

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



Deploying Clean Energy  
on the Winnebago  
Reservation

# Background



- Ho-Chunk, Inc. is the award-winning economic development corporation owned by the Winnebago Tribe of Nebraska.
- Established in 1994 in Winnebago, Nebraska with one employee, Ho-Chunk, Inc. has grown to over 1,000 employees with operations in 24 states and 10 foreign countries.
- The Winnebago Tribe of Nebraska struggled for many years with low income, high, unemployment and a lack of affordable housing.
- Through the creation of new job opportunities at Ho-Chunk, Inc., there came the need for additional housing on the reservation.

# Background



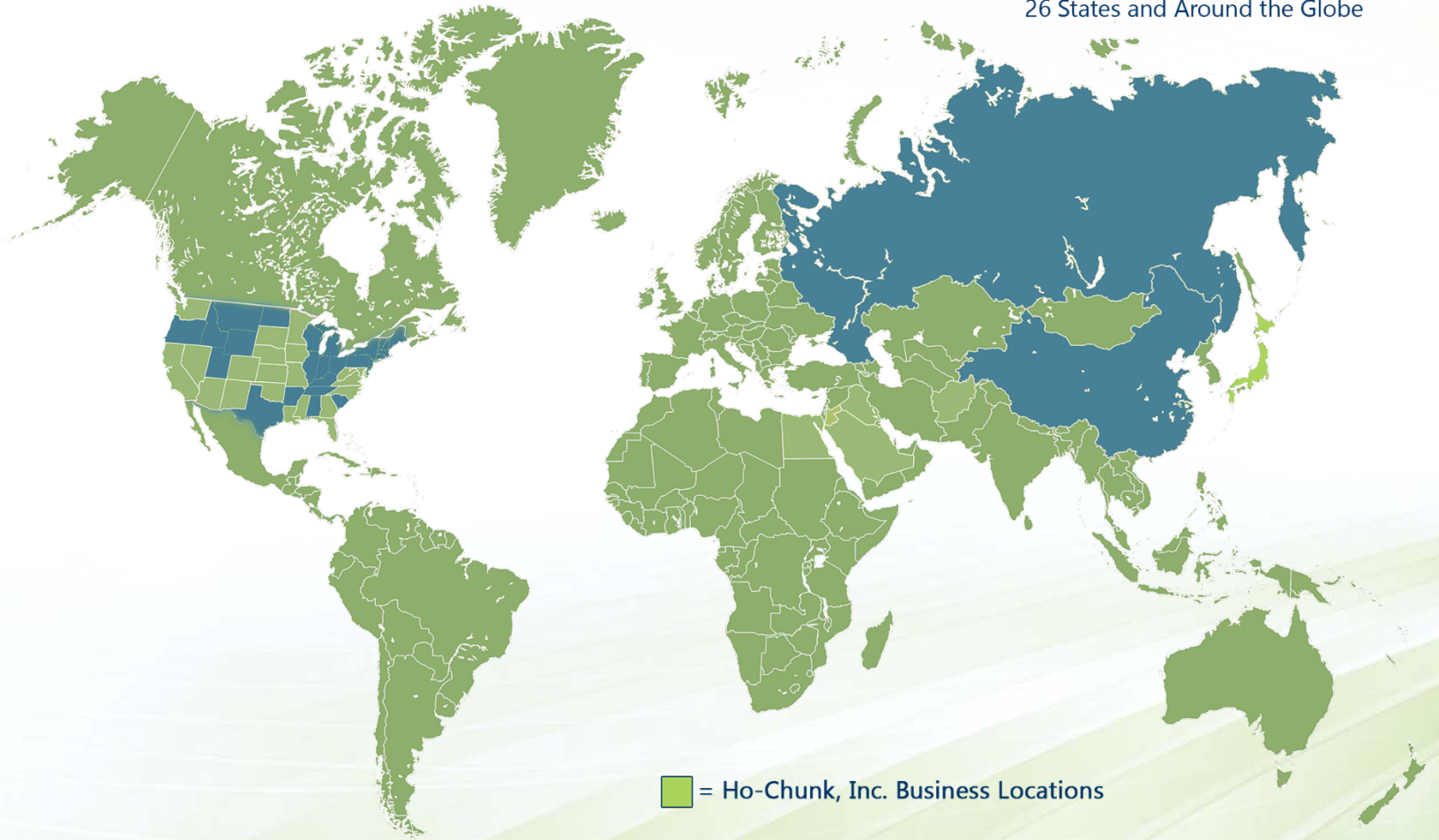
- The Ho-Chunk Village concept was developed to fulfill that void.
  - 110 housing units (single family, multi family, commercial, parks)
- The integration of clean energy production into HCI Village was a natural match which began many years ago w/ USDA support for the installation of Wind Turbines in 2008 and continue to this day with the community scale solar deployment.
- Partnership among: Winnebago Tribe of Nebraska, Ho-Chunk, Inc., Ho-Chunk Capital, and Ho-Chunk Community Development Corporation


