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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: FRUIT BELT NEIGHBORHOOD SOLAR 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 Fruit Belt Neighborhood Solar REV Demonstration Project Implementation Plan covering the period of October 1, 2017 to December 31, 2017 ("Q4 2017 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 December 2, 2015 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 Fruit Belt Neighborhood Solar REV Demonstration Project.

Respectfully submitted,

/s/ Kara M. Corpus

Karla M. Corpus
Senior Counsel

Enc.

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Fruit Belt Neighborhood Solar

REV Demonstration

Q4 2017 Report

January 31, 2018

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1.0 Executive Summary

The Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid") Fruit Belt Neighborhood Solar REV Demonstration Project ("Demonstration Project" or "Project"), through the partnership with Buffalo Niagara Medical Campus ("BNMC"), Solar Liberty, and the New York State Energy Research and Development Authority ("NYSERDA"), provides solar-generated energy and financial benefits to low-to-moderate income ("LMI") customers while delivering grid efficiencies to the local electric distribution system.

The LMI customer segments have a very low penetration of solar photovoltaic ("PV") systems due to various economic barriers. National Grid is promoting utility-owned "in front of the meter" solar PV equipment mounted on residential roofs and roofs of faith-based and community non-profit buildings located within the Project area, and passing on the economic benefits directly to solar PV host customers through a monthly electric bill credit for the lifespan of the solar PV system. Additionally, up to fifty (50) non-hosting residential customers will be selected through a lottery system to receive a bill credit for two (2) years.

The Project consists of installing residential solar PV systems, ranging in size from three (3) kW to twenty-five (25) kW per system, totaling 500 kW or 0.5 MW of solar PV generation capacity equipped with microinverters within a single neighborhood. This approach provides a real life scenario for exploring the technical aspects of enhancing grid efficiency. The Project also explores the social aspects of building positive relationships within the Fruit Belt community resulting from the effort to increase energy awareness and Project participation.

This Demonstration Project is testing the following hypotheses:

- Leveraging utility ownership model to bring solar PV to underserved LMI segment will expand and animate the market for third-party solar installers;
- Providing solar bill credits to participants in a LMI neighborhood, as well as partnering with NYSERDA to deliver energy efficiency ("EE") programs to further drive energy bill savings, will have a positive impact on bill payment behavior and enable customers to better manage their arrears; and
- Concentrating distributed solar PV resources with reactive power support within an area served by a common substation (versus scattered deployment of conventional solar PV) will deliver measurable grid efficiency benefits.

The Project also aims to develop an understanding of the drivers for cost efficiency and scalability for a utility-owned model, the corresponding economic and job creation impact, and the overall LMI customer perception of renewables, energy efficiency, and the customer-utility relationship.

Progress to Date and Planned Q1 2018 Goals

Solar Installations:

Progress continued on this Project during Q4 2017 in the areas of customer/non-profit organization engagement; conducting structural, electrical, and roofing reviews and permitting, solar PV system installation, and system interconnection to the grid. As of the end of Q4 2017:

- Fifty-five (55) residential solar PV systems have been installed and are connected and commissioned;
- Seven (7) more residential solar PV systems are connected to the grid and are awaiting City of Buffalo approval before commissioning;
- Three (3) residential solar PV systems are in the building permit process;
- Two (2) residential solar PV systems are permitted and build-ready;
- Two (2) residential, one (1) faith-based and two (2) community non-profit organizations' solar PV systems are installed and awaiting electrical connection.

Customer Engagement:

Customer engagement activities included in-person meetings with non-profit organization representative and interfacing with residential customers who own a home requiring roof replacement prior to being deemed solar ready.

Special efforts were focused on reaching those who previously committing to complete their roof replacement, but had not yet done so. Additionally, certain customers who had previously declined to enroll were re-visited to learn whether or not they would reconsider their decision.

Grid Impact Analysis by GE:

General Electric Global Research ("GE"), the consultant contracted to evaluate grid effects resulting from the solar PV installations, updated their draft baseline power use model and submitted their draft report.

Energy Efficiency Implementation by NYSERDA:

National Grid issued a purchase order to NYSERDA per the agreement between NYSERDA and National Grid for the provision of EE services in the Project area. NYSERDA subsequently commenced the process of providing those EE services through its established set of programs and contractors.

As more fully set forth below, the remaining construction efforts are planned for Q1 and Q2 2018 based on expected weather conditions in those two (2) quarters. Engagement of faith-based organization and community nonprofit-owned building managers will continue as the process of solar PV system connection and inspections are undertaken at these buildings. Additionally, engagement efforts will continue with those customers whose systems were not installed in 2017, but which will be installed in 2018 pending permitting and suitable prevailing weather conditions.

The solar PV system installation schedule goal was to install and connect the 500 kW of

generating capacity planned for the Project by the end of Q4 2017, pending timely building permit issuance and minimal weather constraints, and provided roof replacement work was completed by the end of October or early November 2017. Two (2) factors prevented reaching this goal; inclement weather and incomplete re-roofing. One (1) faith-based non-profit organization did not receive its roof replacement financing until November, at which time the prevailing weather conditions were unsuitable for the type of roof replacement needed. Additionally, two (2) customers who had committed to roof replacement did not complete their replacement by the end of November 2017, primarily due to financial constraints. Lastly, one (1) house is build-ready but the owner has not re-activated the electric account for a new tenant. By re-contacting customers previously declining enrollment, and by contacting customers who had expressed participation interest to the Fruit Belt Coalition, three (3) customers enrolled. While the field inspection work was completed on each of these houses, the permit application process was not completed before the end of 2017.

The grid efficiency effects evaluation by GE will continue throughout 2018.

As solar PV installations were not one hundred percent (100%) complete by 12/31/17, the bill credit pool lottery was divided into two (2) events. The first was held in Q4 2017, based on the installed kW as of 12/31/17.Those recipients will be notified in Q1 2018. The second bill lottery event will be held following commissioning of all remaining PV systems installed under this Project. Furthermore, the arrearage effect analysis will commence in Q12018. NYSERDA will continue executing its EE program offerings for Fruit Belt customers who have enrolled in the EE program.

