

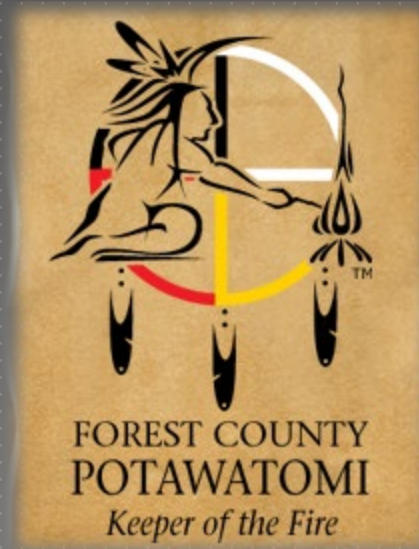
Forest County Potawatomi Community Installation of Solar Photovoltaic Systems

Presented by:

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FCPC Attorney

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The People

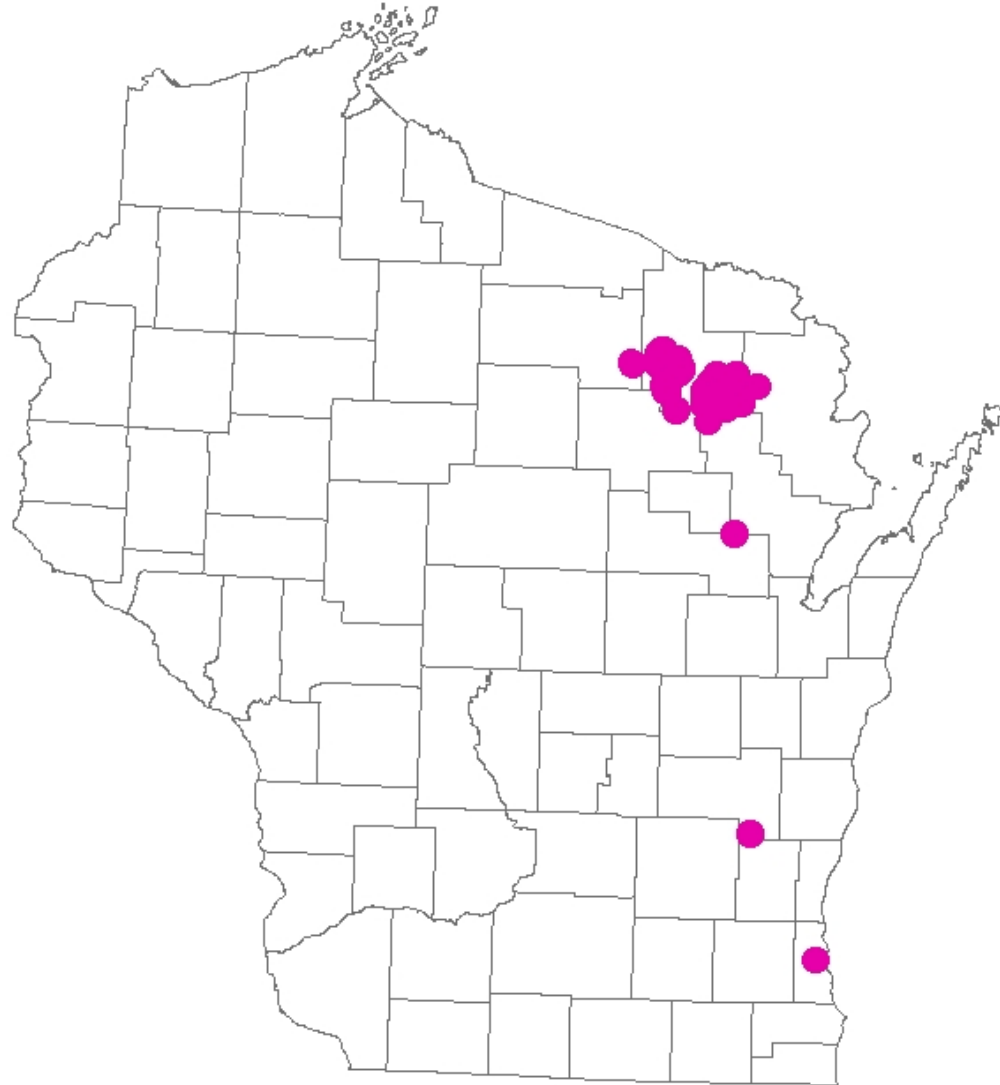


The Potawatomi were once a part of a historical confederacy made up of the Ojibwa, Odawa and Potawatomi Nations known as the Council of the Three Fires. The Ojibwa were addressed as the “Older Brother” as such were also the “Keeper of the Faith”. The Odawa were referred to as the “Middle Brother” and were the “Keepers of the Trade”. The Potawatomi were known in this confederacy as “Little Brother” and “Keeper of the Fire”.

