Distributed Generation Interconnection
REV Demonstration Project
Case 14-M-0101

Quarterly Report – Q4 2017

Dated: January 31, 2018

Table of Contents

1.0 Executive Summary

On February 14, 2017, Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid" or the "Company") filed a proposal for the Distributed Generation Interconnection REV Demonstration Project (the "Project") in Case 14-M-0101.[1] The Project is designed to test alternative solutions for increasing the pace and scale of interconnecting distributed generation ("DG") systems above 50 kW through upfront investments by the Company coupled with a cost-allocation methodology aimed at removing barriers for DG interconnection applicants. The Company proposed to test these solutions at two of its substations, Peterboro and East Golah (the "Demonstration Areas"). By letter dated April 24, 2017, New York State Department of Public Service Staff ("DPS Staff") approved the Project with modification, and directed the Company to file an implementation plan, which the Company subsequently filed on May 24, 2017 (the "Implementation Plan"). The Company filed a quarterly update for the third quarter of 2017 on November 17, 2017, indicating that the Project was proceeding on schedule. The purpose of this quarterly report is to provide an update on the Project for the fourth quarter of 2017, ended December 31, 2017. As explained below, the Project is continuing to proceed on schedule, with overall construction work now complete. The Company has started Project closeout activities and anticipates completing them by the end of the Project term.

2.0 Highlights Since Previous Quarter

2.1 Major Task Activities

The Project is proceeding on schedule. Below are Project milestones included in the Implementation Plan updated to include changes and adjustments reflected in the Q3 report and this report, as well as the current status of each milestone.

General Project Milestones		
Date	**Milestone**	**Status**
March 2017	Begin general outreach	Commenced
April 2017	Provide funding numbers	Completed
	Begin marketing the Project	Commenced
May 2017	Order long-term materials	Completed
	Develop cost per kW	Completed
August 2017	Begin site-specific outreach to developers	Commenced
October 2017	Mapping Portal (feeder)	Completed
	Develop mapping portal (land use)	Commenced
	Design Developer Survey	Completed

[1] Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision* ("REV Proceeding"), "Proposed Distributed Generation Interconnection REV Demonstration Project" (filed February 14, 2017).

January 2018	Begin emailing survey to developers	Commenced
	Complete remote net metering and billing adjustments	Commenced
February 2018	Informational meetings with local officials in Demonstration Areas	Commenced
June 2018	The Project term ends	
Peterboro Substation Milestones		
Date	**Milestone**	**Status**
February 2017	Complete initial cost estimate	Completed
July 2017	Complete $3V_0$ design and engineering	Completed
	Determine needs for switching and/or mobile substation	Completed
September 2017	Schedule civil work	Completed
	Schedule electrical work	Completed
November 2017	Schedule relay work	Completed
December 2017	Construction completion	Completed
June 2018	Project term ends	
East Golah Substation Milestones		
Date	**Milestone**	**Status**
February 2017	Complete initial cost estimate	Completed
June 2017	Determine needs for switching and/or mobile sub	Completed August 2017
August 2017	Complete $3V_0$ design and engineering	Completed
	Schedule civil work	Completed September 2017
	Schedule electrical work	Completed
October 2017	Schedule relay work	Completed
December 2017	Construction completion	Completed November 2017
June 2018	Project term ends	

The Company has completed all construction work in the Demonstration Areas. With construction complete, the Company's Customer Energy Integration – NY ("CEI") department has continued to market the Project to DG developers seeking to interconnect in the Demonstration Areas.

On November 9, 2017, CEI made a Project presentation to developers as part of the New York State Energy Research and Development Authority's ("NYSERDA") monthly conference call. Likewise, on December 6, 2017, CEI hosted a Project webinar with more than 14 developers participating. In total, National Grid received follow-up inquiries from eight different developers with interest in interconnecting approximately 8-10 MWs of capacity in the Demonstration Areas.

In addition to the outreach efforts, CEI also completed a mapping portal to help identify interconnection locations that should have minimal impact on the Company's distribution system. The Company's Economic Development department also identified parcels of land in the Demonstration Areas that have the potential to accommodate large-scale DG projects.

2.2 Challenges, Changes, and Lessons Learned

The table below lists the challenges, changes, and lessons learned since submittal of the Implementation Plan.

