Fruit Belt Neighborhood Solar

REV Demonstration
Q2 2016 Report

August 1, 2016

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") ("the Partnership"), 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 100 rooftop 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 the local residential community, increasing energy awareness and project participation. Using utility-owned solar PV equipment mounted on residential roofs, participating bill-paying residents 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 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.

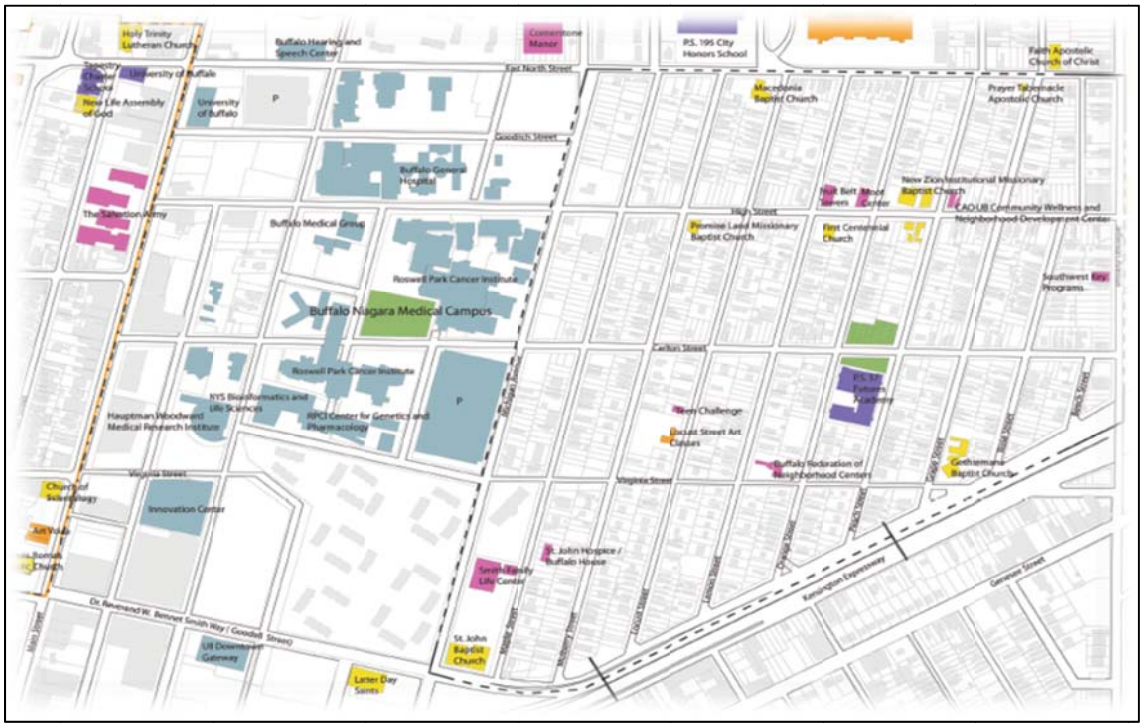


Figure 1-1: Location of the Fruit Belt Neighborhood (dashed perimeter), located adjacent to the Buffalo Niagara Medical Campus

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 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 Q2 Goals

Extensive progress was made on this Demonstration Project during Q2 2016 in the areas of partner contract finalization, marketing collateral completion and distribution, community outreach, participation tracking, and solar PV host selection, culminating in the Project's first solar PV system installation on June 29, 2016. Now that the selection and implementation process has been established, it will be optimized to permit collection of data on community engagement, solar PV generation, grid effects, and bill effects once the respective data collection mechanism is put into place.

In Q3 2016, the first installations will be connected to the local grid and will begin to generate power and bill credits. Additional marketing efforts will be conducted, additional residences will be evaluated as to their eligibility to participate, and additional solar PV systems will be installed. Also, bill pool lottery participants will continue to be identified. Energy efficiency program information will also be distributed. The contract to evaluate grid benefits will be finalized and the evaluation process will commence. Q3 efforts also include workplace development.

Figure 1-2: Solar panel close-up view

Figure 2.1: BNMC representative speaking at the 4/18/16 Community Meeting

2.0 Highlights Since Previous Quarter

2.1 Major Tasks Completed

- Regulatory Filings:
  - The Q1 2016 quarterly report was prepared and filed with the Commission.

- Community Engagement:
  - To raise awareness, informational door hangers were distributed throughout the neighborhood on April 15 and 16, as well as May 16 and 17, ahead of community meetings.
  - A PowerPoint presentation for the public meetings was created and circulated to NYSEDA, BNMC, and Solar Liberty for their input and comments.
  - Community meetings were held April 18 and May 19, 2016, which included presentations made by National Grid, BNMC, NYSERDA, and Solar Liberty.

- Additional community drop-in sessions were held on April 22 and 28. Representatives from National Grid, BNMC, NYSERDA, and Solar Liberty staff were available to respond to attendee questions.
- The Project-specific toll-free number was activated.
- A one-page Project information sheet was developed, reviewed, and published.
- An FAQ handout was prepared and distributed at the public meetings.
- A training session was conducted for National Grid' Customer Service center staff who take calls from the toll-free telephone number.

- Internal Engagement:
  - The Project access agreement, which is used for establishing access to a potential participating homeowner's property, was finalized.
  - The solar host agreement, which serves as the homeowner's contract for Program participation, was finalized.
  - Training on how to install the proposed meter collar connection was conducted with National Grid's Meter Data Services ("MDS") group.
  - Questions resulting from the MDS group resulted in the meter collar approach being suspended pending further analysis. An alternative engineering design for connecting the solar PV to the grid involving a second solar PV-only meter was developed.
  - A participant progress tracking system was created and implemented.
  - Draft internal documentation for capitalizing solar PV systems was prepared.

- Data Evaluation, Measurement &Verification ("EM&V"):
  - Groundwork for the first interconnection was completed, with interconnection scheduled following electrical inspection and system testing.
  - Enphase accuracy meter testing was commended at National Grid's meter test facility.