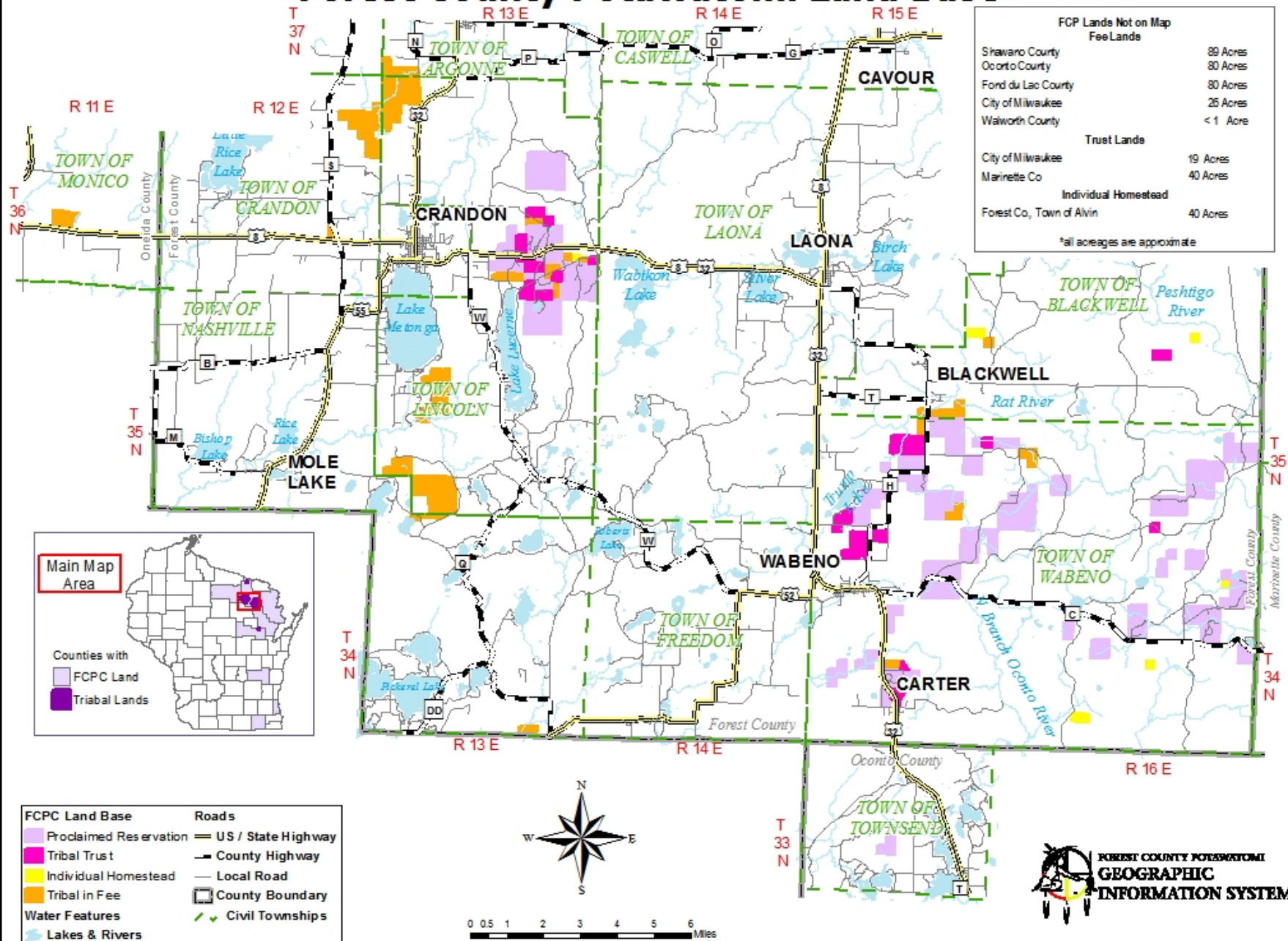
FCPC'S ENVIRONMENTAL MISSION STATEMENT

- ▶ The traditional values of the Forest County Potawatomi Community teach us to respect all living things, to take only what we need from mother earth, and to preserve the air, water, and soil for our children. Reflecting these values, we take leadership in creating a sustainable and healthy world. We resolve to reduce our own environmental impacts and to take steps to remedy the impacts of others. We encourage others to do the same. We also seek legislative and policy changes that protect the environment for all people, including generations to come. (Adopted November 20, 2008)