2017	Issue or Change	Resulting Change to Project Scope/Timeline?	Strategies to Resolve	Lessons Learned
Q3	Mapping Portal	The Company developed a mapping portal to assist developers seeking to interconnect in the Demonstration Areas by providing feeder and land-use information.	The feeder portion of the portal has been completed and is available to developers. The Economic Development department is continuing work on the land-use portion of the portal.	Additional information and tools may facilitate interconnections.
Q3	Survey Implementation and feedback		Review the evaluation survey to gather feedback from developers who chose to locate DG projects in Demonstration Areas, as well as those who chose not to.	Create a new strategy to help overcome barriers to DG development.
Q4	Disseminate information about the Project to a broader audience.	Additional efforts to engage with developers regarding the Project.	Hosted a webinar in December and participated in NYSERDA call to provide additional	The Company is seeking new and innovative opportunities to make the developer community

			information and facilitate interconnections in the Demonstration Areas. CEI working with Jurisdictional Managers to facilitate in-person meetings with local officials in the Demonstration Areas.	aware of the Project and its potential benefits.

3.0 Next Quarter Forecast

During the fourth quarter of 2017 the Project team completed construction in the Demonstration Areas, while continuing outreach efforts. For the next quarter, National Grid will begin surveying DG developers in its upstate New York service territory to gather feedback on developers' interest in interconnecting DG, as well as barriers that may prevent them from pursuing projects. A copy of the survey email, attachments, and survey instrument are included as Appendices 1 and 2. The Company commenced the survey in January 2018, and anticipates a second survey near the end of the Project term.

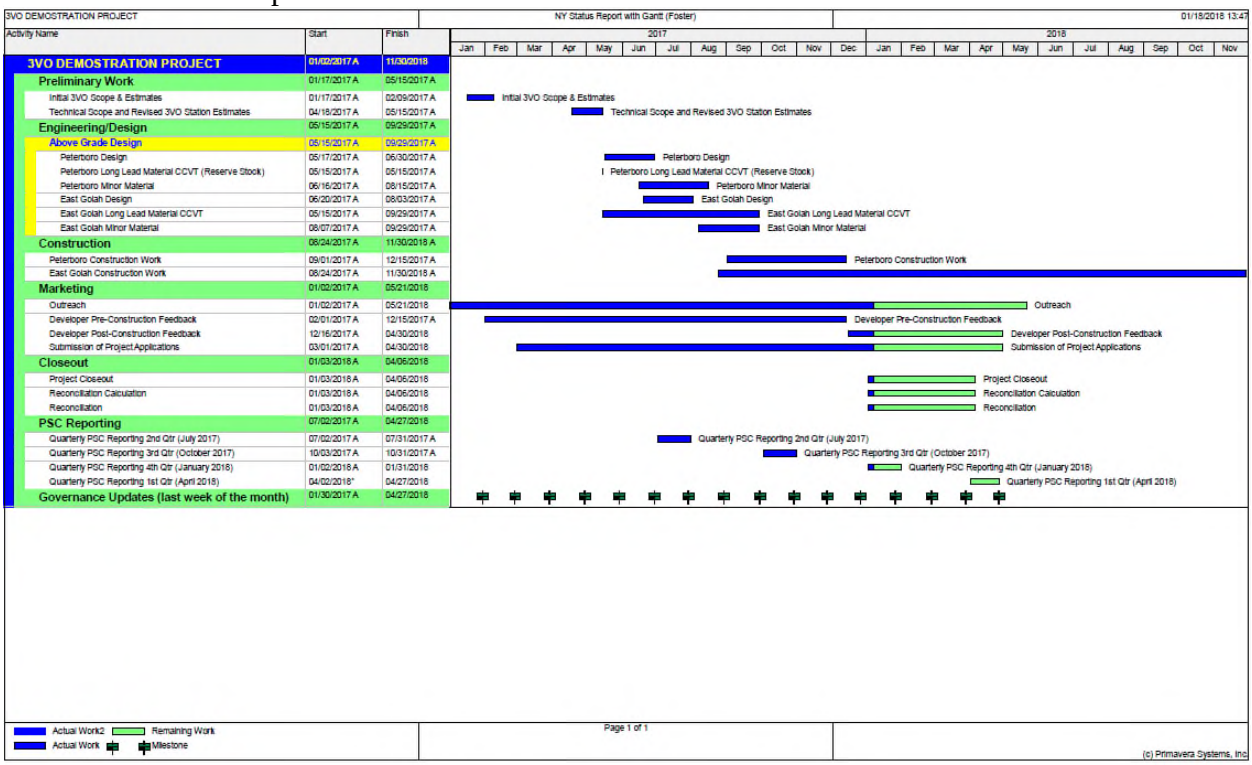
As set forth in the Implementation Plan, the Company must also adjust its billing for DG applicants based on the specifics of their respective projects. To do that, the Company initiated an effort to automate the billing process. This includes adjustments for remote net metering volumetric logic automation, which the Company implemented in July 2017. The Company anticipates completing its remote net metering monetary and community logic in the next quarter.