- Partner Participation
  - The Scope of Work ("SOW") section of National Grid's contract with Solar Liberty was finalized on May 16, 2016.
  - Weekly and bi-weekly progress calls for partners were established to ensure timely information flow.

  - Solar Liberty:
    - Ordered Enphase microinverters and supporting equipment for ten (10) solar PV rooftop systems;
    - Commenced the process of obtaining ISNetworld ("ISN") certification;
    - Prepared a site-specific Health and Safety Plan;
    - Prepared the application for, and received, the Project's first building permit;
    - Prepared, submitted, and received approval from National Grid's Technical Sales and Engineering Support team of the Project's first Distributed Generation ("DG") Application;

- Prepared a preliminary list of eligible premises based on evaluation of Google aerial maps;
- Completed electrical, roofing, and structural reviews of the first two houses, resulting in one of them being declared solar-ready;
- Installed the Project's first solar (6 kW) PV system array;
- Evaluated a workforce development staff supply option.

- NYSERDA :
  - Developed and finalized Project-specific energy efficiency marketing collateral;
  - Drafted the EmPower NY Program customer information workflow process.
  - Distributed a draft Project Memorandum of Understanding ("MOU") for National Grid's review;
  - Worked with National Grid to evaluate various data transfer options and selected the File Transfer Protocol ("FTP") site approach.

- GE:
  - The contract for grid efficiency analysis was further developed.

- BNMC:
  - Arranged for use of the community center for the Project public meetings and drop-in sessions;
  - Identified likely early-adopters within the community and encouraged them to sign up to participate;
  - Assisted Solar Liberty with evaluating local workforce development options.

- Community Participation:
  - Thirty seven (37) account holders indicated interest in becoming a solar PV host by the end of Q2 2016;
  - Subsequently, twenty one (21) houses were deemed unfit to host solar PV due to shading, roof size, roof pitch, or roof orientation;
  - Sixteen (16) houses met curbside criteria;
  - Six (6) of the above sixteen (16) houses so far have been declared "solar ready", having the required roof, electrical system, and structural integrity.

Figure 2-2: Inverter installed on each solar panel

2.2 Key Metrics

Key Project metrics were developed based on the data needs and the proposed work scope, and the ability of the selected equipment and systems to provide the key metric data was verified. The attached Appendix C contains the Key Metric Reporting Matrix that will be utilized. Q2 2016 activities consisted primarily of enrollment and determination of "solar readiness" and data collection pertaining to engagement and participation. The first solar PV system installation was conducted in the last two days of Q2. Therefore, generation and bill credit data will be available starting Q3 2016.

2.3 Challenges, Changes, and Lessons Learned

Issue or Change	What was the resulting change to scope/timeline?	Strategies to resolve	Lessons Learned
A new type of interconnection called a meter collar was proposed to connect solar PV generation to the grid at a point in front of the meter. However, the use of such a device raised energy theft concerns.	• An engineering committee commenced evaluating the meter collar to determine acceptability. This task requires more time, but will not affect the Project budget.	• An alternative interconnection design was developed. • The engineering review committee will proceed with their meter collar analysis.	Have ALL proposed equipment not currently in use be reviewed by the appropriate parties in the Project planning phase, or include equipment review and analysis as part of the work scope.

	• In the meantime, an alternative interconnection approach involving a second solar PV-only meter was designed.		
Data and information sharing process between partners needs to be established.	No change.	Establish safe communication platforms as needed with each partner, ensuring customer data confidentiality is not compromised.	Establish protocols early, to ensure all parties understand the type and purpose of information required to be shared, and its associated level of privacy.
Contractor's Safety certification status did not meet National Grid's requirements • Partner needs ISN certification, in addition to providing its own site-specific Health and Safety Plan.	Contractor did not hold ISN certification. This was not revealed during bidding process. Obtaining the ISN certification requires a significant effort by a contractor. However, this can be done concurrently with the initial field work, thus it has not delayed installation activities.	Solar Liberty is preparing its ISN certification application.	Internally establish a checklist of needs for hiring a new contractor, and verify that contractor either has fulfilled, or can fulfill, those requirements.
The location of the existing electric meter at some houses does not meet the current electric code.	Houses at which the existing meters are not located in a code-compliant location will either require an investment from the project to re-locate the meters, or a solar PV verification meter will not be installed at that house.	For houses at which a second dedicated solar PV National Grid meter will be installed, National Grid's line department will mark a proper new meter location on a house prior to the solar PV system installation.	Request National Grid's Distribution Design department conduct an on-site review of existing meters and connection cable locations prior to declaring a house to be solar ready.

Additional customer preference and site-specific information was necessary for system installation.	No change.	Worked with Solar Liberty to have them enhance the on-site screening checklist used during their pre-installation process to address customer preferences and other field-based items.	Verify customer acceptance of the location of all new and visible solar PV system parts, excluding solar panels, but including: • Combiner box • AC Disconnect; • Conduit • Verification meter (if installed)l Also: • Verify exterior energized outlet location (for tool power supply). • If panels are to be installed on the garage, mark on garage exterior the structure's roof rafter locations. • Identify acceptable underground cable location (if needed).
Additional internal approval was necessary for system installation.	No change.	Create a checklist for each action item during the pre-installation review, as well as site-specific drawings.	National Grid Distribution Design will: • Confirm meter channel location (*i.e.*, at least four (4) feet from property line); • Secure meter tests/approval.

Roofing repair on several houses otherwise deemed "solar ready" was not viable because their roofs were too far deteriorated. Roofing replacement costs at these houses were determined to be far in excess of the current roofing repair/electrical/structural repair budget, which is capped at $2,000 per house.	Houses requiring re-roofing to become "solar ready" cannot presently participate in the Project.	Continue to evaluate houses. If one-hundred (100) houses are identified where each does not exceed the "solar ready" preparation budget cap, no further action is needed. If one-hundred (100) houses are not identified in the Fruit Belt neighborhood, expanding the geographic boundaries to include more houses with viable roofs will be further evaluated.	Conduct a general curbside survey of the neighborhood to help better estimate costs required to make houses "solar-ready", in order to meet the one-hundred (100) house target. Also, obtain general estimates for making the types of upgrades needed at the houses under consideration.

