

SICANGU VILLAGE SOLAR PROJECT



Ken Haukaas
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DOE 2021 TRIBAL ENERGY REVIEW



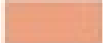


Office of Indian
Energy and
Economic
Development.

Rosebud Sioux Tribal
Headquarters, Rosebud, South
Dakota



Rosebud Indian Reservation

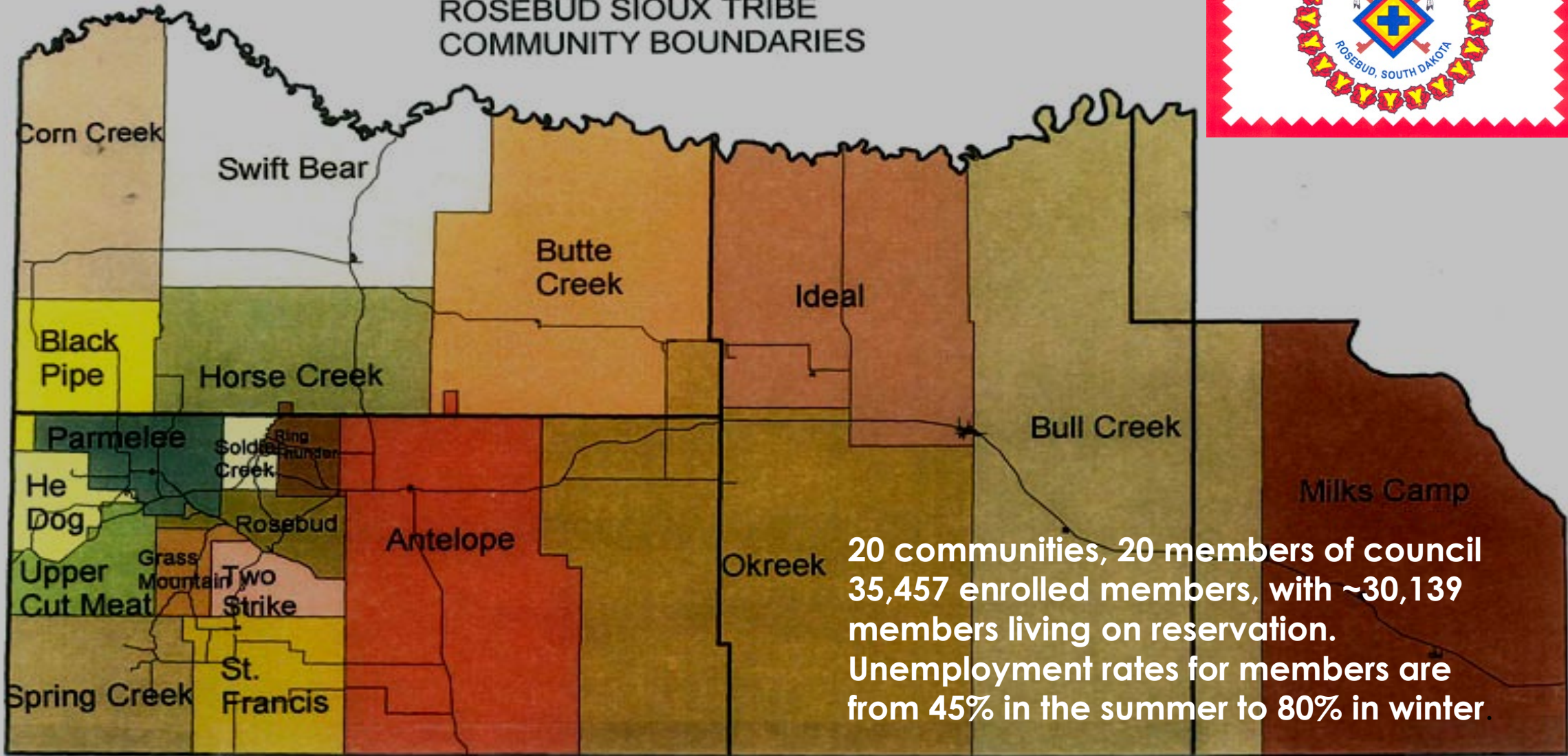
-  1910 reservation boundary
-  Rosebud reservation and trust lands
-  Other reservations

Rosebud Indian Reservation in 1910, originally consisted of 3.2 million acres, The Dawes Act diminished this land base to ~950,000 acres.

