Karla M. Corpus
Senior Counsel
NY Regulatory

July 31, 2017

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 – Q2 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 April 1, 2017 to June 30, 2017 ("Q2 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
Q2 2017 Report

July 31, 2017

Table of Content

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 concentration of approximately one hundred (100) rooftop solar systems totaling 0.5 MW of solar photovoltaic ("PV") generation capacity within a specific neighborhood provides the technical conditions necessary for exploring grid efficiency as well as the opportunity to build positive relationships with local residential customers, including nonprofit faith-based and community organizations, and increase energy awareness and Project participation. Using utility-owned solar PV equipment mounted on residential roofs and roofs of nonprofit faith-based and community buildings, participating National Grid customers will receive a monthly electric bill credit for the lifespan of the solar PV system.

This Demonstration Project will test the following hypotheses:

- 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.
- Concentrating distributed solar PV resources with reactive power support within a boundary served by a common substation versus scattered deployment of conventional solar PV will deliver measurable grid efficiency benefits.

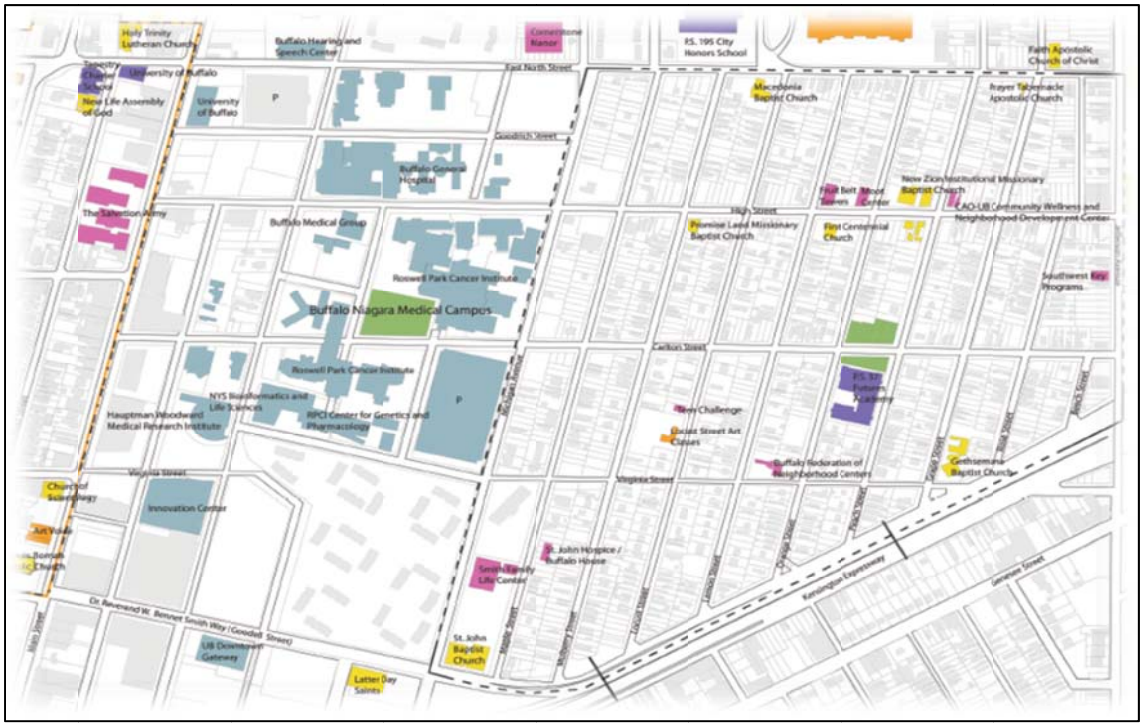


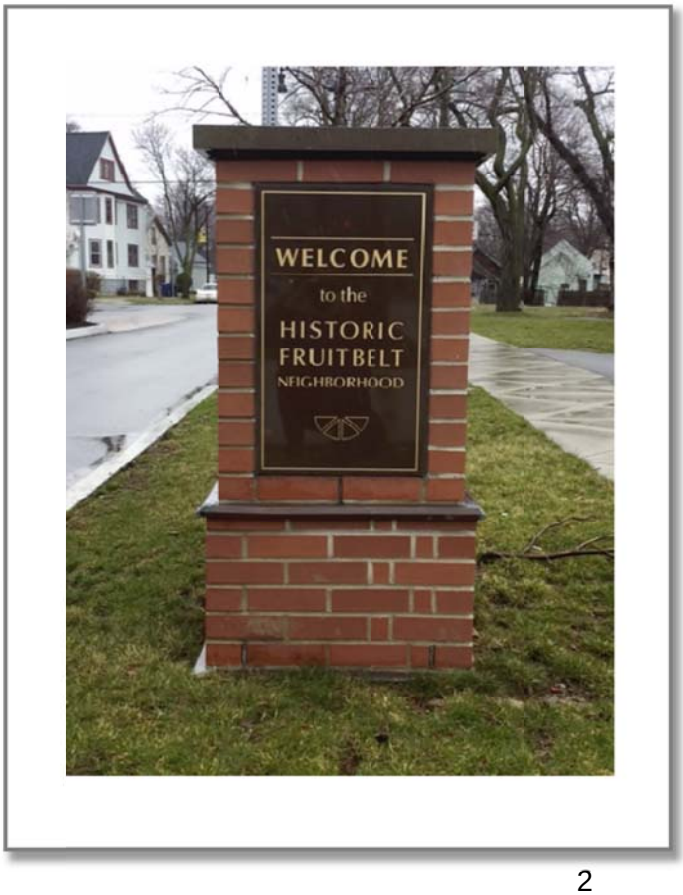
Figure 1-1: Location of the Fruit Belt Neighborhood (dashed perimeter), located adjacent to the Buffalo Niagara Medical Campus

REV Goal Support

The Demonstration Project supports multiple REV goals using an innovative approach to clean energy collection in a residential area. The electricity generated offsets demand for fossil fuel - generated electricity, thereby meeting the REV goal of reducing greenhouse gas emissions. Local energy production adds resiliency to the local grid, and hiring and training local residents on solar PV system sales and installation fulfills yet another REV goal – that of creating new jobs and business opportunities. Collectively, the Demonstration Project's support of multiple REV goals makes it highly valuable in testing the effectiveness of REV objectives as well as modeling how to effectively attain REV goals in a cost-effective, integrated manner.

