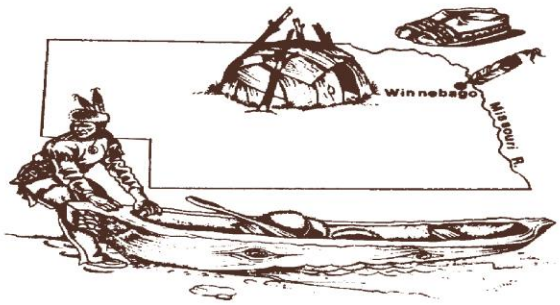
Winnebago Tribe of Nebraska

SOLAR PROJECT

Summary of the Winnebago Tribe of Nebraska



- The Winnebago tribal homelands are located in the northeast corner of Nebraska and a portion of western Iowa. Currently the tribe has nearly 5000 member, ½ living with in the reservation boundaries. The Winnebago Tribe of Nebraska is governed by a Tribal Council, consisting of 4 officers and 5 members with each holding 3 year terms. The future of the tribe is directly related to the protection of our homelands and how well we enable our children to continue our cultural traditions and manage our resources in rebuilding our economy.

Project Overview

- The Winnebago Tribes "Solar Project" will focus on renewable energy production and energy cost savings consistent with protecting our natural environment.
- Installation of photovoltaic solar power generation will reduce the amount of energy purchased for the Police/Fire Department building, also providing a source of energy should power be unavailable.
- Powering this building at all times is essential to ensure the safety and well being of our tribal members and resident of the entire reservation.

Project Location

- The project site is located within the Village of Winnebago
- The Winnebago Law Enforcement/Fire Department building is located at 302 Bluff St. Hwy 75/77
- This 8,000 sq. ft. masonry block/steel joist building was built in 1978, yet is crucial in our community.

Project Participants

Business Contact: Pat Madson, Contract Specialist
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Technical Contact: Autumn Nieman, Office Associate
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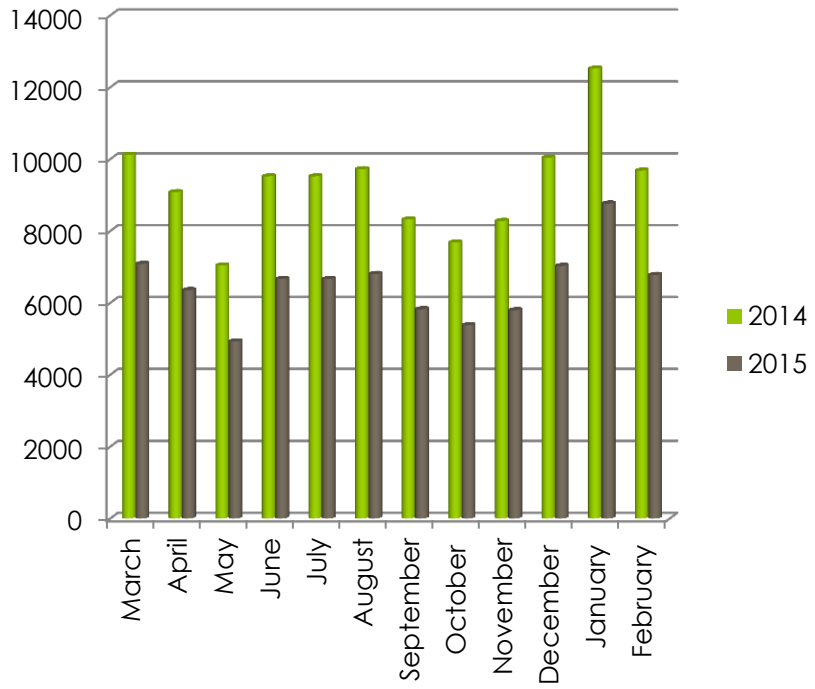
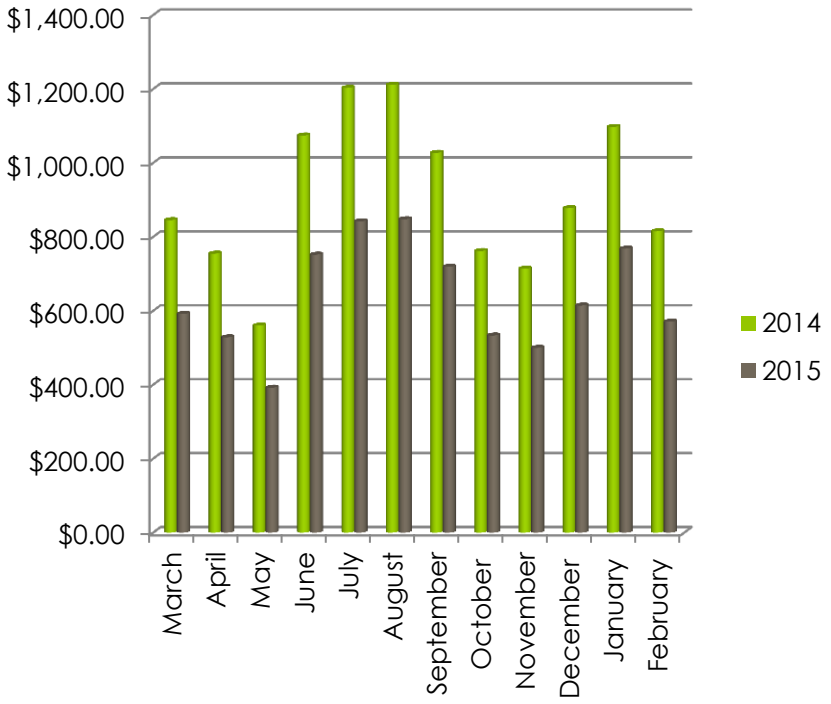
Project Objectives

