DOE 2019 TRIBAL ENERGY REVIEW

Rosebud Sioux Tribal Headquarters, Rosebud, South Dakota

Office of Indian Energy and Economic Development.
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>
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<tr>
<td>2004</td>
<td>$3,301,285.00</td>
<td>6.48%</td>
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<tr>
<td>2005</td>
<td>$3,375,773.00</td>
<td>2.26%</td>
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<tr>
<td>2006</td>
<td>$3,767,277.00</td>
<td>11.60%</td>
<td></td>
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<tr>
<td>2007</td>
<td>$3,907,134.00</td>
<td>3.71%</td>
<td></td>
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<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>22.0%</td>
</tr>
<tr>
<td>2010</td>
<td>$5,929,792.88</td>
<td>19.32%</td>
<td>8.4%</td>
</tr>
<tr>
<td>2011</td>
<td>$6,678,890.00</td>
<td>12.63%</td>
<td>8.1%</td>
</tr>
<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>
</tr>
<tr>
<td>2015</td>
<td>$7,094,184.00</td>
<td>&lt;9.28%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2016</td>
<td>$7,717,184.00</td>
<td>8.08%</td>
<td>2.0%</td>
</tr>
<tr>
<td>2017</td>
<td>$8,488,902.40</td>
<td>10.00%</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

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

Annual average solar resource data are shown for a tilt-latitude 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).

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

Smart meter, bidirectional Master meter
150 kW solar field
3 phase line
Interconnection point
Single phase line feeding these 17 units.
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.
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