Progress to Date and Planned 2017 Q3 Goals

Progress continued on this Demonstration Project during Q2 2017 in the areas of customer/non-profit organization engagement; conducting structural, electrical, and roofing reviews and permitting, culminating with the seventh and eighth solar PV system interconnection to the grid, installation of thirty-one (31) more residential solar PV systems; seven (7) of which are connected to the grid and are awaiting City of Buffalo approval before commissioning. In addition, the first solar PV installation at one (1) of the neighborhood churches was also completed and is ready for connection. Customer engagement activities consisted primarily of in-person meetings with church officials and interfacing with residential customers who own a house that requires the roof be replaced to enable the house to become solar ready. Solar PV power generation data reporting also continued. General Electric Global Research ("GE"), the consultant contracted to evaluate grid effects resulting from the solar PV installations, completed their draft baseline power use model for the remaining two (2) Project area feeders. Two (2) Fruit Belt residents were hired under the workforce development plan to install solar PV systems. Lastly, the agreement between NYSERDA and National Grid for the provision of energy efficiency ("EE") services in the Project area was further revised and reviewed by both parties.



As more fully set forth below, several major efforts are planned for Q3 2017. Continued engagement with owners of faith-based and community nonprofit-owned buildings will be undertaken to secure suitable roof space for solar PV installation within the Project area to compensate for reduced opportunities for residential roof deployment. Additionally, engagement efforts to reach those previously expressing interest in the Project, but who have not been attending their respective scheduled project meetings, will continue. Solar PV system installation will be completed in Q3 2017 at thirty-one (31) systems currently under

construction. Pending timely building permit issuance and minimal weather constraints, and in anticipation of roof replacement work being completed by August 15, 2017, solar PV systems will be installed and connected at an additional twenty-five (25) residences, one (1) church, and two (2) community nonprofit-owned buildings. The grid efficiency effects evaluation by GE will continue, and bill pool lottery participants will continue to be identified. Workforce development will continue, with the evaluation and hiring of additional qualified local staff to install solar PV systems, provided such candidates are identified.

2.0 Highlights Since Previous Quarter

2.1 Major Tasks Completed

- Regulatory Filings:
    - The Q1 2017 quarterly report was prepared and filed with the New York State Public Service Commission on May 1, 2017.
- Community Engagement:
    - Continued customer stewardship efforts consisting of enrolling customers who had previously expressed interest in the Project, establishing appointments, and obtaining customer authorization signatures using a local team from the outreach firm, Threshold, Inc. (“Threshold”).
    - The Threshold team continued to visit owners of houses that were determined eligible to host solar PV arrays once their roofs are replaced or repaired. Threshold offered owners the option of using unused solar-readiness funds toward their roof replacement, provided they indeed enroll to become a solar PV host.
    - National Grid and Solar Liberty held meetings with three (3) nonprofit, faith-based organizations located within the Fruit Belt to offer them the opportunity to host a PV system through the Project. Additionally, National Grid and Solar Liberty held second meetings with one (1) nonprofit community organization owning and operating two (2) buildings within the Fruit Belt to provide additional participation information.
    - Further refined the customer tracking system to include nonprofit-owned faith-based and community building enrollment.
- Internal Engagement:
    - In preparation for grid efficiency monitoring and evaluation, engineering drawings were completed for the additional meter installation at National Grid’s Substation 34 feeders 3463, 3466, and 3467. Installation is scheduled for Q3 2017.

- Completed analysis of two (2) underground feed locations.

- 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 automated bill credit system underwent an internal audit to verify the proper credit amount was being delivered to the correct recipient. No programming flaws were identified.

- Partner Participation:

  - Continued conducting two (2) separate weekly progress calls with Solar Liberty each week to ensure timely information flow; one to address overall Project matters and another to address specific installation issues.

  - Solar Liberty:
    - Installed thirty-one (31) residential solar PV system arrays.
    - Installed one (1) solar PV system array on a nonprofit-owned faith-based building.
    - Interconnected the seventh and eighth solar PV system installations to the grid.
    - Conducted seven (7) residential and two (2) nonprofit community building construction management reviews.
    - Conducted ten (10) residential, one (1) nonprofit faith-based building, and two (2) nonprofit community building structural reviews.
    - Pursued and obtained fourteen (14) electrical one-line drawings.
    - Prepared and submitted twenty-four (24) building permit applications to the City of Buffalo.
    - Issued roofing assistance checks to seven (7) additional houses that made roof repairs or undertook roof replacements to become solar ready. This brings the total to date quantity of roof replacements inspired by the Project to eleven (11).

  - NYSERDA :
    - Both National Grid and NYSERDA made updates to the agreement specific to EE services to be conducted under the Project. The agreement will be finalized in Q3 2017.

- GE:
  - GE and National Grid held bi-weekly conference calls, during which GE provided inventories of input data requirements and reported on their progress on model development.
    - GE completed the study of the feeders F3467 and F3463; simulating three (3) 'Use Case' scenarios; studying for each one a high feeder loading (*i.e*., peak load), average loading (*i.e*., typical midday loading) and minimum loading (*i.e*., 25% of peak load) scenario.

Figure 2-1: A two-person team conducting the customer stewardship effort in the Fruit Belt neighborhood.

- BNMC:
  - National Grid met with BNMC's recently hired community outreach representative, who in turn set up and attended a meeting with one (1) of the local church leaders to explore their church becoming a solar PV host.

- Community Participation:
  - As of the end of the Q2 2017, of the one hundred and sixty-six (166) houses proposed by owners to become solar PV system hosts, approximately seventy-five (75) of those houses are expected to become hosts, with the bulk of those non-host homes rejected on the basis of roof shading and roof size. The following are quantities are as of the end of Q2 2017:

- Twelve (12) additional customers expressed interest in becoming a solar PV host during this quarter, bringing the overall total to one hundred and sixty-six (166) customers.
- Sixty-two (62) 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.
- Three (3) houses are owned by customers currently evaluating whether or not they want to participate in the Project.
- Eleven (11) homeowners opted out of the Project for personal reasons.

