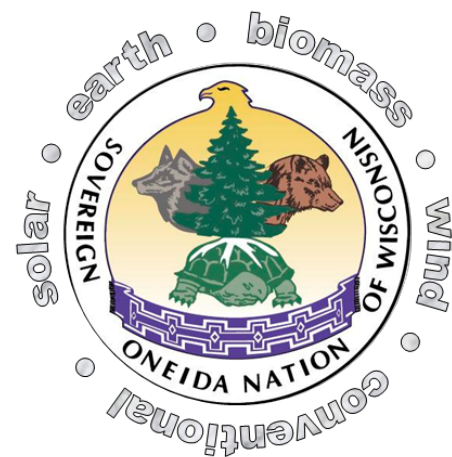


POWERING LOCAL LEADERSHIP

Gordon Bubolz Nature Preserve Appleton, WI January 24-25, 2019



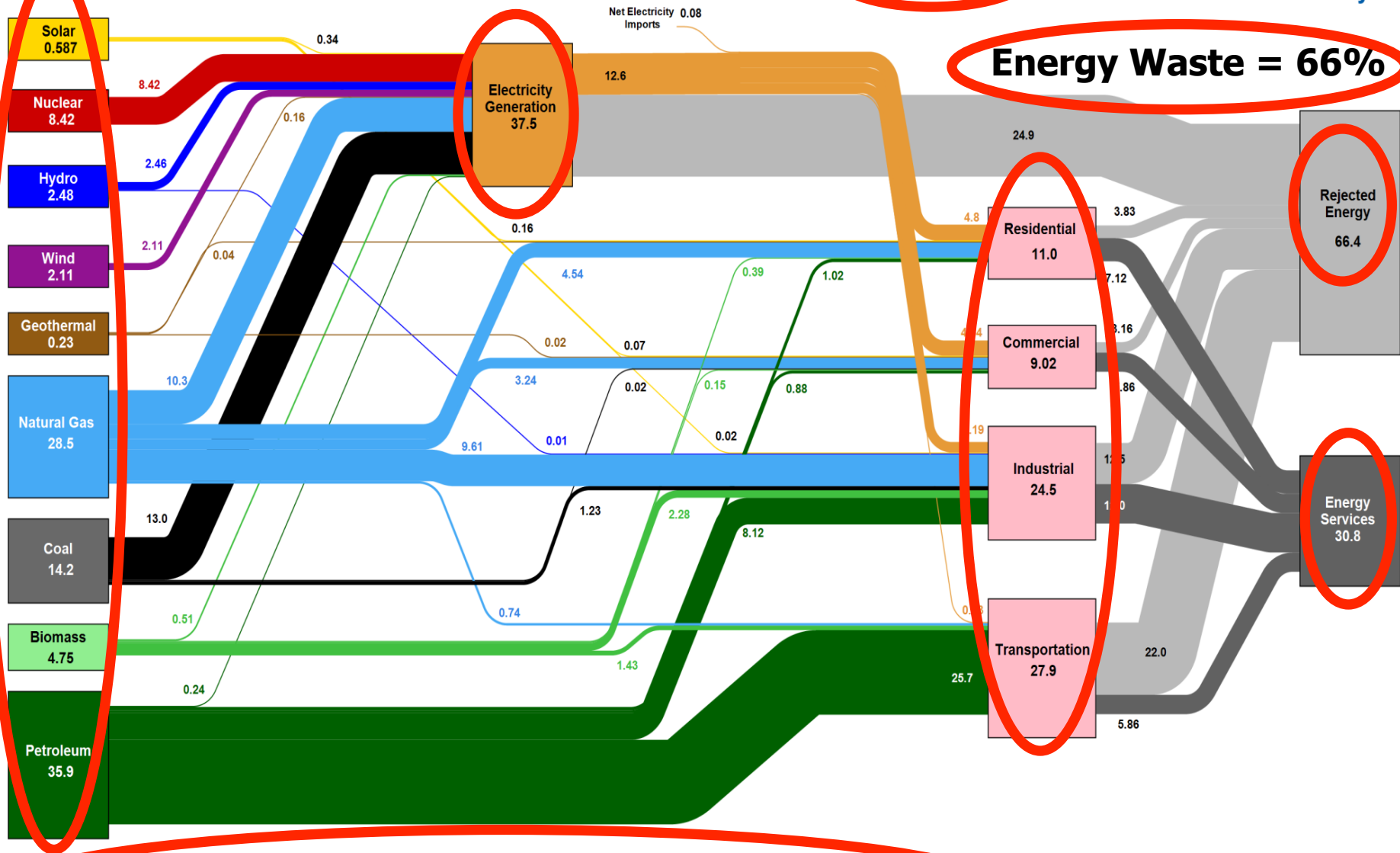
Michael Troge
Oneida Nation



What does energy sovereignty mean?

- Stabilize energy costs
- Have greater control of energy imports
- Monitor & manage usage
- Strive for self-generation
- Encourage local operation & maintenance
- Be mindful of a responsible, clean, & sustainable energy future
- Build on our emergency preparedness
- Create partnerships to expand the vision
- Embrace our role as stewards (...7 generations...)

Estimated U.S. Energy Consumption in 2016: 97.3 Quads



1 QUAD is enough energy to power 32 million homes

History of energy consumption in the United States (1776-2012)

quadrillion Btu

45

40

35

30

25

20

15

10

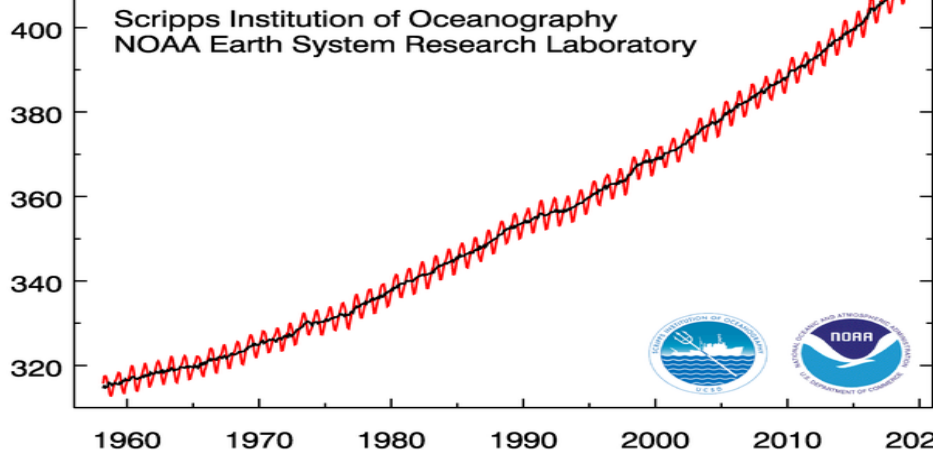
5

0

