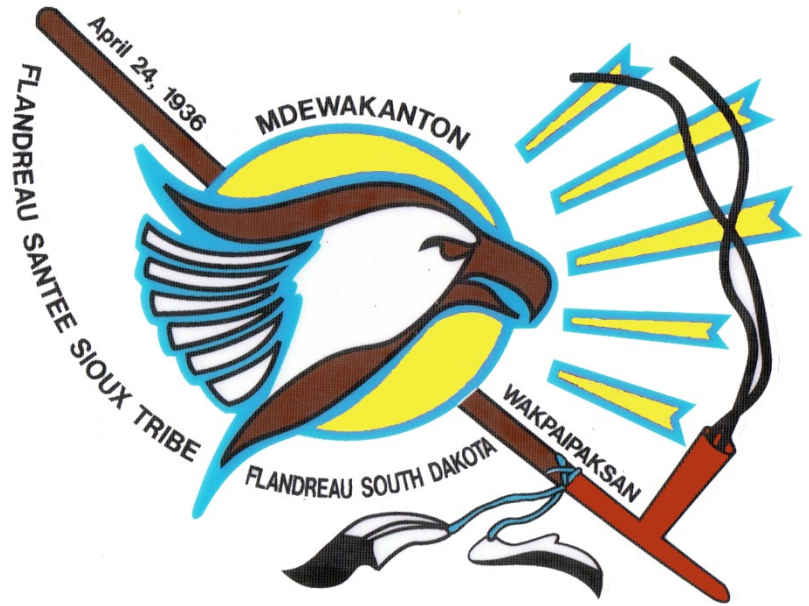
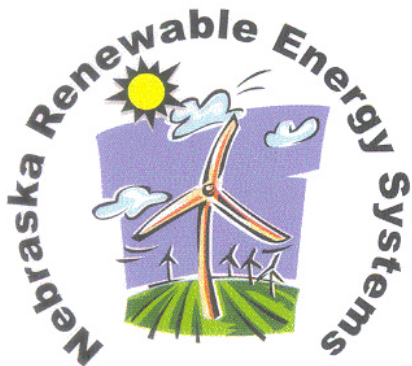


# The Flandreau Santee Sioux Tribe of South Dakota and Nebraska Renewable Energy Systems present: Topic 2 Net Metering on the FSST Reservation



FSST is a recipient of DOE's "Energy Infrastructure Deployment on Tribal Lands – 2019" grant.

The funds awarded are being used to implement the Tribe's 2019 solar project.





# FSST's Commitment to Building Energy Infrastructure

- The Flandreau Santee Sioux Tribe Utility Commission was est. in 2018 to improve the Tribe's energy infrastructure by
  - conservation
  - investing in sustainable and clean energy where feasible, and
  - becoming energy independent
- The 2019 solar project meets these goals

# Past Activities

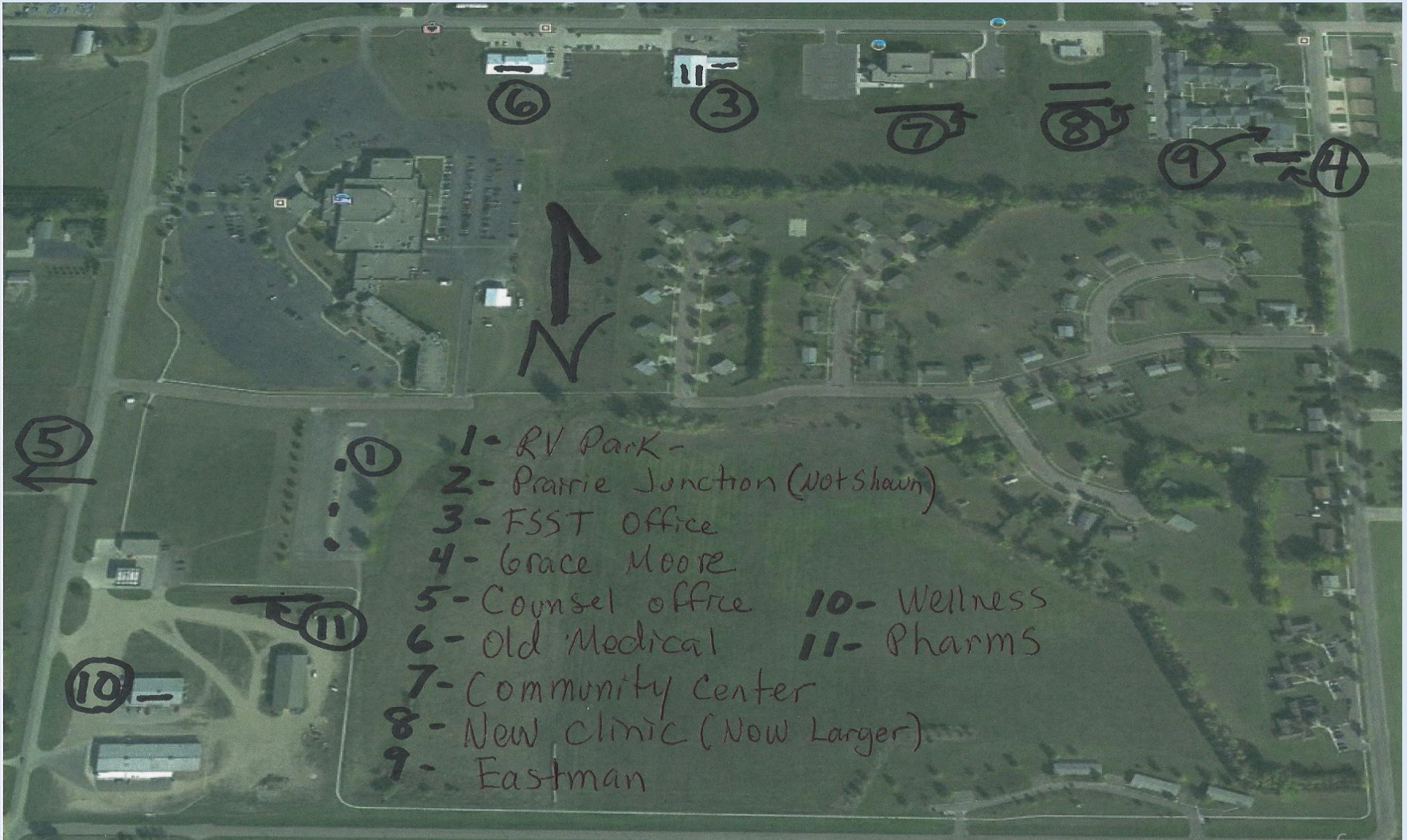
- LED street lights
- WAPA agreements
- Smart buildings for new construction
- FSST Utility Commission established

