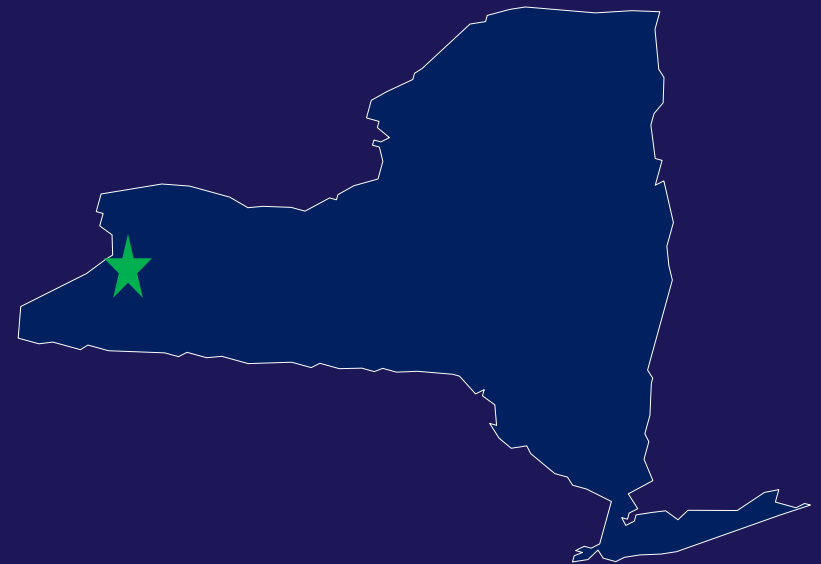


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# The Fruit Belt Solar REV Demonstration Project



*Jon Nickerson, CEM, LEED-AP*  
*Rob Gauchat, Solar Liberty*

*October 4, 2018*



# Fruit Belt Neighborhood REV Project Framework

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- Utility-owned solar PV application
- Only SC-1 accounts
- PV connection is in front of the meter
- Benefits shared among hosts and non-host account holders



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# Community-focused Project Objectives

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- Increase renewable energy use by an underserved market
- Increase residential energy efficiency
- Offer green jobs to locals



# Utility-Focused Project Objectives

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- Test utility-ownership model
- Identify and quantify grid efficiency effects
- Determine possible arrears impact



# Project Setting: Buffalo, NY

- Low-to-Moderate Income (LMI) community setting
- 0.4 square mile area
- Mix of owner-occupied and rental properties

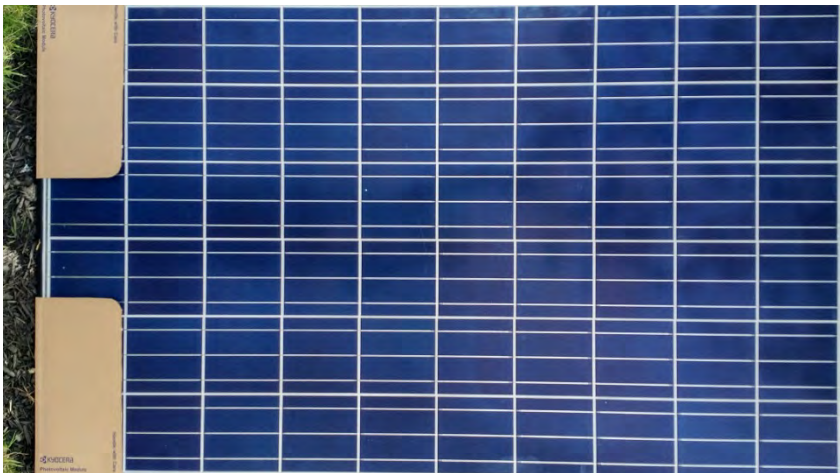




# Solar System Components

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*260W Solar PV panel;  
Note: Moved on to 275W, then  
290W panels due to product  
availability*



*Micro-inverter capable of  
generating reactive power*

# Solar System Components

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*Combiner box containing the modem and breakers*



