Solar Installations at Eaton's Electrical Americas HQ, Beaver Plant and Warrendale

November 2012

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Eaton Solar Installation Summary

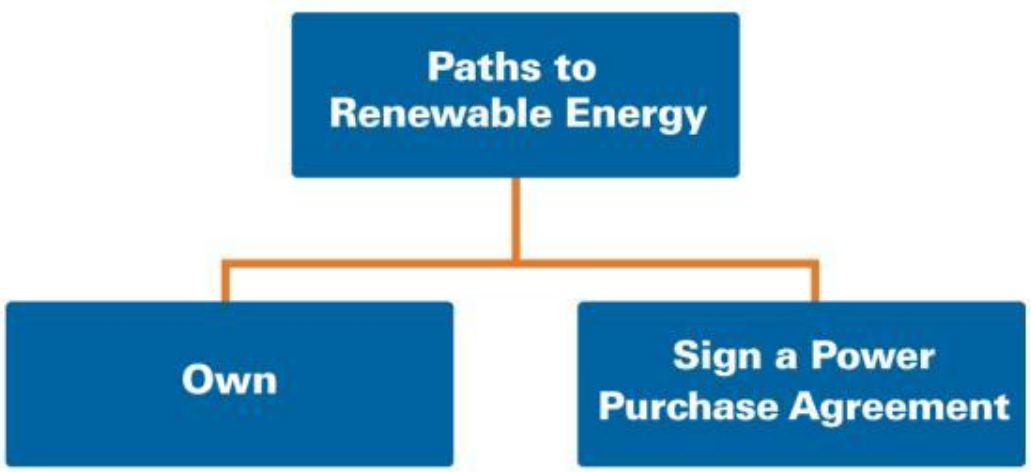
Project Summary

- Warrendale installation in service for 2 years (43 kW – 3 demo systems)
- Two new facilities will generate approximately 1.5 MW of solar power
- Moon Township = 171 kW system (roof top)
- Beaver = 1,330 kW system (ground mounted in unused parking lot)
- Construction began in August 2012
- Construction will be completed in November 2012

Highlights

- Beaver will be the largest solar array in Western PA
- Solar power will contribute ~25 % of the electricity used at Beaver
- Systems will
  - Provide 1.76 million kilowatt-hours (kWh) of clean electricity per year
  - Displace 2.7 million pounds of carbon dioxide and other greenhouse gases per year
  - The equivalent of removing 238 cars from the road

There are two methods to procure renewable energy



Federal financial incentives

- Production tax credit
- Investment tax credit or grant
- Accelerated depreciation
- DOE Loan Guarantee Program
- Renewable energy production incentive

Power Purchase Agreement (PPA)

- No cash outlay
- Purchase renewable energy from a producer for a 20 year time-span
- Pay a guaranteed, steady rate of energy

Source: dsireusa.org

General implementation steps

1.Pre-installation

- **Select ownership method:** PPA or direct ownership
- **Choose a developer to:**
  - Conduct site assessments including technical and financial analysis
  - Manage the design, procurement and construction process

2.Installation

- Developer manages system installation

3.Post-installation

If using PPA:

- Operations and maintenance performed by developer

If owning directly

- Select an operation and maintenance provider
- Monitor energy output

Typical construction time is < 1 year, faster than any other electricity generation sources

Moon Township

Roof mounted system on original building: 171 kW

Moon Township

Roof mounted system on original building: 171 kW

Installation work at Moon Township

Eaton 250 kW solar inverter

Moon Township Installation Summary

Project Summary

- Project type: Power Purchase Agreement (PPA) – Tangent Energy
- Total peak power: 171 kW system (roof top)
- Panel type – Motech (240W)
- Panel quantity: 700 panels
- String size: 14 panels
- Inverter: Eaton Power Xpert 250 kW
- Racking system: Ballasted (Sunlink) – only 33 roof penetrations
- Angle of panels – 5 degrees
- Orientation – South
- Construction began in August 2012 – 2 month installation
- Completed and commissioned in October 2012

Beaver
Ground mounted solar system: 1.3 MW

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Beaver
Ground mounted solar system: 1.3 MW