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 stated in the Q1 2016 Report. Completed checkpoints and milestones are not included.

Table 3.1 Checkpoints/Milestone Progress

	Checkpoint/Milestone	Anticipated Start/End Date stated in Q12016 Report	Revised Start-End Date	Status
1	Finalize Contracts with Partners	04/2016	*08/2016*	
2	Customer/Stakeholder Outreach Phase 1: Awareness	Ongoing	*No change*	
3	Customer/Stakeholder Outreach: Phase 2: Enrollment	04/16-09/17	*No change*	
4	Customer/Stakeholder Outreach Phase 3: Installation			
5	Solar Assessments	05/16 ongoing	*No change*	
6	Site Selection and Design	01/01/16 ongoing	*No Change*	
7	Meter Installation	05/2016 ongoing	07/2016 ongoing	
8	Permitting	04/2016 ongoing	06/2016 ongoing	

9	Solar PV Installation	05/2016-10/2017	06/2016-10/2017	🟡
10	Interconnection	04/2016 ongoing	07/2016 ongoing	🟡
11	Bill Credits Administrated	05/2016 ongoing	08/2016 ongoing	🟡
12	Solar Workforce Hiring	Q2 2016	Q3 2016	🟡
13	GE Commissioning and grid monitoring	04/2016 ongoing	08/16 ongoing	🟡
14	Internal Systems Capability	10/15-04/16	*No change*	🟢

Key

🟢 On-track

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

🔴 Terminated/abandoned checkpoint

1. Partner Contracts Executed.

Status: 🟡 [(Revised) 05/2016- ongoing]

While the Q2 goal was for all contracts to be fully executed by the end of April, the Solar Liberty contract was not completed until May 2016. The GE contract is scheduled to be completed in Q3 2016 after clarifying work scope details. No further action is required.

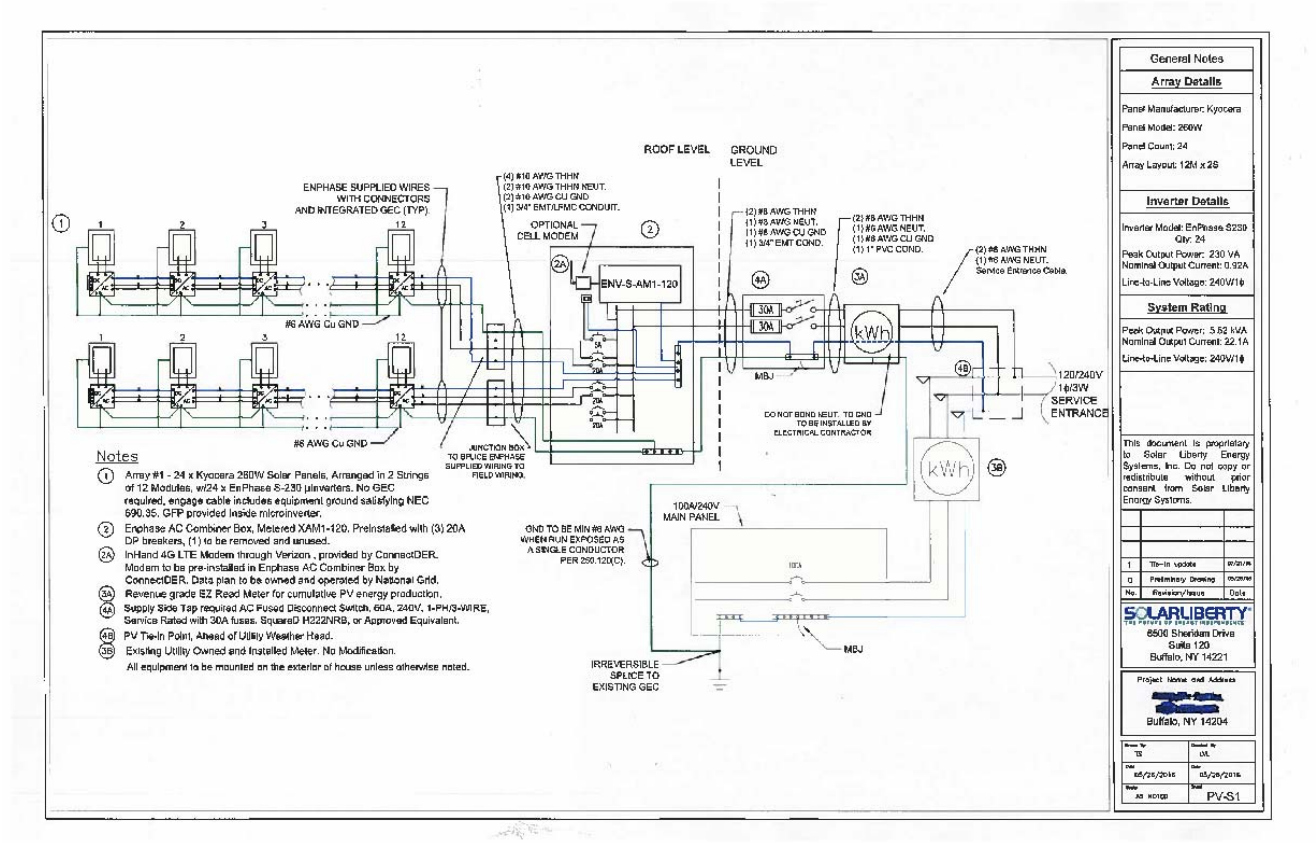


Figure 3-1: Example One-Line Drawing

2. Customer/Stakeholder Outreach: Phase 1: Awareness.

Status: [Ongoing]

Outreach and Education Phase 2 will be implemented in Q3 2016 to continue to drive Project enrollment. Phase 2 efforts will include two rounds of postcard mailings advertising the Project to all electric account holders; a targeted mailing to homeowners and landlords of houses determined to be likely Project candidates based on roof size and shading, as identified through Google images; and a booth set up at the local farmers market held on select days in the summer. Partnership representatives will continue to provide information to potential and existing participants regarding enrollment, billing credits, educational resources, workforce development, solar PV, and energy efficiency. All targets for Q2 2016 were met.