Every Head of Household was given 160 acres, every single adult 80 acres and every minor 40 acres.

The remainder, fully 2 million acres was taken away and was opened for Homesteading reducing the 5 county area of the reservation boundaries down to one county, Todd County.

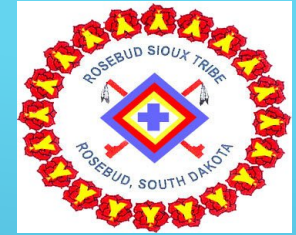
ROSEBUD SIOUX TRIBE COMMUNITY BOUNDARIES



**20 communities, 20 members of council
35,457 enrolled members, with ~30,139
members living on reservation.
Unemployment rates for members are
from 45% in the summer to 80% in winter.**



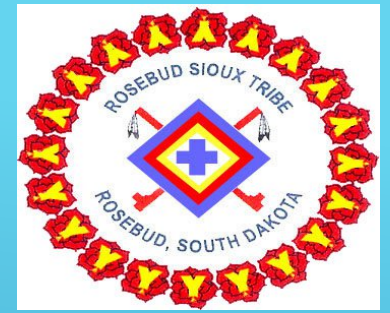
CHANGES IN RATES OF CHERRY-TODD ELECTRIC OVER THE FOLLOWING YEARS, 2003-2017



Year	Power Costs to CTE	% increase	Consumer Rate increases
2003	\$3,100,487.00		
2004	\$3,301,285.00	6.48%	
2005	\$3,375,773.00	2.26%	
2006	\$3,767,277.00	11.60%	
2007	\$3,907,134.00	3.71%	
2008	\$4,489,925.00	14.92%	
2009	\$4,969,624.00	10.68%	22.0%
2010	\$5,929,792.88	19.32%	8.4%
2011	\$6,678,890.00	12.63%	8.1%
2012	\$7,813,674.54	16.99%	9.0%
2013	\$8,157,205.51	4.40%	
2014	\$7,820,287.00	<4.13%>	
2015	\$7,094,184.00	<9.28%>	2.7%
2016	\$7,717,184.00	8.08%	2.0%
2017	\$8,488,902.40	10.00%	4.4%
Percent change		107.66%	56.6%



LOW INCOME HOME ENERGY ASSISTANCE PROGRAM COSTS

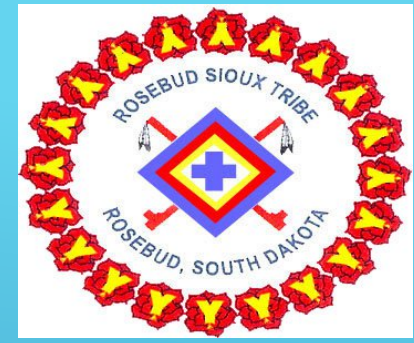


- ▶ 2003/04.....\$ 665,525.00
- ▶ 2006/07.....\$ 954,997.00
- ▶ 2013/14.....\$2,713,645.50
- ▶ 2014/15.....\$2,578,311.68
- ▶ 2015/16.....\$3,200,000.00
- ▶ 2016/17.....\$2,900,000.00
- ▶ Federal LIHEAP assistance, annually is ~\$963,000.00 and may not be funded at this level in the future.
- ▶ Remaining monies supplied internally





