



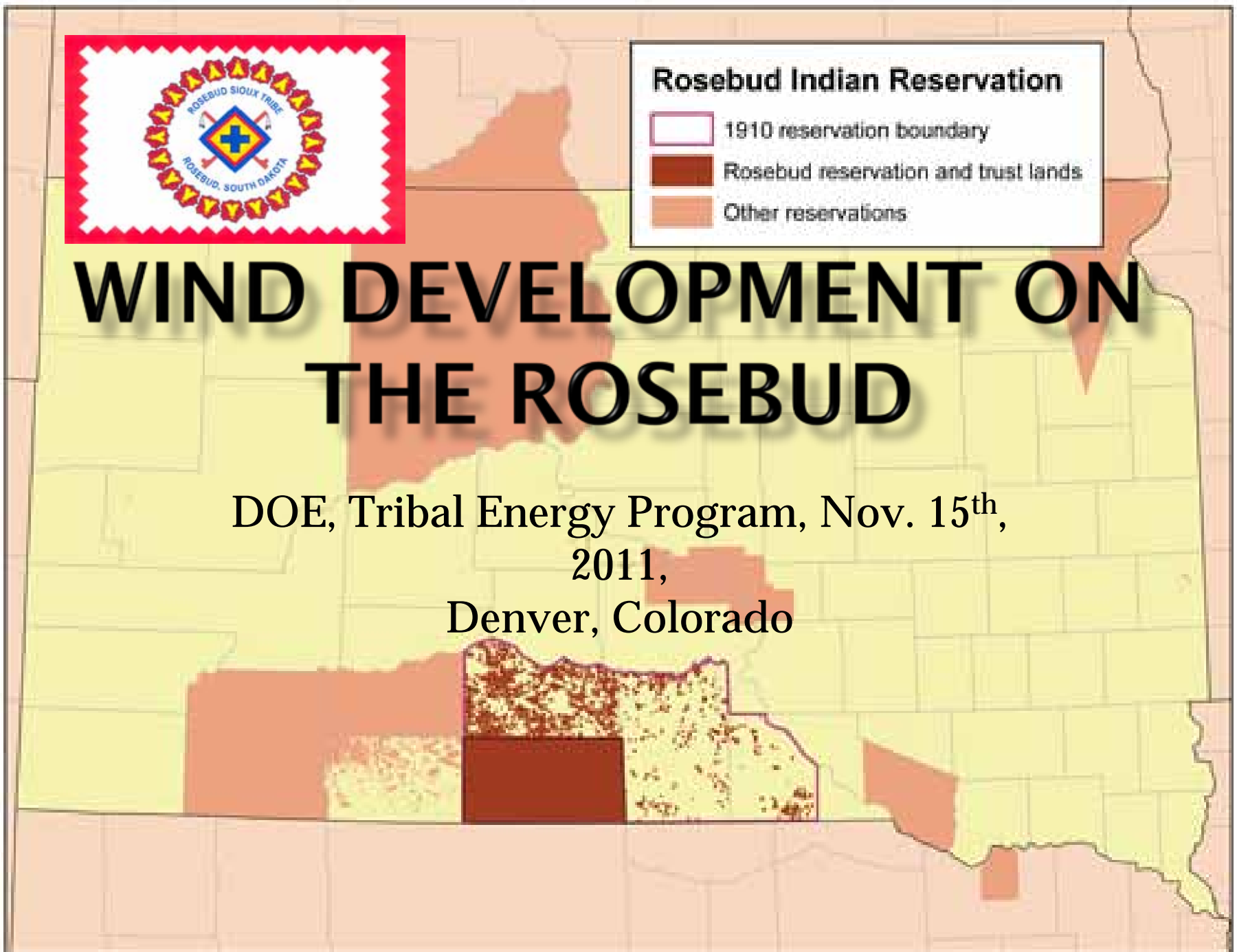


## Rosebud Indian Reservation

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

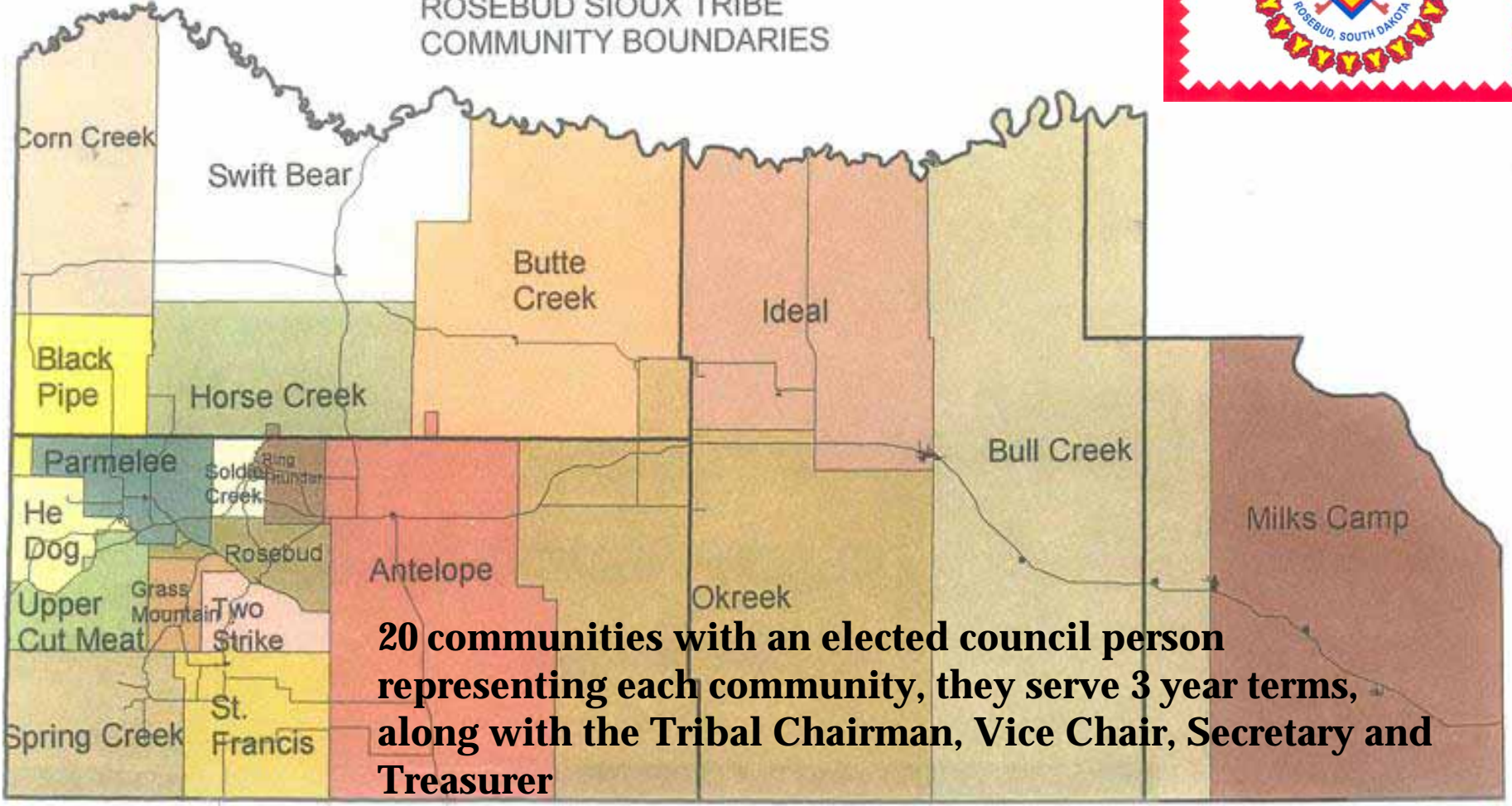
# WIND DEVELOPMENT ON THE ROSEBUD

