

January 31, 2018

VIA ELECTRONIC DELIVERY

Honorable Kathleen H. Burgess
Secretary
New York State Public Service Commission
Three Empire State Plaza, 19th Floor
Albany, New York 12223-1350

RE: Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV)

**NIAGARA MOHAWK POWER CORPORATION d/b/a
NATIONAL GRID: COMMUNITY RESILIENCE REV
DEMONSTRATION PROJECT – Q4 2017 REPORT**

Dear Secretary Burgess:

Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid”) hereby submits for filing its quarterly update to the Community Resilience REV Demonstration Project Implementation Plan covering the period of October 1, 2017 through December 31, 2017 (“Q4 Report”) as required by the REV Demonstration Project Assessment Report filed by the New York State Department of Public Service Staff (“Staff”) with the Commission on February 10, 2016 in Case 14-M-0101.

Please direct any questions regarding this filing to:

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National Grid looks forward to continuing to work collaboratively with Staff as it proceeds with the implementation of the Community Resilience REV Demonstration Project.

Respectfully submitted,

/s/ Karla M. Corpus

Karla M. Corpus
Senior Counsel

Enc.

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**Community Resilience
REV Demonstration Project
Potsdam, New York**

Q4 2017 Report

January 31, 2018

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1.0 Executive Summary

Under the New York Public Service Commission's ("PSC") Reforming the Energy Vision ("REV") proceeding, this Community Resilience Demonstration Project (the "Project") consist of developing financial and engineering plans for a community microgrid that, once constructed, improves the local resiliency during severe weather events in the remote Village of Potsdam ("Potsdam") in upstate New York. Potsdam and surrounding St. Lawrence County have experienced multi-day power outages as a result of microbursts and winter ice storms; most notably the "Ice Storm of 1998" which left over 100,000 customers without power for up to 3 weeks in the North Country and recently, in December of 2013, another ice storm isolated over 80,000 customers for several days.



Image 1.1 – Photo of Upstate New York after the 1998 Ice Storm¹

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid" or the "Company") has partnered with GE Energy Consulting ("GE"), OBG (formerly O'Brien & Gere) , Nova Energy Specialists, LLC ("Nova Energy") and Clarkson University ("Clarkson") to develop an engineering design and an investment grade financial model to build and operate a community resilience microgrid for Potsdam. The microgrid plan uses a robust underground distribution network and coordination of new and existing distributed energy resources ("DER"), including natural gas generators, hydroelectric generators, and a large photovoltaic ("PV") solar array. Essential infrastructure that needs to remain operational during prolonged power grid outages and which are planned to be connected to the microgrid include a hospital, the local police and fire departments, water and wastewater treatment plants, Village of Potsdam government offices, two (2) higher education institutions, a high school, a bank, a drug store, a grocery store, hotel, and a gas station.

¹ Image was taken during the aftermath of 1998 Ice Storm.

The Project includes developing a new economic model for community microgrid projects which involves hybrid ownership and operation of assets between the utility and DER owners, as well as a unique tiered tariff design that recovers the cost of the assets from the community segments that benefit from the microgrid's operation.

Concurrently, the Company will develop and evaluate new utility services and business model that may be required for further microgrid deployment in New York State. The four (4) services to be developed are:

1. Tiered recovery for storm-hardened, underground wires;
2. Central procurement for DER;
3. Microgrid control and operations; and
4. Billing and financial services.

While National Grid is leading the Project, this Project consists of a close-knit partnership effort between GE, Clarkson and National Grid. OBG and Nova Energy are also contributors via subcontracts under GE. Moreover, it will require significant input from other major Potsdam stakeholders, such as the Village of Potsdam government, the Canton-Potsdam Hospital, and the State University of New York at Potsdam ("SUNY Potsdam").



Image 1.2 – The major stakeholder partners of the Community Resilience demonstration (clockwise, from top left: Clarkson University, SUNY Potsdam, Village of Potsdam Offices, Canton-Potsdam Hospital)

During the fourth quarter of 2017 the National Grid Project team continued the major efforts of the Detailed Engineering Design and Financial and Business Plan phase (Phase 2) of the Project. The majority of the activities during Q4 2017 continued the focused engineering analysis and financial analysis refinement. Additionally, documentation and financial pro-forma for New York State Energy Research & Development Authority's ("NYSERDA"'s) NY Prize Stage 2 Scope of Work ("SOW") were undertaken. National Grid also held in-Person meetings with Tier 1A and 1B customers. The Project team held monthly team calls to discuss the status of each partner's responsibilities and progress. Other Q4 2017 activities involved making a presentation about this Project at the Microgrids 2017 conference, held in Boston, Massachusetts on November 7, 2017 and providing information for a newspaper article that appeared in the Watertown Daily Times on December 22, 2017.