Targets/Actuals in Q2 2016:

- Target: Get twenty-five (25) total homeowners to express interest in hosting a solar PV system.
  - Actual: Thirty-seven (37) expressed interest.
- Target: Hold three community meetings.
  - Actual: Four (4) community meetings were held; two (2) meetings at which a presentation was made (April 18 and May 19, 2016), and two drop-in sessions on April 22 and April 28, 2016. There were held with input from BNMC, NYSERDA, Solar Liberty, and National Grid.
- Target: Respond to 100% of calls received from the Project's toll-free number.
  - Actual: 100% of the forty-four (44) calls received were responded to within one (1) business day.

Target in Q3 2016:

- Develop and mail out two rounds of postcards to all electric account holders;
- Develop and mail a targeted letter to the homeowners and non-resident landlords of each house meeting screening criteria;
- Get at least twenty-five (25) new expressions of interest in the Project;
- Evaluate at least fifteen (15) houses as potential solar PV hosts;
- Install at least five (5) solar PV systems.

Solutions/strategies in case of results below expectations:

If results fall below expectations, National Grid and the Partnership would hold additional community meetings, distribute additional collateral, and engage early adopters to spread word-of-mouth information.

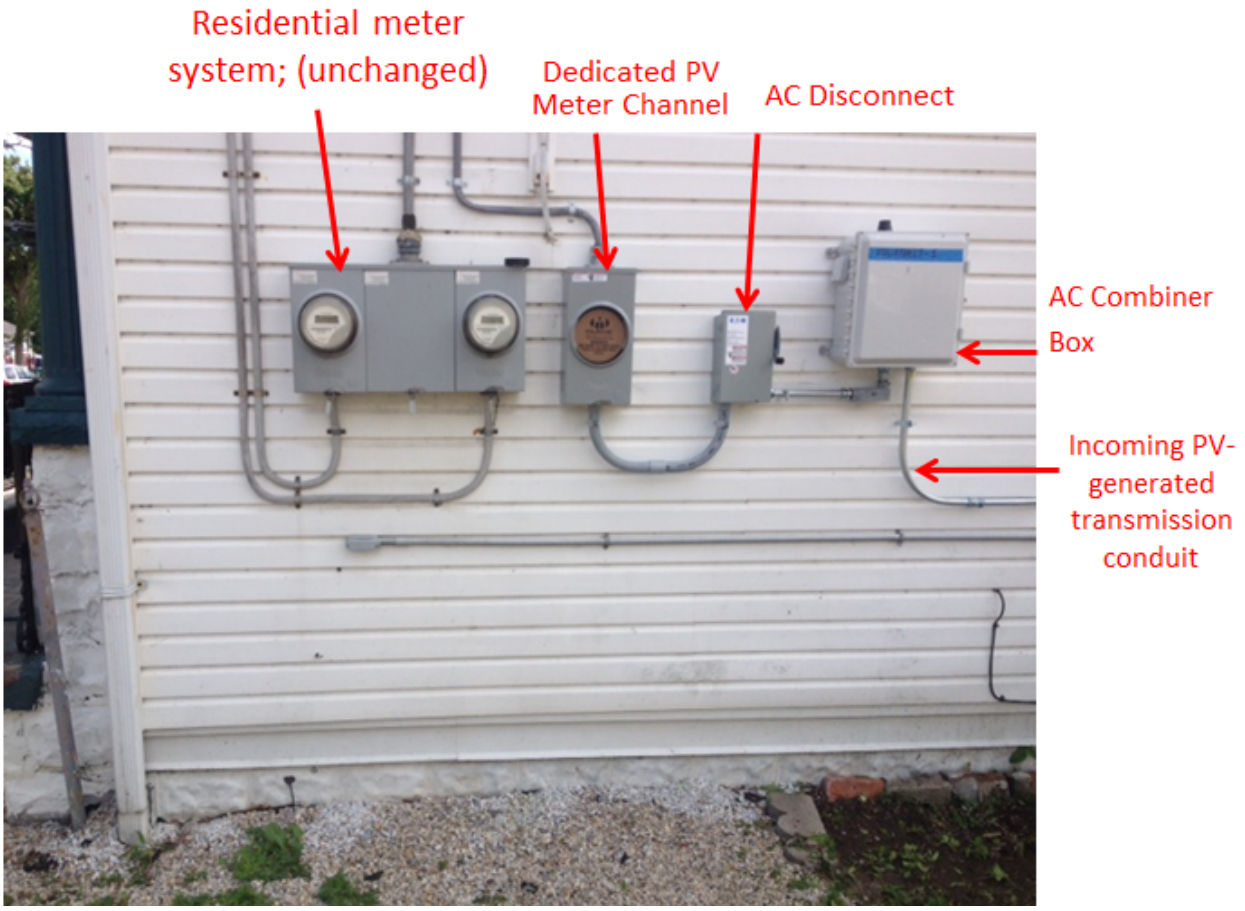


Figure 3-1: Solar PV system equipment configuration downstream of solar PV panels

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

Status: [Ongoing]
Enrollment began on April 17, 2016 with the first community meeting. Enrollment will continue until owners of 100 “solar-ready” houses have committed to being a solar PV host.

