

SICANGU VILLAGE SOLAR PROJECT



Ken Haukaas
Director of RST Forestry
Former Tribal Utilities Commissioner

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Grid Alternatives



DOE 2019 TRIBAL ENERGY REVIEW

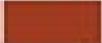
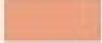


Office of Indian
Energy and
Economic
Development.

Rosebud Sioux Tribal
Headquarters, Rosebud, South
Dakota



Rosebud Indian Reservation

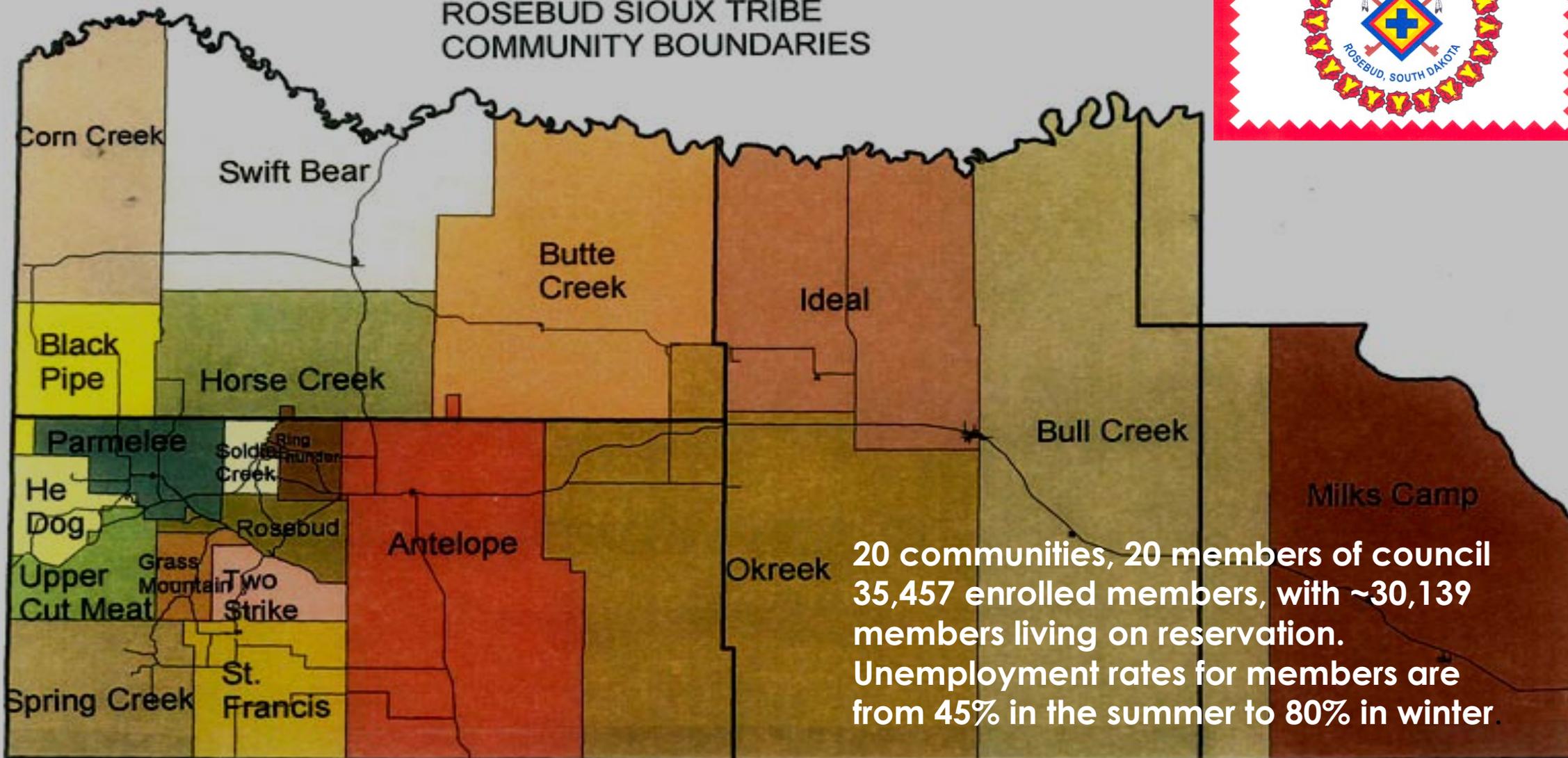
-  1910 reservation boundary
-  Rosebud reservation and trust lands
-  Other reservations