- Recent 12 months of fuel use & 30% reduction



- Recent 12 months cost & 30% reduction



Relevant Background

- This is the first energy project for the Winnebago Tribe of Nebraska. Every accomplishment and lesson learned will benefit our future efforts.
- The tribe has 2 entities that are using photovoltaic systems and wind units, and another entity that will be using geothermal energy systems.

Project Status

- As of April 2015 the “Solar Project” is complete.
- We can now begin tracking the fuel usage and cost saving reductions.

Accomplishments
Panel Info

- 280 Watt Modules x 84 = 23520 Watts
- 60 cell
- Monocrystalline

Accomplishments
Rack Info

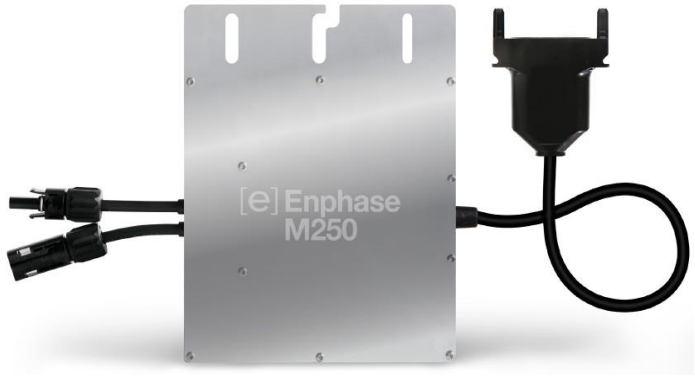
- Ballast mount rack
- 4 rows x 21 col. = 84
- 20° tilt
- 180° azimuth
- Exactly fits to roof

Accomplishments
Inverter Info

- 11,000 Watt
- Transformerless
- 240 v / Single Phase
- 2 inverters needed
- Only strings of 13