*Data Acquisition System*



*AC Disconnect containing Overcurrent Protection Device*

# 'In Front of The Meter' Wiring Configuration

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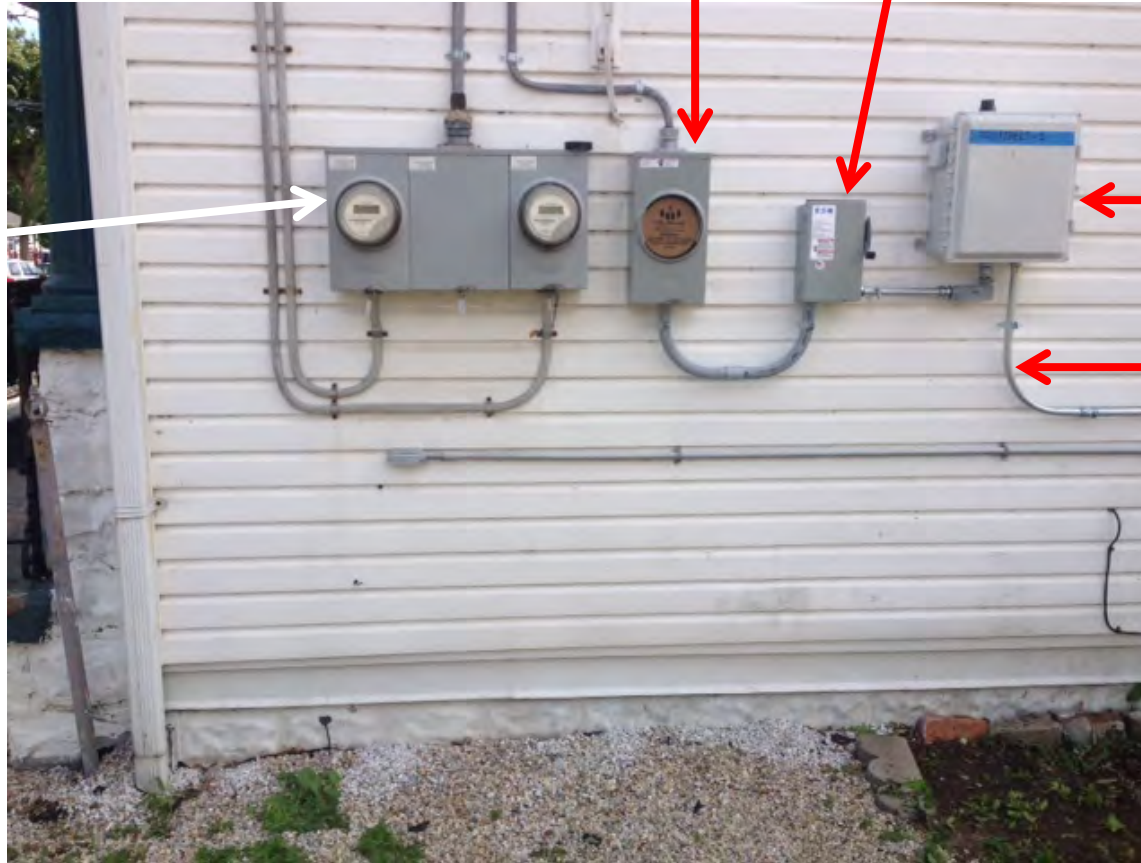
Dedicated  
PV Meter  
Channel

AC Disconnect

AC  
Combiner  
Box

Incoming PV-  
generated  
transmission  
conduit

Residential  
meter  
system  
(unchanged)