DOE, Tribal Energy Program, Nov. 15<sup>th</sup>,  
2011,  
Denver, Colorado

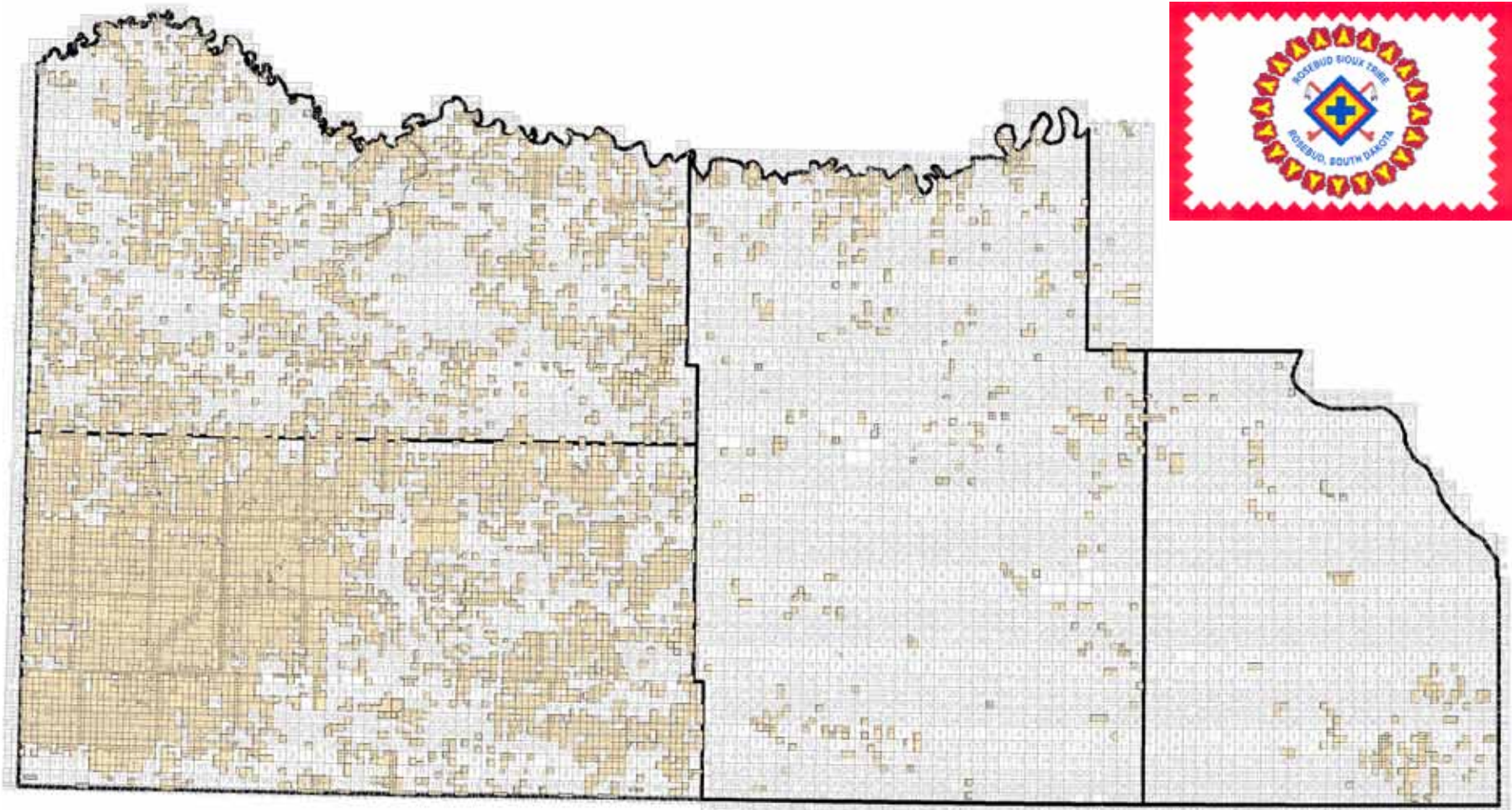




ROSEBUD SIOUX TRIBE  
COMMUNITY BOUNDARIES

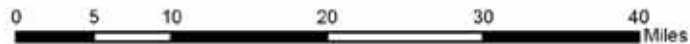


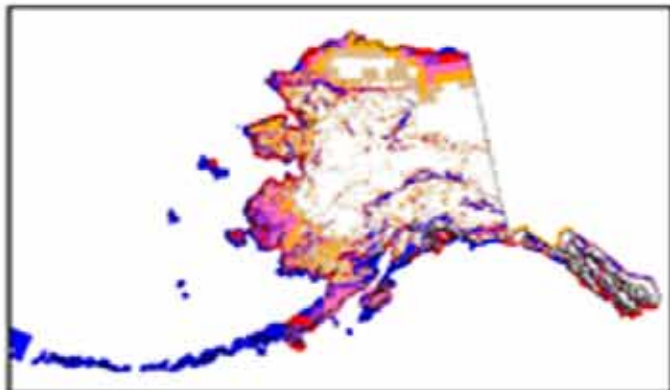
**20 communities with an elected council person representing each community, they serve 3 year terms, along with the Tribal Chairman, Vice Chair, Secretary and Treasurer**



