

U.S. Department
of Energy:
*Office of Indian
Energy*



Deploying Clean Energy
on the Winnebago
Reservation

Winnebago Tribe Of Nebraska



- Located in northeast Nebraska near the tri-state area of Nebraska, Iowa, and South Dakota.
- The Winnebago Tribe of Nebraska has approximately 5,000 enrolled members.
- The reservation is 116,000 acres.
- Allotted reservation - there are 30,000 acres that is controlled by the Tribe.

Ho-Chunk, Inc.



- The board of directors consist of five members with two of them being council members.
- Ho-Chunk, Inc. has a focus on economic development.
- Early businesses were common tribal economic ventures such as tobacco and gas.
- Later was expanded to hotels and interest in modular home company.
- There has been major growth with 8a contracting.

Ho-Chunk, Inc.



- With growth, there was an increased need for community and social programs from Ho-Chunk, Inc.
- Housing initiatives, education initiatives, financial literacy.
- Leadership – Renewable Energy

**“In Order to do one thing you
have to do everything.”**

– Lance Morgan, Ho-Chunk, Inc. President and CEO

Lessons Learned



Started with wind investments

- Didn't qualify for tax credits.
- Grants helped offset the cost.
- Commercial scale sold for ~2.9 cents KW, brought back at ~10 cents KW.
- High maintenance costs

Shift to solar investments

- Started with small projects.
- Grants helped offset the cost.
- Focus on offsetting cost on retail power.
- Low maintenance costs.
- Nebraska has very good solar resources
- Know your interconnection policy!

Lessons Learned



Planning and Engagement

- More and better communication with all stakeholders is key
- Use technology and social media to inform members
- Don't forget old school use of flyers and newsletters
- Always, always, always include the Tribal Council.

Mechanics and Construction

- Keep projects simple as possible
- Know interconnection policy and economics
- Keep a 'low profile'
- Protect from traffic, if it's possible, they'll hit it.
- Managing contractors and budgets
- Further development of 'rightsizing' capability

Project Highlights DOE -2



Ho-Chunk, Inc. is helping create one of the largest renewable energy infrastructures in the state of Nebraska in the Winnebago community.

This project follows on the heels of a 1,000 panel retail offset project (Topic 2) in 2018, DOE 1.

HIGHLIGHTS

- 900 solar panels installed at 9 sites across the Winnebago Community.
- 280kw solar power generation, reducing energy bills by about \$40-46,000 annually.
- These projects will offset 455 MWh at the sites annually and offset significant retail consumption.

Funding DOE -2



In 2018, Ho-Chunk, Inc. and the Winnebago Tribe made an investment of over \$700,000 in renewable energy with the support of U.S. Department of Energy, Office of Indian Energy

\$728,600

BREAKDOWN

\$364,300 in grants from the Office of Indian Energy at the Department of Energy

\$364,300 in matching funds from Tribal sources, including Ho-Chunk, Inc.

Project Sites



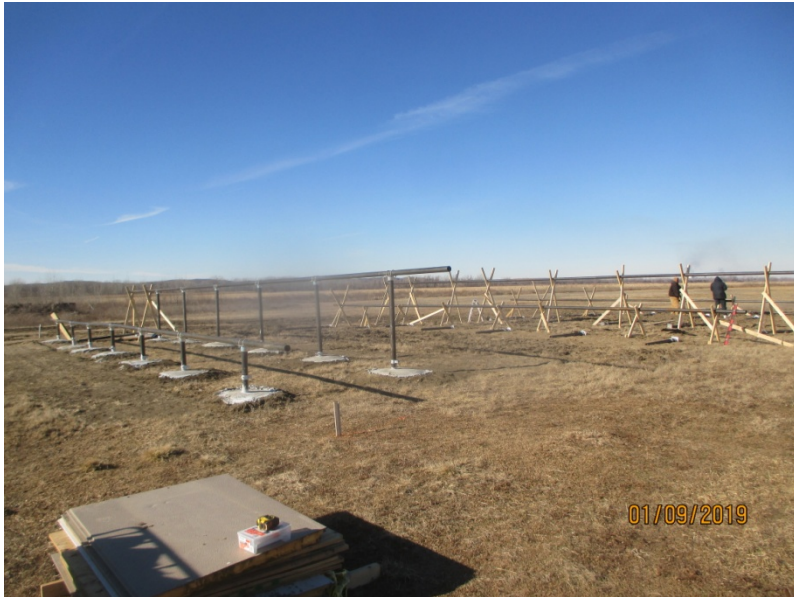
Renewable energy project sites include:

- Solar panels
 - 50kW Pony Express Fuel Station at Winnavegas Casino
 - 23kW Pony Express Fuel Station in Rosalie, NE
 - 8kW HCI Accounting in Winnebago
 - 25kW Blackhawk Community Center in Winnebago
 - 50kW at Winnavegas Casino
 - 50kW at Winnavegas Hotel
 - 8kW at Winnavegas North Amphitheater
 - 15kW at the Winnavegas RV Park
 - 25kW at the Winnavegas Training Center
 - 25kW at the Health and Human Services building
- Total 280kW

Winnavegas Pony Express



- Significant offset
- Cost effective
- Looks great!
- Out of traffic
- \$2.30/watt installed cost
- Long electrical run



Pony Express Rosalie



- First use of MPM mounting system
- Utilized property edge with a north/south spine
- Traffic bollards became necessary because of traffic
- Excellent production
- \$3.25/watt installed cost