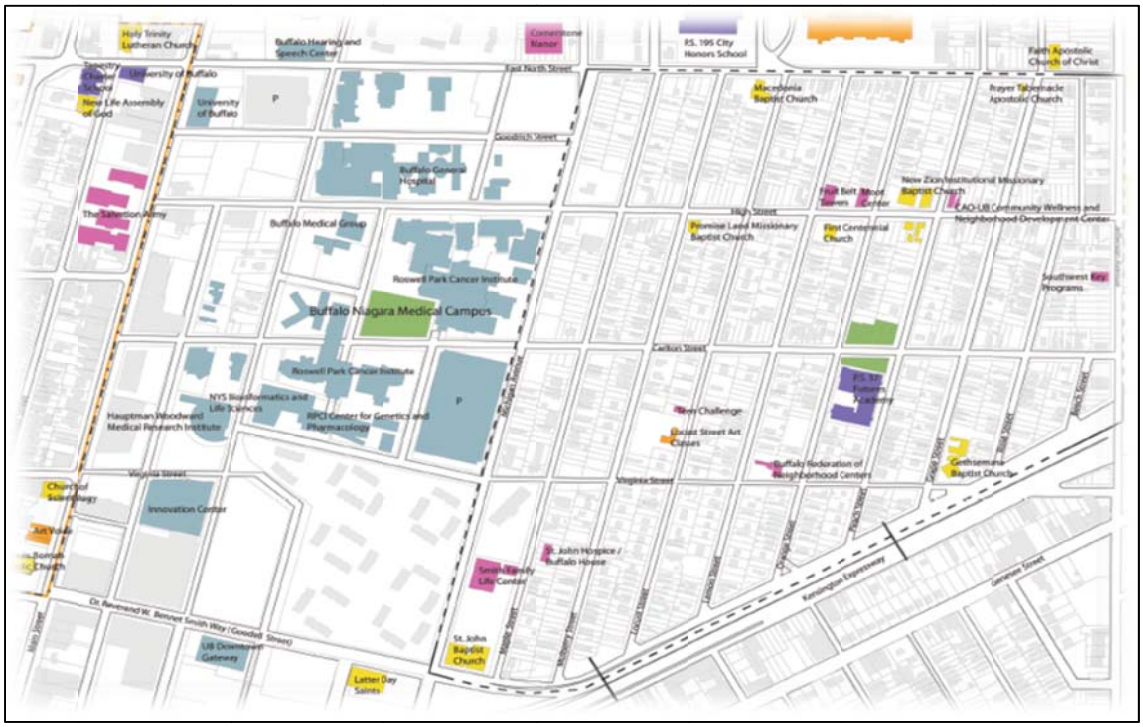

Figure 1-1: Location of the Fruit Belt Neighborhood (dashed perimeter), located adjacent to the Buffalo Niagara Medical Campus

2.0 Highlights Since Previous Quarter

2.1 Major Tasks Completed

- Regulatory Filings:
    - The Q3 2017 Quarterly Report was prepared and filed with the New York State Public Service Commission on October 30, 2017.
- Community Engagement:
    - Customer stewardship efforts continued, consisting of enrolling customers who had previously expressed interest in the Project, establishing appointments, and obtaining customer authorization signatures. Several of the customer outreach calls and visits were made multiple times to certain customers, as they had made appointments for a structural inspection but failed to be home at the agreed-upon/scheduled time. Additionally, some customers reported completing their roof replacement but in fact had not yet done so. This necessitated additional visits to the houses to conduct post-installation roof replacement verification.
    - The Project outreach team continued to visit owners of houses that were determined eligible to host solar PV arrays once their roofs are replaced or repaired. They offered owners the option of using unused solar-readiness funds toward their roof replacement, provided they indeed enroll to become a solar PV host. During Q4 2017, a total of four (4) owners of homes needing roof replacement or repair were visited.
    - National Grid held a third meeting with one (1) faith-based nonprofit organization to discuss roofing replacement status. The organization had received approval for the funding to replace the roof in late November, 2017, but due to its flat roof, the organization's selected roofing contractor will not be able to replace the roof until warmer weather conditions prevail for an extended period of time.
- Internal Engagement:
    - To address the electrical needs at one (1) of the enrolled non-profit organization buildings, meetings were held with National Grid's Distribution Design staff to determine the on-site needs for increasing the service size and replacing the existing service entrance cable.
    - Bill credits are to be awarded based on fifty-percent (50%) of the Project's installed kW. For each ten (10) kW installed, one (1) non-host account receives a credit.

Additionally, there is a set of bill credits available as a result of faith-based organization buildings only being eligible to receive one (1) bill credit, yet generating multiple credits. Also, aside from the faith-based organization buildings, the non-faith-based non-profit organization buildings are not eligible to receive a bill credit. Therefore, all of the credits they generate have been added to the bill credit lottery. Bill credit lottery awardees receive the bill credit for twenty-four (24) months. The bill credit lottery was originally scheduled to be conducted as one (1) effort following installation of the 500 kW of solar PV planned for this Project. However, weather conditions in Q4 2017, along with three (3) customers declining to become solar hosts after committing to do so, prevented reaching that goal. As noted above, National Grid chose to divide the bill credit lotter process into two (2) events. Table 2-1 lists total projected credit generation.