2.0 Highlights Since Previous Quarter

National Grid and the key Project partners made steady progress in Q4 2017. Figure 1-1 provides a reference timeline for 2017-2018 emphasizing the major milestones and accomplishments to date. Changes and additions are highlighted in yellow and are described in additional detail in Section 3.1 below.

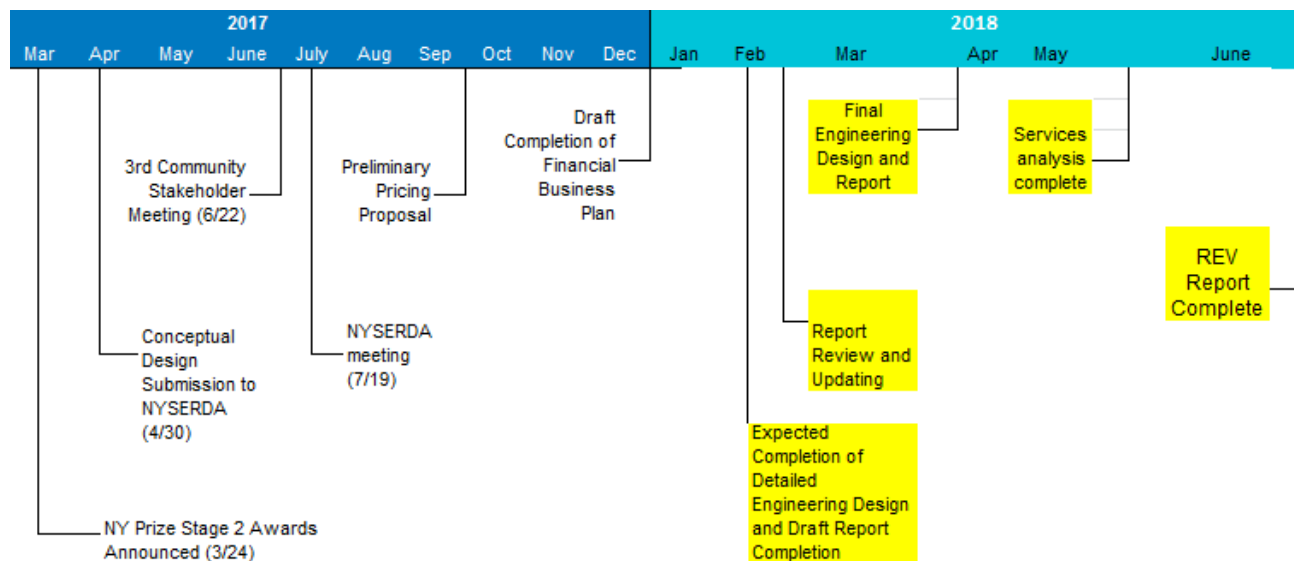


Figure 1.1 –2017-2018 Major Milestones Timeline*

**Note: National Grid will be seeking a schedule extension, as the Project schedule stated in the Project Implementation Plan was predicated on the Project Conceptual Design, performed under a NYSERDA PON, being completed in mid- 2016. The conceptual design was completed in mid-2017, which delayed progress on some aspects of the Project schedule.*

2.1 Major Task Activities

1. Stage 2 Report Preparation

Drafting of report sections continued, with GE focusing on Task 1 sections, including Microgrid Configuration and Design (Task 1.2) and the Distributed Energy Resource Analysis (Task 1.4). The Distributed Energy Resource Design (Task 5) was completed. Much of the text for the Value Proposition (Task 2.4) and External Support (Task 2.5) was also prepared. Clarkson delivered draft reports for the Commercial Viabilities of Customer (Tasks 2.2), Value Proposition (Task 2.4), and the External Support discussion (Task 2.5), which GE reviewed, edited and revised. Additionally, the Microgrid Services (Task 2.3) draft text was also prepared. GE has developed text for the benefit-cost analysis, including Facility and Customer Descriptors (Tasks 3.1), DER Characterization (Task 3.2), and Project Cost (Task 3.3); and drafted portions of the Microgrid Controls Functionality (Task 1.7) and Microgrid Control and Communications Design Tasks (1.8) report sections.