**Tribal and/or Trust Acreage Within the Five County Rosebud Sioux Reservation**

**Todd County = 530,242 tribal trust acres of a total 889,725 acres**  
**Mellette County = 296,536 tribal trust acres of a total 838,402 acres**  
**Tripp County = 67,632 tribal trust acres of a total 1,034,503 acres**  
**Gregory County = 23,570 tribal trust acres of a total 522,454 acres**  
**Lyman County = 2,224 tribal trust acres of a total 143,921 acres**





### Wind Power Classification

Wind Power Class	Resource Potential	Wind Power Density at 50 m $W/m^2$	Wind Speed <sup>a</sup> at 50 m m/s	Wind Speed <sup>a</sup> at 50 m mph
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7
7	Superb	800 - 1600	8.8 - 11.1	19.7 - 24.8

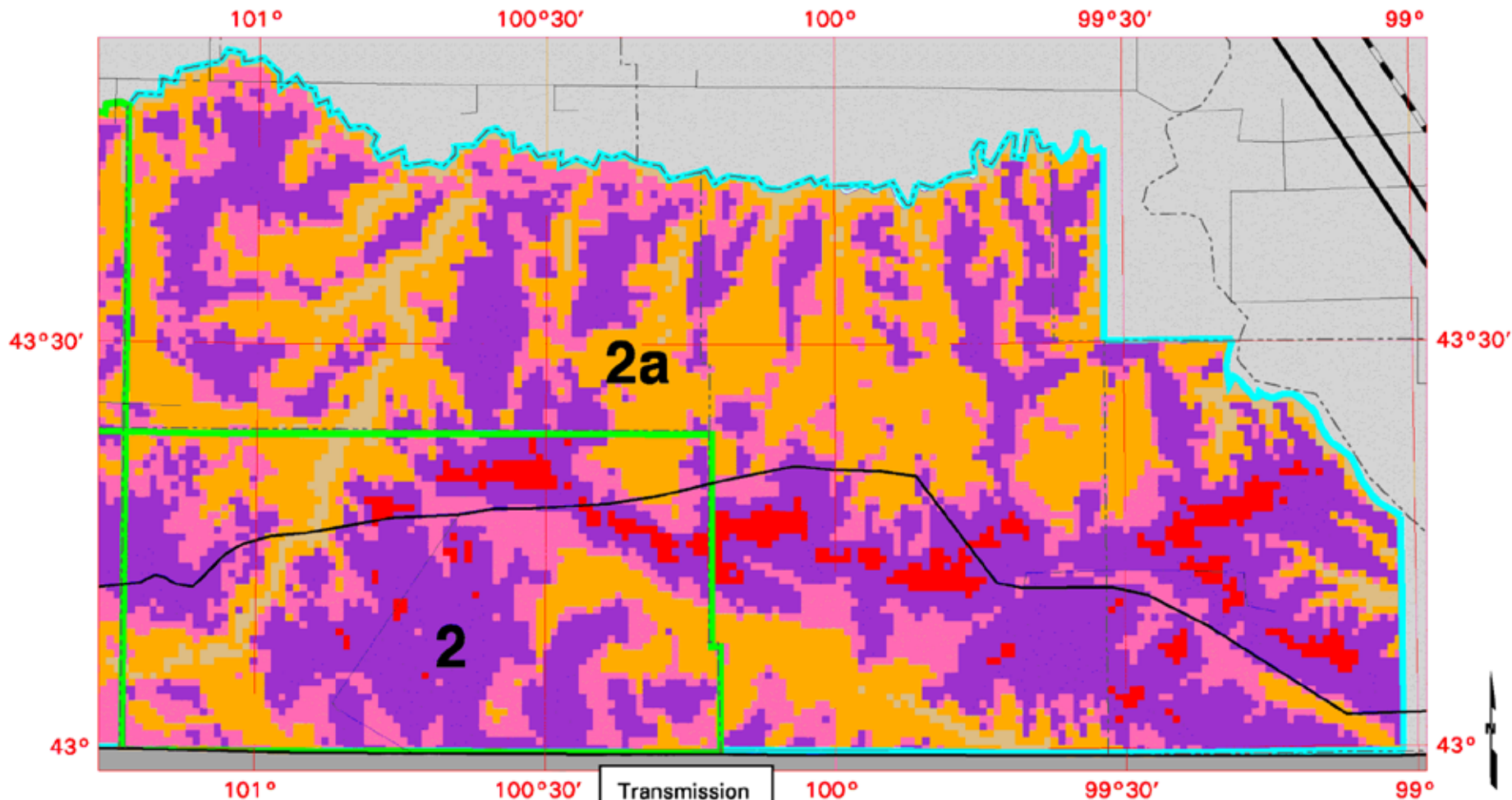
<sup>a</sup>Wind speeds are based on a Weibull k value of 2.0