Table 2-1: Bill Credit Quantity Calculation

Credit Start Date	Contribution Source	Building	Installed Total System kW	5 kW Residential System Equivalent Credits	System Equivalent Credits Claimed by Contribution Source	System Equivalent Credits Available
January 1, 2018	50% of Residential PV System Equivalent Accounts	Equivalent 5kW Accounts	303.800	60.76	0	30.38
	Faith-Based Non-Profit Organization Buildings	Faith-Based Non-Profit Organization Building 1	22.275	4.455	1	3.455
	Non-SC-1 Equivalents	None	0	0	0	0
	Total Bill Credit Lottery Account Recipients starting 1/1/18:					**34**
Post Installation Completion	50% of Residential PV System Equivalent Accounts	Equivalent 5kW Accounts	87.905	17.58	0	8.79
	Faith-Based Non-Profit Organization Buildings	Faith-Based Non-Profit Organization Buildings 2 and 3	37.62	7.52	1	6.524
	Non-SC-1 Equivalents	Community Non-Profit Building 1	28.050	5.61	0	5.61
	Non-SC-1 Equivalents	Community Non-Profit Building 2	20.350	4.07	0	4.07
	Total Bill Credit Lottery Account Recipients starting After Goal Installation:					**25**
	Projected Total Bill Credit Lottery Recipient Quantity:					**59**

- Data Evaluation, Measurement &Verification ("EM&V"):

    - Enphase, Inc. continued to send generation data twice monthly; each deliverable containing either the first fifteen (15) days or second fifteen/sixteen (15/16) days of the previous month's generation data. National Grid's New York Electric Pricing Group calculated and published the bill credit amount each month of the quarter.

    - The quarterly analysis of the bill credit administration system was completed. The automated bill credit system was determined to be delivering the correct credit amount to the bill credit recipients, which during this quarter consisted only of solar PV hosts. Fifty-five (55) residents and one faith-based non-profit group were receiving bill credits by the end of Q4 2017.

- Partner Participation:

    - Solar Liberty:
        - Continued to attend two (2) separate progress calls Liberty each week to ensure timely information flow; one (1) to address overall Project matters and another to address specific installation issues.
        - Installed thirteen (13) residential solar PV system arrays.
        - Installed one (1) solar PV system on a faith-based non-profit building;
        - Commenced solar PV system array connection task of on two (2) nonprofit-owned buildings.
        - Interconnected fifteen (15) solar PV system installations to the grid, bringing the total number of connected residential PV systems to fifty-six (56).
        - Conducted three (3) residential roof assessments.
        - Conducted nine (9) residential structural reviews.
        - Pursued and obtained seven (7) electrical one-line drawings.
        - Prepared and submitted six (6) building permit applications to the City of Buffalo.
        - Issued roofing assistance checks to six (6) additional houses that undertook roof replacements to become solar PV ready. This brings the total-to-date quantity of roof replacements completed under this Project to twenty-three (23) residential and two (2) faith-based organization buildings. IN addition, one residence and one faith-based non-profit organization have committed to become Solar PV system hosts, but were unable to complete their roof replacement prior to the onset of weather conditions adverse to roofing in Q4 2017.

    - NYSERDA:
        - Pursuant to the Agreement between National Grid and NYSERDA for EE services to be provided by NYSERDA as part of the Project, National Grid issued a purchase order to NYSERDA.
        - National Grid submitted all existing EE leads to NYERDA via the secure FTP site established between the two (2) parties.

- NYSERDA commenced analysis of the lead list to group them into Home Energy Assistance Program ("HEAP") qualified and non-HEAP qualified accounts.

- GE:
  - GE and National Grid held routine conference calls during which GE provided inventories of input data requirements and reported on their progress on model development. National Grid also reported on the solar PV system connection progress.
  - GE completed drafting their preliminary report and submitted it to National Grid for review.
  - GE constructed a grid data input requirement list for feeders 3463 and 3466, and submitted it to National Grid.

Figure 2-1: National Grid hosted a table at the neighborhood National Night Out event on August 1, 2017, organized by the FruitBelt Coalition.

- BNMC*:*
  - BNMC did not conduct activities in support of the Project during this quarter.

- Community Participation:

    - As of the end of the Q4 2017, of the one hundred and seventy-six (175) houses proposed by owners to become solar PV system hosts. This total is comprised of the following quantities:
        - Seventy (70) of those houses are expected to become solar PV hosts.
        - Sixty-seven (67) houses have been disqualified due to roof orientation, roof pitch, excessive shading, viable roof hosting size, and/or a location outside of the Project area.
        - Eighteen (18) homeowners opted out of the Project for personal reasons.
        - Twenty-one (20) houses need their roof replaced as a first step to becoming eligible to host a solar PV system. However, the owners have not chosen to replace their roof and become a solar PV system host.

    - Meetings were held with the executive director of the FruitBelt Coalition to keep the organization informed of the Project participation needs. Additionally, the Coalition provided contact information for residents who had expressed interest in participating should the option become available.

2.2 Key Metrics

Attached Appendix C contains the Key Metric Reporting Matrix. Q4 2017 activities consisted primarily of field inspections, building permit document development and submittal, construction, electrical connection, city inspections, and continued customer engagement.

2.3 Challenges, Changes, and Lessons Learned This Quarter

Challenge or Change	What was the Resulting Change to Scope/Timeline?	Strategies to Resolve	Lessons Learned
Some customers chose not to participate based on issues external to the Project.	Customers choosing not to sign the host agreement after the inspections and analyses had been conducted caused installation delays while new participants were obtained, and took up unnecessary Project staff time and financial resources.	During initial customer visits, following a customer's initial interest expression, inquire as to what factors and aspects may cause the customer to withdraw from Project participation. Once identified, develop a fact sheet that addresses the collective concerns identified, and distribute the fact sheet during the house inspection process.	Despite the sincerity for participation expressed by a customer, there could be several factors external to the Project that could influence that person's decision making.

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3.0 Next Quarter Forecast

Annotated below is the status of the open checkpoints and milestones stated in the January 4, 2016 Implementation Plan, with dates as of this Q4 2017 Report.

As previously noted in the Q1 2017 Report, as the Customer/Stakeholder Outreach Phase 1 (Awareness) and Phase 2 (Enrollment) efforts were undertaken during Q2 2016 and Q3 2016, it became evident that these phases are actually occurring simultaneously, with enrollment occurring as an output of these efforts. Also note that the Phase 3 (Installation) Outreach efforts commenced upon the customer's initial expression of interest and continued throughout the analysis, permitting, and installation processes. This differs from the Implementation Plan, which indicates all customers would first be identified, with installation to immediately follow thereafter.