2. DER-CAM Analysis

The Distributed Energy Resources Customer Adoption Model (“DER-CAM”)² is an economic, energy balance, and environmental model that is used for determining optimum sizing of DER assets in grid-connected and off-grid microgrid systems. A more detailed description of the DER-CAM model is provided in the Q2 2017 Project report.

Refined DER-CAM Results

This quarter, the preliminary DER-CAM analysis was refined using the GE team and continued to perform multiple DER-CAM (load and supply) analyses as the microgrid configuration evolved. Scenarios refined this quarter are based on the staged-rollout (small footprint design). The additional scenarios are based on adjustments to curtailable load and inclusion/exclusion of existing generation units at Clarkson. It is expected that the Task 1.5 report section, which addresses the DER design and requires the DER-CAM analysis, may require additional revisions based on the on-going of curtailable load inclusion, existing generation availability, and the type and size of additional new generation which may require additional DER-CAM model runs.

3. Microgrid Configuration and Design

Staged Roll-out

As noted in the Q2 2017 report, while the originally-envisioned community microgrid footprint involved supporting all critical services in the Town of Potsdam, the cost of the full microgrid was determined to be economically infeasible and a staged approach to microgrid construction was subsequently developed. As noted in the Q3 2017 quarterly report, the decision was made by team members to adopt the staged roll-out approach, with Stages 1, 1b, and 2 all being constructed under Stage 1; also termed ‘the smaller footprint.’ This approach allows the construction investment to occur over an extended period of time. Once selected, this decision was communicated to all members of the Project Team so that they could proceed with their tasks accordingly.

Data in Table 2.1 below describes the staged approach, while Figure 2.3 that follows provides a geographic location of each stage.

² See Distributed Energy Resources Customer Adoption Model (“DER-CAM”), available at: <https://building-microgrid.lbl.gov/projects/der-cam>.

Stage	Start/Finish Point	Route (Streets)	Load Connections	Generation Connections
Stage 1	Clarkson University (feeder 51) to Village Civic Center	Maple St. -> Main St.	Clarkson University, Kinney Drug Store, Stewart's Shops Gas Station, The Clarkson Inn, North Country Savings Bank, IGA Grocery, Civic Center/Rescue Squad	West Dam Hydro and Clarkson's new DERs, one available
Stage 1b	Maple St. to East Dam Hydro	Market St. -> Raymond St.	Stage 1 + Water Treatment Plant	West Dam Hydro + East Dam Hydro
Stage 2	Village Civic Center to Canton-Potsdam Hospital ("CPH")	Park St. -> Elm St. -> Lawrence Ave. -> Leroy St.	Stage 1 + Potsdam High School and CPH	West Dam Hydro + East Dam Hydro
Stage 3	CPH to Wastewater Treatment Plant	Grove St. -> Cherry St. -> Lower Cherry St.	Stage 2 + Wastewater Treatment Plant	West Dam Hydro + East Dam Hydro
Stage 4	Village Civic Center to SUNY Potsdam	Main St. -> SUNY at Morningside Dr.	Stage 3 + SUNY Potsdam	West Dam Hydro + East Dam Hydro + SUNY CHPs
Stage 5	SUNY Potsdam to solar PV via overhead line	Morningside Dr. -> Elm St.	Stage 4 + PV	West Dam Hydro + East Dam Hydro + SUNY CHPs + PV
Stage 6	Clarkson to National Grid Service Center	Pine St.	Stage 5 + National Grid Service Center	West Dam Hydro + East Dam Hydro + SUNY CHPs + PV

Table 2.1 – Staged Roll-Out Approach



Figure 2.3 – Staged Roll-Out Approach Map

Engineering Design of Staged Roll-out

One-line diagrams for the large (full build-out) microgrid and small footprint (staged approach footprint through Stage 2) microgrid developed during Q3 2017 were updated based on input from other team members. Concurrently, GE's Grid Automation team continued to make progress designing the microgrid controller and communications system. Working with Nova Energy, GE also initiated work on power distribution system modeling and simulation, while continuing their analysis of harmonics and flicker. GE made extensive progress on the Power Distribution Systems Design (Task 1.6).

GE's GE Grid Automation team made progress on the Microgrid Controls Functionality (Tasks 1.7) and the Microgrid Controls and Communications Design (Task 1.8), interfacing with National Grid's engineering staff. Additionally, the GE team worked extensively with Nova Energy on the Power Distribution System Modeling, Simulation, and Harmonics section (Task 1.10) and the Flicker Studies analysis (Task 1.11).