Accomplishments
Micro Inverter Info

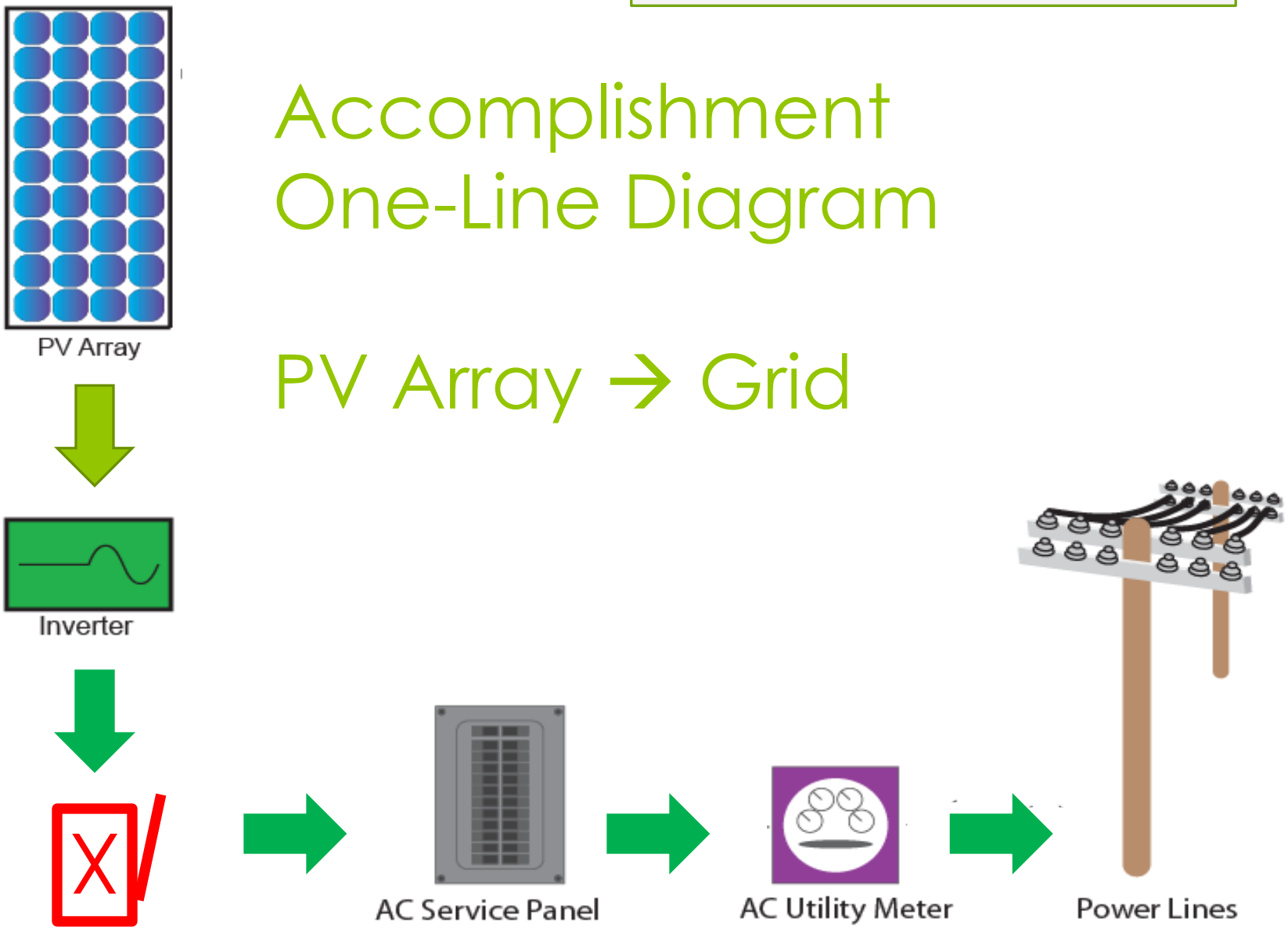
Enphase® **M250**



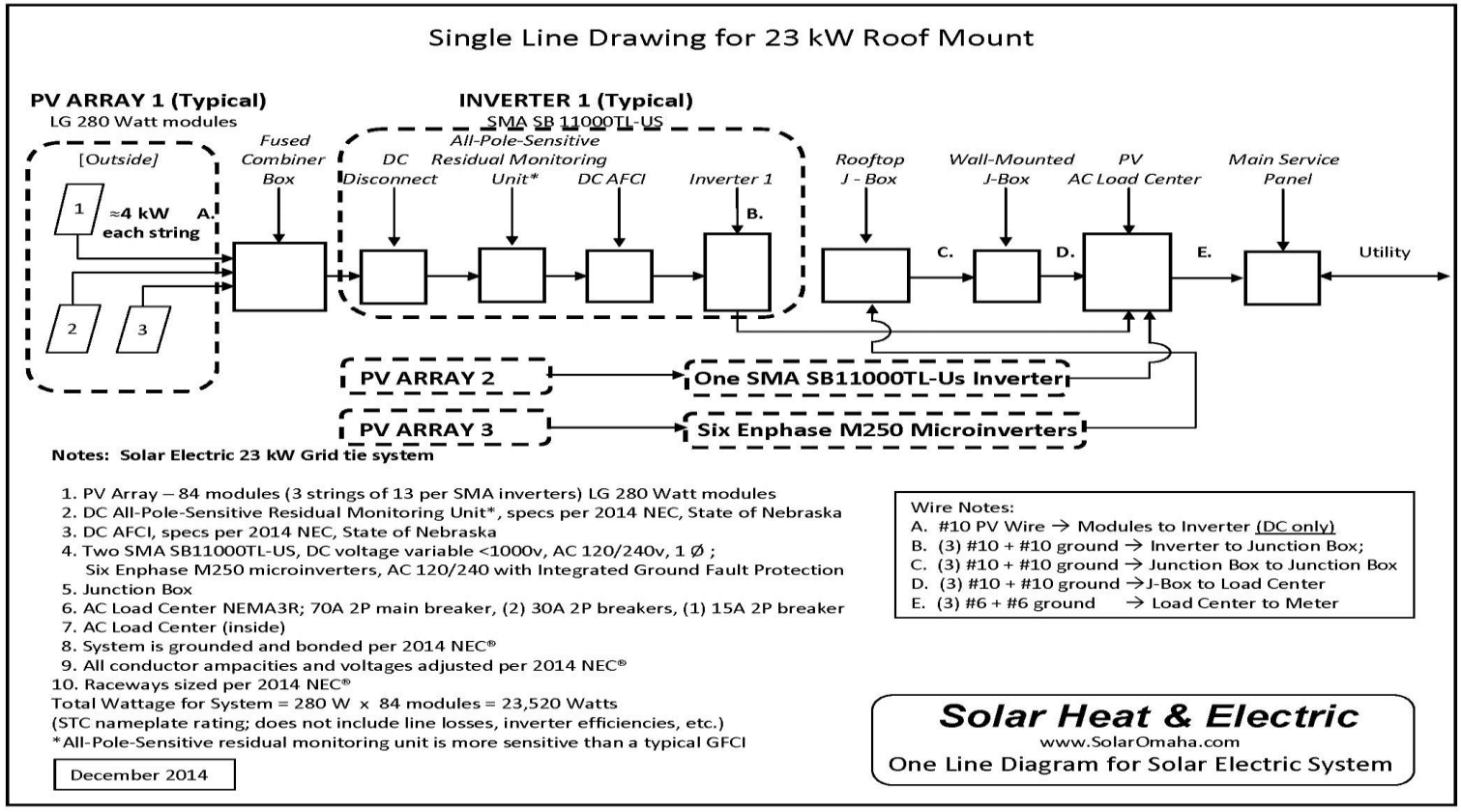
- Needed 6 micro inverters to complete

Accomplishment One-Line Diagram

PV Array → Grid



Accomplishment
One-Line Diagram



Lessons Learned

- The main lesson that I experienced through this project is that no matter what schedule you have there are 9 other people that have other schedules, and mother nature is the ultimate schedule that you have to follow.
- Patience and constant contact will get the project done.

Future Plans

- Although there are no plans set in place as of now, the Winnebago Tribe would benefit from any future renewable energy production in the community. There are over 12 tribal buildings that would be an investment if renewable energy was implemented. This one step is a encouragement and will be useful in all our future endeavors.

Questions and Comments…

Thank you for the opportunity, working with each of you has been great.