Of the remaining ninety (90) houses:

- Two (2) solar PV systems were installed and energized during Q2 2017, bringing the total number of solar PV systems installed under the Project to eight (8).
- Thirteen (13) houses are currently in the review process for solar PV.
- Twenty-four (24) houses have now been reviewed and determined to need roofing repairs that cost more than the $2,000 allocation provided by the Project.
- Homeowners of a total of fifteen (15) houses needing a roof replacement have not accepted the roof replacement assistance funding in exchange for replacing their roof and becoming a solar PV host, while owners of nine (9) houses have committed to replacing their roofs by August 15, 2017.
- Six (6) houses are now in the process of building permit application preparation and review.
- Three (3) houses were determined to be build-ready and are scheduled for installation in Q3 2017.
- Solar PV system installation is under construction at thirty (30) houses.

- Held meetings with the executive director of the FruitBelt Coalition[1] to keep the organization informed of the Project participation needs, and to obtain contact information for certain residents who expressed interest but had provided outdated contact information.

- Presentations were made to three (3) church organizations to encourage enrollment in the Project. As noted in the Q1 2017 report, inclusion of these roofs is necessary to reach the Project's goal of 500 kW of installed solar PV generation capacity, as an insufficient quantity of qualified residential roofs has been enrolled in the Project. The Project area was found to have fewer qualified roofs than what was originally expected, as the initial estimate was calculated prior to the City of Buffalo enacting

[1] The FruitBelt Coalition is a non-profit organization developed out of a need to protect and improve the quality of life within the historical Fruit Belt neighborhood and Medical Corridor.

a solar panel set-back requirement and prior to Solar Liberty conducting a ground-truth survey of all housing stock in the Project area. To date, a nonprofit organization owning two (2) community buildings has enrolled, two (2) churches have enrolled, and two (2) additional churches are still considering whether to join the Project.

- A meeting with a nonprofit community organization that owns two (2) buildings, attended by representatives of the organization's electrical contractor, Solar Liberty's electrical contractor, and National Grid, was held to determine the electrical upgrades needed to raise the electrical services and equipment up to current electrical code requirements.

- To date, sixteen (16) houses needing a roof replacement have completed the roof replacement and are now in various stages of becoming a solar PV host.

2.2 Key Metrics

Key Project metrics were developed based on the data needs and the proposed work scope. The ability of the selected equipment and systems to provide the key metric data was verified. Attached Appendix C contains the Key Metric Reporting Matrix. Q2 2017 activities consisted primarily of field inspections, building permit document development and submittal, construction, 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
Combiner box delivery to Solar Liberty was delayed due to unavailability of a part.	Completion of solar PV system installations, and bill credit receipts were delayed.	Request prime contractor to provide documentation of verifying equipment availability with suppliers.	Create a contingency plan for delays due to backordered equipment.
Customers expected to receive bill credit immediately following solar PV array installation.	No change to scope or timeline.	The flow chart showing the steps in the process was re-issued to the customer upon their signing the solar PV host agreement and timeframes for the upcoming steps were explained to the customer.	Reviewing the implementation timeframe for a customer's specific roof, drawing attention to upcoming steps, helps prevent unrealistic installation timeline expectations.

The bill credit at one (1) two-family host home was being credited to the wrong account because the house was equipped with only one service drop.	No change to scope or timeline	Billing analysts are now required to determine the quantity of service drops for homes located in the Project area.	Meet with the manager of the Billing Department to brainstorm about possible issues that could arise from assigning bill credits and determine how to pre-emptively identify and rectify those issues.
Some church liaisons wanted to confer with their board before agreeing to meet with the Project's leadership.	Board meeting delays result in delays in Project enrollment.	Identify an appropriate contact person from the church who is familiar with the Project, and work with that person to arrange a meeting with the Church's board.	A person unaffiliated with the Project is unlikely to capture, via an initial telephone call, all the necessary information needed to convince a board to allow the Project team to make a presentation.
Customers do not always attend an appointment at their house, despite that they self-select the time and date.	Multiple missed appointments have occurred, delaying Project enrollment.	Provide a reminder call one (1) week in advance of an appointment, in addition to the two-day notice call.	A reminder call two (2) days in advance of an appointment is insufficient. A one (1) week advanced reminder call added to the two-day notice call is more likely to result in a customer keeping an appointment.
Political alliances among neighborhood groups have contributed to enrollment rejection.	The search for additional residential enrollment continued beyond the originally-planned time frame.	During the initial marketing visit, ask the customer if they know anyone who is a Project participant, and/or provide contact information for trusted Project participants with whom they can discuss the Project process and enrollment experience	An effective method of sidestepping political differences among neighbors is to encourage dialogue with trusted Project participants.

3.0 Next Quarter Forecast

Annotated below are the status of the open checkpoints and milestones stated in the January 4, 2016 Implementation Plan, with dates as of this Q2 2017 Report.

As 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 continue 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 Q1 2017 Report	Revised Start-End Date	Status
1	Finalize contracts with Partners	08/16	*Completed*	🟢
2	Customer/Stakeholder Outreach: Phase 1: Community Meetings	04/16- 06/16	*Unchanged*	🟢
3	Customer/Stakeholder Outreach: Phase 2: Enrollment	04/16-08/17	*Unchanged*	🟢
4	Customer/Stakeholder Outreach Phase 3: Installation	10/16-11/17	*Unchanged*	🟢
5	Solar PV Assessments	05/16- 08/17	*Unchanged*	🟢
6	Site Selection and Design	01/16 – 8/17	*Unchanged*	🟢
7	Meter Installation	07/16-4/17	07/16-10/17	🟢
8	Permitting	06/16 -10/17	*Unchanged*	🟢
9	Solar PV Installation	06/16-11/17	*Unchanged*	🟡
10	Interconnection	07/16-11/17	*Unchanged*	🟢
11	Bill Credits Administrated	08/16 ongoing	*Unchanged*	🟢
12	Solar Workforce Hiring	03/17-04/17	03/17-08/17	🟡
13	GE Commissioning and Grid Monitoring	10/16 – Q1 20119	*Unchanged*	🟢
14	Internal Systems Capability	10/15-11/17	*Unchanged*	🟢

KEY

🟢 On Track

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

🔴 Terminated/abandoned Checkpoint/Milestone

1. Partner Contracts Executed.

Status: 🟢 **[Completed]**

National Grid's contract with GE was signed in Q3 2016. No further action on this task is required. The Solar Liberty contract was also previously executed.