Cost Estimates of Staged Roll-out

The Project team did not make updates to the previously reported approximated construction cost estimate of each the six (6) stages during Q4 2017. The approximated construction cost estimates of \$8.79M for the smaller footprint and for the \$13.465M³ will be updated following finalization of the system design and equipment specification.

Regulatory Developments

Pursuant to the PSC's Value of Distributed Energy Resources ("VDER") proceeding⁴, the Project team continued to monitor development of value stack determinations and filings by NY PSC during this quarter as they relate to implications for the Potsdam Community Microgrid. There were no significant VDER-related developments by the PSC identified this quarter.

4. Customer Base - Tiered Recovery

The Project team developed two (2) detailed cost estimates for the smaller foot print microgrid (Stages 1, 1b and 2) in Q3 2017. One estimated is based on installing an enhanced breaker design, costing \$13.46M, while the other estimate was based on installing a standard design, costing \$8.79M. The enhanced design uses a highly robust system of breakers and switches. A benefit-cost analysis was started in Q3 2017 to determine the benefit of the additional breakers. Additionally, a one-line drawing was developed to be used in an analysis to determine if additional breakers are necessary for the microgrid to be energized in sections rather than all at once during the start of an islanding event.

³ These costs could decrease if any funding were awarded through external sources, such as the NY Prize Stage 3.

⁴ See Case 15-E-0751 *et al.*, *In the Matter of the Value of Distributed Energy Resources* ("VDER Proceeding") *et al.*, Order on Phase One Value of Distributed Energy Resources Implementation Proposals, Cost Mitigation Issues, and Related Matters (issued September 14, 2017) ("VDER Phase One Order").

The potential bill increase percentage resulting from constructing Stages 1, 1b, and 2, using the higher and lower cost estimates were previously developed. These costs are only for the distribution network and controller; and do not include additional DER resources. A cost recovery approach for additional generation has not yet been selected.

5. Financial Model Development

Critical to the Project’s value proposition is National Grid’s preliminary pricing proposal, currently under refinement now that the staged roll-out approach has been selected. The preliminary pricing proposal will provide the Company the opportunity to explain the pricing of each of the four (4) proposed services to Project partners and stakeholders. The final version of the tiered recovery of the underground wires network will also be included.

6. Stakeholder Outreach

Outreach to all three Tier 1a and several 1b Project stakeholders was conducted to apprise them of the decision to initially use the smaller staged construction approach consisting of Stages 1, 1b and 2. In addition, stakeholder outreach to the Tier 1 customer that will not be included in the initial construction, despite previously committing to the Project, was conducted because it will be connected during a future microgrid construction stage.

2.2 Challenges, Changes, and Lessons Learned

The following issues or changes occurred during Q4 2017.

Issue or Change	What was the resulting change to Project scope/timeline?	Strategies to resolve	Lessons Learned
Customer interest in Microgrid participation fluctuates	One (1) customer’s interest has receded now that they more fully understand the perceived versus actual community benefit, in relation to their connection cost. Another customer is developing expansion plans within the next five (5) years, which if constructed, will require additional generation. One (1) additional customer was identified by the Project team,	The underground design must possess flexibility to accommodate the addition and subtraction of customers. Also, a procedure for developing a customer addition fee needs to be created, as each addition’s construction cost is unique based on several physical and electrical parameters.	Management staff changes, overall Project impact understanding, and Project design evolution all can impact participation interest level. The engineering design must therefore be sufficiently flexible to accommodate participation and generation requirement changes.

3.0 Next Quarter Forecast

In the first quarter of 2018, the Project team will continue its efforts on the business modeling and detailed engineering design with its partners using the NYSERDA NY Prize SOW as a guide. Detailed explanations of the proposed provisions of the microgrid, such as fuel specifications, current generation sources, future generation needs, as well as other general information, will be documented for the NY Prize Stage 3 RFP response.

Outreach to the Tier 1a Project stakeholders will be conducted to apprise them of the decision to initially use the smaller staged construction approach consisting of Stages 1, 1b and 2.

Adjustments to the Phase 1 assumptions and calculations will be made in response to results of Project data analysis become available.

Cost estimate adjustments based on the staged construction configuration will continue. This includes estimated duct and cable footage, number of manholes and switchgear, and labor costs. There are three (3) configurations of breakers and switches currently under evaluation; they vary in cost and level of robustness they offer to the overall microgrid. A final breaker and switchgear configuration will be selected based on, both the breaker requirements needed for the microgrid's cutover to islanding mode, as well as the benefit/cost of the robustness degree needed for grid operation during island mode. While originally planned for completion in Q4 2017, both the benefit/cost analysis and islanding breaker requirement determination are now scheduled for completion in Q1 2018 due to the extensive analysis required.