Table 3.1 Checkpoints/Milestone Progress

	Checkpoint/Milestone	Anticipated Start/End Date Stated in Q3 2017 Report	Revised Start-End Date as of the end of Q4 2017	Status
1	Finalize contracts with Partners	Completed	*Unchanged*	🟢
2	Customer/Stakeholder Outreach: Phase 1: Community Meetings	04/16- 10/17	*Completed*	🟢
3	Customer/Stakeholder Outreach: Phase 2: Enrollment	04/16-10/17	*04/16 – 03/18*	🟢
4	Customer/Stakeholder Outreach Phase 3: Installation	10/16-11/17	*10/16 - 5/18*	🟢
5	Solar PV Assessments	05/16- 10/17	*Completed*	🟢
6	Site Selection and Design	01/16 – 10/17	*Completed*	🟢
7	Meter Installation	07/16-10/17	*07/16 -5/18*	🟢
8	Permitting	06/16 -10/17	*06/16 - 03/18*	🟡
9	Solar PV Installation	06/16-11/17	*06/16 – 05/18*	🟡
10	Interconnection	07/16-11/17	*07/16 – 05/18*	🟡
11	Bill Credits Administrated	08/16 ongoing	*Unchanged*	🟢
12	Solar Workforce Hiring	03/17-08/17	*Completed*	🟢
13	GE Grid Efficiency Analysis	10/16 – Q1 2019	*Unchanged*	🟢
14	Internal Systems Capability	10/15-11/17	*Completed*	🟢

KEY

🟢 On Track

🟡 Delayed start, at risk of on-time completion, or over-budget

🔴 Terminated/abandoned Checkpoint/Milestone

1. Partner Contracts Executed.

Status: [Completed]
There were no activities under this previously-completed task.

2. Customer/Stakeholder Outreach: Phase 1: Community Meetings.

Status: [Completed]
Outreach and Education Phase 1 to drive Project enrollment were conducted in Q4 2017. These efforts consisted of continuing individual customer visits to two (2) different customer groups; those who had previously expressed interest but had not provided the required documentation or access permission, and those requiring a roof replacement, who needed to learn about the Project's roofing financial assistance offering. In addition, Project representatives continued to provide information to potential and existing participants regarding enrollment, bill credits, and EE services.

All targets for Q4 2017 were met.

Targets/Actuals in Q4 2017:

- Target: Communicate, either in person or by telephone, with customers who previously committed to complete a roof replacement but who have not yet done so, to advise them that their opportunity to participate in the Project has expired, because there is now insufficient time to complete all the remaining Project inspection, permitting, and construction activities before the winter weather prevents construction in the remainder of 2017.
    - Actual: Contacted all customers who expressed plans to replace their roof, but as of the end of Q3 2017 had not done so, advising them they had until the end of November 2017 to complete roof replacement. This resulted in some customers choosing not to participate, and others proceeding with roof replacement.

3. Customer/Stakeholder Outreach: Phase 2: Enrollment.

Status: [Ongoing]
Enrollment continued during Q4 2017, focusing on residences and one (1) nonprofit-owned faith-based organization, with some unsolicited residential enrollment supplementing the total committed kW. As first noted in the Q4 2016 report, enrollment of a greater number of roofs capable of hosting >5 kW results in meeting the installed goal of 500 kW via installing systems on fewer houses. The enrollment endpoint definition was modified to "a maximum of 500 kW of installed solar on a maximum of 100 "solar-ready" houses and nonprofit-owned buildings."

Targets/Actuals in Q4 2017:

- Target: Obtain signed W-9 forms from those Project participants who completed their roof replacement in late Q3 2017 or will do so in early Q4 2017.
    - Actual: Obtained signed W-9 forms from all but one (1) of the customers who had replaced their roofs by the end of November 2017 and had committed to Project enrollment.

- Target: Obtain signed solar PV host agreements from homeowners once their house has been determined to be solar ready.
    - Actual: Obtained signed host agreements from all but four (4) Project enrollees.

Targets in Q1 2018:

- Target: Obtain signed host agreements from the last three (4) Project enrollees.
- Target: Provided weather conditions are favorable, obtain a signed W-9 form from the one (1) residence and one (1) faith based non-profit still requiring roof replacement, as a result of delays caused by adverse weather conditions in Q4 2017.

Figure 3-1: The Project was expanded in Q1 2017 to enable non-profit faith- based organizations located within the Project area to become solar PV hosts.

4. Customer/Stakeholder Outreach: Phase 3: Installation.

Status: [Ongoing]

Customer engagement activities continue throughout the solar PV host approval process for each homeowner who signed up to participate in the Project.

Targets/Actuals in Q4 2017:

- Target: Continue to maintain positive engagement throughout the installation, scheduling, and implementation process with each customer enrolled to host a solar PV system.
    - Actual: This target was met and remains ongoing.

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Target in Q1 2018:

- Target: Continue to maintain positive engagement throughout the scheduling, installation, and implementation process with each customer currently committed to hosting a solar PV system. However, weather conditions required for installation may likely drive the installation to be conducted in Q2 2018.

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Figure 3-2: Installing the second rooftop solar PV system in the Fruit Belt neighborhood.

5. Solar Assessments.

Status: [Completed]

Curbside assessments continued to be conducted at each house for which the owner expresses interest, and for which the Google review shows to be viable. Structural assessments, which are conducted following the curbside review and are thus not part of the target/actual evaluation criteria, are conducted by a third-party engineer.

Targets/Actuals in Q4 2017:

- Complete any remaining solar PV site assessments needed to achieve the Project's 500kW solar PV installation goal.
  - Actual: All remaining site assessment activities were completed in Q4 2017.
- Complete any remaining structural assessments at residential and faith-based nonprofit-owned buildings necessary to achieve the Project's 500kW solar PV installation goal.

