



REV Demonstration Project:
Storage On Demand

2017 3Q Quarterly Progress Report

Dated: October 27, 2017

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1.0 EXECUTIVE SUMMARY

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) submits this quarterly report on the progress of the Storage On Demand 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.

1.1 PROGRAM ACHIEVEMENTS

On February 27, 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. In Q3 2017, the Company focused on the implementation of the Project, specifically contract execution and mobile trailer design.

1.2 CYBERSECURITY AND PERSONALLY-IDENTIFIABLE INFORMATION PROTECTION

Consistent with corporate instructions and 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. Assurance of this protection is critical in encouraging customers to sign up with new and innovative services offered by utilities.

1.3 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. 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.

1.4 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.

1.5 STORAGE ON DEMAND

The Project is designed to demonstrate how mobile storage assets can increase their useful value to the distribution system under multiple use cases such as transmission and distribution (“T&D”) deferral, low voltage support, and temporary load needs in multiple locations. The Project will also demonstrate the ability of storage to participate in and earn revenues from New York Independent System Operator (“NYISO”) wholesale markets. Con Edison is implementing the Project with its partner NRG Energy.

In Q3 2017, Con Edison and NRG continued the development of the final contract agreements and design of the mobile units. Stakeholders from across the Company collaborated to advance the Project.

2.0 STORAGE ON DEMAND – QUARTERLY PROGRESS

2.1 DEMONSTRATION HIGHLIGHTS

2.1.1 Since Previous Quarter - Major Task Completion

- **Demonstration Planning:** Executed Limited Notice to Proceed and continued discussion of contract terms.
- **Design and Construction:**
 - Met with Fire Department of New York (“FDNY”) to gather design and permitting requirements
 - Conducted several design meetings and updated design of mobile units to improve functionality.
- **Market Participation:** Began evaluation of market participation strategies and prioritization of products. Initiated conversations with NYISO on rules for mobile market participant.

2.1.2 Activities Overview

Phase 0, Demonstration Planning: Based on permitting uncertainty, the Project team executed a Limited Notice to Proceed to cover all design and permitting criteria activities required for FDNY approval. This Limited Notice to Proceed allows the Project team more time to complete the Phase 0 final transaction agreements while working on Phase 1 and Phase 2 activities in parallel. Transaction agreement discussions progressed during Q3 2017.

Phase 1, Design and Construction: The Project team conducted several cross-functional meetings to determine the optimal design criteria for the mobile units. The Project team also met with FDNY to gain insight into permitting requirements which were included in the updated design specifications. The Project team has settled on the three-trailer modular design which will increase functionality for distribution support.

Phase 2, Market Participation: The Project team began internal discussions on the different NYISO market products (energy, capacity, and ancillary services) and discussed the monetary benefits and timeline impacts of each strategy. In Q3 2017, the Project team also reached out to NYISO directly to begin discussions on the unique aspects of a mobile market participant.
















2.1.3 Key Metrics

Con Edison will begin reporting measurements of key outcomes after the midpoint of Phase 1.

2.1.4 Next Quarter Forecast




In Q4, the Project team will continue work on Transaction Agreements, with a goal to complete by Q1 2018. The Project team will also continue work on detailed engineering for the mobile unit design and permit applications, primarily Department of Buildings (“DOB”) Office of Technical Certification and Research (“OTCR”) approval, to allow for equipment procurement and build to begin in Q2 2018. This work includes interconnection applications for the applicable NYISO markets in late Q4 2017 or early Q1 2018.

2.1.5 Checkpoints/Milestone Progress

Checkpoint/Milestone	Timing*	Status
Storage On Demand Design	Phase 0 End/ Phase 1 Midpoint	  
Commercial Operation Date	Phase 1 End	  
Market Participation	Phase 1 End/ Phase 2 Midpoint	  
Distribution Support	Phase 3 Start	  
Emergency Response	Phase 3 Completion	  

*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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2.1.6 Planned Activities

2.1.6.1 Storage On Demand Design

Status: Green

Expected Target by Phase 1 Midpoint: Obtain OTCR approval; system design complete 6 months after approval

Actual by Phase 1 Midpoint: N/A

Solutions/strategies in case of results below expectations: The Project team will continually evaluate progress and engage the FDNY and DOB to incorporate any design changes required by these agencies necessary to achieving permitting. If permitting is unsuccessful, Con Edison will terminate the Project.

2.1.6.2 Commercial Operations Date

Status: Green

Expected Target by Phase 1 End: 1.5 MW/4 MWh dispatchable energy storage

Actual by Phase 1 Midpoint: N/A

Solutions/strategies in case of results below expectations: The Project team will continually evaluate the construction progress and develop a construction schedule mitigation plan if necessary.

2.1.6.3 Market Participation

Status: Green

Expected Target by Phase 1 End: Enrollment in Applicable NYISO markets

Actual by Phase 1 End: N/A

Solutions/strategies in case of results below expectations: Engage in discussions with NRG's commercial operations team. If market participation is denied, the Project team will apply for a NYISO Pilot Program for DER integration. If this participation is also rejected, NRG will dispatch assets to shadow the market and determine the potential realizable revenues.

