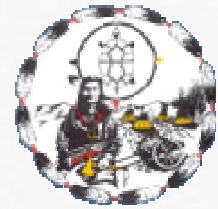




Project Notebook

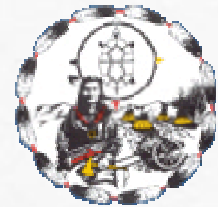
Turtle Mountain Band of Chippewa Indians
“First Steps to Implement Strategic Energy Plan”

Project Participants

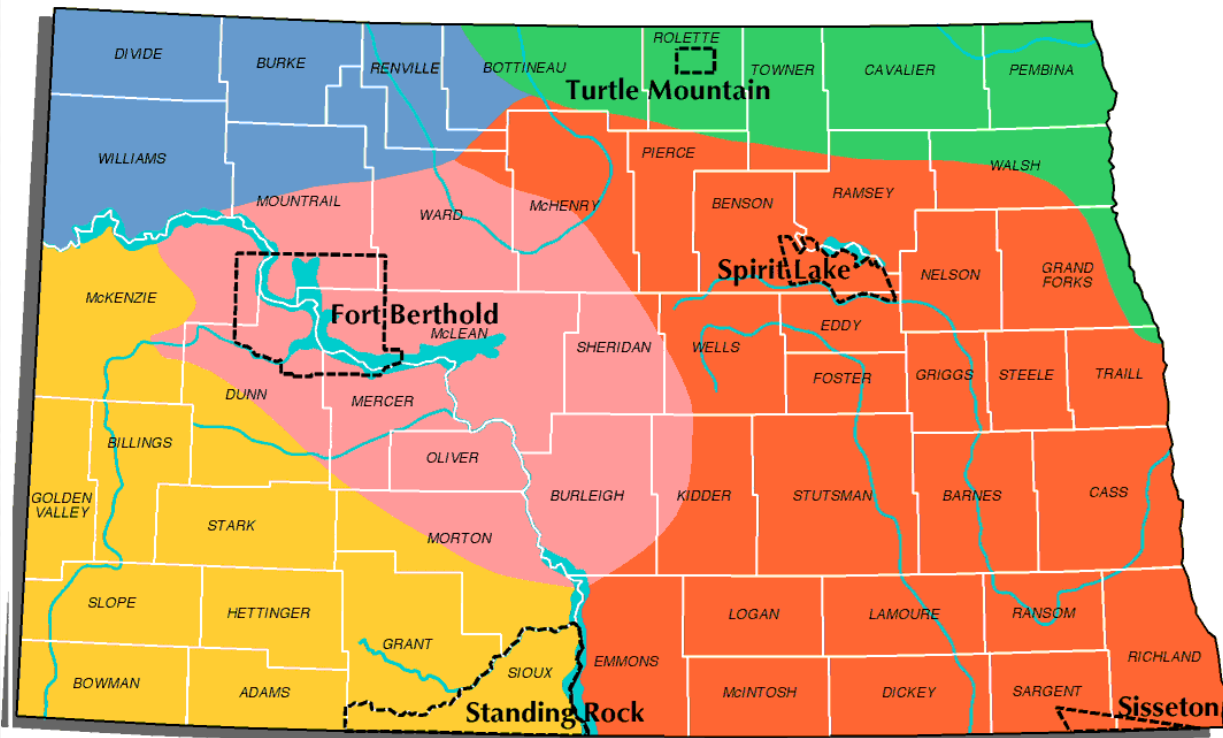


- Tribal Planning Staff - Charles Trottier
 - Emphasis on capacity building
- URS Inc. Madison WI - Jim Yockey
- EERC, Grand Forks ND (Involve them on the next steps)

TMBCI Background



- Furthest westward expansion of Chippwa
 - Treaty of 1863, executive order 1882
 - executive order 1884, 2 townships,
 - public domain allotments
- Most populous tribe per square mile in Nation
 - 16,500 on or near reservation
 - 30,000+ enrollment