  - Actual: All remaining structural assessments were completed in Q4 2017.
- Complete any necessary residential roof assessments necessary to achieve the Project's 500kW solar PV installation goal.
  - Actual: All remaining roof assessments were completed in Q4 2017.

6. Site Selection and Design

Status: [Completed]

A solar array design (site plan) is prepared for each residence and nonprofit-owned building for which the owner expressed interest, and is deemed eligible following completion of the curbside solar assessment process and the roof assessment.

Targets/Actuals in Q4 2017:

- Target: Continue to design a site plan for each house or other building at which a curbside review shows the structure likely to be solar eligible.
  - Actual: A site plan was completed for each house at which a curbside review was completed and which showed the house likely to be solar eligible.

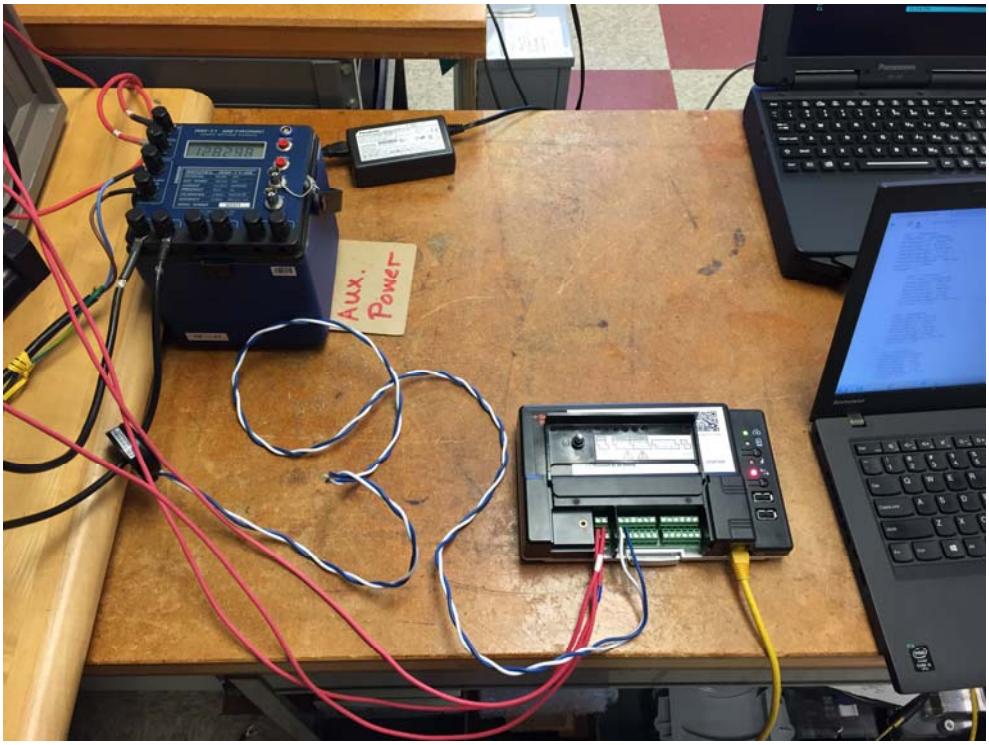

Figure 3-3: Four tests conducted using the Enphase meter showed it met the accuracy required by the ANSI C12.20 standard.

7. Meter Installation

Status: Ongoing [(Revised) 5/31/2018]

As part of each house or building solar PV installation, an electronic metering system is commissioned. This system reports electrical generation date per solar PV panel. Data collected is aggregated by the contracted system operator and sent to National Grid.

Targets/Actuals in Q4 2017:

- Target: All solar PV systems installed in Q4 2017 will be connected within five (5) business days following the City of Buffalo's post-construction review of the installed solar PV system**.**
    - Actual: Two (2) solar PV systems installed during Q4 2017 were connected within five (5) business days following the City of Buffalo's post-construction review of the installed solar PV system. The remaining systems were commissioned within ten (10) business days due to weather conditions, home owner schedules, and holiday schedules of commissioning staff.

- **Target in Q1 2018:**
  Prevailing weather conditions are not expected to permit construction during this quarter. Therefore, no meter installations are planned for this quarter. As of the end of Q4 2017, five (5) final inspection requests were with the City of Buffalo. Once the City completes its final inspections, these five (5) systems will be commissioned and connected to the grid. Field commissioning is best conducted when there is no rain and when all the solar panels are free of snow cover.

Solutions/strategies in the event results are below expectations:

- As noted above, solar PV installation is not planned for Q1 2018 due to expected weather conditions being unsuitable for installation activities. The goal for all solar PV systems installed in Q2 2018 will be connected within five (5) business days following the City of Buffalo's post-construction review of a newly-installed solar PV system**.**

Figure 3-4: Use of safety harnesses by all roof workers is one of several safety protocols followed by the contractor's field installation crews.

8. Permitting

Status: [Ongoing]
The City of Buffalo has been approving solar PV system permit applications generally within three (3) weeks following receipt of the application. This quarter, the subcontractor tasked with developing the one-line electrical drawings included in the permit applications was delayed in developing three drawings.

Targets/Actuals in Q4 2017:

- Target: Continue to submit building permit applications to the City of Buffalo Building Department in small groups of no more than five (5).
    - Actual: All Project building permit application submittals to the City during this quarter were in groups of five (5) or fewer.
    - Actual: The roof replacement on one (1) home was not completed in Q4 due to weather conditions. Once completed, the existing building permit application will be updated and re-submitted to the City of Buffalo . Roof replacement is not likely to be feasible until Q2 2018, leading to permitting in Q2 2018.

Target in Q1 2018

- Target: The City will issue building permits in response to the three (3) permit applications submitted just prior to the end of Q4 2017.
- Target: The City will issue a building permit for the one (1) residence requiring a roof replacement, provided the roof replacement is completed in Q1 2018. As noted above, this will require favorable weather conditions in Q1 2018.