2.1.6.4 Distribution Support

Status: Green

Expected Target by Phase 3 Start: Con Edison will finalize deployment locations and notify impacted communities.

Actual by Phase 3 Start: N/A

Solutions/strategies in case of results below expectations: Additional deployment of Storage On Demand units to create additional measurement points.

2.1.6.5 Emergency Response

Status: Green

Expected Target by Phase 3 End: The assets will be deployed to address a system contingency in an acceptable operational emergency timeframe

Actual by Phase 3 End: N/A

Solutions/strategies in case of results below expectations: Continually evaluate deployment times and identify key drivers and root causes of lags in deployment.

2.2 CHANGES TO THE PROJECT DESIGN

During Q3, the Project team decided to extend Phase 0 by executing a Limited Notice to Proceed. This allows Phases 0, 1, and 2 to run in parallel and provides more time to complete the tasks under each phase.

2.3 WORK PLAN & BUDGET REVIEW

2.3.1 Phase Review

2.3.1.1 Phase Progress

The Project team has made progress on Phase 0 (Demonstration Planning), Phase 1 (Design and Construction) and Phase 2 (Market Participation). The Project team anticipates that Phase 0 will conclude with contract execution and OTCR permitting in Q2 2018.

2.3.2 Work Plan

Act no	Activity Description	Lead	2017				2018				2019				2020				2021				2022			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Phase 0: Demonstration Planning	ConEdison																								
1.1	Obtain Commission Approval	ConEdison																								
1.2	Limited Notice to Proceed	ConEdison																								
1.2.1	Design Basis and Permitting Engineering	NRG																								
1.2.2	Permitting	NRG																								
1.2.2.1	FDNY Letter of No Objection Process	NRG																								
1.2.2.2	DOB Permit Process	NRG																								
1.3	Negotiate NRG Contract	ConEdison																								
1.4	Negotiate O&M Agreement	ConEdison																								
2	Phase 1: Project Execution	NRG																								
2.1	Detailed Engineering	NRG																								
2.2	Equipment Procurement	NRG																								
2.3	Trailer Fabrication	NRG																								
2.4	Docking Station Construction	NRG																								
2.5	Commissioning	NRG																								
3	Phase 2: QUEST Wholesale Market Participation	NRG																								
3.1	Frequency Response Participation	NRG																								
3.2	Energy Market Participation	NRG																								
4	Phase 3: ConEdison Deployment	ConEdison																								
4.1	Deploy Mobile Solution	ConEdison																								
4.2	Distribution Deferral Deployment	ConEdison																								
4.3	Wholesale Market Participation	ConEdison																								

2.3.3 Updated Budget

Budget information is being filed confidentially with the Commission.

2.4 CONCLUSION

2.4.1 Lessons Learned

There are no significant lessons learned at this early phase of the Project.

2.4.2 Recommendations

The Company recommends maintaining focus on transaction agreement execution and obtaining OTCR permits. While the Project team intends to maintain continuous dialogue with the permitting agencies, the timeline for approval has varied for previous projects. The Project team is also closely tracking the lead-time for NYISO market participation approval and will pursue all interconnection application activities to ensure timely entry into wholesale markets.

2.5 INCLUDED APPENDICES

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

Appendix A: Storage On Demand Description of Phases

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Phase	0. Demonstration Planning	1. Design and Construction	2. Market Participation	3. Distribution support
Milestone (Stage Gate to Next Phase)	<i>Negotiations to be Completed</i> <ul style="list-style-type: none"> • DPS approval • Partner contracts signed • OTCR approval 	<i>Construct and Commission 1.5 MW/ 4 MWh mobile storage</i> <ul style="list-style-type: none"> • Commissioning 	<i>Participation in Wholesale Market</i> <ul style="list-style-type: none"> • Earn wholesale market revenues 	<i>Dispatch for load relief</i> <ul style="list-style-type: none"> • Support summer peak distribution needs • Respond to emergency need
Key Elements	<ul style="list-style-type: none"> • Letter of No Objection • Subcontractors identified and engaged to begin Phase 1 	<ul style="list-style-type: none"> • Detailed engineering • Equipment procurement • Trailer fabrication • Docking Station construction • Cyber-secure communication architecture 	<ul style="list-style-type: none"> • Complete interconnection application and all relevant NYISO participation studies • Enroll assets in all available market products • Earn revenues from wholesale markets 	<ul style="list-style-type: none"> • Assets are deployed to address known distribution peak need • Assets respond to emergency distribution need • Wholesale market participation while deployed
DER Categories	N/A	<ul style="list-style-type: none"> • Mobile battery storage 	<ul style="list-style-type: none"> • Mobile battery storage • DER aggregation 	<ul style="list-style-type: none"> • Mobile battery storage • DER aggregation