Targets/Actuals in Q2 2016:

- Target: Ten (10) early adopters sign Access Agreements
  - Actual: Sixteen (16) signed Access Agreements
- Target: Five (5) total participants enrolled as Tier I in Q2 2016.
  - Actual: One (1) participant enrolled in Tier 1.
- Target: Ten (10) total participants signed up for lottery as Tier II in Q2 2016.
  - Actual: Twenty-one (21) account holders will be entered into the bill credit lottery.
- Target: Ten (10) total participants referred to NYSERDA as Tier III in Q2 2016.
  - Actual: NYSERDA referral process was not finalized in Q2 2016, so this activity could not take place during this quarter.

Target in Q3 2016:

- Target: Additional twenty (20) homeowners sign an Access Agreement.
- Target: Additional ten (10) total homeowners enroll as Tier I.
- Target: Additional twenty (20) total account-holders sign up for the bill credit lottery.

- Target: Forty (40) total participants referred to NYSERDA EmPower program.

Solutions/strategies in case of results below expectations:
Similar to Stakeholder Outreach, if the participation levels are low, the strategies noted in the "Customer/Stakeholder Outreach" section, above, will be implemented. If participation levels are low due to additional factors such as solar PV host capability, the Partnership will consider including houses served by a nearby third feeder to expand the pool of eligible participants.

Figure 3-2: Installing solar panels at the first participant in the Fruit Belt Neighborhood Solar Project.

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

Status: [Ongoing]
One solar PV system was installed during the Q2 2016, due to the extensive process involved in getting a customer to enroll, evaluating each house, and obtaining requisite permits. Customer engagement continued through the installation period, so that the customer was kept informed of the installation schedule.

Targets/Actuals in Q2 2016:

- Target: Install PV systems on two (2) houses.
  - Actual: One (1) solar PV system was installed.

Target in Q3 2016:

- Target: Install solar PV systems on five (5) houses. Maintain frequent and positive engagement throughout the installation scheduling and implementation process.

5. Solar Assessments.

Status: [Ongoing]
Curbside assessments are conducted on each house for which the owner expresses interest, and for which the Google review show to be viable. This process will be continued until 500 kW of rooftop solar PV systems are installed.

Targets/Actuals in Q2 2016:

- Target: Ten (10) solar PV assessments completed.
    - Actual: Sixteen (16) assessments got underway.
- Target: 100% of solar PV site assessments completed within ten (10) business days of National Grid receiving the completed Access Agreement.
- Actual: 100% of solar PV site assessments completed within ten (10) business days of National Grid receiving the completed Access Agreement.

Target in Q3 2016:

- Complete an additional fifteen (15) solar PV assessments.

Solutions/strategies in case of results below expectations:

If the solar PV assessment quantity is low due to enrollment, the strategies noted in Section 1, above, will be implemented.

6. Site Selection and Design

Status: **[Ongoing]**

A solar array design (site plan) for each residence for which a homeowner expressed interest, and deemed eligible from the solar assessment process, was completed.

Targets/Actuals in Q2 2016:

- Actual: No targets were set for Q2, but sixteen (16) Access Agreements were signed, six (6) of those were deemed “solar ready”. Two (2) plans were submitted for permits, and two (2) permits were received.

Target in Q3 2016:

Design a site plan for all houses owned by residents who express interest in the Project, and which pass the solar screening assessment.

Figure 3-2: Limited space between many of the Fruit Belt Neighborhood houses prevents using a mechanical high-lift to transport the solar PV panels to the roof.

Solutions/strategies in case of results below expectations:

- It is expected that a site plan can be prepared for those houses owned by residents who express interest, which pass the solar screening assessment, provided there is sufficient remaining business days in the quarter to do so. Houses that meet the screening criteria, but for which there was insufficient time to prepare a site plan within the quarter, will have a site plan created in the following quarter.

7. Meter Installation.

Status: [(Revised) 07/2016 ongoing]
A separate meter from the Enphase meter will only be installed on five (5) of the proposed 100 PV systems. These will be installed as a check on the Enphase metering system.

A verification meter was not installed on the first solar PV system installed under this Project because the desired meter location was required to meet the current City of Buffalo building code. The estimated cost of moving the meters exceeded the Project's $2,000 per house cap, and the homeowner was unwilling to pay the difference between the $2,000 cap and the actual meter relocation cost.

Targets/Actuals in Q2 2016:

- Target: Five (5) systems installed, which will include metering.
    - Actual: One (1) system and no meters were installed by close of June 2016.

- Target: 100% of solar PV panel arrays are connected and being metered within ten (10) business days of completing solar PV system installation.
    - Actual: N/A. Installation was completed two (2) days before the end of the quarter.

Target in Q3 2016:

- Two of the proposed five secondary meter systems will be installed.
- 100% of solar PV panel arrays are connected and being metered within ten (10) business days of completing solar PV system installation**.**

Solutions/strategies in case of results below expectations:

Envoy metering is part of the solar PV panel installation. If a solar PV panel system is not active within ten (10) days of installation completion, National Grid will communicate with Solar Liberty and Enphase to determine what is preventing the timely interconnection, and will then address the findings so that all subsequent solar PV systems are active within the ten (10) day timeframe. Delays in installations will be mitigated by implementing lessons learned and anticipating proper lead time for steps, such as obtaining building permits and placing equipment orders.

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

8. Permitting

Status: [(Revised) 06/2016 ongoing]

Permitting was postponed one month due to delays in enrollment and lag time for permitting. The Partnership is in close contact with the City of Buffalo's Department of Buildings in order to streamline the approval of the ten (10) initial systems. Typically, the lag time for the permitting is between four (4) and six (6) weeks.

Targets/Actuals in Q2 2016:

- Target: Permits ready for early adopters in May 2016.
    - Actual: Two (2) permits were ready in June 2016, a month behind schedule, due to the lag time in getting homeowners to sign up.

Target in Q3 2016

- Target: Obtain permits within two (2) weeks for each application submitted.

Solutions/strategies in case of results below expectations:

Permitting lag time will depend on the City of Buffalo, but maintaining communication regarding rate of enrollment will help the City anticipate workload.