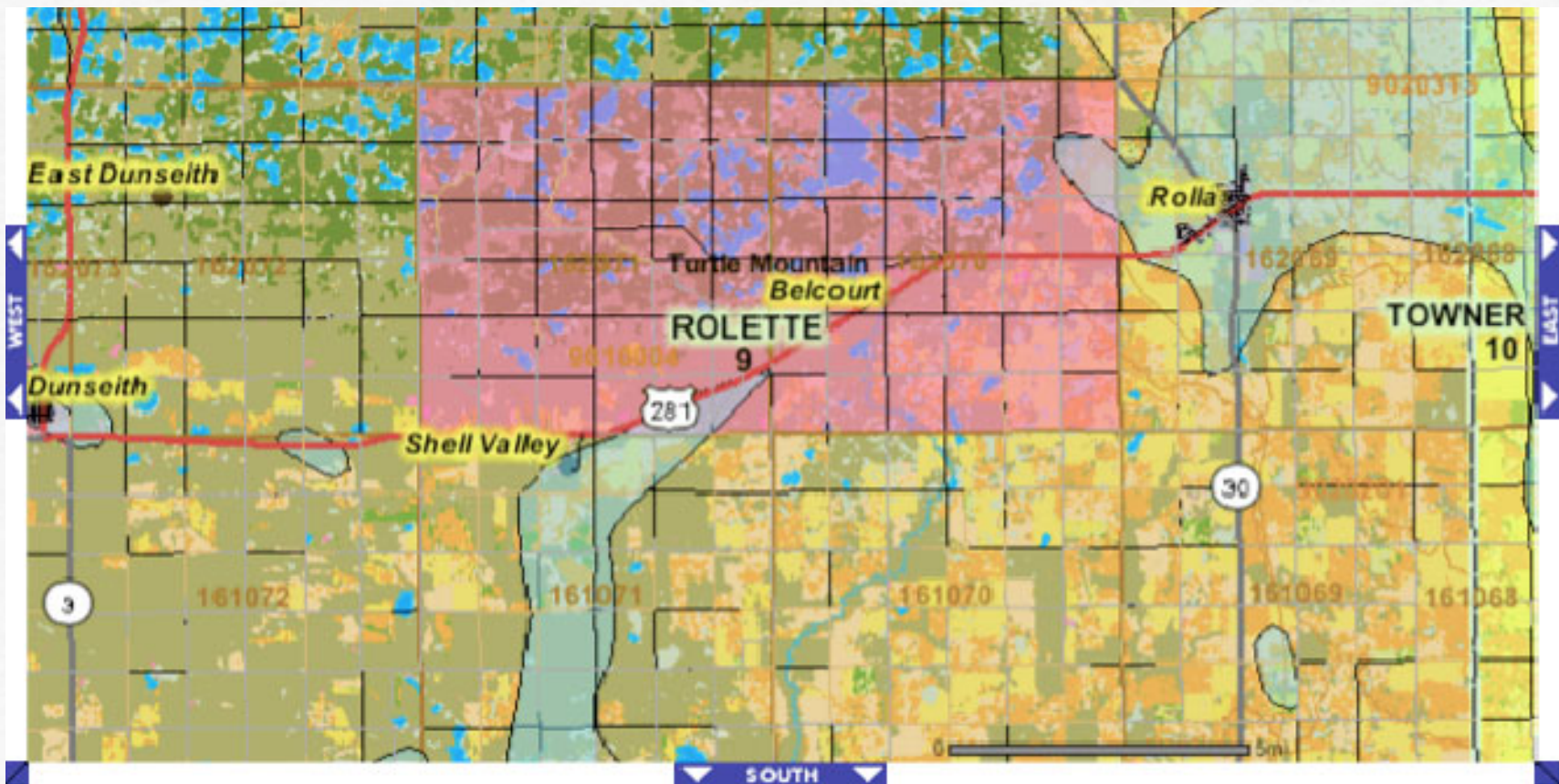
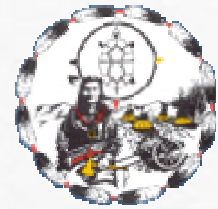
Indian Tribes in Dakota Territory ~ 1850

- Teton Dakota
- Yanktonai Dakota
- Mandan / Hidatsa / Arikara or Sahnish
- Assiniboin
- Chippewa

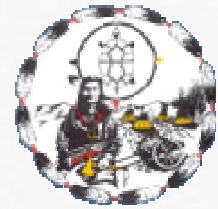
Indian Reservations in North Dakota ~ 1997

TMBCI Original Reservation and Current Reservation

6 X 12 Boundary

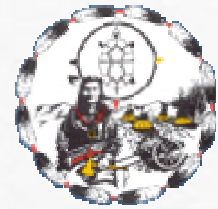


TMBCI Background



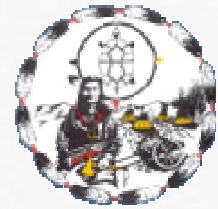
- Belcourt ND, Geographical Center of NA
 - Unemployment of 67%
 - poverty rate of 38%
 - annual per capita around \$9,000
 - 50% age 21 or below