In addition, the Company's CEI department and its Jurisdictional Managers are coordinating in-person meetings with local officials within the Demonstration Areas to provide information about the Project and the interconnection opportunities. The Company also hopes these meetings will provide an opportunity to better understand local ordinances and permitting requirements, which will help the Company provide guidance to DG developers interested in interconnecting in the Demonstration Areas. A revised schedule is provided in Section 4.0.

4.0 Work Plan and Budget Review

4.1 Updated Work Plan

Please refer to the updated Gantt chart below.



4.2 Current Budget

A current budget is provided in the table below.

Project Task	4th Quarter Actual Spend	Project Total Spend to Date	Project Budget	Remaining Balance
CapEx				
Engineering, Material and Construction	$539,000	$1,117,000	$1,237,100	$120,100
In Service Liabilities & Closeout	$79,395	$164,534	$188,700	$24,166
OpEx				
Marketing	$ 4,500	$ 4,500	$12,000	$ 7,500
Total	**$622,895**	**$1,286,034**	**$1,437,800**	**$151,766**

5.0 Quarterly Report Template

The quarterly report template is provided below.

Quarterly Report Template	
Milestones:	
Last Project Milestone:	Construction completed.
Next Project Milestone:	Outreach; survey completion
Tasks/Timeline:	
Completed Project Tasks Since Last Quarterly Report:	Completion of overall construction.
Changes or Impacts to Schedule Since Last Quarterly Report:	No changes.
Lessons Learned:	More outreach is necessary to raise awareness of the Project.
Risks:	
Identified Risks:	Low participation of DER developers in the Project.
Risk Mitigation Plan:	Aggressive marking of the Project.
Finance:	
Total Spend to Date:	$1,286,034
Forecast Spend:	$1,437,800
Queue Status Update:	
East Golah	2 MW unit in construction. 2 MW unit remains in preliminary study phase pending resolution of application deficiencies. Anticipate 8 MW application from SolarPark Energy.
Peterboro	2 MW unit in construction. 66 kW in supplemental review. Anticipate 8 MW application from SolarPark Energy.

Appendix 1

National Grid Distributed Generation Interconnection REV Demonstration Project – Draft Survey Email with Attachments

National Grid Distributed Generation Interconnection REV Demonstration Project – Draft Survey Email with Attachments

National Grid is committed to working with our Distributed Generation (DG) stakeholders to grow the amount of Distributed Energy Resource facilities interconnected to our system.

We would like your feedback on the most recent Distributed Generation Demonstration Project, where National Grid is upgrading transformers at two existing substation locations, Peterboro and East Golah, with $3V_0$ protection. As part of the project, the cost for these upgrades will be charged at a pre-determined, pro-rating fee to all applications with DG systems above 50kW connected to the transformer.

Whether you have heard of this project or not, **please take a minute or two to fill out the following survey so that we can better assist you in the future**. Your responses will be confidential. You can link to the survey here or type in the following URL:

https://nationalgrid.qualtrics.com/jfe/form/SV_cU9oRhppzjQhCPb

Thank you,

Keri Doyle

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Reforming the Energy Vision (REV)
Distributed Generation Interconnection Project

Case 14-M-0101 Reforming the Energy Vision (REV) – Distributed Generation Interconnection Project.

Developer Contribution towards 3V0 under Current NYSIR cost sharing mechanism
Peterboro Substation, Transformer Bank 1

Based on 3V0 cost of $425,000
Customer 1 pays full cost of 3V0 until second customer arrives.
Customer 2 required to pay their pro-rata share which is refunded to Customer 1.
If Customer 3 arrives, they would pay their pro-rata share which would be refunded to Customer 1 and 2 accordingly.