The Project team will continue to work on the business and governance model based on the initial construction consisting only of the Stage 1, 1b, and 2 to present a clear and compelling case that the benefits to the community, stakeholders, and utility outweigh associated costs and risks.

The draft report writing tasks will be completed and submitted to National Grid for review. Provided the report preparation schedule is met by GE, National Grid will review the report and obtain updates from GE, with the final report being prepared by the end of Q1 2018.

National Grid will commence preparing a memorandum of understanding (MOU) which details customer acceptance of the four new services. Currently, presentation of the description of these services to Tier 1a and 1b and Tier 2 customers to determine which services they accept is expected to be conducted in Q2 2018.

3.1 Checkpoints/Milestone Progress

	Checkpoint/Milestone	Anticipated Start-End Date	Revised Start-End Date	Status
1	Clarkson University NYSERDA PON Study (<i>Conceptual Design</i>)	10/2015 – 6/30/16	10/2015 – 10/31/16	● Complete
2	Initial Engineering Design Recovery Plan (<i>Tiered Recovery Plan</i>)	4/6/2016 – 7/26/16	5/1/2016 – 9/30/16	● Complete
3	Preliminary Service Proposal & Pricing (<i>Pricing Proposal</i>)	7/01/16 – 11/01/16	11/01/16 – 3/31/18	● Ongoing
4	Phase 2 Completion (<i>Detailed Engineering Design and Business Plan</i>)	3/16/16 – 6/30/17	10/1/16 – 3/31/18	● Ongoing
5	Go/No Go Testing	4/11/18 – 6/30/18	4/1/18 – 6/30/18	● Not Started
Key				
● On-Track				
● Delayed start, at risk of on-time completion, or over-budget				
● Terminated/abandoned checkpoint				

1. Clarkson University NYSERDA PON Study – Task 4 (*Conceptual Design*)

Status: ● - Complete

Start Date: 10/2015

End Date: 10/31/16

Given all research tasks associated with the NYSERDA study are now complete, the Project team considers this Conceptual Design checkpoint complete. The Clarkson team completed the final Report on April 30, 2017. A final close-out meeting with NYSERDA was held on July 19, 2017.

2. Initial Engineering Design Recovery Plan (*Tiered Recovery Plan*)

Status: ● - Complete

Start Date: 5/1/16

End Date: 9/30/16

While continued adjustments of the microgrid design will ultimately affect the results of the tiered recovery, the approach and design of the recovery mechanism is not expected to change during the Project. Therefore, the Project team considers this checkpoint complete.

3. Preliminary Service Proposal and Pricing (*Pricing Proposal*)

Status: ● - Ongoing

Start Date: 11/1/16

End Date: 3/31/18

National Grid offers this milestone as an opportunity to present the preliminary service and pricing offerings to stakeholders. The Project team has continued to form and analyze a pricing strategy for the microgrid during Q1, Q2, and Q3 2017. Pricing options will be finalized in a manner to be conveyed to stakeholders. This task is predicated on completion of the project report by GE. The adjusted timeline shifts this task into the first quarter of 2018.

4. Phase 2 Completion (*Detailed Engineering Design and Financial and Business Plan*)

Status: ● - Ongoing

Start date: 10/1/16

End date: 3/31/18

National Grid continues to partner with GE and OBG to work on the Detailed Engineering Design and Financial and Business Plan Assessment in line with NY Prize Stage 2. GE is subcontracting with Clarkson and Nova Energy to perform some of the tasks that are outside of GE's area of expertise.

As mentioned in previous Quarterly Reports, the Project team anticipated most of this milestone to be completed by the end of 2017. Project reporting will be completed in Q1 2018. The end objective of this Project continues to be collection and compilation of the data necessary to enable preparing a compelling NY Prize Stage 3 funding application. Based on information currently published on the NYSERDA website, NYSERDA will announce the Stage 3 RFP in May 2018. This allows the Project team sufficient time to complete the tasks associated with NY Prize Stage 2 and develop the detailed engineering design and financial and business plan assessment.

5. Go/No Go Decision

Status: ● - Not Started

Start date: 4/1/18

End date: 6/30/18

The culmination of the preceding efforts conducted under this Project will be a go/no go decision made by the proposed Potsdam Microgrid customers and community leaders. This task consists of conducting stakeholder engagement efforts to determine which of the four (4) services offered under this Project the customers and community leaders will accept from National Grid.

