



REV Demonstration Project:
Commercial Battery Storage

Q4 2020 Quarterly Progress Report

Dated: February 1, 2021

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1.0 EXECUTIVE SUMMARY

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) submits this 4th 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, FTM energy storage can be utilized to provide 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
Q4 2020 Spend: *Filed Confidentially*
Cumulative Spend: *Filed Confidentially (on budget)*



Lessons Learned: Customers

- Engagement with the City is ongoing and important to find zoning restrictions 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 is a test case for the creation of NYISO's battery aggregation rules. This collaboration will benefit the Project and the larger New York battery market.
- NYC Department of Buildings' ("DOB") 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: *Continued City engagement and New York Independent System Operator ("NYISO") collaboration. City zoning is considered carefully during site acquisition based on the evolving rules.*

Issues Identified: *A fourth site that had received New York City Fire Department ("FDNY") and DOB permits dropped out after conversations stalled on contract terms. NYISO's response to FERC Order 841 delays battery market participation and dual participation.*

Solutions Identified: *Identifying potential replacement sites and exploring variance process timelines. Worked with NYISO on pilot for market participation and proved an alternate dispatch technology is available. Implemented and tested a traditional method for NYISO dispatching in preparation for market participation.*

Recent Milestones: *a) The Caddell site in Staten Island is operational and began dispatching as of Feb 6, 2020; b) City Island completed majority of commissioning; c) Woodside started construction and progressed through the quarter; e) Completed NYISO Pilot; f) Tested end-to-end communications for NYISO dispatching, scaling issues still need to be resolved.*

Upcoming Milestones: *First 2 sites are operational. Continue construction on 3rd site. Complete 4th site lease and begin construction. Resolve scaling issues and complete final NYISO communications for dispatching.*

2.0 QUARTERLY PROGRESS

2.1 Activities Overview and Updates

Phase 1, Customer Acquisition: GIE negotiated a lease in two different sites 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.

Construction at City Island was completed in Q4, and the battery commissioning is on hold while Con Edison is completing interconnection upgrades.

In Q4, construction at the Woodside site has progressed with site excavation activities underway.

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 continues to work through scaling issues with the SCADA communications to align with NYISO basepoint formatting.

Phase 4, Market Participation: In Q4, the Project team reached out to the NYISO to schedule end-to-end testing and set up revenue meter readings in preparation for market participation. Market enrollment is still in progress and participation is expected to become available in Q2 2021.

2.2 Key Metrics

In Q4 2020, the Project team continued customer acquisition activities and made significant progress on communications integration activities. The following data support these Phase 1 metrics;

Potential Sites Identified: 670 / 200 (target)

Customers Approached: 485 / 670

Customer Intake Forms Collected: 49 / 471

Walkthroughs Conducted: 46 / 49

Sites Selected for permitting: 7 / 4 (target)

Sites with interval data: 5 / 20

2.3 Lessons Learned and Recommendations

End-to-end communications via Con Edison SCADA required updates beyond what NYISO had estimated. The team is working towards developing a resolution. Additionally, the revenue meter needs to be completed prior to participating in the NYISO market.

3.0 NEXT QUARTER FORECAST

3.1 Planned Activities

Barring continued impacts from COVID-19, the Project team expects to have two operational sites in Q1 2021. The team expects to finish construction at the Woodside location. GIE expects to complete negotiations for a lease at a fourth site.