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

Status: [Ongoing]

Outreach and Education Phase 1 continued in Q2 2017 to drive Project enrollment. Phase 1 efforts consisted of continuing the 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 needing a roof replacement and needing 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, educational resources, workforce development, solar PV, and EE services.

All targets for Q2 2017 were met.

Targets/Actuals in Q2 2017:

- Target: Conduct customer stewardship efforts consisting of visiting customers needing a roof replacement to become solar ready to determine if they wish to utilize the Project's financial assistance toward replacing their roof. Obtain a signed W-9 form from those who do wish to receive such funds.
    - Actual: Visited nineteen (19) customers needing a roof replacement in order to become solar ready in order to determine if they wish to utilize the Project's financial assistance toward replacing their roof. Obtained a signed W-9 form from those who do wish to receive such funds.
- Target: Reach the remaining nonprofit faith-based and community organizations owning buildings within the Project area who have not previously determined if they wish to enroll their buildings in the Project. For those who wish to enroll, obtain a signed access agreement and proceed to conduct the appropriate next steps in the Project process.
    - Actual:
        - Contacted the three (3) churches within the Project area that were not previously contacted.
        - Met with the nonprofit community organization within the Project area to evaluate electrical code compliance needs.

Targets in Q3 2017:

- Target: Visit customers who previously agreed to replace their roof to determine if they still plan to replace the roof by the end of August 2017. Obtain a signed W-9 form from those agreeing to replace their roofs using the Project's solar readiness funds.

- Target: Obtain signed solar PV host agreements from homeowners once their house has been determined to be solar ready.

Solutions/strategies in the event results are below expectations:

As of the end of Q2 2017, the estimated total kW committed, or expected to commit to join the Project, is 457 kW. There is an additional set of homeowners who have expressed interest and whose houses are currently under evaluation; the total capacity of these roofs is 45 kW. It is therefore conceivable that the 500 kW enrollment goal has been reached. If additional enrollment

is needed beyond this 45 kW of roof space, it is likely that the 500 kW goal could be achieved by targeting neighbors and relatives of existing solar PV hosts, based on a pattern of such customers enrolling following solar PV installation at on a neighbor's or relative's house.

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

Status: [Ongoing]
Enrollment continued during this Q2 2017, and focused primarily on nonprofit-owned faith-based and community buildings, 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 500kW via 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 Q2 2017:

- Target: Obtain a signed access agreement to enroll three (3) nonprofit faith-based or community buildings into the Project.
    - Actual: Obtained a signed access agreement for one (1) religious non-profit group.
- Target: Obtain a Project enrollment commitment for eight (8) houses currently needing a roof repair or replacement.
    - Actual: Project commitments were secured for eleven (11) additional houses needing roof replacement.
- Execute the agreement to provide EE services in the Project area between National Grid and NYSERDA.
    - Actual: The agreement between National Grid and NYSERDA continued to undergo additional review and revision by both parties.

Target in Q3 2017:

- Target: Obtain a signed host agreement for two (2) nonprofit community buildings located in the Project area.
- Obtain a Project enrollment commitment for the remaining uncommitted forty-three (43) kW of solar capacity.
- Execute the agreement between National Grid and NYSERDA to provide regarding EE services in the Project area.

Solutions/strategies in the event results are below expectations:

If, after all nonprofit faith-based and community organizations in the Project area have been contacted, the participation level, as measured in kW, is projected to be less than 500 kW, National Grid and the Project partners will plan a series of block club meetings, distribute additional collateral materials, and engage existing solar PV host homeowners to encourage neighbor participation.

Figure 3-1: The Program was expanded in Q1 2017 to enable churches 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 Q2 2017:

- Target: Continue to maintain positive engagement throughout the installation, scheduling, and implementation process with each homeowner enrolled to host a solar PV system.
    - Actual: Maintained positive customer engagement by continuing to have contracted staff meet with residents to answer questions and to obtain signed solar PV host agreements. In addition, Solar Liberty continued to conduct reminder calling to customers to help ensure appointments would be kept.
- Target: Maintain engagement with enrolled and permitted customers who are awaiting installation to occur once the weather permits installation.
    - Actual: Solar Liberty maintained contact with permitted customers and was able to identify likely installation dates that are acceptable to those customers in the upcoming construction season, commencing at the beginning of Q3 2017.

Target in Q3 2017:

- Target: Continue to maintain positive engagement throughout the installation, scheduling, and implementation process with each customer enrolled to host a solar PV system.

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

5. Solar Assessments.

Status: [Ongoing]

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. This process will be continued until 500 kW of rooftop solar PV systems are secured via host agreements. 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 Q2 2017:

- Target: Complete a Project cumulative total of ninety (90) initial solar PV site assessments, including five (5) nonprofit-owned initial solar PV site assessments.
    - Actual: The cumulative quantity of solar PV solar assessments conducted from inception through the end of Q2 2017 is one hundred four (104).
    - Actual: Completed two (2) faith-based and two (2) community nonprofit-owned site assessments.

- Target: Complete a Project cumulative total of sixty (60) residential structural assessments and four (4) nonprofit-owned structural assessments.
    - Actual: The cumulative quantity of solar PV structural residential assessments conducted from inception through the end of Q2 2017 is eighty-two (82).
    - Actual: The cumulative quantity of solar PV structural non-profit building assessments conducted from inception through the end of Q2 2017 is four (4).

- Target: Complete a Project cumulative total of sixty (60) roof assessments.
    - Actual: The cumulative quantity of solar PV roof assessments conducted from inception through the end of Q1 2017 is seventy-eight (78).
    - Actual: Completed one (1) nonprofit-owned roof assessment.

Target in Q2 2017:

- Complete a Project cumulative total of one-hundred ten (110) residential and five (5) nonprofit-owned initial solar PV site assessments.
- Complete a Project cumulative total of five (5) residential and one (1) faith-based nonprofit-owned structural assessment.
- Complete a Project cumulative total of ten (10) residential and two (2) community nonprofit-owned building roof assessments.

Solutions/strategies in the event results are below expectations:
If the solar PV assessment quantity is low due to the contractor's efforts, National Grid will meet with the contractor and request additional staffing resources be placed on the job and require them to conduct the curbside and roof assessments within ten (10) days of customer enrollment. Structural assessments require coordination with the customer to permit entry into the house, thus the structural assessment step most always requires more than ten (10) business days to complete. National Grid will request its stewardship contractor, Threshold, meet with customers needing a structural analysis and together, call the structural engineer to schedule a structural review at a mutually agreeable date/time.