4.0 Work Plan & Budget Review

4.1 Updated Work Plan

The updated Gantt chart from Project Implementation Plan is presented on the following page.

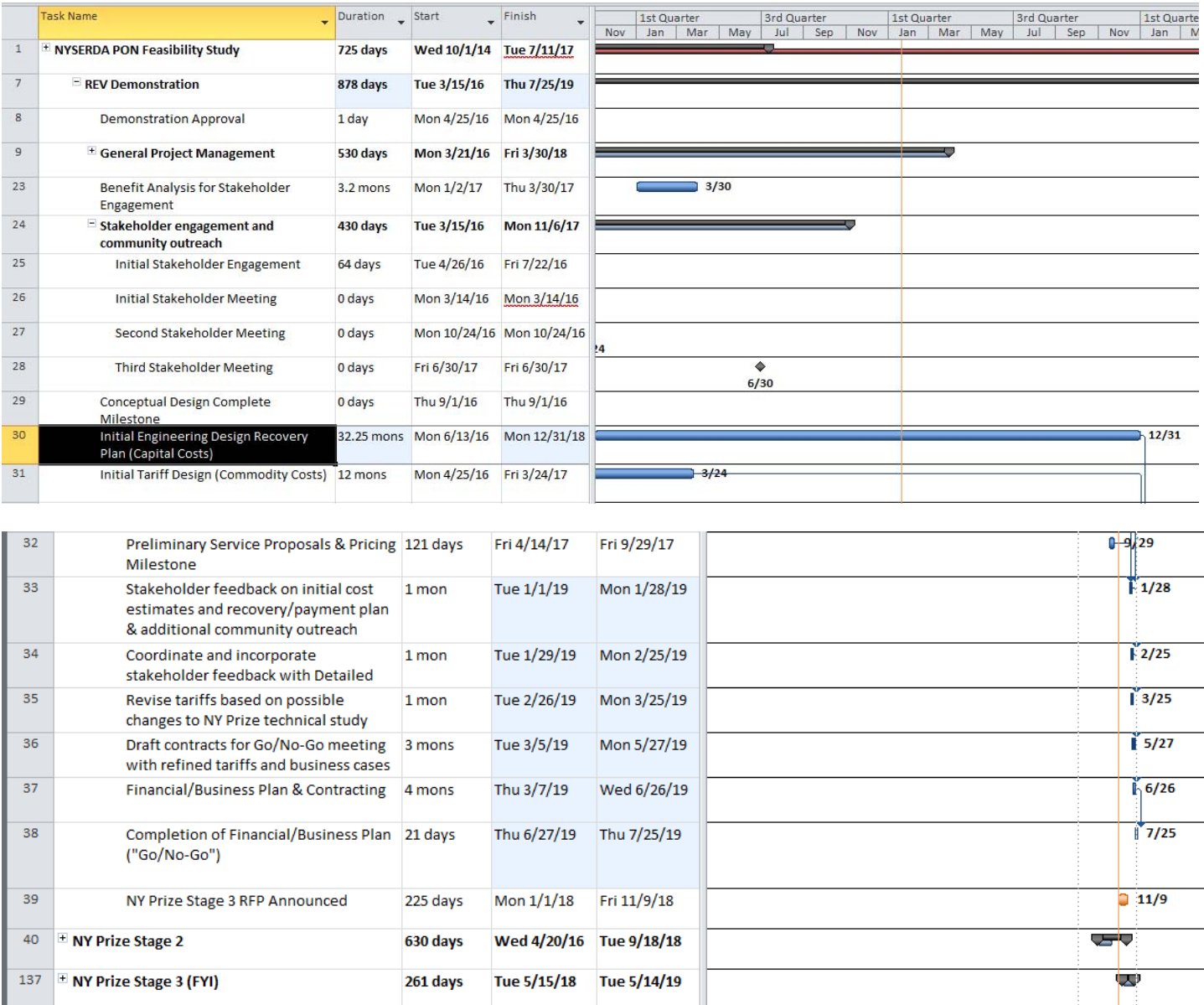


Figure 4.1 – Updated Gantt Chart from Project Implementation Plan

4.2 Updated Budget

Table 4.1 below displays the updated total expenditures through December 31, 2017.⁵

Project Task	4 th Quarter Actual Spend	Project Total Spend to Date	Project Budget	Remaining Balance
CapEx				
	\$0	\$0	\$0	\$0
Grants Credited Against Incremental Capital Costs				
n/a	n/a	n/a	n/a	(\$) n/a
OpEx				
Project Administration and Planning	\$14,090	\$322,093	\$131,000	(\$191,093)
Marketing and Community Engagement	\$8,864	\$52,784	\$200,000	\$147,216
Implementation	\$6,561	\$73,555	\$275,000	\$201,445
Audit Grade Detailed Engineering Design	\$45,677	\$266,798	\$1,000,000	\$733,202
Total	\$75,192	\$715,226	\$1,606,000	\$890,770

Table 4.1 – Updated Budget

The incremental costs associated with the Project as of December 31, 2017 total \$239,178. Continued monitoring and reporting of incremental costs will be included in subsequent Quarterly Reports.