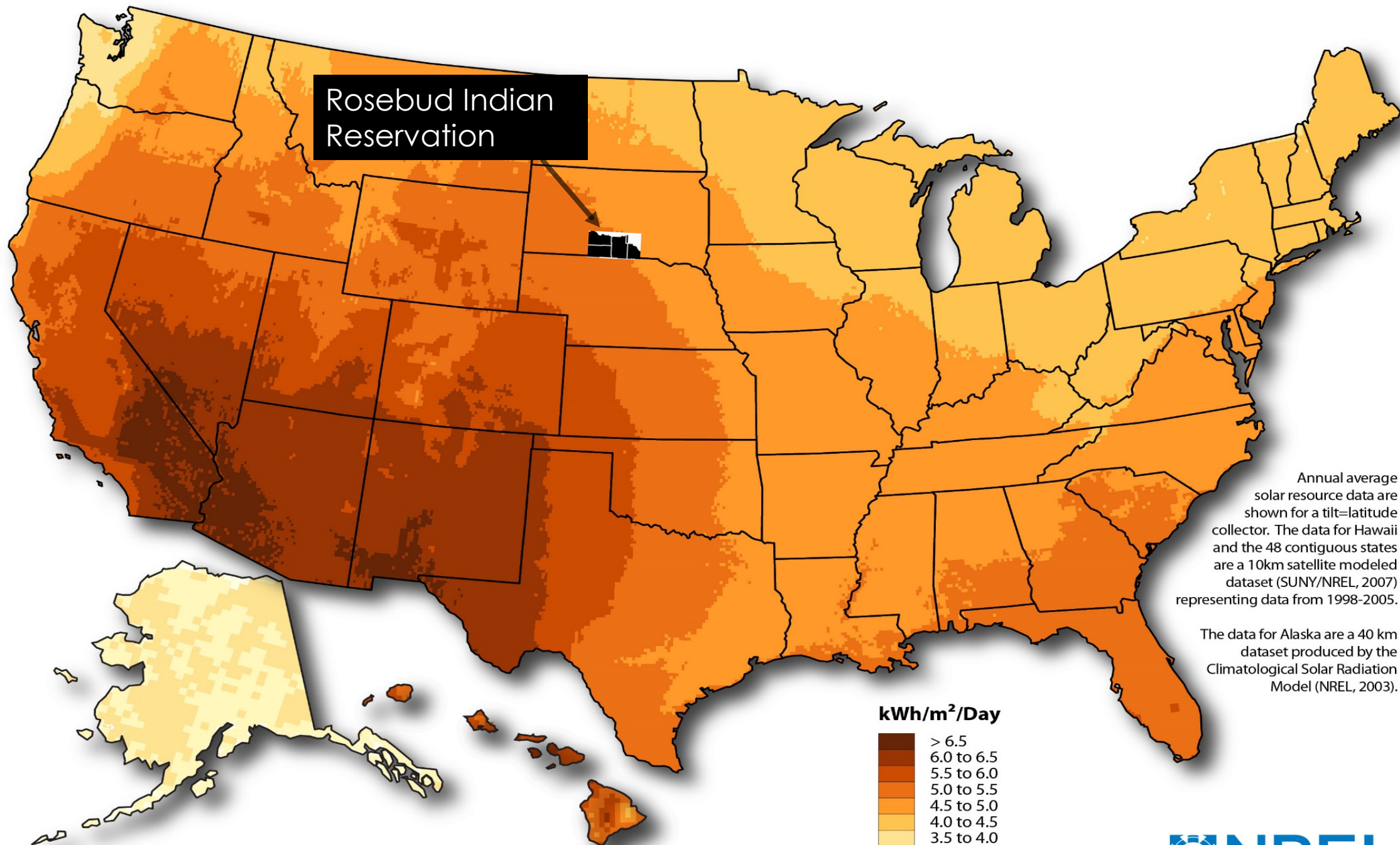
THE ROSEBUD SIOUX TRIBAL STRATEGIC ENERGY PLAN



An over-arching living document that will:

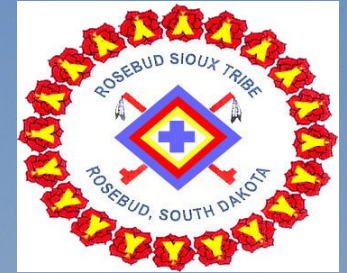
- Align and focus the tribal energy effort
- Provide the foundation for planning and executing key tribal energy initiatives that will lead to development and implementation of reservation wide energy efficiency, cost effectiveness and self-sustainment for the long term.
- To document and understand our tribal energy footprint, from the residential, government and business level to the agricultural level.