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.

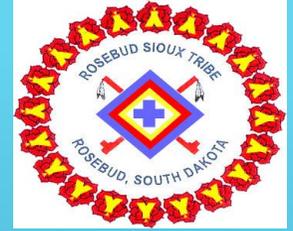
ROSEBUD SIOUX TRIBE COMMUNITY BOUNDARIES



**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.**



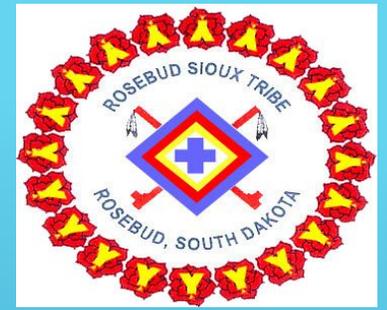
CHANGES IN RATES OF CHERRY-TODD ELECTRIC OVER THE FOLLOWING YEARS, 2003-2017



| 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

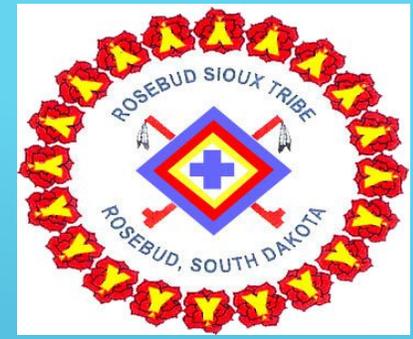


- ▶ 2003/04.....\$ 665,525.00
- ▶ 2006/07.....\$ 954,997.00
- ▶ 2013/14.....\$2,713,645.50
- ▶ 2014/15.....\$2,578,311.68
- ▶ 2015/16.....\$3,200,000.00
- ▶ 2016/17.....\$2,900,000.00
- ▶ Federal LIHEAP assistance, annually is ~\$963,000.00 and may not be funded at this level in the future.
- ▶ Remaining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