9. Solar Installation.

Status: [(Revised) 06/2016-10/2017]
Solar installation was postponed due to all aforementioned delays. As of the end of Q2 2016 close, one installation had been completed, with the interconnection to the grid planned for early Q3 2016.

Targets/Actuals in Q2 2016:

- Target: Two (2) rooftop solar PV systems installed.
  - Actual: One (1) rooftop solar PV system was installed.

Target in Q3 2016:

- Install five (5) rooftop solar PV systems.

Solutions/strategies in case of results below expectations:

The Partnership will study the installation execution process with the contracted partner to identify the specific problem(s) in the process, as well as to identify actionable, timely solutions.

10. Interconnection **[(Revised) 07/2016 ongoing]**

Status:
The first rooftop system was completed in late June 2016. Interconnection will be completed in early Q3 2016.

Targets/Actuals in Q2 2016:

- Target: Connect two (2) rooftop solar PV systems.
  - Actual: Only one (1) solar PV system was installed; the installation date (6/29-6/30) did not permit interconnection completion in Q2.

Target in Q3 2016:

Complete, or schedule for completion the interconnection for each solar PV system installed in Q3 2016.

Solutions/strategies in case of results below expectations:

- Delays in conducting or scheduling interconnections are not anticipated at this time.

11. Bill Credits Administered.

Status: [(Revised) 08/2016 ongoing]
The billing system to calculate and distribute the billing credit has been created. Bill credits will begin the bill cycle following interconnection. With the first system anticipated to be connected in

July 2016, the credits will accumulate in August 2016 and appear on the customer's September 2016 bill.

Target in Q3 2016:

- Distribute all bill credits for the previous month's solar PV credit using the designed bill credit system.

Solutions/strategies in case of results below expectations:

- Any issue with the bill credit system will be reviewed once they are identified.

Figure 3-4: An example of an electronic metering system that gets installed inside each residential solar PV system to telecommunicate energy production data to a remote receiver.

12. Workforce Recruit Local Solar Employees.

Status: [(Revised) Q3 ongoing]

Solar Liberty worked with BNMC in Q2 2016 to evaluate options for identifying and hiring local employee candidates. A hiring source for eligible candidates was not selected.

Targets/Actuals in Q2 2016:

- Target: One job position identified and posted.
    - Actual: No job postings were prepared during this quarter.

Target in Q3 2016:

- Identify a hiring source for eligible candidates.

- Solar Liberty to hire at least one candidate.

Solutions/strategies in case of results below expectations:

The workforce development timeline is in flux due to the uncertainty of staffing needs. Solar Liberty will maintain communication with BNMC to explore hiring alternatives, if the proposed hiring processes prove ineffective for identifying viable, qualified candidates.

13. GE Commissioning and Grid Monitoring.

Status: **[(Revised) 07/2016 ongoing]**
GE grid efficiency work, consisting of feeder modeling and simulation, controls integration, and grid testing, will begin upon the interconnection of systems. This work is anticipated to commence in Q32 2016.

14. Internal Systems Capability.

Status: **[Ongoing]**

- The toll-free number has been established and activated.
- Initial internal review for Sanction Paper, an internal document used by National Grid for cost recovery, began in mid-May, 2016.

Target in Q3 2016:

- Complete the Sanction Paper process for establishing the solar PV systems as part of the rate base.
- Test the bill credit process using actual data generated by the solar PV systems installed.

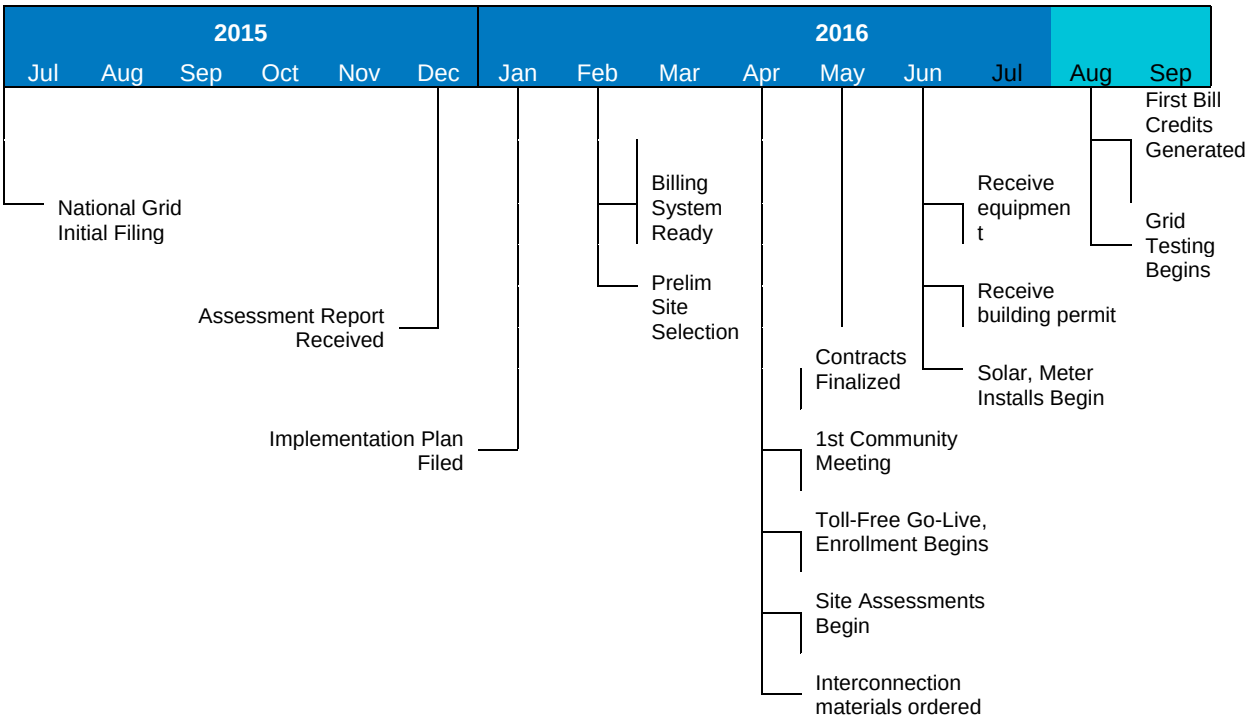
Figure 3-5: Combiner box interior where solar PV panel energy output is combined and metered before interconnection with the local electric grid.