Photovoltaic Solar Resource of the United States





DOE 2016 GRANT \$261,739.00



FEDERAL SHARE: \$129,766.00 COST SHARE \$131,973.00



GRID ALTERNATIVE SHARE IS \$80,623.00

SWA CORPORATION SHARE IS \$51,350.00

**SWA WILL GET A \$20,000 PHOTOVOLTAIC SYSTEM
FOR \$5,135.00 EACH.**



DOE 2018 GRANT AWARD

\$897,000.00

FEDERAL SHARE \$448,500.00

COST SHARE \$448,500.00



Original commitments meeting Federal cost share

- ▶ Sicangu Wicoti Awanykape Corporation \$348,500.00
- ▶ Grid Alternatives offered in-kind in training and Equipment \$100,000.00
- ▶ **NEW AWARD SUPPORT:** Enter TSAF Tribal Solar Accelerator Fund Grant Award which reduced SWA's commitment by \$150,000.00. Adminstrated by Grid Alternatives through a Wells Fargo Grant award



ORIGINAL PROJECT PLANS

Supply Power to 32 Units/meters with a 250 kW solar field at Sicangu Village

Unknown prior to grant application.

Policy by Wholesale provider states: All projects over 150 kW will be charged \$4,000.00 a month standby rate. \$48,000.00 yearly

Known parameters if RST claims those units in this project as belonging to RESCo, the new tribal utility.