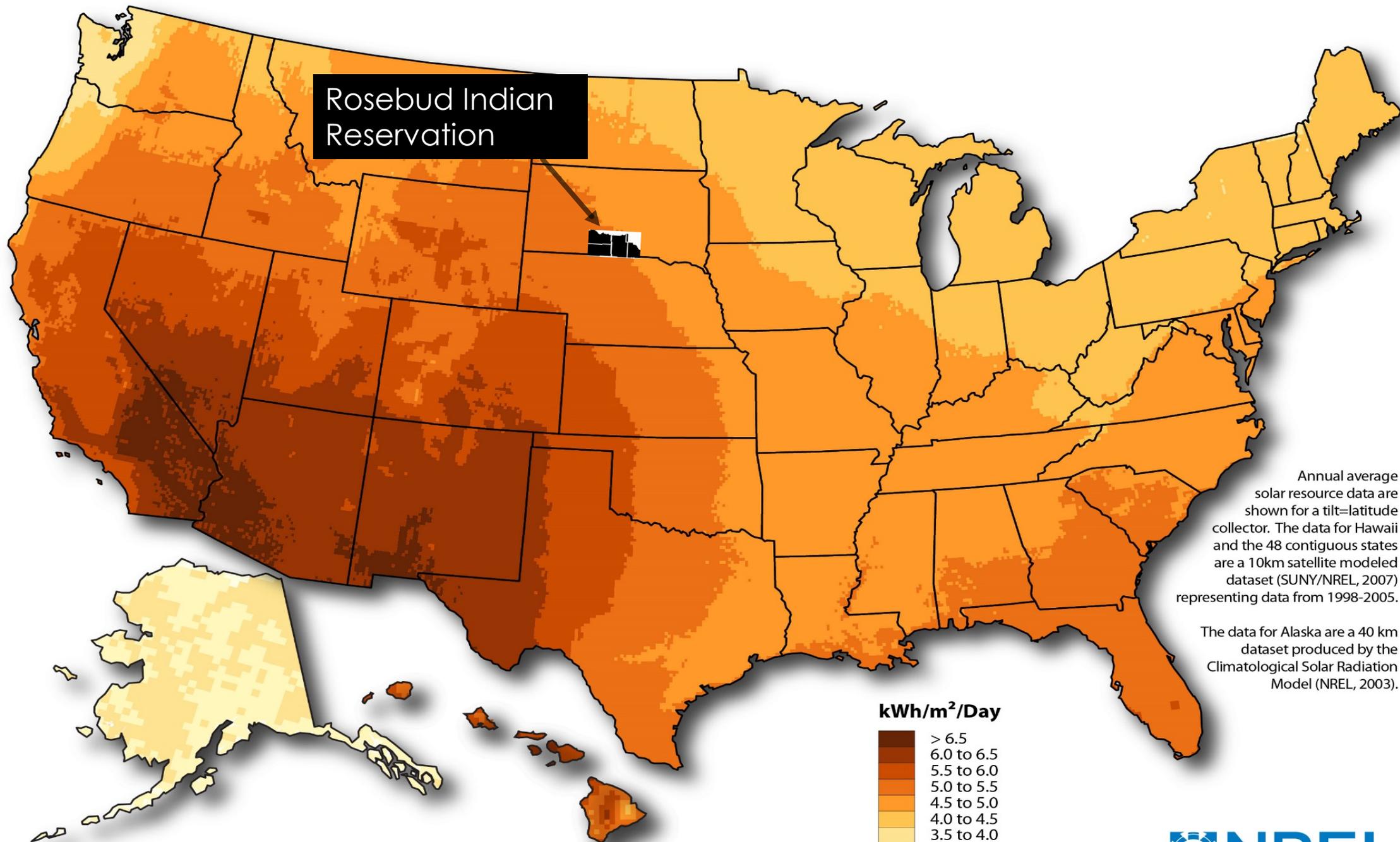
THE ROSEBUD SIOUX TRIBAL STRATEGIC ENERGY PLAN

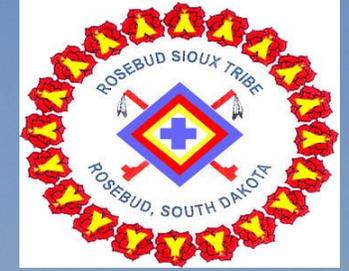


An over-arching living document that will:

- 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**

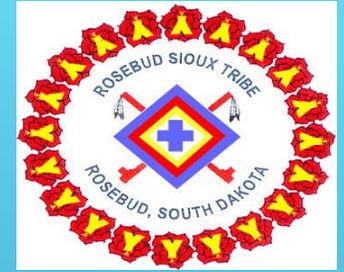


DOE 2018 GRANT AWARD

\$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. Administrated 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



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

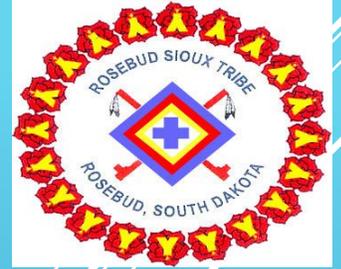
Units surrounded by green will receive a portion of their electrical power from a 150 kW solar field.