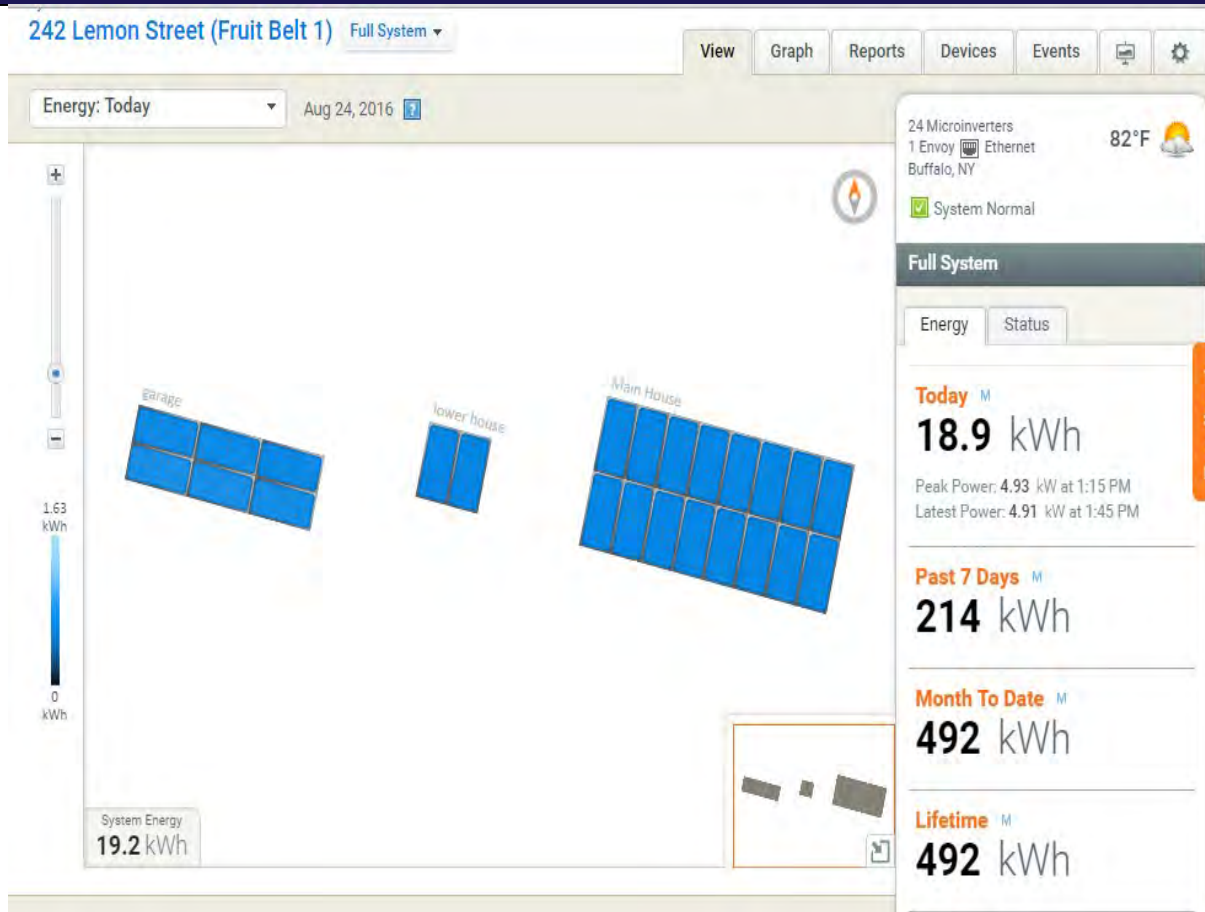




# Web-Based Monitoring and Reporting

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# Customer Financial Benefits

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- Monthly bill credit
  - Could yield arrearage decrease
- Solar readiness financial assistance
- Energy Efficiency improvements
- Increased home value
  - Owners
  - Landlords



# Obstacles Overcome

- Obstacle- Lack of interest and trust in the community.
- Overcome by:
  1. Holding community leader meetings
    - Discussed the value proposition;
    - Leaders became program advocates; built community bridges & established program credibility within the neighborhood.
  2. Having a continual neighborhood presence.
    - National Grid and Solar Liberty consistently in neighborhood.
    - Door-to-door marketing, on-site solar assessments, frequent follow-up, crews doing construction all established familiarity and trust with residents.