RST/RESCo Required to purchase whole infrastructure ~\$272,00.00

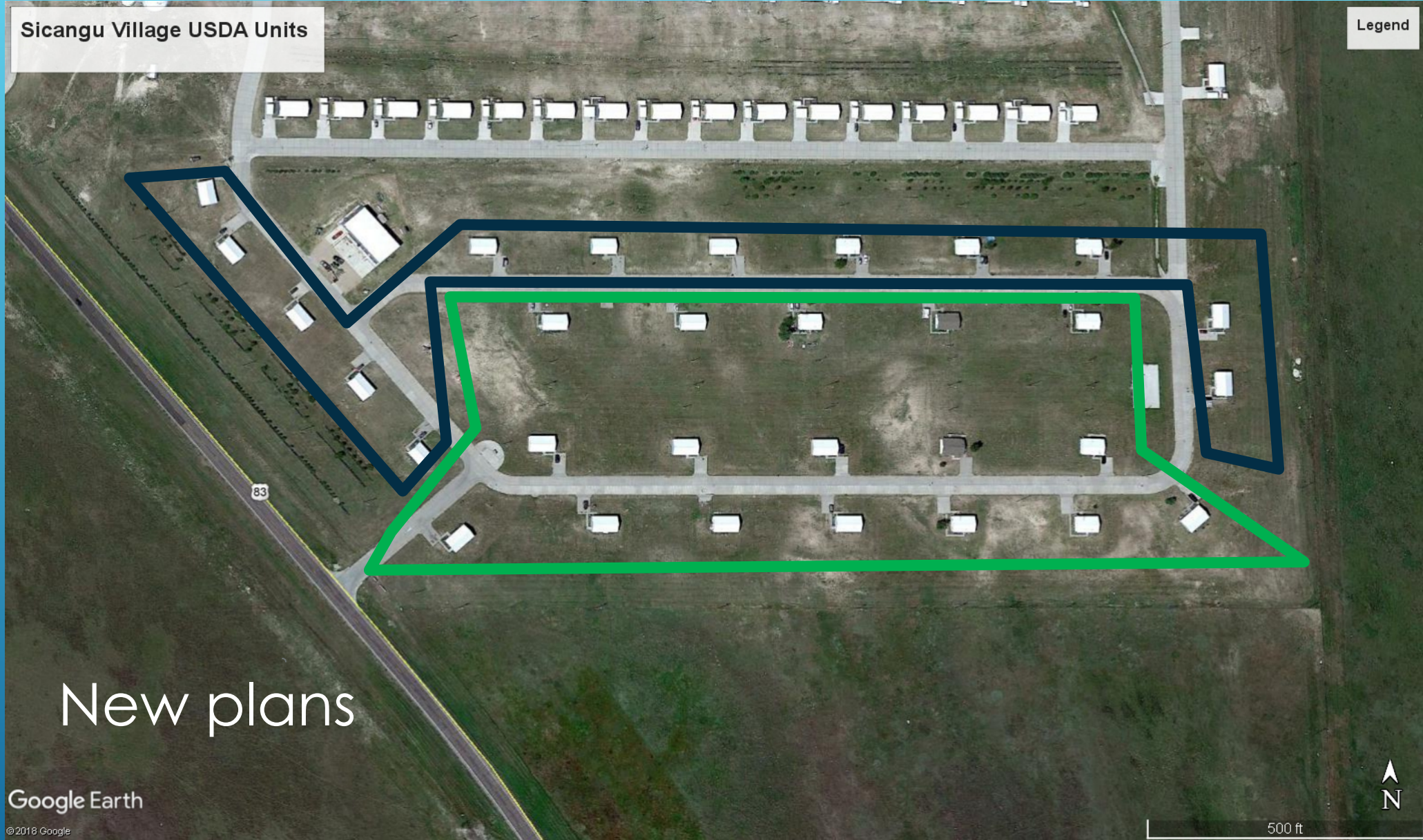
Provide O&M on infrastructure

Insurance for all of infrastructure



Sicangu Village USDA Units

Legend



Google Earth

© 2018 Google

500 ft

New plans

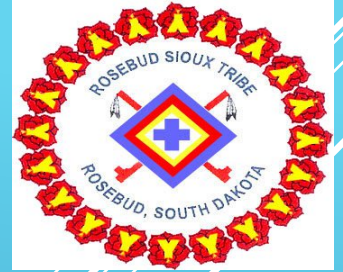
Units surrounded in blue will get 5.8 kW residential solar rooftop installation.

Units surrounded by green will receive a portion of their electrical power from a 150 kW solar field.