Customer No	Size (kW)	Pro-Rata Share (%)	Calculated Collected Amount ($)	Initial Collected Amount ($)	Refund	Final Cost
1	2,000	66.67%	$425,000	$425,000	$140,250	$284,750
2	1,000	33.33%	$140,250	$140,250	-	$140,250

Developer Contribution towards 3V0 under Pilot Demonstration Project
Peterboro Substation, Transformer Bank 1

Savings based on 3V0 cost of $425,000 at this location
*Customer 1 savings remain the same with or without Customer 2 participation.

Customer No	Size (kW)	Developer Contribution towards 3V0 under current SIR cost sharing mechanism	Developer Contribution towards 3V0 under Pilot	Pilot Savings*
1	2,000	$425,000	$110,520	$314,480
2	1,000	$140,250	$55,260	$84,990

Developer Contribution towards 3V0 under Pilot Demonstration Project
East Golah Substation, Transformer Bank 1

Savings based on 3V0 cost of $365,500 at this location
*Customer 1 savings remain the same with or without Customer 2 participation.

Customer No	Size (kW)	Developer Contribution towards 3V0 under current SIR cost sharing mechanism	Developer Contribution towards 3V0 under Pilot	Pilot Savings*
1	2,000	$365,500	$64,000	$301,500
2	1,000	$120,615	$32,000	$88,615

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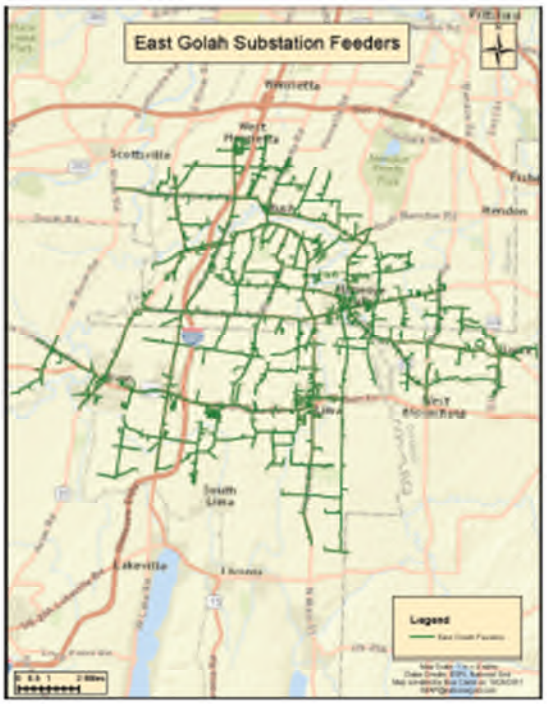
Reforming the Energy Vision (REV)
Distributed Generation Interconnection Project

Case 14-M-0101 Reforming the Energy Vision (REV) – Distributed Generation Interconnection Project.



PETERBORO STATION - CANASTOTA, NY 13032

EAST GOLAH STATION - RUSH, NY 14543

CM6914 (11/17)

Appendix 2

DG Interconnection REV Demonstration Project
Survey Instrument

Start of Block: Default Question Block

Q1 Thank you for taking the time to provide feedback on the National Grid DG $3V_0$ Demonstration Project in New York. Your feedback will help us improve this and future projects.

Note: the survey will only take a minute or two and your responses will be confidential.

Q2 How familiar are you with this $3V_0$ Demonstration Project?

- O Very familiar
- O Somewhat familiar
- O Not at all familiar

End of Block: Default Question Block

Start of Block: Not Familiar

Q3 As noted in the email, National Grid is upgrading transformers at two existing substation locations, Peterboro and East Golah, with $3V_0$ protection. As part of the Demonstration Project, the cost for these upgrades will be charged at a pre-determined, pro-rated fee to all applications with DG systems above 50kW connected to the transformer.

Q4 How interested are you in this type of project?

- O Very interested
- O Somewhat interested
- O Not at all interested

Q5 Please explain your previous answer, as well as leave your name and contact information if you would like us to contact you.

_____

_____

_____

_____

_____

End of Block: Not Familiar

Start of Block: Block 6

Q6 Thank you for your time. Please click the >> below to submit your responses.

End of Block: Block 6

Start of Block: Second set of questions

Q7 How satisfied in general are you with the $3V_0$ Demonstration Project?

- O Very satisfied
- O Satisfied
- O Neither satisfied nor dissatisfied
- O Dissatisfied
- O Very dissatisfied

Q8 Why did you say you were "${q://QID5/ChoiceGroup/SelectedChoices}" with the $3V_0$ Demonstration Project?