# Obstacles Overcome

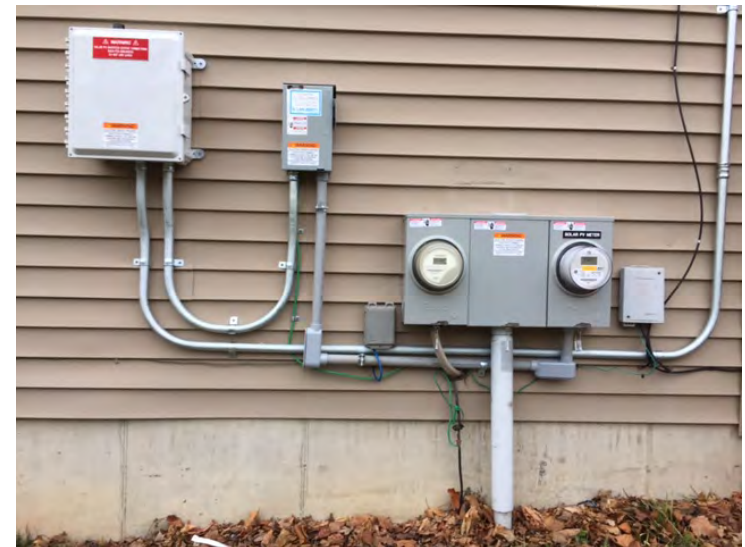
- Obstacle- Finding ‘solar ready’ properties offering rooftops with correct orientation and structural integrity to allow feasible solar array installation.
- Overcome by-
  1. Offering Incentives. National Grid offered up to \$2,000 to allow the home to become ‘solar ready’.
  2. Identifying & target marketing houses meeting physical criteria.
  3. Expanding customer pool to include non-profit organization accounts billed at residential (SC-1) rate.





# Obstacles Overcome

- Obstacle- Non-Compliant service configurations and underground feeds forced scheduling property's power shut-off during electrical connection.
- Overcome by-
  - Conducting extensive coordination between National Grid, Solar Liberty and homeowners.



# Obstacles Overcome

- Obstacle- Coordination and timeliness of municipal permitting and final system inspection.
  - Overcome by-
    1. Ongoing meetings with related City of Buffalo officials to express the urgency required.
    2. Holding stakeholder meetings attended by City's Building Commissioner; Fire Marshall, Electrical Inspector, and key supporting staff



Buffalo's City Hall

Photo Source:  
[https://en.wikipedia.org/wiki/Buffalo\\_City\\_Hall](https://en.wikipedia.org/wiki/Buffalo_City_Hall)

# Top Lessons Learned

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1. Work with neighborhood organizations to build trust and open communication channels.
2. Utilize well-branded canvassing team skilled at relating to customers.
3. Select turnkey solar contractors offering strong residential customer experience.



# Top Lessons Learned

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4. Host/Non-host benefit sharing challenged by tenant turnover.
5. Establish generation goal *after* surveying housing stock.
6. Expect a lengthy per-customer engagement timeline.
7. Hold planning meeting attended by all municipal staff involved, including permitters and inspectors.





# Project Stats: Goals Vs. Actual (Part 1)

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## Program Solar Goals:

- Install 500 kW
- 100 homes; Ave. array: 5kW

## Actual:

- Residential: 69 houses
- Non-Profits: 5
- Ave. house array: 5.5kW



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# Project Stats as of 9/1/18 (Part 2)

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## Energy Efficiency

- Total EE upgrades completed: 44
- Total EE upgrades in queue: 8

## Other Analyses

- Arrearage impact analysis:  
*Underway*
- Grid efficiency Analysis: *Underway*



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# Scalability Analysis

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- Determine best business model
  - VDER-Based?
  - Involve 3<sup>rd</sup> party financing?
  - Non-rate-based approach feasibility
- Determine deployment location(s)
- Develop kW goal & schedule
- Obtain regulatory approvals, as applicable



# Questions?



# Video

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