# Ho-Chunk, Inc.



## GLOBAL OPERATIONS

26 States and Around the Globe



 = Ho-Chunk, Inc. Business Locations

# Ho-Chunk Village



<http://hochunkinc.com/village-tour.php>



# Project Overview



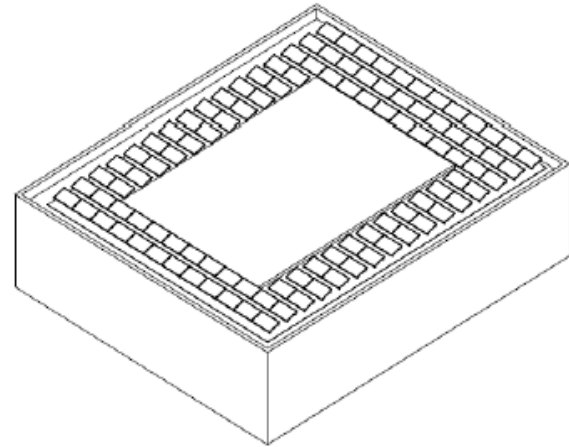
- Under this newly funded project, Ho-Chunk, Inc. will install community scale solar systems on the Winnebago Reservation and specifically for the Live Work Building and add passive solar thermal efficiency measures.
- The project is comprised of two initiatives:
  1. To install 282 kilowatts on the reservation: 282 kW of solar installations and one 5 kW of wind installations that will reduce the associated retail electrical consumption of those site by approximately 27% (annual saving of \$42,000!)
  2. To install solar 25 kW renewables and passive solar thermal measures at the Ho-Chunk Village Live Work Building, a commercial mixed-use building.

# Project Overview



## Live Work Solar

- Specially designed roof structure
- 25kW limit
- Fair access
- Includes small thermal solar
- \$75,000 Total cost



# Project Overview



## Woodland Trails

- Will use low angle trays like on corporate
- Ballasted roof with stone/block exchange
- High cost power
- Oriented on south side
- \$64,537 system
- 25kW size





# Project Overview



## Rock River

- Similar System to Live/Work, 25kW
- Will build off wiring already in place
- Will save about \$4000/year
- Difficult roof access
- Lightweight system
- \$67,382 cost



# Project Overview



## Walthill Foods

- 25 kW system
- High cost of power
- Easy standing seam roof
- System cost \$63,796
- No durable equipment in grant if sold



# Project Overview



## Pony/Titan

- Our first large ground mount system
- 25kW X 2 for Pony and Titan. Balance sold to BCPPD
- Easily expandable, excellent cost point
- \$218,156 for 100kW is \$2.18 watt
- Visibility from N entry highway a plus



# Project Overview



## Distribution

- Expansion to max capacity of available space
- Originally designed to expand
- 25kW stays net metering, NPPD will buy 45kW as buy/sell arrangement
- Long feed line to RR was creating loss
- \$46,455 to add 20kW to fill space



# Project Overview



## **Senior Housing Units**

- 10 senior housing units in the Ho-Chunk Village will receive roof mounted solar panels
- 8.5 kW

## **Ho-Chunk Renaissance Building**

- Winnebago Language building will will receive roof mounted solar panels
- 21 kW

## **Senior Center**

- Senior Center will receive roof mounted solar panels
- 14 kW

## **Pow-Wow Grounds**

- Veteran's Building will receive roof mounted solar panels
- 7 kW

## **Tribal Planning Building**

- Tribal Planning building will receive roof mounted solar panels
- 7 kW

## **Little Priest Tribal College**

- Replace two wind turbines
- 5 kW

# Project Status



Location	AC kW	DC kW	Status	Electrical status	Est Online date
Live Work	25	29	planning ongoing	Dec-17	December
HoChunk REN	20	21	Installed	Completed	Nov
Woodland Trail	25	27	Installed	Completed	Nov
Rock River	25	29	On order	Ongoing	December
Walthill Foods	25	29	Installed	Completed	Nov
Pony/Titan	110	116	Starting Oct	Ongoing	December
Distribution	18	20	Starting Oct	Ongoing	Nov
Elder Housing	8.5	8.5	Ongoing	Ongoing	Nov
LPTC	5	5	Ordered	Ongoing	Nov
Senior Center	12	14	Installed	Completed	Nov
Pow Wow	6	7	Installed, warranty	Completed	Nov
Tribal Planning	6	7	Installed	Completed	Nov
	285	312			

# Project Status



## Senior Housing Units



# Project Status



## Live Work Building





# Project Status



## Heritage Foods



# Project Status



## Pow-Wow Grounds



# Project Status



## Ho-Chunk Renaissance Building



# Project Status



## Woodland Trails Building



# Future Plans



- ✓ Continue integration of clean energy production into HCI Village
- ✓ Deploy clean energy strategies into the development of HCI Village 2.0
- ✓ Explore outside partnership efforts (investors, tax credit leveraging, etc.)

# Contact Information



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