Rosebud Sioux Indian Reservation



# South Dakota - Rosebud Reservation Wind Resource Map and Capacity



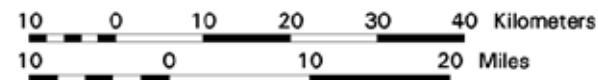
## Wind Power Classification

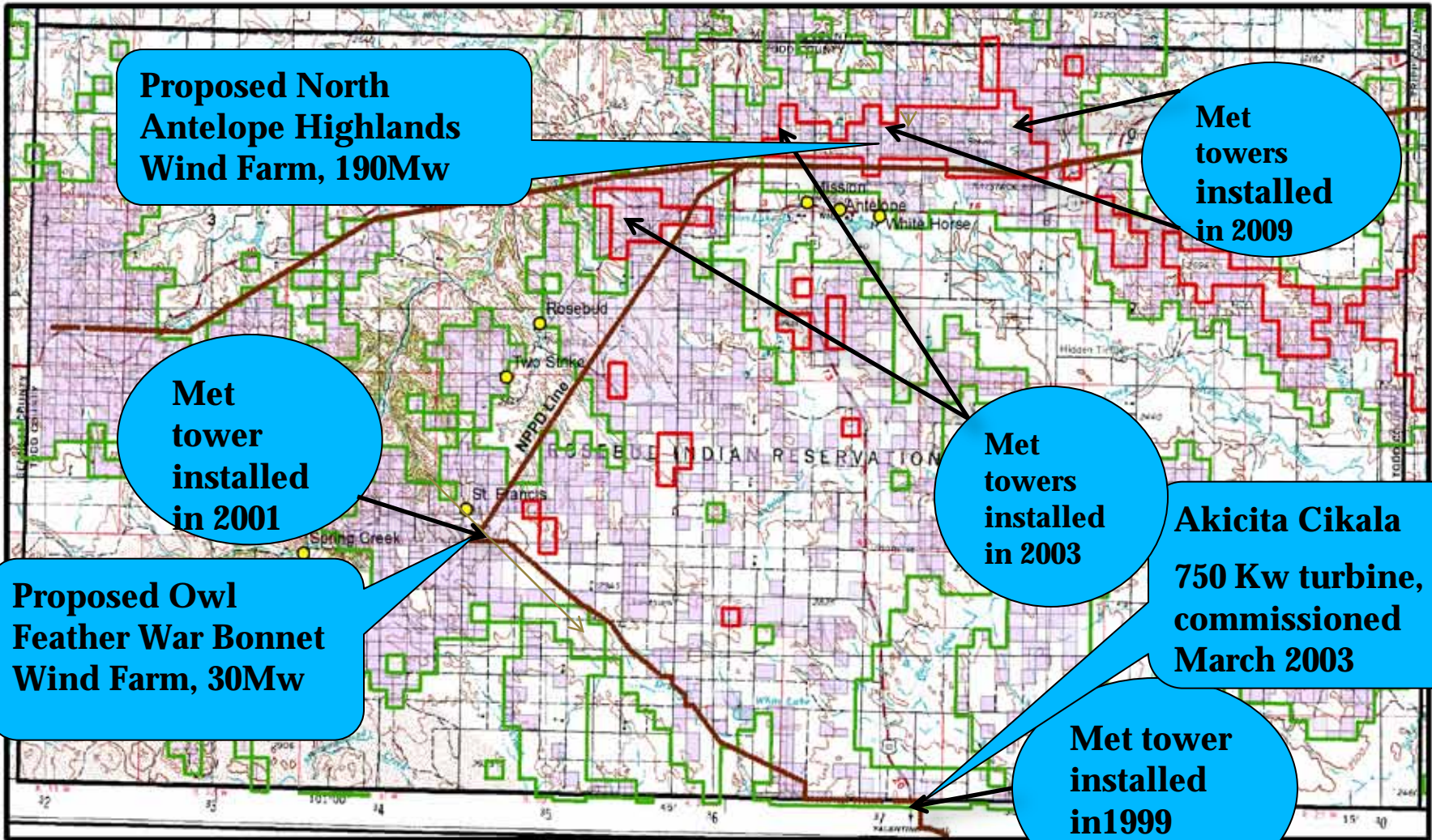
Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m <sup>2</sup>	Wind Speed <sup>a</sup> at 50 m m/s	Wind Speed <sup>a</sup> at 50 m mph
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3