Now that the Project has moved from the initial planning and Conceptual Design phase and into the Detailed Engineering Design and Implementation phase, the budget has shifted reliance to the latter's expense line items. While the majority of the Project Administration and Planning budget has been depleted, the Project team will continue to record expenses in this category to track categorical administrative expenses of the Project.

Note that much of the effort by the consultants has not yet been invoiced because the necessary reporting milestones have not yet been met. These milestones will be met in Q1 2018, with invoicing to follow.

⁵ The Company updated the Project budget to reflect incremental costs, and to illustrate costs that are capital or operating expenses.

5.0 Progress Metrics

The Project participant load size, participant quantity, and linear length of the microgrid dictate the projected cost and configuration of the microgrid construction. This section of the Quarterly Report tracks the current projected cost range of the microgrid depending on the most recent engineering design estimates, as well as the projected resiliency duration of the detailed design.

5.1 Total Cost of Microgrid

The total estimated cost of the microgrid has not changed from Q3 2017, as displayed in Table 5.1 below. Additionally, the staged rollout approach (described in Section 2 above) changes the timing of the expenditures and ultimately affects the successful business plan of the microgrid. Explanation of the staged rollout can be found in Section 2.1. Updated costs for each stage will be conveyed in future Quarterly Reports.

Metric	As of Q3 2016	As of Q4 2016	As of Q1 2017	As of Q3 2017 – Stages 1, 1B, and 2	As of Q4 2017 – Stages 1, 1B, and 2
Projected Cost Range of Microgrid Construction	\$35M - \$60M ¹	\$26.4M - \$61.3M ²	\$26.4M - \$61.3M ²	Not Determined	<\$25M
Underground Wire Cost Range	\$11.3M - \$11.8M	\$7.4M - \$12.0M	\$15.4M - \$23.8M ³	\$8.79M – \$13.465M	\$8.79M – \$13.465M
Projected Resiliency Duration	14 Days	14 Days	14 Days	14 Days	14 Days

¹ Range includes three (3) generation equipment options and two (2) distribution equipment options.

² Range includes three (3) generation equipment options and three (3) distribution equipment options.

³ Range includes cost of equipment and installation. Previous estimates only included equipment costs.

Table 5.1 – Cost of Microgrid

5.2 Tiered Recovery Population

There were no changes to the tiered recovery population stated in the Q3 2017 quarterly report, Customer counts are displayed in Table 5.2.

	Commercial	Residential	Total
Tier 1	12	0	12
Tier 2	404	2,171	2,575
Tier 3	480	2,945	3,425
Tier 4	235	3,360	3,595
Tier 5	1,394	12,736	14,130
Total	2,513	21,212	23,725

Table 5.2 – Tiered-Recovery Customers

Other metrics may be added to subsequent Quarterly Reports as they become more relevant as the Project progresses.

Appendix A

The following article was published in the Watertown Daily Times on October 30, 2017.

Watertown Daily Times

Micro-grid planning for Potsdam continues

By [ABRAHAM KENMORE](#)
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PUBLISHED: MONDAY, OCTOBER 30, 2017 AT 5:15 AM

POTSDAM — Work on the Potsdam micro-grid, a self-contained system to provide power to the town in the event of an emergency, is continuing.

Researchers at Clarkson University, led by Thomas H. Ortmeyer, professor of electrical and computer engineering, have completed an initial cost-benefit analysis, which was funded by New York State Energy Research and Development Authority and National Grid. The report is in the final editing stage, and should be published by the end of the year.

This initial report was funded as part of NYSERDA's Electric Power Transmission and Distribution Smart Grid Program, and is one of seven such projects around the state that have received \$3.3 million in state funds. Potsdam secured \$381,000 for the new grid.

"As a result of that project, National Grid proposed the micro-grid as one of their REV projects," Mr. Ortmeyer said.