Installation work at Beaver

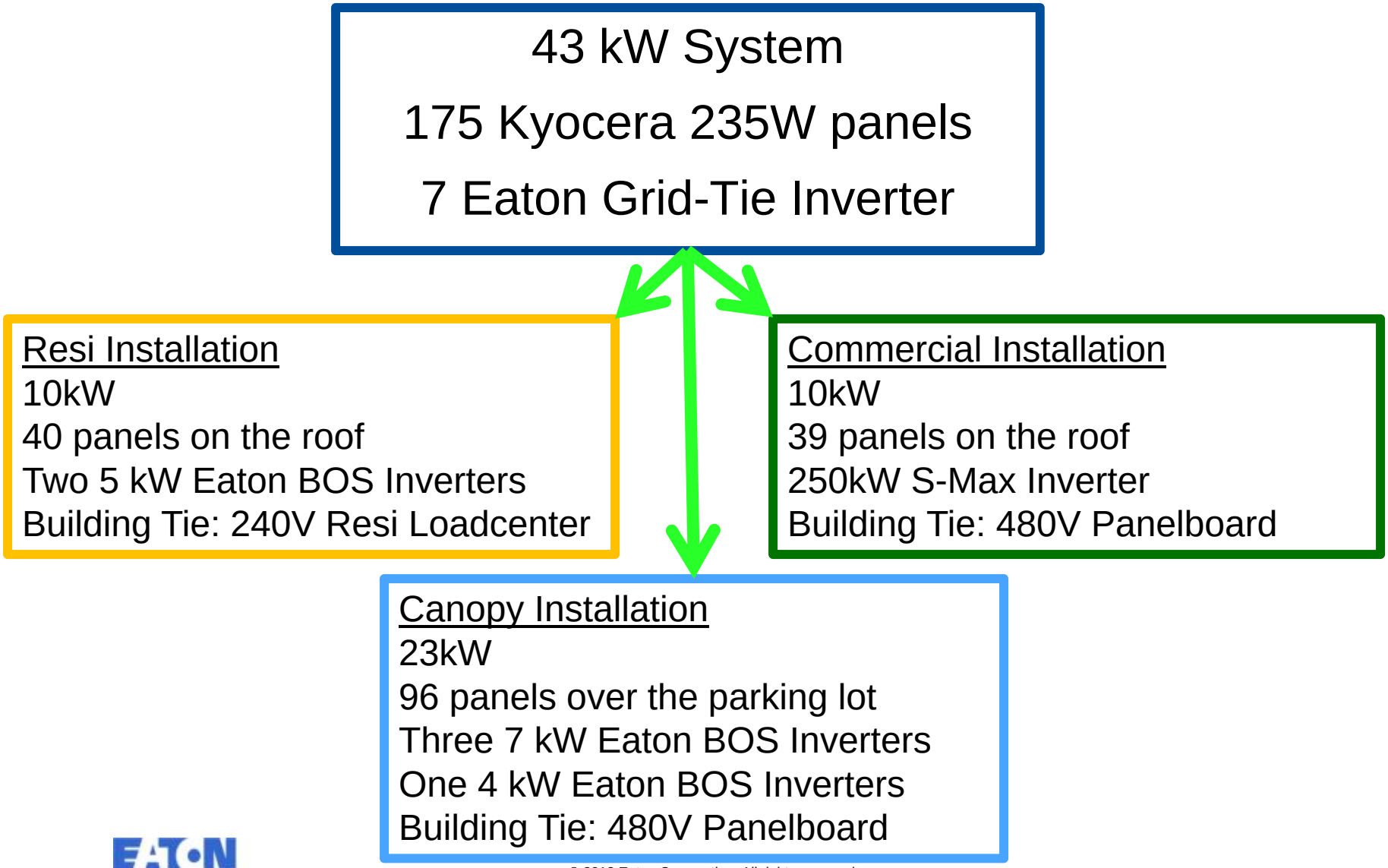
Eaton DC switch combiner

Beaver Installation Summary

Project Summary

- Project type: Power Purchase Agreement (PPA) – Tangent Energy
- Total peak power: 1,330 kW system (ground mounted)
- Panel type – Motech (240W)
- Panel quantity: 5544 panels
- String size: 14 panels
- 5 Arrays (A, B, C, D, E)
- 5 Combiners
- Inverters: (6) Eaton Power Xpert 250 kW
- Alternate Inverter: (1) Eaton Power Xpert 1.5 MW
- Racking system: RBI Solar
- Angle of panels – 20 degrees
- Orientation – South
- Construction began in August 2012 – 4 month installation
- Completion – Novermber 2012

Solar Installation at Eaton's PSEC

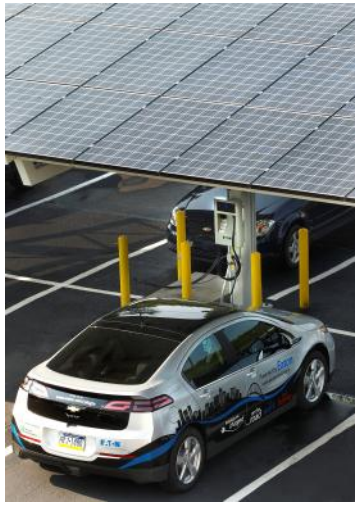


Solar Installation at Eaton's PSEC

40 Panels w/DPW Solar mounting

39 Panels w/Unirac mounting

7 kW Grid-Tie Inverters



Parking Canopy

250 kW Power Xpert Grid-Tie Inverter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