4.0 Work Plan & Budget Review

4.1 Updated Work Plan

The overall work scope and work plan remain unchanged, although some alternative equipment for the solar PV system interconnection may change based on its pending approval. The Project timeline has changed due to the delays previously mentioned in the report.

Figure 4.1 – Updated Timeline



4.2 Updated Budget

Three items that may impact the budget were identified in Q2 20116, as described below.

1. Based on house inspection data accumulated as of the end of Q2 2016, roofs that are in a degraded condition and cannot support a solar PV system cannot be repaired to become "solar ready." Rather, roof replacement is necessary at these houses. Roof replacement prices secured by Solar Liberty range from $10,000 to $16,000. Offering the $2,000 roof repair maximum amount per house authorized for the Project as an offset to a homeowner in need of a roof replacement has proven insufficient in motivating a homeowner to make the roofing investment to become "solar ready."

   Solutions:
   The following solutions are proposed:

   - Evaluate inflow of new interest to determine if the 100-house goal can be met within the $2,000 per house cap.

     Expand the geographic area of the project to include more houses that can be made solar ready for $2,000 or less.

2. The SIM cards used for data communications will incur a monthly fee. This fee was not included in the original budget for the Project. It is too early in the Project to determine if this will require additional funding, as the actual costs are unknown at this time and

cannot be compared to the projected budget. Therefore, a budget increase will not be sought at this time.

3. The allocated amounts for National Grid's tasks are not well matched to the levels of effort they require. However, it is too early in the Project to identify exact dollar amounts needed to accurately re-allocate the Project funds. This evaluation will take place during Q4 2016, as all aspects of the Project, including the system evaluation by GE, will be underway at that time.

The updated Project budget is presented below:

Fruit Belt Neighborhood Solar
Quarterly Budget Status
Q2 2016

Task	Budget	Quarterly Spend	Spend to Date	Expected Completion	Variance
Operational Expenditures					
General Administration and Planning	$ 455,000	$125,517	$128,392	$ 455,000	$ -
Marketing and Community Engagement	$ 125,000	$31,508	$35,679	$ 125,000	$ -
Incentives	$ -	$ -	$ -	$ -	$ -
Implementation	$ 1,389,375	$ -	$ -	$ 1,389,375	$ -
Evaluation & Analysis	$ 300,000	$ -	$ -	$ 300,000	$ -
Totals:	$ 2,269,375	$ 157,025	$ 164,071	$ 2,269,375	$ -
Capital Expenditures					
100 Solar PV Systems	$ 1,023,000	$ -	$ -	$ 1,023,000	$ -
Totals:	$ 1,023,000	$ -	$ -	$ 1,023,000	$ -
Project Totals:	$ 3,292,375	$ 157,025	$ 164,071	$ 3,292,375	$ -

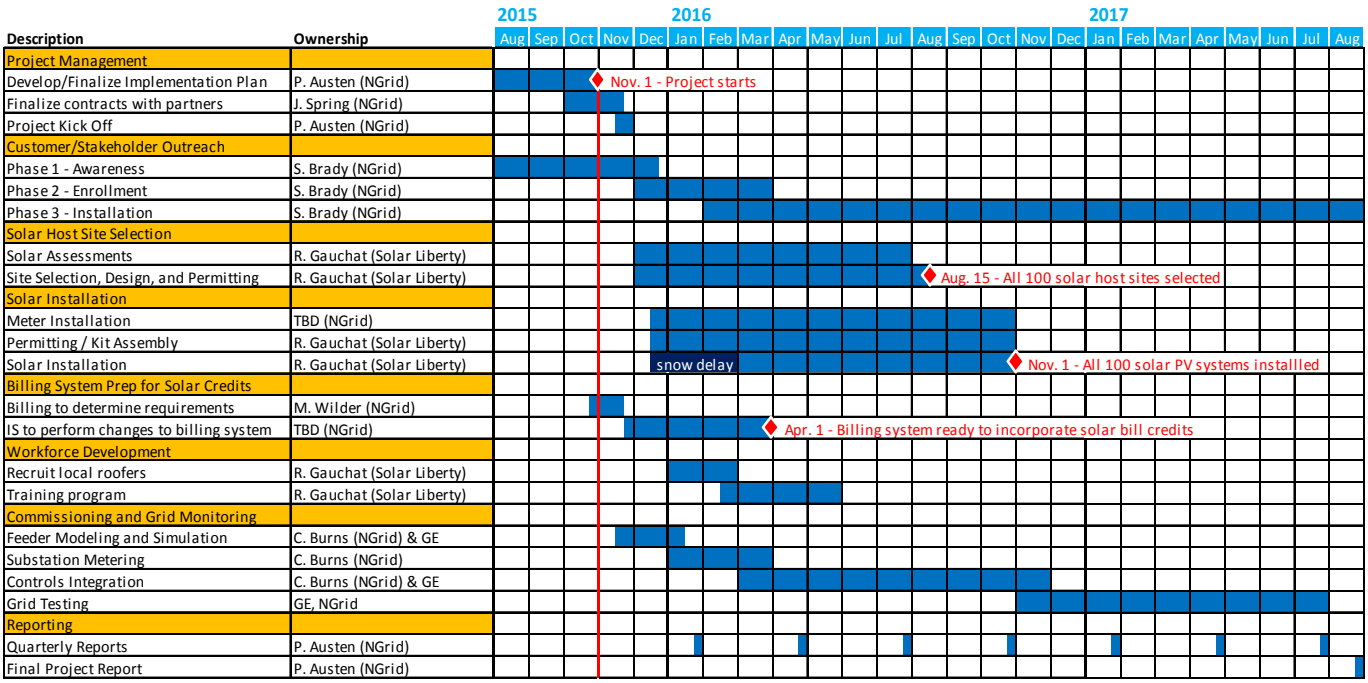
As previously noted in the Q1 2016 report, the final equipment vendors selected result in a lower project material cost. The additional cost of the solar PV panel removal and re-installation during any future roof repairs/replacements, as well as the cost of removing the solar PV panels after twenty-five (25) years of service, will be derived from re-allocating some funds originally budgeted for those material costs. Therefore, a budget increase for future solar PV panel removal/replacement will not be sought at this time.