Solutions/strategies in the event results are below expectations:

If building permits are not issued within three (3) weeks of application submittal, Solar Liberty will contact the City of Buffalo Building Department to discuss the rate of building permit application review. An inquiry will be made to determine what else can be done by Solar Liberty to facilitate the City's permit application review process.

9. Solar Installation

Status: [Ongoing]
Solar PV system Installation continued based on the quantity of building permits received from the City of Buffalo.

Targets/Actuals in Q4 2017:

- Install, connect, get inspected, and commission all remaining residential, as well as two (2) faith-based and one (1) non-profit organization building solar PV systems.
    - Actual: All but two (2) permitted solar PV systems were installed due to delays attributable to weather conditions.

- Actual: As previously noted, three (3) home owners withdrew from the Project because they decided not to move forward with roof replacement. Three (3) homes were added to the Project to backfill the resulting vacancies, but those systems could not get permitted before the end of Q4 2017.
- Actual: As of Q4 2017, sixty-five percent (65%) of the solar PV system goal of 500 kW had been installed, inspected, and connected to the grid.

Targets in Q1 2018:

Solar PV system installation is not expected to occur during Q1 2018 unless appropriate weather conditions prevail. If prevailing weather conditions are deemed by the installation contractor to be suitable, the remaining two (2) permitted residential solar PV systems and the three (3) residential solar PV systems in the permitting application process will be installed. The weather conditions required for roof replacement at the faith-based non-profit building are not expected to occur until Q2 2018.

Solutions/strategies in the event results are below expectations:

- There is no expectation for solar installation in Q1 2018.

10. Interconnection

Status: [Ongoing]

National Grid's Interconnection team is the process of making the electrical connection from the solar PV system to the electric grid.

Targets/Actuals in Q4 2017:

- Target: Complete connection of each solar PV system permitted or installed in Q4 2017.
  - Actual: System connection to the grid at houses equipped with overhead electric feeds was completed within twenty (20) business days of installation due to electrician availability and weather conditions. Houses equipped with underground electric feeds required extensive coordination between the home owner, the electrician, and National Grid. The last of the connections started in previous quarters were completed during this Q4 2017.

Target in Q1 2018:

- Complete interconnections within ten (10) business days of solar PV system installation.

Solutions/strategies in the event results are below expectations:

If the issue requires action by National Grid, the Project manager will meet with the appropriate Project personnel to get that action underway. If National Grid determines Solar Liberty or its contractors are the source of the issue, National Grid will confer with Solar Liberty to identify the specific facts and direct Solar Liberty or its contractors to take action to rectify the situation.

11. Bill Credits Administered.

Status: **[Ongoing]**
The billing system to calculate and distribute the bill credits was created in Q1 2016. The system has been used each month since its first implementation in Q2 2016.

Targets/Actuals in Q4 2017:

- Target: Continue to distribute all bill credits for the previous month's solar PV credit using the designed bill credit system.
  - Actual: Monthly bill credits are being generated and issued for each of the solar PV systems installed and commissioned to date.
  - Actual: The bill credit lottery was held, and the first thirty-four (34) customers to receive the credit were identified. They will receive the bill credit rider starting in January 2018, and will receive the rider for twenty-four (24) months.

Targets in Q1 2018:

- Target: Continue to distribute all bill credits for the previous month's solar PV credit using the designed bill credit system.
- Target: Provide the bill credit rider to the thirty-four (34) customers identified to receive the bill credit via the bill credit lottery.

Solutions/strategies in the event results are below expectations: Once identified, any issue with the bill credit system will be reviewed and resolved as soon as feasible.

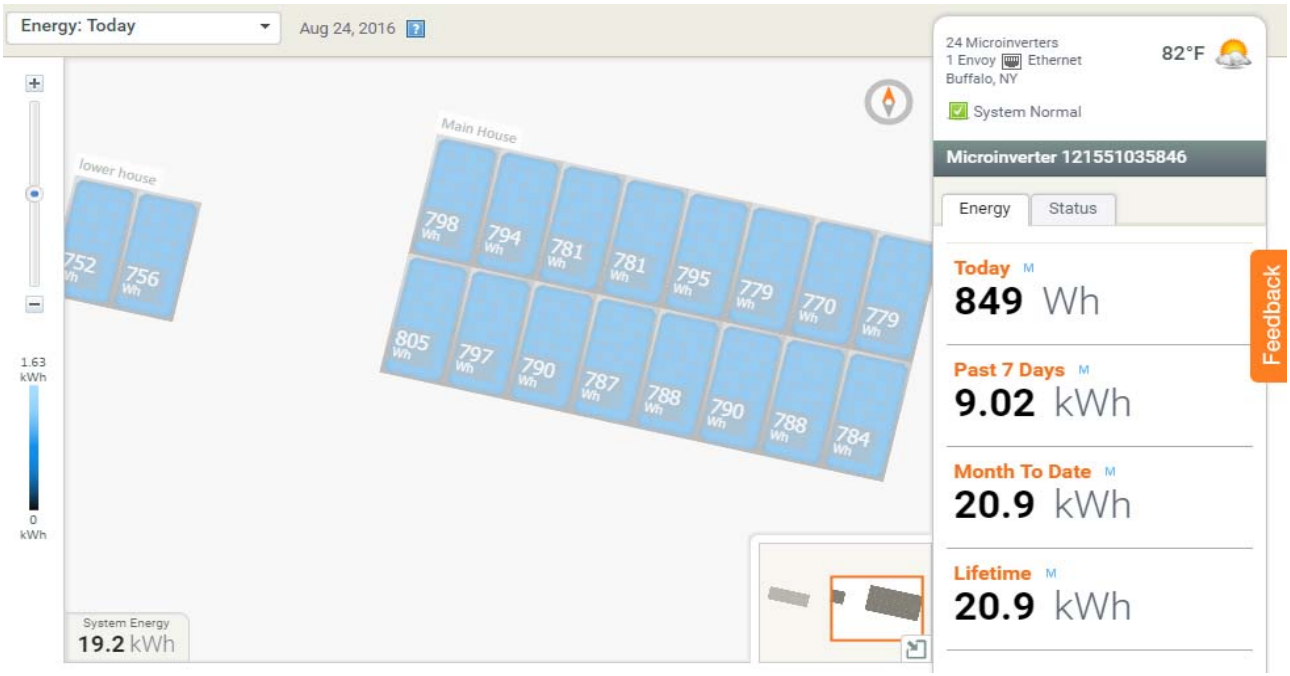

Figure 3-5: The Enphase metering system is capable of concurrently reporting the output of each individual solar PV panel.

