bidding	Fri 7/13/18	Fri 10/26/18		
197	4.4 Interconnection Study (Con Ed)	Tue 2/20/18	Fri 2/15/19		
203	4.5 Battery Procurement and Construction (NEC)	Mon 5/28/18	Fri 12/27/19		
212	4.6 COVID DELAY	Tue 3/31/20	Mon 6/8/20		
213	4.7 Site Construction (GIE)	Tue 8/14/18	Thu 4/23/20		
289	4.8 Battery Operational	Fri 1/17/20	Fri 1/17/20		
290	4.9 Con Ed Witness Test (PSN Verification) and Approval	Wed 10/21/20	Wed 11/4/20		
291	4.10 Inspections, Approvals, and Permit Closeout	Wed 11/13/19	Thu 11/12/20		
312	4.11 Commercial Operation Date	Wed 11/4/20	Wed 11/4/20		11/4

Site 3:



Site 4:



Appendix C: Checkpoints and Milestone Progress

Checkpoint/Milestone	Timing*	Status
Customer Acquisition	Phase 1 Midpoint / End	○ ● ○
Construction/Commissioning and Integration	Phase 2 Midpoint / End	○ ● ○
Dispatch Optimization	Phase 2 End	● ○ ○
	Phase 3 Midpoint/End	● ○ ○
Market Participation	Phase 4 Quarterly	○ ○ ●

*Detailed descriptions of the Phases can be found in the Appendices.

Legend

 On Schedule	 Delayed w/out Major Impact	 Delayed or Stopped – Project Goals Impacted
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Planned Activities

Customer Acquisition

- **Status: Yellow**
- **Expected Target by Phase 1 Midpoint:** Identification of 30 viable customer sites and a minimum of 20 sites for behind the meter (“BTM”) vs. FTM analysis.
- **Actual by Phase 1 Midpoint:** 30 viable customer sites identified, waiting on customer interval data to assess sites for BTM vs. FTM analysis.
- **Solutions/strategies in case of results below expectations:** In line with root-cause analysis, actions may include reassessing target, increasing marketing and outreach efforts, or adjusting monetization strategies to encourage improved customer acquisition efforts.

Construction/Commissioning and Integration

- **Status: Yellow**

- **Expected Target by Phase 2 End:** 4 MW/ 4 MWh installed storage across four sites.
- **Actual by Phase 2 Midpoint:** N/A
- **Solutions/strategies in case of results below expectations:** The Project team will work to proactively manage any permitting restrictions that might delay construction and commissioning of project sites. The team will continually evaluate progress and adjust to back-up project sites if there is a site-specific issue.

Dispatch Optimization

- **Status:** **Green**
- **Expected Target by Phase 2 End:** Demonstrated aggregation and dispatchability of storage capacity.
- **Actual by Phase 2 End:** Ability to dispatch through user interface has been demonstrated with one battery.
- **Solutions/strategies in case of results below expectations:** In-line with root-cause analysis, actions may include systems upgrades, modified systems integration, and/or process review.

Market Participation

- **Status:** **Red**
- **Expected Target by Phase 3 End:** Enrollment of batteries into NYISO markets.
- **Actual by Phase 3 End:** N/A
- **Solutions/strategies in case of results below expectations:** The Project team will work with NYISO and other relevant stakeholders to identify alternative forms of battery participation, such as pilot projects. If no other suitable means exist, assets will continue to be dispatched to shadow NYISO markets and demonstrate the potential for revenues.

Appendix D: Procedures and Policies

CYBERSECURITY AND PERSONALLY-IDENTIFIABLE INFORMATION PROTECTION

Consistent with Commission policy related to cybersecurity and the protection of personally-identifiable information (“PII”), each partner agreement executed for the implementation of the Project includes specific protections related to cybersecurity and PII. This protection is critical in encouraging customers to sign up with new and innovative services offered by utilities.

ACCOUNTING PROCEDURE ESTABLISHED

On February 16, 2016, in Case 15-E-0229, Con Edison filed an accounting procedure for the accounting and recovery of all REV demonstration project costs.² This accounting procedure establishes a standardized framework that will govern how the Company categorizes and allocates the costs of the REV demonstration projects, and will facilitate analyzing each project to determine the overall financial benefits of the program to customers.

COSTS, BENEFITS, AND OPERATIONAL SAVINGS

Budget information for all of the Company’s REV demonstration projects is being filed confidentially with the Commission, concurrently with the filing of this document. All costs filed are incremental costs needed to implement the projects. To date, no tax credits or grants have been available to reduce the net costs of the projects, but Con Edison will take advantage of such offsetting benefits when, they are available. Due to the early stage of implementation for the Project, there are no operational savings to report at this time.

² Case 15-E-0299, *Petition of Consolidated Edison Company of New York, Inc. for Implementation of Projects and Programs that Support Reforming the Energy Vision*, General Accounting Procedure (issued February 16, 2016).