5.0 Progress Metrics

Appendix C presents key Project metric tracking data available as of the end of Q2 2016. Note that generation data, grid effect data, credit amounts, and arrears payments are not available in this quarter because the first solar PV system was not yet interconnected by the end of Q2 2016.

Appendices

Appendix A: Former Gantt Chart (as presented in Q1 2016 Report)



Description	Ownership
Project Management	
Develop/Finalize Implementation Plan	P. Austen (NGrid)
Finalize contracts with partners	J. Spring (NGrid)
Project Kick Off	P. Austen (NGrid)
Customer/Stakeholder Outreach	
Phase 1 - Awareness	S. Brady (NGrid)
Phase 2 - Enrollment	S. Brady (NGrid)
Phase 3 - Installation	S. Brady (NGrid)
Solar Host Site Selection	
Solar Assessments	R. Gauchat (Solar Liberty)
Site Selection, Design, and Permitting	R. Gauchat (Solar Liberty)
Solar Installation	
Meter Installation	TBD (NGrid)
Permitting / Kit Assembly	R. Gauchat (Solar Liberty)
Solar Installation	R. Gauchat (Solar Liberty)
Billing System Prep for Solar Credits	
Billing to determine requirements	M. Wilder (NGrid)
IS to perform changes to billing system	TBD (NGrid)
Workforce Development	
Recruit local roofers	R. Gauchat (Solar Liberty)
Training program	R. Gauchat (Solar Liberty)
Commissioning and Grid Monitoring	
Feeder Modeling and Simulation	C. Burns (NGrid) & GE
Substation Metering	C. Burns (NGrid)
Controls Integration	C. Burns (NGrid) & GE
Grid Testing	GE, NGrid
Reporting	
Quarterly Reports	P. Austen (NGrid)
Final Project Report	P. Austen (NGrid)

Table A.1 – Former Gantt Chart (as presented in Q1 2016 Report)

Appendix B: Updated Gantt Chart

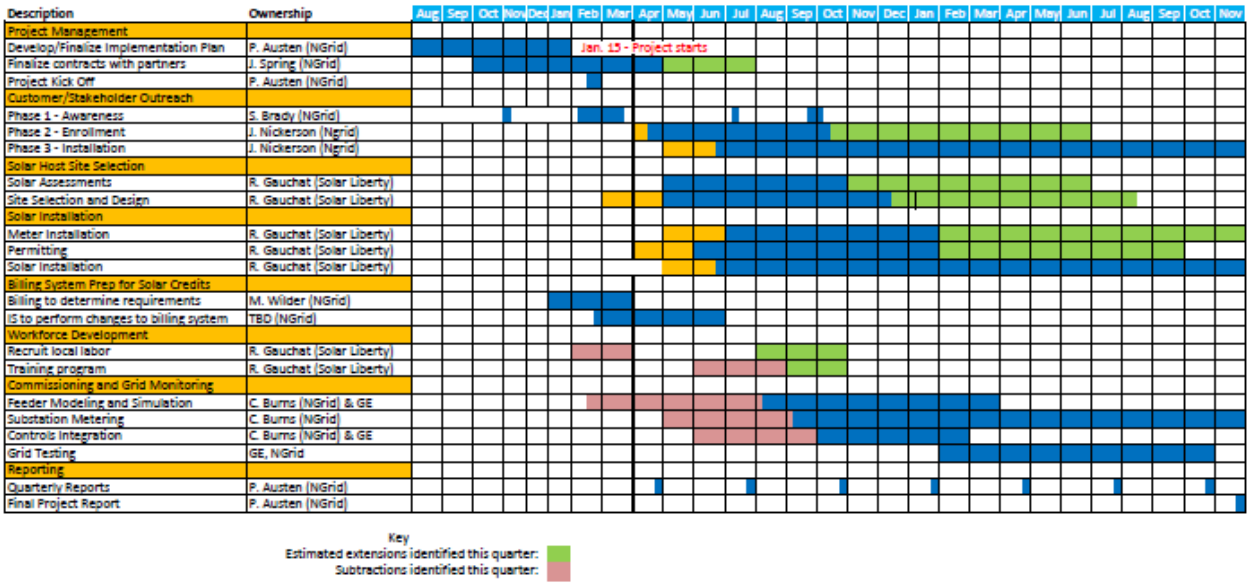


Table B.1 – Updated Gantt Chart

Appendix C: Metric Tracking

	Customer Tier			Solar Installation Progress						Generation and Credits					Outreach
Quarter	Tier 1 Sign Up	Tier 2 Sign up	Tier 3 Sign up	Program Eligibility Eval	Roof Assess-ment	Structural Assess-ment	Electrical Assess-ment	Rootop Systems Installed	Systems Con-nected	kW on-line	kWh gener-ated	Credits Gener-ated [$]	Credit recip-ients [#]	Credit/ recipient [$]	Toll Free Calls Received
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	6	0	37	37	14	14	14	1	0	0	0	0	0	0	42
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	6	0	37	37	14	14	14	1	0	0	0	0	0	0	42

Table C.1 – Metric Tracking table