6. Site Selection and Design

Status:  **[Ongoing]**
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 Q2 2017:

- Target: Continue to design a site plan for each house or other building at which a curbside review shows the structure to likely 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.
    - Actual: A site plan was completed for each faith-based non-profit building considered for solicitation to enroll in the Project.

Target in Q3 2017:

Continue to design a site plan for each home or other building at which a curbside review shows the structure to likely be solar eligible.

Solutions/strategies in the event results are below expectations:

- Site plan development will continue in the next quarter for those buildings whose owners express interest, which pass the solar screening assessment, and which pass the roofing assessment. Site plans for which insufficient development time remains prior to the quarter end will be finalized in the following quarter.

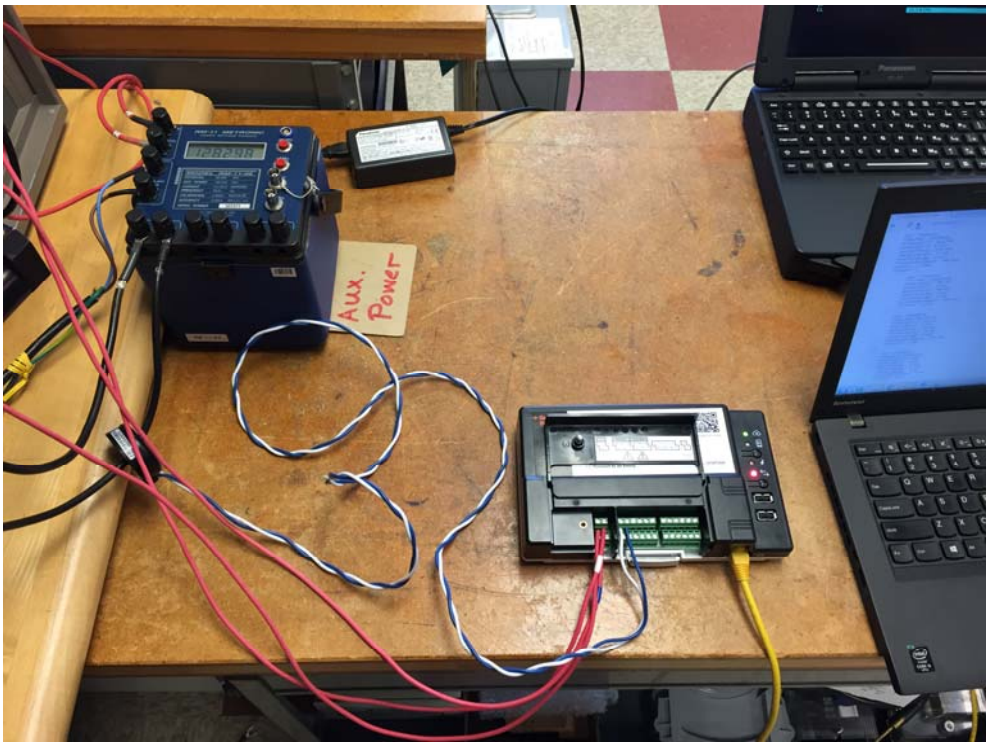

Figure 3-3: Four tests conducted using the Enphase meter showed it met the accuracy required by the ANSI C12.20 standard.

7. Meter Installation

Status: **[(Revised) 11/30/2017]**

As noted in the Q4 2016 report, the Project plan was adjusted in that quarter to install a meter separate from the Enphase electronic meter in five (5) of the proposed one hundred (100) solar PV systems. Electrical one-line drawings had already been submitted for seven (7) houses. Due to the lengthy building permit review process, the decision was made not re-draw the electrical one-line diagrams and then re-submit these building permit applications for approval. Rather, the

decision was made to have seven (7) houses equipped with a secondary electrical meter in addition to the Enphase electronic meter.

Targets/Actuals in Q2 2017:

- Target: A secondary meter will be installed on the seventh of the seven (7) solar PV systems.
    - Actual: The seventh secondary meter was installed on the seventh solar PV system.

- Target: All solar PV systems installed in Q2 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: Solar PV systems installed during Q2 2017 were connected within five (5) business days following the City of Buffalo's post-construction review of the installed solar PV system**.**

Target in Q3 2017:

- All solar PV systems installed in Q2 2017 will be continue to be connected within five (5) business days following the City of Buffalo's post-construction review of a the installed solar PV system**.**

Solutions/strategies in the event results are below expectations:

- Since the next systems only utilize an Envoy system with no secondary meter, and with the Envoy meter being part of the solar PV panel installation, delays in meter installation were not expected. However, delays were incurred due to a backorder status on the combiner boxes. This issue was rectified with the supplier. Per the previously-established protocol, as stated in the Q1 2017 Project quarterly report, National Grid communicated with Solar Liberty and the supplier to identify and rectify the backorder situation. Although the solar PV systems were being connected within five (5) days of the City's inspection, the City could not inspect a system until the combiner box had been installed. Should another delay in equipment availability arise, National Grid will again exercise the afore-noted protocol, with the plan being to get systems connected within ten (10) days of the City's inspection.

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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 completing solar PV system permit applications generally within three (3) weeks following receipt. The City imposed no new permitting application data requirements during this quarter.

Targets/Actuals in Q2 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.

Target in Q3 2017

- Target: Continue to submit building permit applications to the City of Buffalo Building Department in small groups of no more than five (5).

Solutions/strategies in the event results are below expectations:

Hold a third project meeting with the City of Buffalo Building Department to discuss the rate of building permit application review. Determine what else can be done by Solar Liberty to facilitate the permit application review process.

9. Solar Installation

Status: [Ongoing]
Solar PV system Installation continued based on the quantity of permitted applications available.

Targets/Actuals in Q2 2017:

- Connect the seventh system installed in Q 2017.
    - Actual: the seventh system was connected.
- Install thirty (30) residential rooftop solar PV systems and one (1) nonprofit-owned building rooftop solar system.
    - Thirty-two (32) solar PV systems were installed with one (1) solar PV system installed on a nonprofit faith-based building (*i.e.*, church).
- Connect twenty-five (25) of the thirty (30) new solar PV systems to the electric grid by the end of Q2 2017, as the connection process typically requires two (2) weeks to undertake following system installation, and requires obtaining an inspection by the City of Buffalo's Building Department.
    - Actual: Only two (2) solar PV residential systems were connected due to a backorder of combiner boxes.