Governance



- 9 person council including chair
 - 2 year elections at large
 - a lot of leadership changes
- Planning Department
 - Responsible for infrastructure
 - Energy development

Energy Background

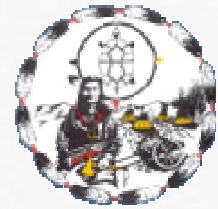


- ❑ 3 utilities serve reservation (2 Coops 1 IOU)
- ❑ WAPA allocation bill crediting and monetization plan
- ❑ 2002 started discussing electric utility options and benefits
- ❑ 1996 DOE grant wind demonstration

Micon 108 (1996)

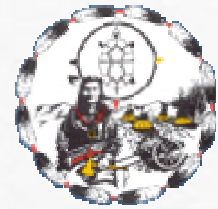


Project Overview



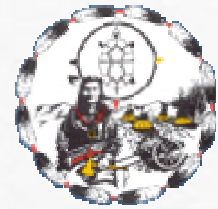
- ❑ Engage leadership and population with vision
- ❑ Current and Future Energy needs assesment
- ❑ Identify viable renewable and energy efficiency options
- ❑ Develop short, intermediate and long term plan
 - ❑ Tribal utility
 - ❑ long term self-sufficiency

Assess Current and Future Needs



- ❑ Summarize existing usage and cost data
- ❑ Assess affordability issues
- ❑ Add regional and export data
- ❑ Do gap analysis on Data
- ❑ Summarize findings

Load Summary



Month	Demand	Load Factor	Usage	Price	Cost
March	15,542	64%	7,310,894		
April	13,479	64%	6,199,385		
May	10,270	63%	4,780,750		
June	6,210	91%	4,087,965		
July	6,959	78%	4,056,346		
Aug	6,820	79%	4,031,864		
Sept	7,066	79%	4,032,858		
Oct	11,329	63%	5,343,253		
Nov	15,191	72%	7,823,732		
Dec	17,139	82%	10,514,352		
Jan	16,738	81%	10,049,341		
Feb	17,785	74%	8,896,274		
			77,127,014	.075	\$5,784,526

Identify Viable Renewable and Efficiency Options



- Wind
- Biomass
- Solar (Hot Water)
- Energy Audits (commercial, residential)
- Tribal Utility

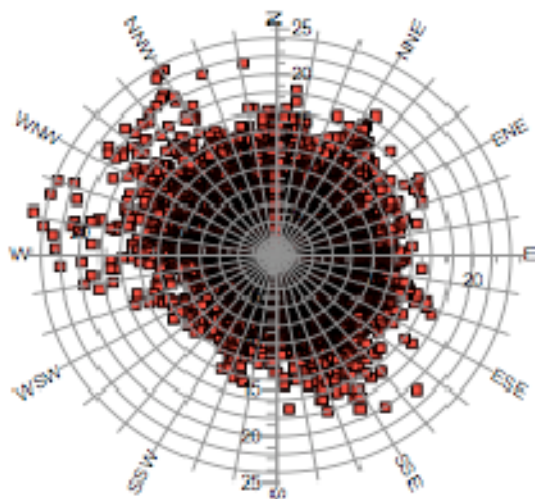
Micon 108 (1996)



First Year Wind Analysis

Meteo data report, height: 39.5 m

Name of meteo object: UTM 14 439259E 5404647N (WGS84/NAD83)

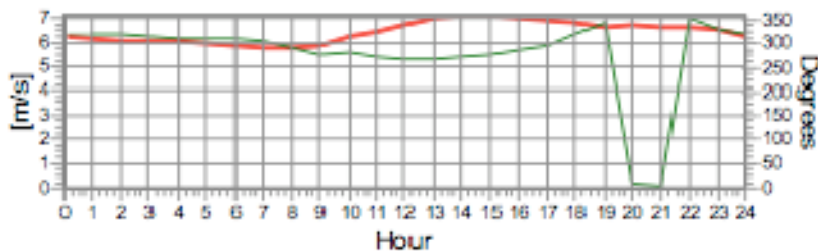


Wind speed [m/s]