In 2015 National Grid chose four demonstration projects across the state for the statewide Reforming the Energy Vision. One of these demonstrations was examining the feasibility of the Potsdam micro-grid, and the research for this report is ongoing.

"It's an interesting project that's keeping us very busy," Mr. Ortmeyer said.

The next steps for the project include reaching out to local stakeholders and figuring out how much each aspect of the project will cost. They also plan to apply for NY Prize Funding, which could provide up to \$5

million — not enough to cover the cost of the micro-grid, according to Mr. Ortmeyer, but enough to make the project feasible.

The micro-grid would connect existing sources of power generation in the town to vital resources through underground wires, which would allow vital services to continue even in the event of a major power loss.

The resources would include Clarkson's solar farm, SUNY Potsdam's gas-fired heat and power plant and the village's hydroelectric dams. Mr. Ortmeyer says plans include both dams, even though the East Dam continues to be offline due to malfunctions.

The electricity would allow vital services like the freshwater and wastewater treatment plants to continue, along with the hospital, police and fire department. Some businesses would be included as well, including possibly a grocery store, a bank, a pharmacy, a gas station, and a hotel.

Source: Watertown Daily Times, October 30, 2017:

<http://www.watertowndailytimes.com/news05/micro-grid-planning-for-potsdam-continues-20171030>

Appendix B

The following article was published in the Watertown Daily Times on December 22, 2017.

Watertown Daily Times

Microgrid project continues in phases, with or without East Dam

By [ABRAHAM KENMORE](#)
AKENMORE@WDT.NET

PUBLISHED: FRIDAY, DECEMBER 22, 2017 AT 5:15 AM

UPDATED: FRIDAY, DECEMBER 22, 2017 AT 2:43 PM

POTSDAM — Work on the microgrid, Potsdam’s backup energy system, may be implemented in phases.

At the village Board of Trustees meeting, Administrator Gregory O. Thompson said he had met with Richard Burns, a manager at National Grid, to discuss the ongoing work on the microgrid.

“To say the least, they’re very excited about the concept of us getting East Dam hydro back on track, as well as explaining that due to financial concerns, the implementation of the micro grid would take on a little different appearance,” Mr. Thompson said. “They’re going to phase it in over a period of time, rather than just whole hog going at everything.”

The possibility of a phased project was first mentioned in a quarterly report from National Grid to the Reforming Energy Vision initiative, a program of the state Department of Public Services that is funding National Grid’s work, in July of this year.

“The initial project was very large,” said Jonathan Nickerson, project manager for the microgrid at National Grid. “It’s easier to take a project like this and break it down into logical increments.”

If the first phase is ready to implement before the East Dam is back online, however, work will still go ahead. One of two hydroelectric dams owned by the village, the East Dam malfunctioned shortly after being put into operation and has stood idle for several years. Last week, the village announced they had received \$750,000 in a community development block grant to repair it, which along with funding secured by Assemblywoman Addie A.E. Jenne, D-Theresa, gives the village \$1 million of the \$1.8 million project.

“Getting that community development block grant really put us over the top in terms of getting our financing together,” said Fredrick J. Hanss, planning and development director. According to Mr. Hanss, the grant has a two-year time frame to do the work. Mr. Thompson had an even more optimistic goal of having the dam running within the year, meaning it would likely be back online before any implementation of the microgrid.

“The idea behind the microgrid relies heavily on both dams,” Mr. Thompson told the Times.

The quarterly report from July shows the East Dam being included in the second phase of the project, labeled 1b, which would likely be implemented together with phase 1. But while the East Dam is expected to be part of the microgrid, work will go ahead regardless of when it comes back online.

“I think it’s wonderful the funding is coming through” for the dam, Mr. Nickerson said. “But at this design stage, we have to design with what’s online.”

If the microgrid is begun before the dam is ready, it can be added in a later phase.

Mr. Nickerson expects the National Grid REV project, which is focusing on the engineering design and financial planning for the project, will be finished by next spring. It will not only provide an overview of the cost, but also lay out the system of underground wiring that will connect sources of power generation — the village dams, Clarkson University’s solar farm and SUNY Potsdam’s gas-fired heat and power plant — to basic community resources, such as the fire and police department.

“It’s the heart of the whole project, that underground system,” Mr. Nickerson said, adding that this is not something you can implement “off the shelf.”

Until National Grid finishes its work, there is no estimate for how much the project will cost or when work might begin.

Source: Watertown Daily Times, December 22, 017:

<http://www.watertowndailytimes.com/news05/microgrid-project-continues-in-phases-with-or-without-east-dam-20171222>