4.0 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

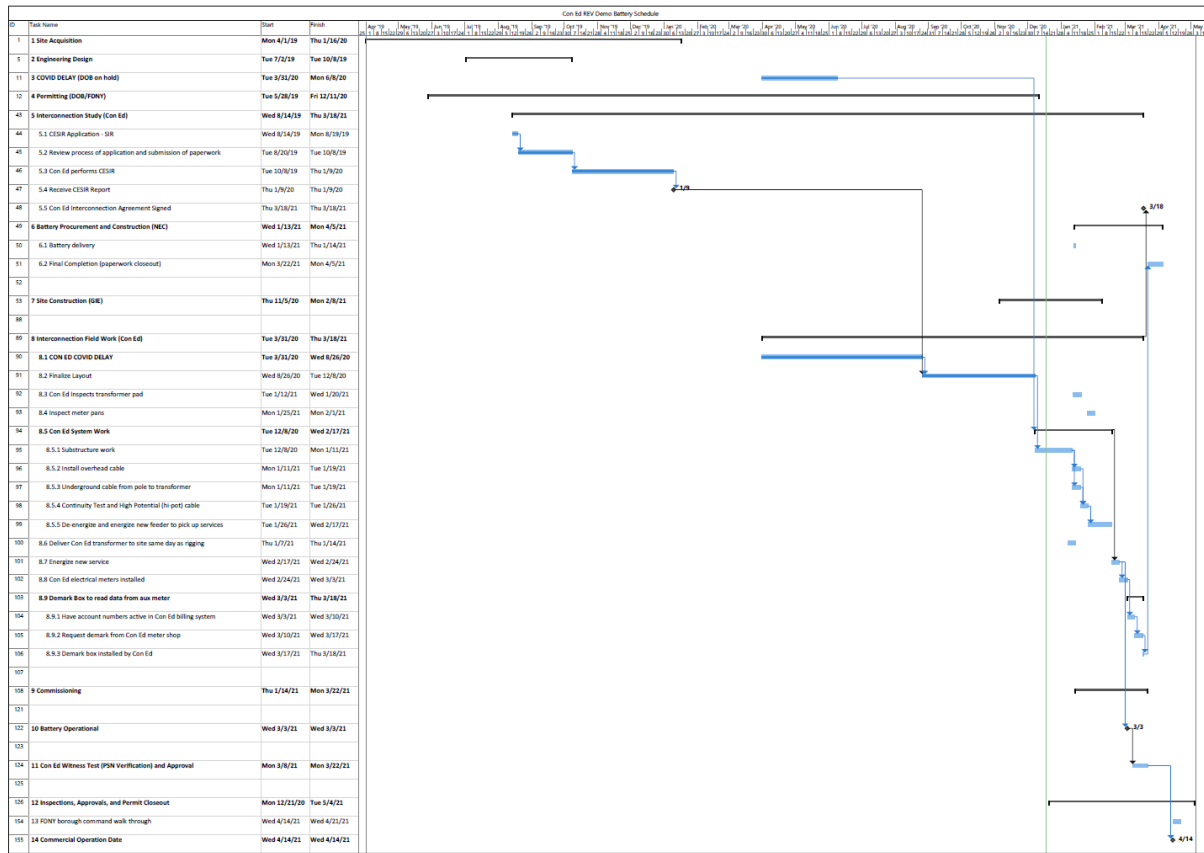
Appendix A: Commercial Battery Storage Description of Phases

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

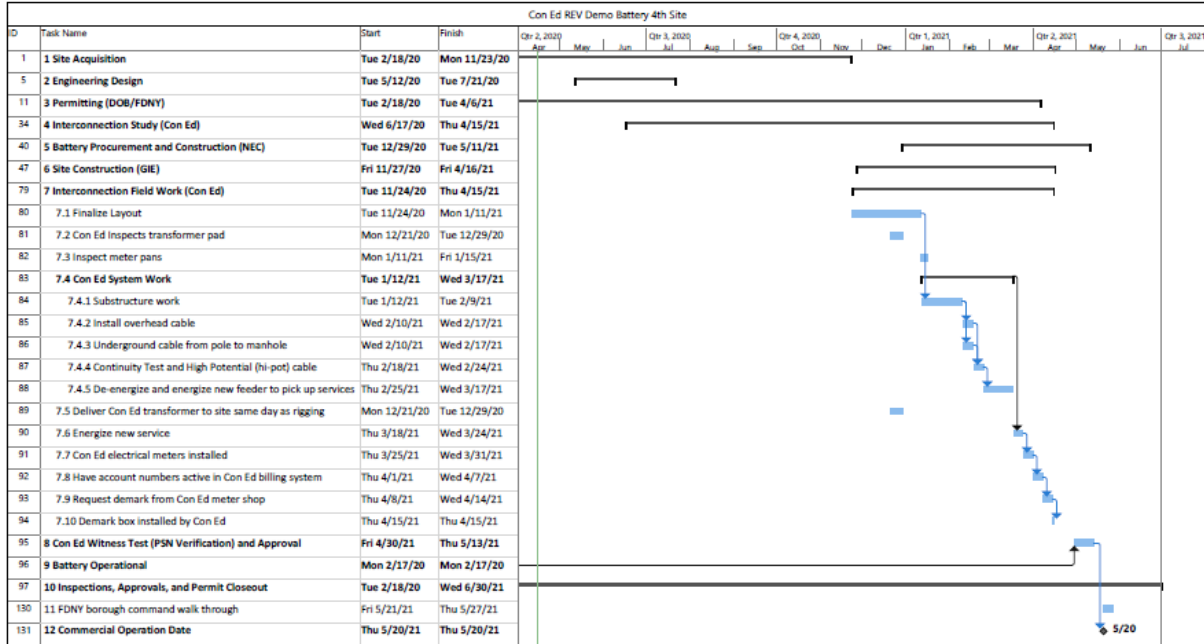
Appendix B: Work Plan

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 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).