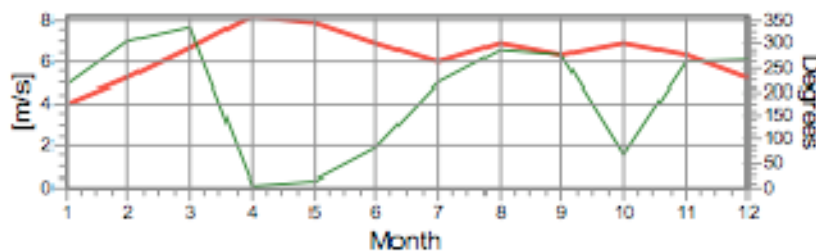
Monthly mean values of wind speed in m/s

Month	2004	2005	mean	mean of months
Jan		4.0	4.0	4.0
Feb		5.2	5.2	5.2
Mar		6.6	6.6	6.6
Apr		8.2	8.2	8.2
May		7.9	7.9	7.9
Jun		7.0	7.0	7.0
Jul		6.1	6.1	6.1
Aug		6.9	6.9	6.9
Sep		6.4	6.4	6.4
Oct	6.8	7.0	6.9	6.9
Nov	6.3		6.3	6.3
Dec	5.2		5.2	5.2
mean, all data	6.0	6.5	6.4	
mean of months	6.1	6.5		6.4

Avg. 14.5 mph @ 40m

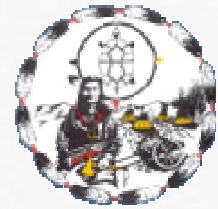


— Wind speed, Height: 39.5 m — Wind direction, Height: 39.5 m



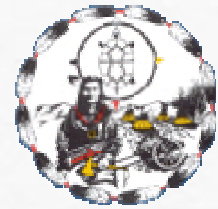
— Wind speed, Height: 39.5 m — Wind direction, Height: 39.5 m

Biomass Analysis



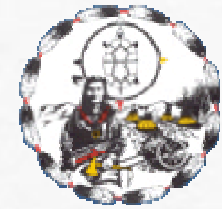
- ❑ Feedstock availability
- ❑ Transportation logistics
- ❑ Technology review
- ❑ Abbreviated market study

Tribal Utility



- ❑ Develop load and cost data
- ❑ Determine financial feasibility
- ❑ Create estimated cost of service

Load Summary



Month	Demand	Load Factor	Usage	Price	Cost
March	15,542	64%	7,310,894		
April	13,479	64%	6,199,385		
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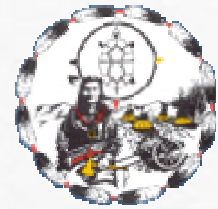
North Central Stats

miles of line	6,902
consumers	10,640
consumers per line mile	1.5

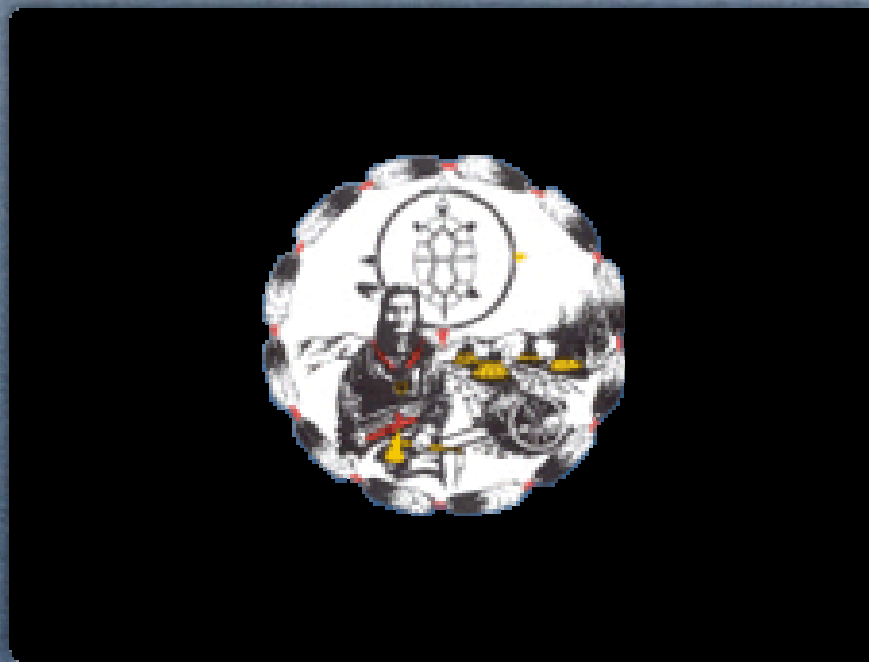
Belcourt Substation



Tribal Participation



- ❑ Stable leadership with a “champion”
- ❑ Partner with other efforts
- ❑ Consistently and constantly report



Questions?