Forest County Potawatomi Community Land Base 2015



Forest County Potawatomi Land Base



Background

- ▶ Crandon Mine Opposition
- ▶ Class I Air Redesignation
- ▶ Participation in (former) Governor Doyle's CCTF
- ▶ Project Greenfire
- ▶ Adopted "Environmental Mission Statement"
- ▶ A Comprehensive Energy Audit
- ▶ Renewable Energy Credits (RECs) are purchased
- ▶ Four day work week was also established
- ▶ #10 On the EPA Top 20 Local Government List
- ▶ Member of the Green Power Partnership



DOE AND BIA GRANTS

Several solar projects.

Energy Efficiency Measures.

Re-development of the Wgema Campus.

Feasibility Study for Biomass.

Wind Assessment.

Biodigester planning.

Feasibility Study for the creation of a tribal utility.

Local and State grants and incentives for solar and energy efficiencies.

No project is completed in a vacuum...you can leverage multiple sources of financing and build from previous work.

FCPC RENEWABLE GENERATION, LLC

- ▶ 2.0 megawatt anaerobic biodigester and biogas facility located near Potawatomi Bingo Casino in Milwaukee, WI
- ▶ Operates on liquid (pumpable) food wastes
- ▶ Generates revenue from a combination of tipping fees, electricity sold through a WE Energies Renewable Energy Tariff (local utility) and a heat loop to PBC
- ▶ Over 60 tons of food waste diverted from landfill to biodigester from PBC alone

FCPC RENEWABLE GENERATION, LLC



FCPC RENEWABLE GENERATION, LLC



Sustainability Report

Business: Potawatomi Hotel & Casino For the period of: 2017
Location: Milwaukee

Diverting food waste from the landfill to anaerobic digestion helps generate measurable sustainability and environmental benefits for the community.



Enough natural gas to heat 29 homes for 1 month

7,537 lbs of nutrient-rich fertilizer

Enough electricity to power 19 homes for 1 month

Eliminated greenhouse gas emissions equivalent to 86,624 automobile miles



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PREVIOUS PROJECTS

- ▶ 2013 DOE Grant installed solar on 15 Tribal buildings. 455 kW array on PBC parking structure and 500 kW at Government sites on the Tribe's reservation.
- ▶ Funded through a grant from DOE and a partnership with a non-tribal entity who can take the Investment Tax Credit. Unique structure allows the Tribe to generate enough offset energy to “payback” the investment in under 5 years.
- ▶ Solar offsets between 20 and 97% of energy needs at each individual site.
- ▶ Utilizing the same structure for the current project.