# FSST/DOE Solar Project Goals

- FSST was awarded a topic 2 grant project with DOE to deploy solar at 11 sites
- These applications were selected from the entire spectrum of Tribal opportunities and selected for best effect with a 'behind the meter' approach.
- FSST maintenance will provide all installation services and NRES will provide training and technical support and facilitate wholesale purchases of solar materials.
- Local deployment of solar increases Tribal independence and keeps money on the reservation



# The Square



# Technical Factors

- Some 'high' electrical rates were discovered at several Tribal locations.
- Usage summaries have been examined for cost and consumption trend analysis
- System size estimates have been made based on policy, cost and site factors.
- System sizes could be increased in some cases, but should stay less than 40-50kw
- SD interconnection policy is very limiting, so proper system sizing is vital for proper economic return.

# Technical Factors, cont.

- Climate (harsh winters and a lot of sun exposure)
- Site opportunities
  - Two locations are recommended for Casino
  - Nine locations are recommended for the Tribe
  - Some of the roofs are 'solar ready' with S-5
  - Still some additional locations in the 'bullpen'
  - Pow Wow grounds excluded because of policy
  - Proposed systems are 'right sized' for the locations to eliminate excess energy delivered to grid, designed for retail offset.



# Technical Factors, cont.

- Large electrical users like the Casino and Hotel were not considered at this time.
- Rates are high for small commercial sites.
- Larger cap for interconnection exists at Prairie Junction, 60kW. Excellent visibility from I-29.
- RV Park will provide excellent visibility and 'green camping'
- Shade structure mountings provide dual purpose application and serve to integrate solar into the everyday tribal areas





# Integrating Solar into Human Space



# Summary

22-Apr-19

Power

Annual

## Annual Analysis

## Produced Site Usage

Location	KW	MwH/yr	MwH/yr	Type
RV Park	12	18	43MWh	Pole
Prairie Junction	60	88	218MWh	Ground
FSST Office	40	59	102MWh	S-5 Roof
Grace Moore	16	24	38MWh	Pole
Counsel Office	4	6	12MWh	Pole
Old Medical	16	24	37MWh	S-5 Roof
Community Ctr	40	59	365MWh	Ground
New Clinic	60	88	596MWh	Ground
Eastman	10	15	27MWh	Roof
Wellness +	20	30	34MWh	S-5 Roof
Pharms	40	59	91MWh	Ground
Totals/Average	318	470	1563 MWh	



# Ground Mount





# Pole Mount





# S-5 Roof



# Progress

- Solar panels are fully installed at all 11 sites!
- All final admin requirements have been completed
- Monthly monitoring is ongoing
- 396MWh saved over the past year compared to a 470MWh projected. About \$40,000 saved last year.



# Project Participants

- Nebraska Renewable Energy Systems (NRES)
- FSST Maintenance Dept.
- Utility providers
  - City of Flandreau
  - Missouri River Energy Services
  - Sioux Valley Energy
  - Basin Electric Power Cooperative
- Moody County (for building permits)
- Jer's Electric

# Lessons Learned

- Planning ahead makes everything smoother
- Establishment of clearly defined administrative support team for recording in-kind and reporting
- Learning to think ahead about energy, new construction being specified for solar
- Paving the way for others' solar projects. Small tribal systems have been developed
- Ground mount install techniques developed