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REV Demonstration Project:  
Storage On Demand

2018 1Q Quarterly Progress Report

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**Dated: April 30, 2018**

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## **1.0 EXECUTIVE SUMMARY**

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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 Q1 2018, the Company focused on the implementation of the Project, specifically contract execution, permitting and interconnection applications.

### **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 (“NRG”).

In Q1 2018, Con Edison and NRG continued the development of the final contract agreements and submitted the permit package to Fire Department of New York (“FDNY”) and interconnection application to NYISO as planned. Stakeholders from across the Company collaborated to advance the Project.

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## **2.0 STORAGE ON DEMAND – QUARTERLY PROGRESS**

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### **2.1 DEMONSTRATION HIGHLIGHTS**

#### **2.1.1 Since Previous Quarter - Major Task Completion**

- Demonstration Planning: Continued discussion of final transaction documents
- Design and Construction: Submitted permit package for FDNY and New York City Department of Buildings (“DOB”) approvals
- Market Participation: Submitted Small Generator Interconnection Request (“SGIR”) to NYISO)

#### **2.1.2 Activities Overview**

Phase 0, Demonstration Planning: Based on permitting uncertainty, the Project team has 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 Q1 2018.

Phase 1, Design and Construction: The Project team finalized the three-trailer modular design. During Q1, the Project team submitted the applicable permits to the DOB Office of Technical Certification and Research (“OTCR”). The DOB determined that while the Project still requires a Letter of No Objection from the FDNY, the assets are mobile and therefore fall outside the jurisdiction of DOB approval.

Phase 2, Market Participation: The Project team continued 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 Q1 2018, the Project team submitted the SGIR application for interconnection with NYISO and responded to additional information requests to clarify business model and relationship between the two parties.
















#### **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 Q2 2018, the Project team will continue work on transaction agreements, with a goal to complete by Q4 2018. The Project team will also continue permit discussions with FDNY to allow for equipment procurement and build to begin in Q3 2018. The Project team will also continue conversations with NYISO to ensure successful admittance into the appropriate Class Year.

## 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 six 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:** Yellow

**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

There were no changes to the project design in Q4.

## 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 Q3 2018.

### 2.3.2 Work Plan

Act no	Activity Description	Lead	2017				2018				2019				2020				2021			
			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: Wholesale Market Participation	NRG																				
3.1	Enroll Batteries in NYISO Markets																					
3.2	Frequency Response Participation	NRG																				
3.3	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 Letter of No Objection from FDNY and continuing conversations with NYISO to ensure timely admittance into the appropriate Class Year.

## **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

**Appendix A: Storage On Demand Description of Phases**

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