12. Workforce Development (Recruitment of Local Solar PV Employees)

Status: [Completed]
The Buffalo Federation of Neighborhood Centers, Inc. and the FruitBelt Coalition, both of which have their main offices in the Fruit Belt, were contacted to identify additional candidates for solar PV installations.

Targets/Actuals in Q4 2017:

- Target: Continue to pursue solar PV installation candidates who reside in the Fruit Belt..
    - Actual: Job positions were advertised through the FruitBelt Coalition and through the Buffalo Federation of Neighborhood Councils. However, no solar installation contractor job applications were received this quarter.

13. GE Commissioning and Grid Monitoring

Status: [(Ongoing]
GE grid efficiency analysis consists of feeder modeling and simulation, controls integration, and grid testing.

Targets/Actuals in Q4 2017:

- Target: Receive the draft Use Case Study final report.
    - Actual: Received the draft Use Case Study final report.
- Target: Commence and progress the feeder performance analysis.
    - Actual: Compiled data for the feeder performance analysis.

Targets in Q1 2018:

- Commence the feeder performance analysis based on the total connected generation as of 1/31/18. As additional generation is commissioned in Q2 2018, adjust the performance analysis to include that generation.

14. Internal Systems Capability.

Status: [Ongoing]

The toll-free number continued to operate in Q4 2017.

Targets/Actuals in Q4 2017:

- Maintain internal systems in working condition through the end of Q2 2018.
    - Actual: Maintained internal systems in working condition throughout the quarter.

Targets in Q1 2018:

- Continue to maintain internal systems in working condition throughout the quarter.

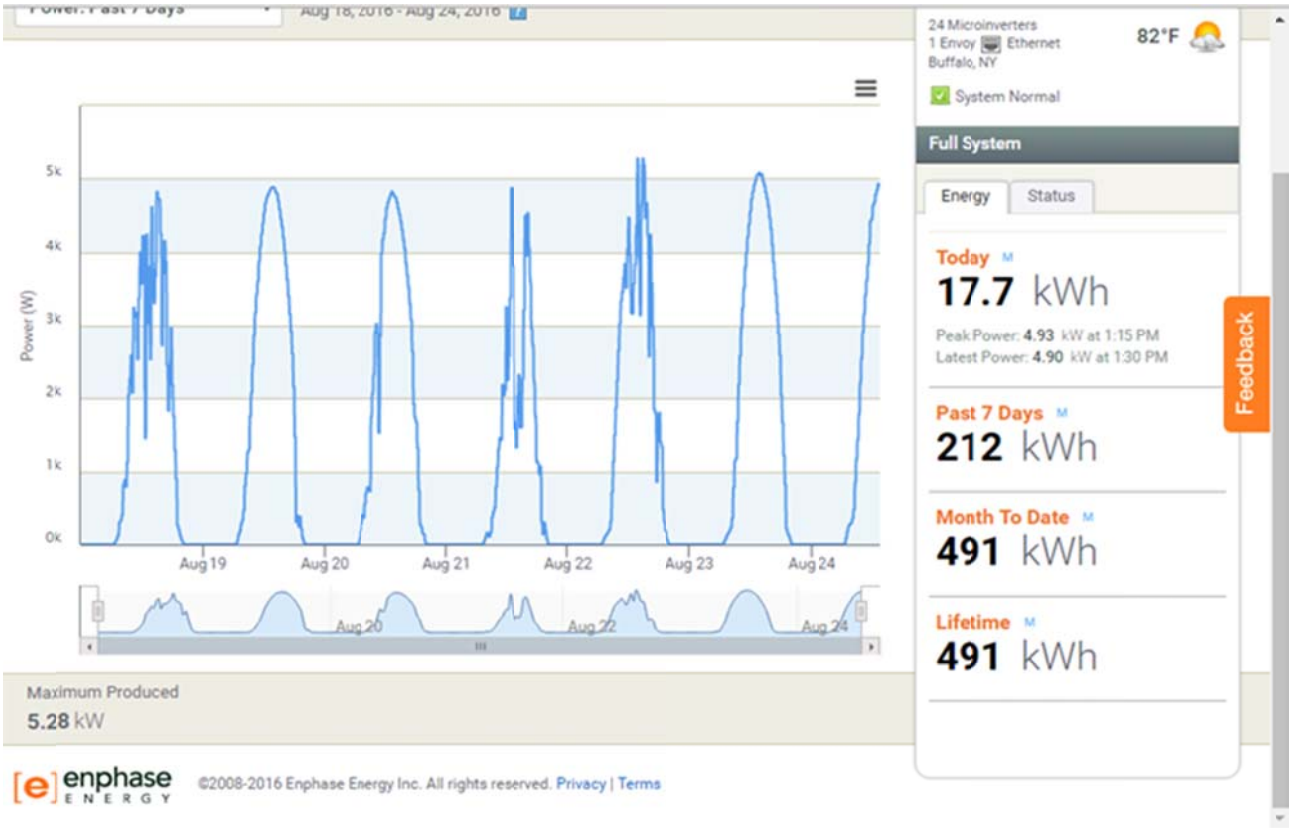

Figure 3-6: The Enphase system provides multiple reporting displays, including a 7-day total daily output graph.