## Transmission Line Voltage

- 69 Kilovolts
- 115 Kilovolts
- 230 Kilovolts
- 345 Kilovolts

- Federal Facility
- City or Town





- Wind Potential Class 6
- Wind Potential Class 5
- Tribal Trust Lands within Wind Class 5 and 6
- County Line
- WAPA and NPPD Poles



Tribal Trust Lands within Wind Class 5 and 6 in Todd County  
(Includes Tribal land, Allotment Land, and Trust Deed Land)

Total Trust Land within Wind Class 5 in Todd County = 232,094 Acres

Total Trust Acres within Wind Class 6 in Todd County = 35,116

Martin, SD Topographic Map  
Scale 1:250,000

Contour Interval 100 feet with Supplementary Contours at 50 foot Intervals



# Akicita Cikala (Little Soldier)



750 Kilowatt generator

Neg Micon

Commissioned in

March of 2003

Cost was \$1.1 million

\$508,750.00 DOE Grant

\$566,000.00 RUS Loan

Earns \$2,500 to

\$4,000.00 monthly



# Owl Feather War Bonnet Wind Farm

2003 Dept. of Energy Grant

DOE Funding \$448,551.00

DISGEN Cost share/in-kind \$78,750.00

RST/TUC Cost share/in-kind \$27,272.00

<http://apps1.eere.energy.gov/tribalenergy/pdfs/rosebud03final.pdf>





# 30 Mw Owl Feather War Bonnet Wind Farm



Developer is Distributed Generation Inc. LLC  
Dale Osborn, Pres. Project is shovel ready.

## Issues are:

RFP's Power Purchase Agreements are far and few between  
due to poor economy and competition from natural gas  
Major load areas are far from wind farm site imposing  
Wheeling and Tariff fees impeding project economics.

# North Antelope Wind Farm

RFP was issued in Fall of 2007

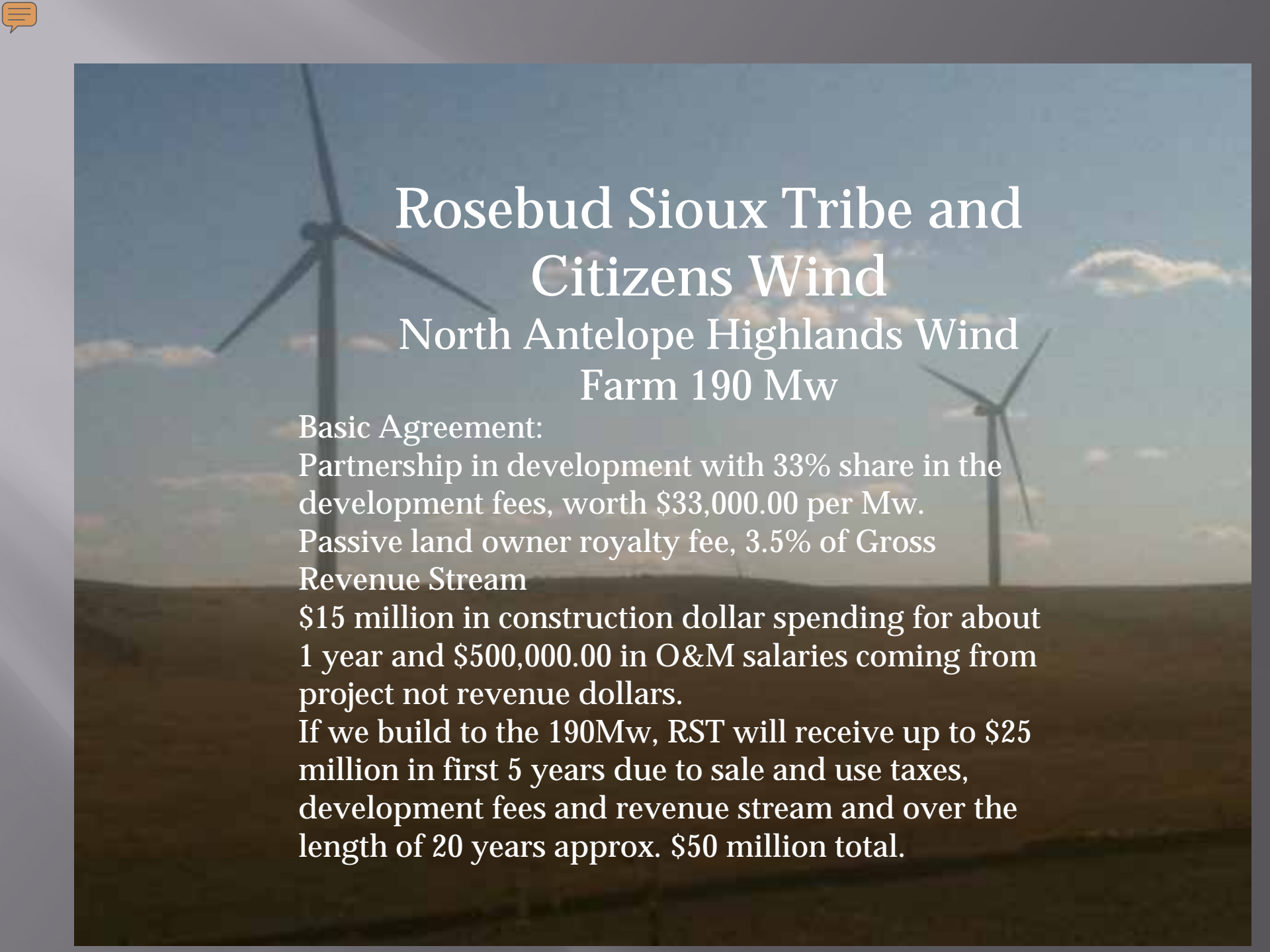
Rosebud Sioux Tribe and Citizens Wind entered into an MOA December of 2008 for a 5 year period of development.