Target in Q3 2017:

- Connect, get inspected, and commission the thirty (30) residential solar PV systems and one (1) non-profit organization solar PV system installed but not connected in Q2 2017.
- Install twenty-five (25) residential rooftop solar PV systems and three (3) nonprofit-owned building rooftop solar systems.
- Connect twenty (20) of the twenty-five (25) new residential systems and all three (3) of the non-profit-owned buildings to the electric grid by the end of Q3 2017.

Solutions/strategies in the event results are below expectations:

National Grid will meet with Solar Liberty to identify what issues prevent shorter analysis times and what solutions can be implemented to decrease the turnaround time. If the issue lies with one of their contractors, National Grid will ask Solar Liberty to meet with those contractors to analyze the situation and determine viable solutions to increase the pace of installations.

10. Interconnection

Status: **[Ongoing]**
Interconnection of two (2) installed solar PV rooftop systems was completed in Q2 2017.

Targets/Actuals in Q2 2017:

- Target: Complete, or schedule for completion, each solar PV system interconnection within five (5) business days of installation.
    - Actual: Connected two (2) solar PV systems to the grid within five (5) business days of installation.

Target in Q3 2017:

- Complete, or schedule for completion, each solar PV system interconnection within five (5) business days of the City of Buffalo completing its electrical inspection.

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 Solar Liberty or its contractors are determined to be 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 Q2 2017:

- Target: 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 eight (8) solar PV systems installed and commissioned to date.

Target in Q3 2017:

- Target: Continue to distribute all bill credits for the previous month's solar PV credit using the designed bill credit system.

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.

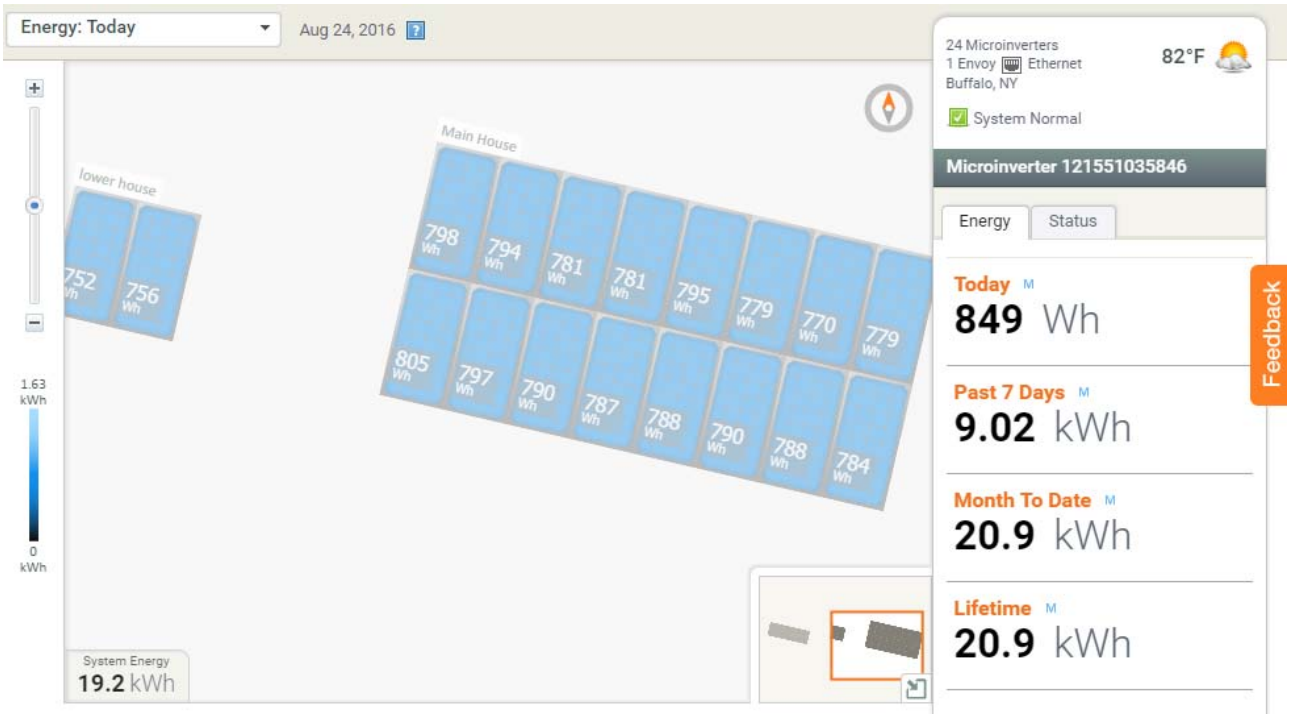

Figure 3-5: The Enphase metering system is capable of concurrently reporting the output of each individual solar PV panel.

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

Status: [(Revised) Q3 2017]

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 Q2 2017:

- Target: Tradesman, Inc. will interview eligible candidates and select at least one (1) candidate to be hired for Solar Liberty's work force.
    - Actual: Tradesman, Inc. interviewed the candidate and the candidate was hired. A second candidate was also identified, but he accepted a job with another firm. A third candidate was identified, but as of the end of Q2 2017, he had not yet submitted his application to Tradesman, Inc.
    - Actual: Leaders of each church planning or enrolled in the Project were also informed of the employment opportunity.

Target in Q3 2017:

- . Continue to pursue solar PV installation candidates who reside in the Fruit Belt.

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Solutions/strategies in the event results are below expectations:

National Grid will identify additional community leaders and ask them to advertise the available installer positions.

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 Q2 2017:

- Target: Complete baseline model for feeder 3463 and feeder 3467.
  - Actual: Completed the modeling of feeders 3463 and 3467.
- Target: Complete baseline analysis for feeders F3463 and F3467.
  - Actual: Completed baseline analysis of feeders F3463 and F3467.
- Target: Complete study of use case scenarios 1 and 2 for feeders F3463 and F3467.
  - Actual Commenced the Use Case 1 scenario (pf = 1) for feeders F3463 and F3467
- Target: Finalize analysis of F3466 including Use Case scenario 3 (centralized control of solar PV systems – not design of the controller).
  - Actual: Completed the study of the feeder F3466 using quantity of solar PV installation forecasted. Simulated scenarios include:
    - Use Case 1 (PV at power factor = 1).
    - Use Cases 2 and 3 (PV at varying power factor 0.9, 0.8 and 0.7).
  - For each Use Case, high feeder loading *(i.e*., peak load), average loading (*i.e*., typical midday loading) and minimum loading (*i.e*., 25% of peak load) was studied.