PREVIOUS PROJECTS

FCPC Solar Systems Performance Data (January to March 2017)								
Location	Solar System Size (kW)	Average Energy Rate (\$/kWh)	FCPC Solar System Cost (\$)	Total Energy Production January to March 2017 (kWh)	Estimated Cost Savings (January-March 2017) (\$)	Total Approximate savings earned so far	Amount Remaining to Achieve Payback (\$)	Estimated Time Until Payback is Achieved (yrs)
Air Monitoring*	12.5	0.115	\$ 8,947.83	2,312.47	\$ 285.93	\$ 1,788.88	\$ 5,159.15	3.6
AODA*	12.4	0.115	\$ 8,892.25	1,778.43	\$ 204.52	\$ 1,730.54	\$ 5,161.70	3.5
Caring Place	88.5	0.095	\$ 48,078.99	8,408.58	\$ 808.62	\$ 13,575.30	\$ 34,503.69	5.1
Family Resources	23.58	0.123	\$ 13,095.27	3,240.94	\$ 398.64	\$ 5,880.36	\$ 7,414.91	2.8
Gte Ga Nes Prescho	24.8	0.115	\$ 13,784.50	3,845.11	\$ 442.19	\$ 3,491.75	\$ 10,292.75	3.4
Milwaukee	447.64	0.09	\$248,810.14	59,445.00	\$ 5,350.05	\$ 84,589.38	\$ 164,220.76	3.7
Museum*	49.6	0.1	\$ 27,568.99	6,802.84	\$ 680.28	\$ 3,434.26	\$ 24,134.73	8.2
Natural Resources	22	0.128	\$ 12,228.18	2,262.30	\$ 289.57	\$ 5,529.58	\$ 6,698.60	2.4
Ordinance*	9	0.115	\$ 5,002.44	1,631.88	\$ 187.64	\$ 835.25	\$ 4,167.19	5.8
Property Management	24.8	0.115	\$ 13,784.50	4,937.42	\$ 567.80	\$ 1,965.95	\$ 11,818.54	7.0
Rec Center	82.25	0.124	\$ 34,600.20	10,649.99	\$ 1,320.60	\$ 16,684.88	\$ 17,915.52	1.9
Rising Sun Daycare*	24.8	0.115	\$ 13,784.50	3,527.07	\$ 405.61	\$ 3,332.28	\$ 10,452.22	3.7
Solid Waste	19.5	0.127	\$ 10,838.82	157.23	\$ 19.97	\$ 5,301.63	\$ 5,536.98	2.1
Stone Lake C-Store*	80.6	0.047	\$ 44,799.61	10,332.83	\$ 485.64	\$ 4,450.21	\$ 40,349.40	10.6
Utilities	23	0.126	\$ 12,784.01	3,073.09	\$ 387.21	\$ 6,576.35	\$ 6,207.66	1.9
*Phase II Sites		TOTAL	\$513,000.00	120,402.96	\$ 11,614.29	\$158,968.19	\$ 354,033.82	

PROJECT GOALS-ORIGINALLY

- ▶ FCPC originally designed the project for Tribal housing, and select government buildings.
- ▶ The dynamics of that concept proved challenging:
 - ▶ PPAs with individual homeowners;
 - ▶ Ownership;
 - ▶ Leases with homeowners;
 - ▶ Solar garden/net metering;
 - ▶ Site selection and grading;
 - ▶ Complications with insurance; and,
 - ▶ Overall project benefits could be increased with more installed solar.


PROJECT AS REVISED

- ▶ To overcome some of the challenges encountered with a Tribal housing project FCPC worked with DOE to revise the project.
- ▶ The revised project focused on Government buildings and enterprises and allowed the Tribe to increase the solar installation size.
- ▶ Three Tribal buildings were identified, the Executive Building, Health and Wellness Center and Potawatomi Carter Casino Hotel.
- ▶ Original project goal was to use approximately 50 Tribal members' homes and select government buildings for an estimated total of approximately 700 kW solar to offset traditionally sourced electric generation.

PROJECT AS REVISED

- ▶ By focusing on larger installations FCPC was able to offset more grid sourced electric.
- ▶ The revised project is an estimated 941 kW installed.
- ▶ The cost per watt was reduced from \$.60 to \$.52 by implementing a project with larger installations. FCPC has typically been able to increase installation sizes and produce efficiencies during project implementation.
- ▶ Revisions to the project also allowed for a streamlined and more efficient project with installation being finalized this year and interconnection and commissioning occurring this month.

PROJECT COMPLICATIONS

- ▶ PCCH 811 kW installation is the largest in the WPS service territory and required detailed negotiation with WPS.
 - ▶ Solar Garden/Farm Concept is currently not feasible with Wisconsin regulatory requirements.
 - ▶ Health and Wellness roof warranty.
- 

Executive Council Building



Health & Wellness Center



Potawatomi Carter Casino Hotel



NEXT STEPS

- ▶ Commissioning! Next week.
- ▶ Project monitoring and reporting.
- ▶ Microgrid and Utility objectives.
- ▶ Finalize biomass feasibility study.
- ▶ Data Center project.
- ▶ Increase battery storage.
- ▶ Efficiency, efficiency and...efficiency.

THANK YOU!

- ▶ Saving our planet, lifting people out of poverty, advancing economic growth... these are one and the same fight. We must connect the dots between climate change, water scarcity, energy shortages, global health, food security and women's empowerment. Solutions to one problem must be solutions for all. Ban Ki-moon