New plans

SICANGU VILLAGE SOLAR PROJECT



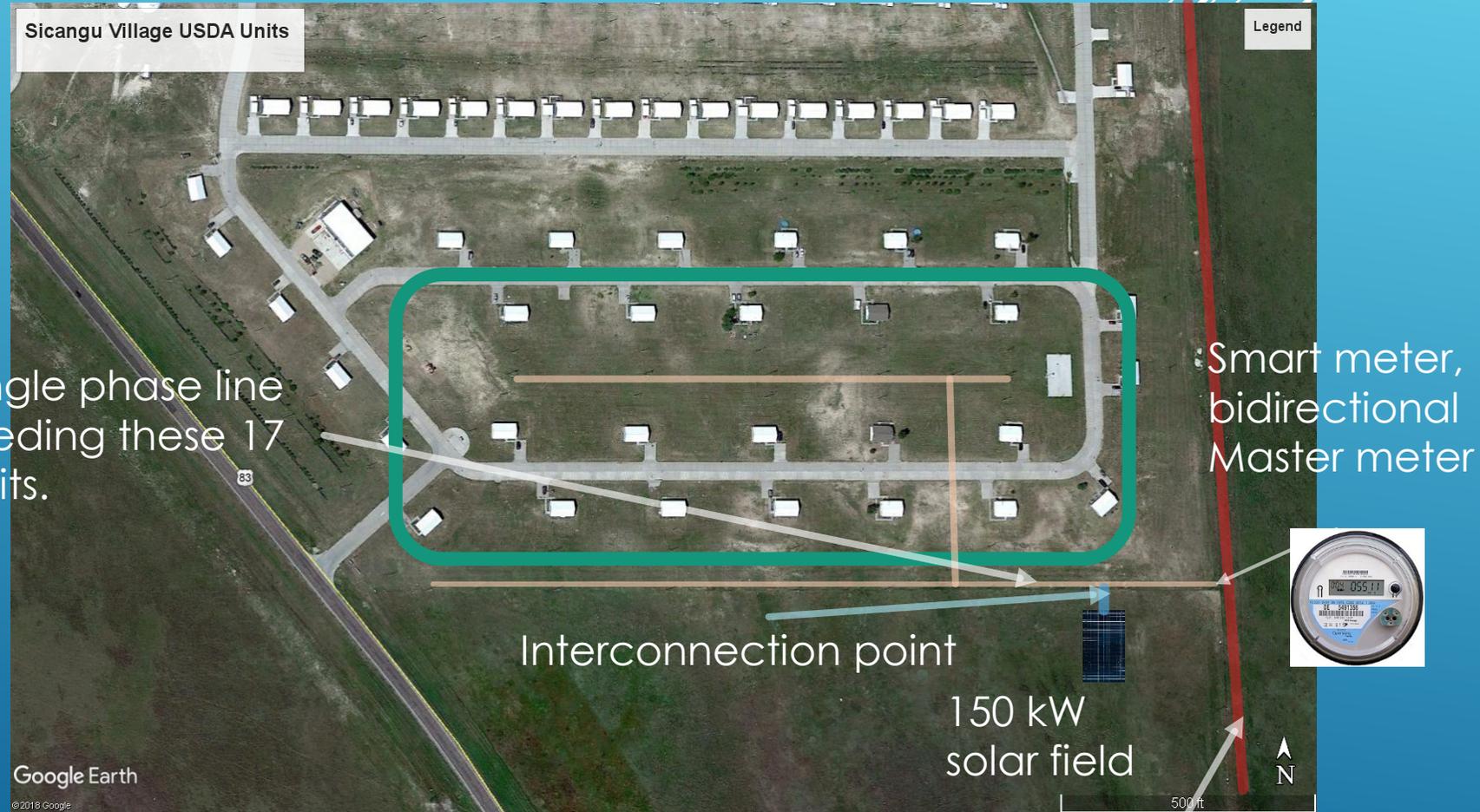
Sicangu Village Solar Project



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.