HCI Accounting



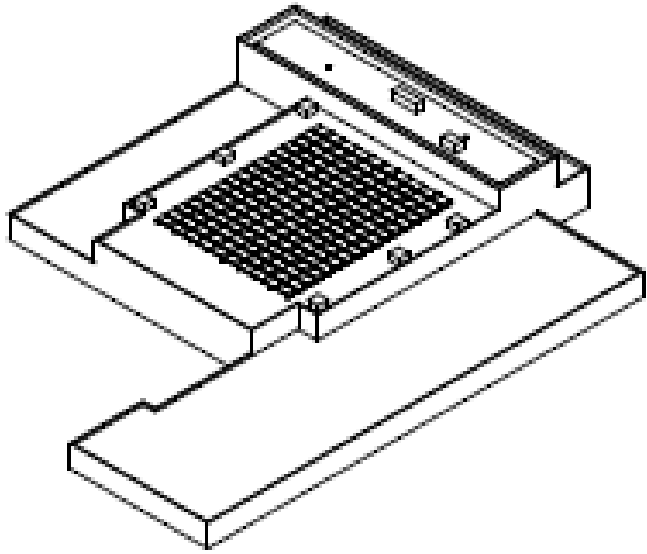
- Already had a skystream on this meter to make a hybrid system
- All electric building
- Pole mounts well adapted to sloped ground
- \$3.65/watt installed cost



Blackhawk Community Center



- Difficult design burden
- Open area, excellent solar access
- Load analysis completed
- Attached system using power grip anchors
- \$2.40/watt installed cost



13/03/2020

25kW DHHS Building



- Standing seam metal roof
- Concentrated on south end
- \$2.00/watt installed cost

100kW Winnavegas Casino + Hotel



- Standing seam metal roof, quickly deployed
- Open solar access
- \$1.85/watt installed cost
- Performed roof loading study



7.6kW Amphitheater North



- Located with RV Park in small available area
- 17' long pipe with ten foot in the ground with concrete
- Very high power cost
- \$3.65/watt installed cost

15 kW RV Park



- Pole Mounts selected because of limited space available
- Will provide sustainable energy for camping visitors
- Replaces expensive power
- \$\$3.31/watt installed cost

25kW Winnavegas Training Center



- Utilize unused space for energy offset
- Designed to expand
- 25kW inverter capacity
- \$2.20/watt installed cost

Winnavegas Site Planning



DOE-2 Overview



Annual Analysis	Suggested		Produced		value						
	AC kW	DC kW	MWh	\$/MWh	Value	Installed \$	\$/watt	Usage/yr	Match	IRR %	Payback Type
Pony Sloan	50	58	80	\$116.00	\$ 9,280.00	\$ 121,974.00	\$2.10	102 Mwh	HCI		Ground
Pony Rosalie	23	25	38	\$110.00	\$ 4,180.00	\$ 81,250.00	\$3.25	128 MWh	HCI		Pole
HCI Accounting	7.6	8.4	12	\$100.00	\$ 1,200.00	\$ 30,622.00	\$3.65	80 MWh	HCI		Pole
BHCC	50	58	89	\$ 81.00	\$ 7,209.00	\$ 129,997.00	\$2.24	1,086 MWh	Tribe		Roof
Casino	50	58	80	\$ 88.00	\$ 7,040.00	\$ 107,133.00	\$1.85	5,131 MWh	Casino		S-5 Roof
Hotel	50	58	80	\$ 94.00	\$ 7,520.00	\$ 105,122.00	\$1.81	1,528 MWh	Casino		S-5 Roof
Amphitheater N	7.6	8.4	12	\$260.00	\$ 3,120.00	\$ 30,622.00	\$3.65	14 MWh	Casino		Pole
Sign/RV park	15	16.8	24	\$115.00	\$ 2,760.00	\$ 55,744.00	\$3.31	61 Mwh	Casino		Pole
Training Center	25	29	40	\$115.00	\$ 4,600.00	\$ 66,158.00	\$2.28	106 Mwh	Casino		Ground
Totals/Average	278	320	455	\$120.00	\$46,909.00	\$ 728,622.00	\$2.69	8,236 MWh			7.20% 12.6yrs @ 3%
Summary Figures											15.5 simple

Project Status Dec 20



Location	AC kW	Status	Electrical status	Savings to date
Pony Sloan	50	Installed	Completed, online	\$10,100.00
Pony Rosalie	23	Installed	Completed, online	\$3,420.00
HCI Accounting	7.6	Installed	Completed, online	\$1,340.00
Blackhawk	50	Installed	Completed, online	\$868.00
WV Casino	50	Installed	Completed, online	\$11,200.00
WV Hotel	50	Installed	Completed, online	\$11,120.00
WV Amph North	7.6	Installed	Completed, online	\$2,400.00
WV RV Park	15	Installed	Completed, online	\$3,900.00
WV Training Ctr	25	Installed	Completed, online	\$5,300.00
	278		Total, 1 st year	\$49,648.00
			Annual goal	\$47,000.00

Challenges overcome



- ✓ Unclear property lines caused extra work at a Winnavegas casino site.
- ✓ Winter weather
- ✓ Utility refusal to allow any onsite offset that exceeded 25kW, though allowed by law.

Future Plans



- ✓ Explore Tribal Sovereignty approach to restrictive limits and quotas
- ✓ Develop clean energy strategies in the development of Ho-Chunk Village 2.0
- ✓ Explore outside partnership efforts (investors, tax credit leveraging, etc.)

Contact Information



Ann Marie Bledsoe-Downes

Vice President of Community

Impact and Engagement

abledsoe-downes@hochunkinc.com

712-305-5094

Robert Byrnes

Solar Development Technician

waterdog@nerenew.com

402-307-0280