Target in Q3 2017:

- Complete the Use Case study of F3463 and F3467.
- Complete the Use Case study draft report.
- Commence the feeder performance analysis.

14. Internal Systems Capability.

Status: [Ongoing]
The toll-free number continued to operate in Q2 2017. The Sanction Paper, an internal document used by National Grid for cost authorization, was previously completed in Q3 2016. The capital cost included in that paper was based on a preliminary budget prior to the Implementation Plan finalization. The Sanction Paper will require updating per the budget values listed in the final Implementation Plan.

Targets/Actuals in Q2 2017:

- Maintain internal systems in working condition.

- Actual: The internal systems were maintained in working order.

- Update the National Grid Sanction Paper using the capital cost listed in the final Implementation Plan budget.
  - Actual: The Sanction Paper revision was commenced.

Target in Q3 2017:

- Maintain internal systems in working condition.
- Finalize and gain approval of the updated Sanction Paper when completed, which in addition to the contracted installation costs (such as those of Solar Liberty), will also include National Grid's installation labor costs.

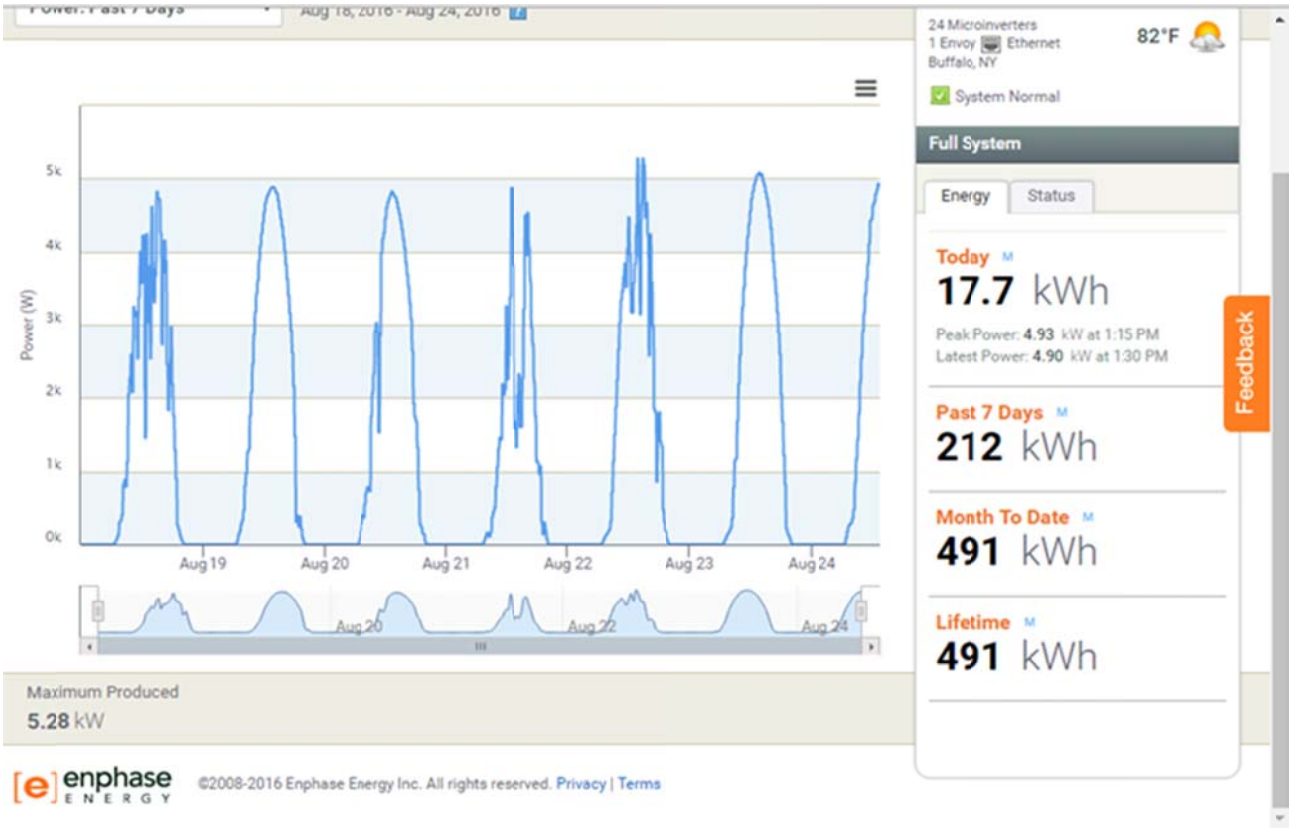

Figure 3-6: The Enphase system provides multiple reporting displays, including a 7-day total daily output graph.

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 Project timeline has changed due to the delays mentioned in previous project quarterly reports. See Appendix A, Figure A-1.

4.2 Updated Budget

The following items may impact the budget as they remain unresolved as of the end of Q2 2017.

1. 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 100 houses/buildings are connected using this approach.

   Solutions:
   The following solution was previously proposed:

   - 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 Project budget is presented below:

Fruit Belt Neighborhood Solar
Quarterly Budget Status
Q2 2017

Task	Incremental Cost Budget	Incremental and Non-Incremental Quarterly Spend	Incremental and Non-Incremental Spend to Date	Incremental and Non-Incremental Total Expected Completion Cost	Total Spend Versus Incremental (without non-incremental) Budget Variance
Operational Expenditures					
General Administration and Planning	$ 30,000	$ 19,369	$ 168,849	$ 330,000	$ (300,000)
Marketing and Community Engagement	$ 250,000	$ 12,710	$ 146,177	$ 150,000	$ 100,000
Incentives	$ -	$ -	$ 245	$ -	$ -
Implementation	$ 1,777,200	$ 13,200	$ 54,523	$ 1,777,200	$ -
Evaluation & Analysis	$ 325,000	$ 50,435	$ 100,435	$ 302,610	$ 22,390
Totals:	**$ 2,382,200**	**$ 95,714**	**$ 470,229**	**$ 2,559,810**	**$ (177,610)**
Capital Expenditures					
100 Solar PV Systems	$ 1,410,000	$ 723,160	$ 919,099	$ 1,410,000	$ -
Totals:	**$ 1,410,000**	**$ 723,160**	**$ 919,099**	**$ 1,410,000**	**$ -**
Project Totals:	**$ 3,792,200**	**$ 818,874**	**$ 1,389,328**	**$ 3,969,810**	**$ (177,610)**

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 have not been developed. This Project's total incremental costs as of June 30, 2017 were $973,328.