Citizens has exclusive wind rights over all Tribal lands for a period of 2.5 years, in the remaining 2.5 years they must have in the ground at least one operating wind farm. All data gathered will be shared.

The RST and Citizens Wind are considered partners in the development phase, initially the RST had a 20% interest with Citizens having a 80% interest as they bring the development knowledge and money to the table, and we bring our land and wind to the projects.

DOE award of 1.5 Million in 2010 to assist in the development costs garnered the tribe a 33/67 split in development fees.

We intend to charge \$100,000.00 per Mw in development fees to the future owner of the wind farm/s. For every Mw developed RST will receive \$33,000 per Mw immediately after financial closing



# Rosebud Sioux Tribe and Citizens Wind North Antelope Highlands Wind Farm 190 Mw

Basic Agreement:

Partnership in development with 33% share in the development fees, worth \$33,000.00 per Mw.

Passive land owner royalty fee, 3.5% of Gross Revenue Stream

\$15 million in construction dollar spending for about 1 year and \$500,000.00 in O&M salaries coming from project not revenue dollars.

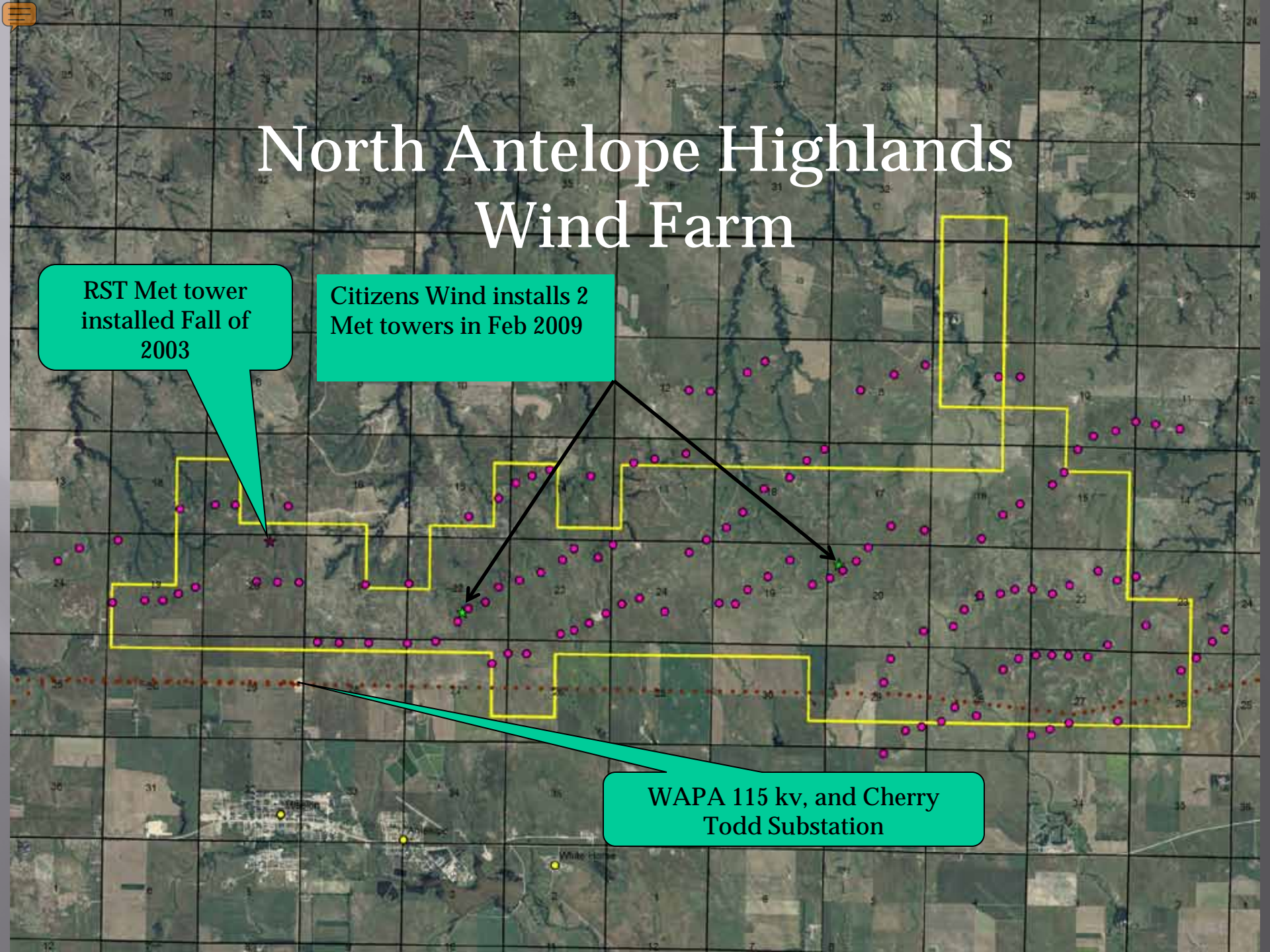
If we build to the 190Mw, RST will receive up to \$25 million in first 5 years due to sale and use taxes, development fees and revenue stream and over the length of 20 years approx. \$50 million total.

# North Antelope Highlands Wind Farm

RST Met tower  
installed Fall of  
2003

Citizens Wind installs 2  
Met towers in Feb 2009

WAPA 115 kv, and Cherry  
Todd Substation






# North Antelope Highlands Wind Farm

## Issues:

Preliminary Systems Impact Study indicates high degree of constraints on the Grid, and to build over 135 Mw on the existing WAPA 115 kv will cost over \$10 million to upgrade.