SICANGU VILLAGE SOLAR PROJECT



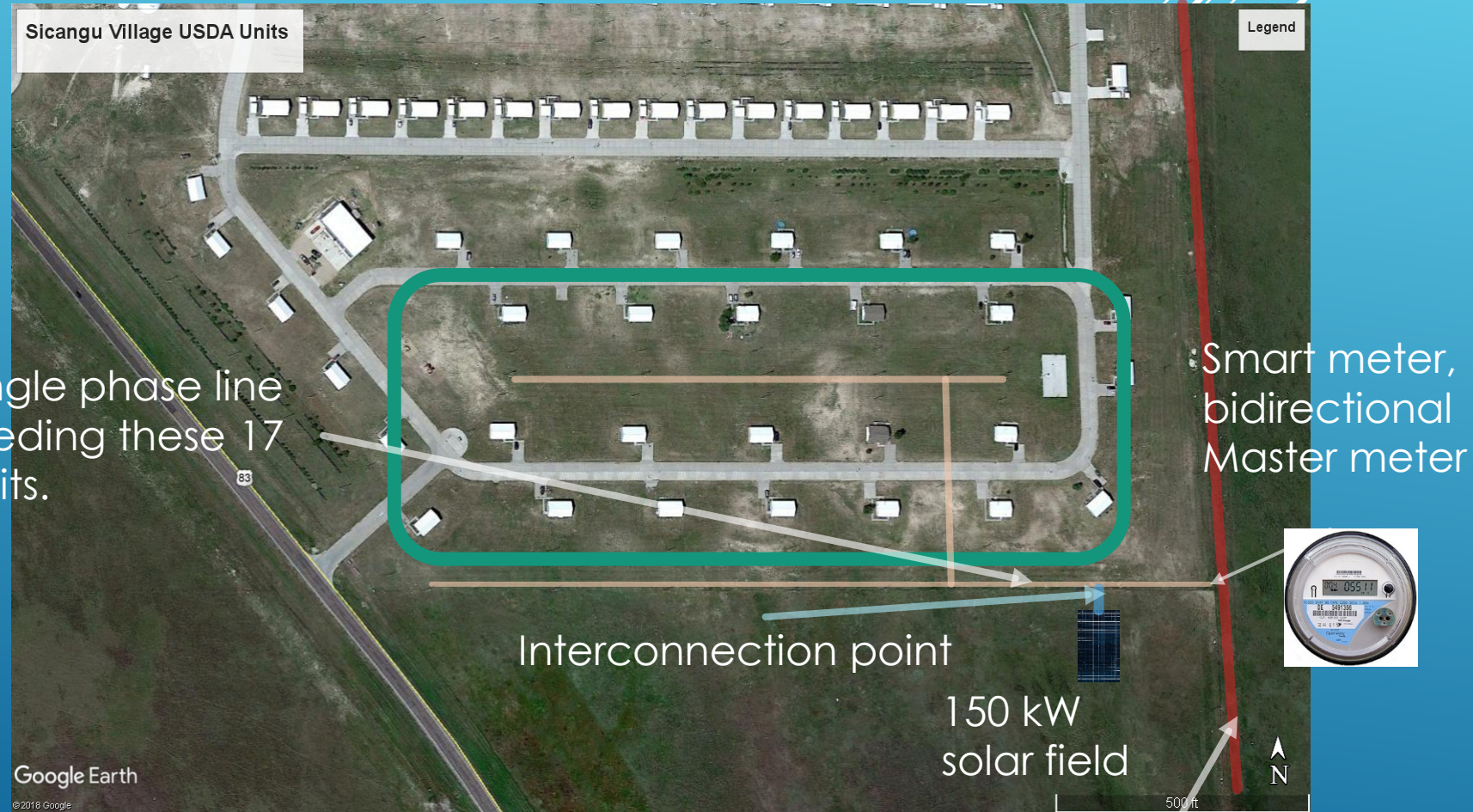
Sicangu Village Solar Project



Build a 150 kW Solar Field to accommodate 17 SWA Units.

Forego Purchase of infrastructure \$144,500.00
Loss of \$30.00 a month x 17 units = \$510.00 a month.
\$6,120.00 annually
O&M to be handled by Cherry-Todd
No insurance by RESCo on existing infrastructure.

Rate Charge to SWA Units same as Cherry-Todds Basic Charge \$30.00 monthly, 10.6 cents kwh up to 900 kwh, 9.02 cents on anything over 900 kwhs



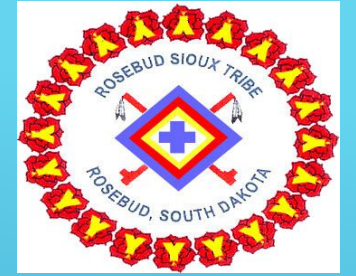
New plans



COMPLETED 149
KW SOLAR FIELD
COMMISSIONING
TOWARDS THE END
OF NOVEMBER
2021



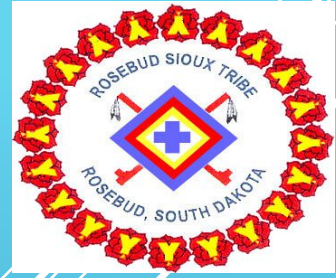
Conditions and use of the 150 kW Solar Field



- ▶ All 17 units that were once to be provided partial power from the solar field offsetting the 10.6 cents a kilowatt hour cost will continue to receive power from the grid through the local utility as before and nothing from the field, as determined by the Cherry-Todd utility.
- ▶ Cherry-Todd will purchase all power produced by the solar field based on what it considers it's AVOIDED COST! As per a directive in a PURPA Regulation and it's policy agreement with BASIN Electric it's power provider.
- ▶ The purchase shall go to Sicangu Wichoti Awayankape Corporation in the form of credit on these 17 units, as SWA Corporation will be considered in the owners of the solar field.
- ▶ At this moment in time, the tribe or SWA does not know what Cherry-Todd will pay per kwh for this power. It is anticipated to be 2.44 cents per kilowatt hour
- ▶ In Jan of 2019 the Rosebud Sioux Tribe passed a net metering law that may challenge Cherry-Todds action in this pricing.



FUTURE THOUGHTS ON DEVELOPMENTS FOR THIS AREA



Immediately install devices on 5 to 8 of these 17 units to measure their average electrical uses over winter in 15-minute intervals to understand the costs of installing battery storage for these 17 units.

Conduct cost analysis on ROI of completely disconnecting these 17 units from the Grid by the addition of energy storage, on site electrical production by propane generator/s, additional ground mount solar arrays or small size wind turbine/s continually charging the storage systems.

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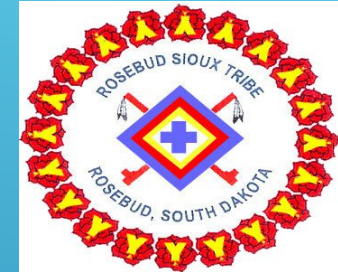
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PROJECT CONTACTS