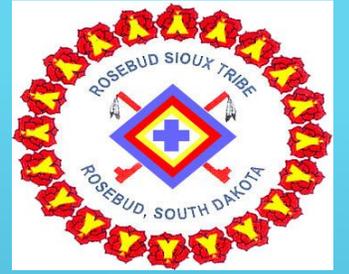
Rate Charge to SWA Units same as Cherry-Todds Basic Charge \$30.00 monthly, 10.6 cents kwh up to 900 kwh, 9.02 cents on anything over 900 kwhs



New plans



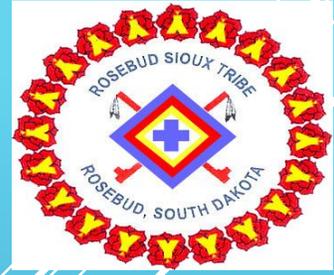
Conditions of the 150 kW Solar Field with new Tribal Utility RESCo, Rosebud Energy Services Company and Cherry-Todd the local utility.



- ▶ RESCo will administrate a monthly billing system to SWA on the 17 units receiving electricity from this 150 kW solar field based on the same residential rate they have always been charged.
- ▶ RESCo will pay the Commercial Rate Billing on this master meter to Cherry-Todd on a monthly basis of power that flows from the grid for these 17 units at night or otherwise.
- ▶ The 30.00 basic charge to the 17 units in this group will flow through RESCo and that payment will go directly to Cherry-Todd
- ▶ Any excess power that is pushed back through the master meter will be paid or credited to RESCo at 2.44 cents kwh
- ▶ This Master Meter and RESCo will be subject to peak demand charges!



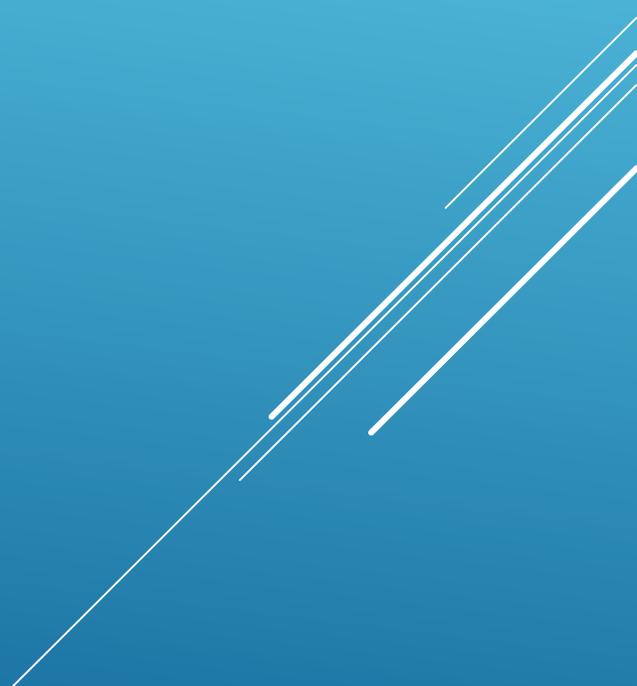
FUTURE THOUGHTS ON DEVELOPMENTS FOR THIS AREA



After a cycle of one full year production of the 150 kW solar field, anticipate installing energy storage to shave peak demand costs.

Conduct cost analysis on ROI of completely disconnecting from Grid by the addition of energy storage, electrical production by propane generators and community size wind turbine/s.

<https://vimeo.com/277556977/4204794c52>



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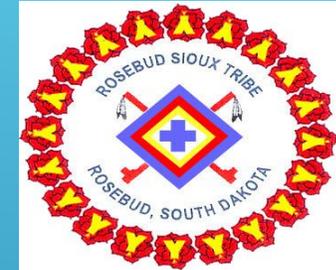
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PROJECT CONTACTS