5.0 Progress Metrics

Appendix B presents key Project metric tracking data available as of the end of Q2 2017. Note that arrears payment data is not available in this quarter because the first solar PV systems were not installed at locations where customers were in arrears. Additional fields have been added to better display the arrears data once arrears data is generated. Also, tier description fields were added to more accurately reflect true Tier enrollment status.

Appendices

Appendix A: Updated Gantt Chart (as of the end of Q2 2017)

Table A.1 – Updated Gantt Chart

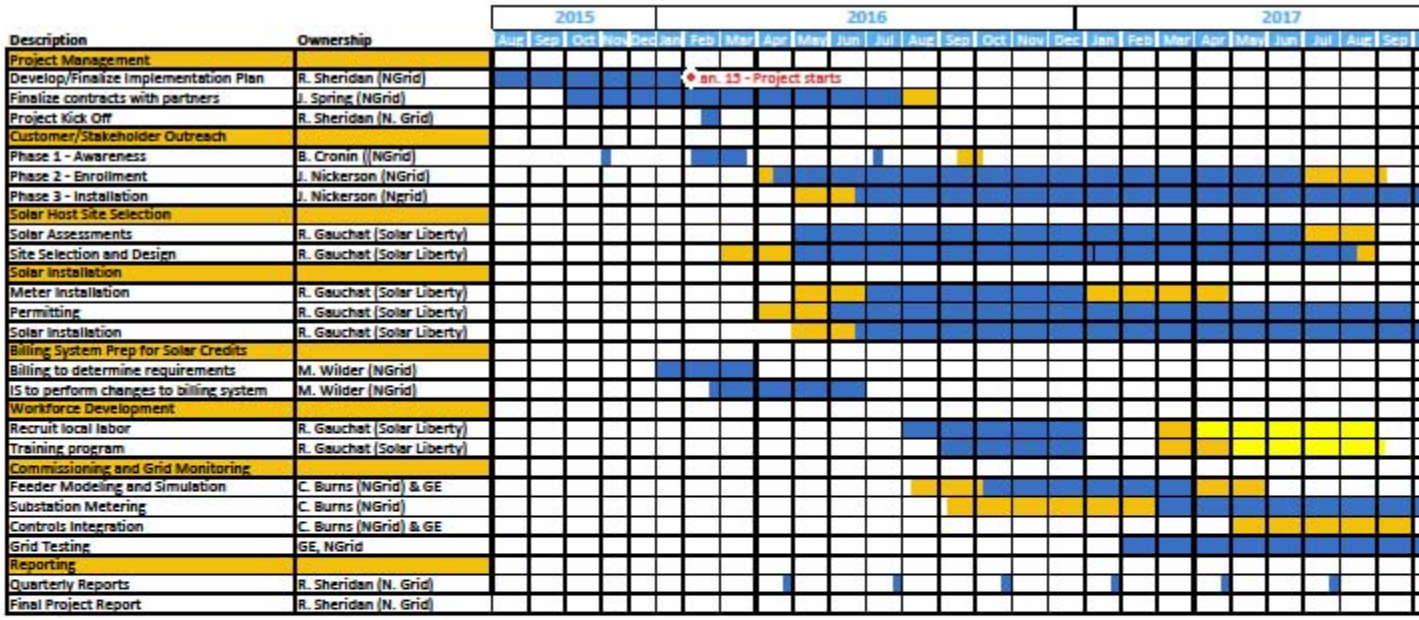

Table B-1: Updated Gantt Chart

Appendix B: Metric Tracking

Time Frame		Outreach	Customer Tier					Solar Installation Progress					Generation and Credits					Arrearage Participant Evaluation
Project Quarter	Year	Expressions of Interest (Calls Received, Canvass Response)	Tier 1 Enroll-ment	Tier 1 Elig-ibility	Tier 2 Enroll-ment	Tier 3 Eligi-bility	Tier 3 Enroll-ment	Roof Assess-ments Completed	Structural Assess-ments Completed	Electrical Assess-ments Completed	Rooftop Systems Installed	Rooftop Systems Con-nected	kW on-line	kWh gener-ated	Bill Credit Gener- ated ($)	Cumula- tive Qty of Bill Credit Recip-ients	Enrollee Total Quarter Credit ($)	Arrearage Particpant Quantity
1	Q1 2016	0	0	0	0	0	0	0	0	0	0	0	0	0	$0.00	0	$0.00	0
2	Q2 2016	34	1	5	0	14	0	14	10	14	1	0	0	0	$0.00	0	$0.00	0
3	Q3 2016	28	1	10	0	16	0	26*	9	5	1	2	12.22	2,408	$33.96	2	$16.98	0
4	Q4 2016	78	2	16	0	34	0	54	21	24	3	2	10.92	5,039	$116.99	3	$50.49	0
5	Q1 2017	14	2	40	0	14	0	13	19	5	3	2	12.74	10,709	$268.10	6	$47.77	0
6	Q2 2017	12	2	8	0	13	0	9	13	5	31	2	13.00	15,599	$361.36	8	$45.17	0
7	Q3 2017																	
8	Q4 2017																	
9	Q1 2018																	
10	Q2 2018																	
11	Q3 2018																	
12	Q4 2018																	
	Totals:	166	8	79	0	91	0	90	72	53	38	8	48.88	33,755	$780.41			

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

Note: The folowing modifications were made this quarter to focus reporting on most su

1 The calendar quarter and year date were added to facilitate matching row data with the respective quarterly reporting period.
2 Reporting the quantity of geographically-disqualified customers was discontinued, as there are several reasons for disqualifying a cutomer from becoming a solar host.
3 The total bill credit issued was added to facilitate reporting of the total project financial impact on participant bills.

Table B.1 – Metric Tracking Table