SICANGU VILLAGE SOLAR PROJECT

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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.
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

<table>
<thead>
<tr>
<th>Year</th>
<th>Power Costs to CTE</th>
<th>% increase</th>
<th>Consumer Rate increases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$3,100,487.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>$3,301,285.00</td>
<td>6.48%</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>$3,375,773.00</td>
<td>2.26%</td>
<td></td>
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<tr>
<td>2006</td>
<td>$3,767,277.00</td>
<td>11.60%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>$3,907,134.00</td>
<td>3.71%</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>$4,489,925.00</td>
<td>14.92%</td>
<td></td>
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<tr>
<td>2009</td>
<td>$4,969,624.00</td>
<td>10.68%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>$5,929,792.88</td>
<td>19.32%</td>
<td>22.0%</td>
</tr>
<tr>
<td>2011</td>
<td>$6,678,890.00</td>
<td>12.63%</td>
<td>8.1%</td>
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<tr>
<td>2012</td>
<td>$7,813,674.54</td>
<td>16.99%</td>
<td>9.0%</td>
</tr>
<tr>
<td>2013</td>
<td>$8,157,205.51</td>
<td>4.40%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>$7,820,287.00</td>
<td>&lt;4.13%</td>
<td></td>
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<tr>
<td>2015</td>
<td>$7,094,184.00</td>
<td>&lt;9.26%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2016</td>
<td>$7,717,184.00</td>
<td>8.08%</td>
<td>2.0%</td>
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<tr>
<td>2017</td>
<td>$8,488,902.40</td>
<td>10.00%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Percent change</td>
<td></td>
<td>107.66%</td>
<td>56.6%</td>
</tr>
</tbody>
</table>
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

Annual average solar resource data are shown for a fixed-tilt collector. The data for Hawaii and the 48 contiguous states are a 10km satellite modeled dataset (SUNY/NREL, 2007) representing data from 1998-2005. The data for Alaska are a 40 km dataset produced by the Climatological Solar Radiation Model (NREL 2003).

kWh/m²/Day

- > 6.5
- 6.0 to 6.5
- 5.5 to 6.0
- 5.0 to 5.5
- 4.5 to 5.0
- 4.0 to 4.5
- 3.5 to 4.0

Rosebud Indian Reservation
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. Administered by Grid Alternatives through a Wells Fargo Grant award
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
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

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

Single phase line feeding these 17 units.
Smart meter, bidirectional Master meter
150 kW solar field
3 phase line
Interconnection point
COMPLETED 149 KW SOLAR FIELD COMMISSIONING TOWARDS THE END OF NOVEMBER 2021
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 its AVOIDED COST! As per a directive in a PURPA Regulation and its 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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