_____

_____

_____

_____

_____

Q9 How would you rate the following elements of the project and their importance to you?

	Very Unimportant	Unimportant	Neutral	Important	Very Important
Predictable costs	O	O	O	O	O
Time to receive cost estimate	O	O	O	O	O
Equal share of project cost	O	O	O	O	O
Location	O	O	O	O	O
Faster connection time	O	O	O	O	O

Q10 Please select your involvement with the $3V_0$ Demonstration Project:

- O I have submitted an application to participate
- O I decided NOT to submit an application
- O I have not yet decided whether to submit an application

End of Block: Second set of questions

Start of Block: Submitted Application

Q11 What are the reasons you chose to submit an application for the project?

- [ ] The land was easily financed
- [ ] The land was affordable
- [ ] The land was easily obtained
- [ ] The interconnection process is anticipated to take less time than current standards
- [ ] The utility interconnection cost was lower than costs at other National Grid locations
- [ ] The utility interconnection cost was lower than costs at other utility locations
- [ ] Other _____

Display This Question:

If What are the reasons you chose to submit an application for the project? q://QID9/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices from "What are the reasons you chose to submit an application for the project?"

Q12 What was the main reason you submitted an application for the $3V_0$ Demonstration Project? (select one)

- O The land was easily financed
- O The land was affordable
- O The land was easily obtained
- O The interconnection process is anticipated to take less time than current standards
- O The utility interconnection cost was lower than costs at other National Grid locations
- O The utility interconnection cost was lower than costs at other utility locations
- O Other _____

Q13 Please share any additional thoughts about the Demonstration Project.

_____

_____

_____

_____

_____

End of Block: Submitted Application

Start of Block: Did Not Submit Application

Q14 What are the reasons you chose NOT to submit an application for the $3V_0$ Demonstration Project?

- ☐ Unable to obtain financing
- ☐ Unable to find affordable land
- ☐ Unable to find easily accessible land
- ☐ The interconnection process was anticipated to take too long
- ☐ Cost of $3V_0$ was too high
- ☐ Utility costs were anticipated to be too high
- ☐ Project costs, excluding utility costs, were anticipated to be too high
- ☐ Found a more cost effective site at another location within National Grid territory
- ☐ Found a more cost effective site at a location outside of National Grid territory
- ☐ Other _____

Display This Question:

If What are the reasons you chose NOT to submit an application for the 3V0 Demonstration Project? q://QID12/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices from "What are the reasons you chose NOT to submit an application for the 3V0 Demonstration Project?"

Q15 What was the main reason you chose not to submit an application for the Demonstration Project? (select one)

- O Unable to obtain financing
- O Unable to find affordable land
- O Unable to find easily accessible land
- O The interconnection process was anticipated to take too long
- O Cost of $3V_0$ was too high
- O Utility costs were anticipated to be too high
- O Project costs, excluding utility costs, were anticipated to be too high
- O Found a more cost effective site at another location within National Grid territory
- O Found a more cost effective site at a location outside of National Grid territory
- O Other _____

Q16 What, if anything, could National Grid have done differently to enable you to submit an application for the $3V_0$ Demonstration Project?

_____

_____

_____

_____

_____

End of Block: Did Not Submit Application

Start of Block: Undecided About Application

Q17 Why are you undecided about whether to submit an application for the $3V_0$ Demonstration Project (select all that apply)?

- ☐ The ability to secure financing
- ☐ Finding affordable land
- ☐ Finding accessible land
- ☐ The time for the interconnection process
- ☐ The high cost of $3V_0$
- ☐ The high utility costs
- ☐ The project costs, excluding utility costs
- ☐ Need to learn more about the program
- ☐ Other _____

Display This Question:

If Why are you undecided about whether to submit an application for the $3V_0$ Demonstration Project (select all that apply)? q://QID15/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices from "Why are you undecided about whether to submit an application for the 3V0 Demonstration Project (select all that apply)?"

Q18 What was the main reason you are undecided about submitting an application for the project? (select one)

- O The ability to secure financing
- O Finding affordable land
- O Finding accessible land
- O The time for the interconnection process
- O The high cost of $3V_0$
- O The high utility costs
- O The project costs, excluding utility costs
- O Need to learn more about the program
- O Other _____

Q19 Please share any additional thoughts about the $3V_0$ Demonstration Project.

_____

_____

_____

_____

_____

End of Block: Undecided About Application