Any project in the state of SD over 99 Mw is subject to State PUC permitting.

BIA has had the lease agreement under review for this project since Nov. 2010, 12 months.



# North Antelope Highlands Wind Farm, timelines

- Throughout the spring, summer and fall of 2009, Avian field studies were conducted on the site and are complete.
- Citizens developed a site layout on turbine locates with 127 turbine locates to date. At this time we plan on using GE 1.5 Mw
- Fauna and Flora field studies are complete
- Bat surveys are complete
- Cultural studies , Class I and III are to be conducted spring of 2012
- Submit Environmental Assessment to Lead Agency BIA, June 2012
- Complete System Impact Study by WAPA, by Dec. 2011
- FONSI awarded fall of 2012
- Capacity to respond to any RFP available in summer 2012
- Consultation with US Fish and Wildlife to begin this winter, Eagle nest on site.

# RST use of revenue stream

- Develop a reservation wide distributed generation system, to lessen our dependence on the larger grid to become self sustainable.
- Tribe to start our own tribal utility company, purchasing the existing distribution system from the local cooperative.
- Support our people by upgrading the efficiency of their houses, retrofitting their heating and cooling systems with renewable energy devices such as small wind turbines and photovoltaic panels through grant/loans.
- Support start up funding for small private/tribally owned companies developing residential and community scale renewable energy devices, with the intent to expand outward beyond the reservation boundaries to much larger markets creating jobs and industries.

# Contact information



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