P.S.C. 220 ELECTRICITY
NIAGARA MOHAWK POWER CORPORATION
INITIAL EFFECTIVE DATE: SEPTEMBER 28, 2017

STATEMENT TYPE: FBP
STATEMENT NO. 14
PAGE 1 OF 1

NIAGARA MOHAWK POWER CORPORATION
STATEMENT OF FRUITBELT SOLAR DEMONSTRATION PROJECT BILL CREDIT

EFFECTIVE: SEPTEMBER 28, 2017 BATCH BILLINGS

Applicable to Billings Under P.S.C. No. 220 Electricity

All rates are dollars unless stated otherwise

Delivery Rates

This credit is for approved premise accounts in the FruitBelt Neighborhood Solar REV Demonstration project

Service Classification		Zone	Solar Bill Credit
S.C. No. 1	Approved Customer Premise Accounts	Zone A	$ (15.00)

Figure 3-7 Fruit Belt Solar Bill Credit Rate Sheet.

4.0 Work Plan & Budget Review

4.1 Updated Work Plan

There were no changes to the overall Project work scope and work plan this quarter.

The overall Project timeline was not changed. Six (6) tasks (Customer/Stakeholder Outreach – Community Meetings and Installation; Permitting, Meter installation, Solar PV Installation, and interconnection) were extended due to the late Q4 2017 addition of new participants, and due to adverse weather conditions. See Appendix A, Figure A-1.

4.2 Updated Budget

The following item may impact the budget:

1. As previously noted in the Q2 2017 report, the meter collar connection equipment proposed for use in this Project was not approved by National Grid. The incremental cost for

interconnecting houses or other buildings using the dedicated service entrance cable without a dedicated meter channel costs an additional $1,152 per structure, or cumulatively $115,200 if all one hundred (100) houses/buildings are connected using this approach. Based on the quantity of installed systems, as well as the quantity of systems requiring multiple combiner boxes, the net impact of this additional cost is projected to be $88,704.

Solutions:
The following solution was adopted:

- Continue to design solar PV systems using a dedicated service entrance cable. Utilize unused solar-readiness funds to address this cost. Also, with some structures being equipped with the equivalent kW of multiple houses, fewer connections are needed, resulting in some cost savings.

The revised Project budget[1] is presented below in Table 3-1:

Project Task	4th Quarter Actual Spend	Project Total Spend to Date	Project Budget[1]	Remaining Balance
CapEx				
	$588,680	$2,005,340	$2,468,868	$463,528
Grants Credited Against Incremental Capital Costs				
n/a	n/a	n/a	n/a	($) n/a
OpEx				
Project Administration and Planning	$4,138	$916,049	$30,000	-$886,049
Marketing and Workforce Development	$245	$155,661	$250,000	$94,339
Incentives	$0	$12,245	$0	-$12,245
Implementation	$24,872	$108,302	$718,332	$610,030
Evaluation and Analysis	$120,816	$175,993	$325,000	$149,007
Total	**$150,071**	**$1,368,252**	**$1,323,332**	**-$44,920**
Grand Total:	**$738,751**	**$3,373,590**	**3,792,200**	**$418,610**

Table 3-1: Quarterly Project Cost Data

Project costs reported above are total incremental and non-incremental costs, while the budget values listed are the incremental cost only. Total task budget costs consisting of combined incremental and non-incremental costs were not developed. The Project's total incremental cost as of December 31, 2017 was $308,765.

[1] An internal review of the Project budget revealed certain costs (e.g., installations costs) were incorrectly categorized as operational costs (Opex), when in fact they are capital costs (Capex). The budget was revised to reflect this re-categorization, and to include incremental costs. However, the total Project budget has not changed.

5.0 Progress Metrics

Table 5-1 presents key Project metric tracking data available as of the end of Q4 2017.

Time Frame		Outreach	Residential Customer Tier						Solar Installation Progress (Houses and Non-profit Buildings)					Generation and Credits (Residential and Non-profit Organization Buildings)				Residential Arearage Participant Evaluation
Project Quarter	Calender Year	Residential Expressions of Interest (Calls Received, Canvass Response)	Tier 1 Eligibility	Tier 1 Enrollment	Tier 2 Eligibility	Tier 2 Enrollment	Tier 3 Eligibility	Tier 3 Enrollment	Roof Assessments Completed	Structural Assessments Completed	Electrical Assessments Completed	Rootop Systems Installed	Roortop Systems Connected	kW online	kWh generated	Quarterly Bill Credit Distributed [$]	Cumulative Qty of Bill Credit Recipients	Arrearage Participant Quantity
1	Q1 2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0.00	0	0
2	Q2 2016	34	5	1	0	0	14	0	14	10	14	1	0	0	0	$0.00	0	0
3	Q3 2016	28	10	1	0	0	16	0	26*	9	5	1	2	12.22	2,408	$33.96	2	0
4	Q4 2016	78	16	2	0	0	34	0	54	21	24	2	2	10.92	2,631	$116.99	3	0
5	Q1 2017	14	40	2	0	0	14	0	13	19	16	3	2	12.74	5,670	$268.10	7	0
6	Q2 2017	12	8	2	0	0	13	0	9	13	13	31	2	13.00	13,775	$361.36	8	0
7	Q3 2017	8	-1	32	0	0	6	0	19	18	18	15	28	194.64	17,159	$615.00	14	0
8	Q4 2017	1	-8	15	34	34	10	0	3	9	9	15	20	82.54	6,735	$2,610.00	56	0
9	Q1 2018																	
10	Q2 2018																	
11	Q3 2018																	
12	Q4 2018																	
	Totals:	175	70	55	34	34	107	0	112	99	99	68	56	326.06	48,378	$4,005.41		

* = Five added after changing minimum roof system size from 4.0 kW to 3.0 kW.

Notes:
1 Although Tier 1 and Tier 2 customers are eligible for the energy efficiency offerings, the customers may not necessarily enroll to receive these offerings.
2 The quarterly bill credit distributed is a function of an algorithm that accounts for participant quantity and the seasonal fluctuation in kWh generated.

Table 5-1

Appendix

Appendix A: Updated Gantt Chart (as of the end of Q4 2017)

Table A.1 – Updated Gantt Chart