Atmospheric CO₂ at Mauna Loa Observatory

Scripps Institution of Oceanography
NOAA Earth System Research Laboratory

PARTS PER MILLION



petroleum

natural gas

coal

nuclear

other renewables

hydroelectric

wood

1776 1805 1836 1867 1895 1926 1956 1987 2012

EIA goes on to say.....

- In 2018, fuels provide 80% energy demand
- In 2050, fuels provide 75% energy demand

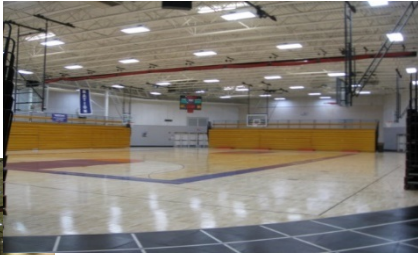
Energy Summit 2019 buzzwords...

- Science & innovation
- Safe, reliable, & affordable
- Safe, reliable, affordable, **& clean**
- Steel for fuel
- 100% carbon-free
- Faith in technology
- Multi-solutions
- Electrification
- Diverse baseload
- The right thing to do
- Aggressive goals, practical strategy

Energy Team Projects

Energy Audits & Upgrades

- Improved lighting
- Decreased energy use



Turtle School Gym

Energy Crop Study

- Locally grown energy crop for heat, fuel
- UWGB partner



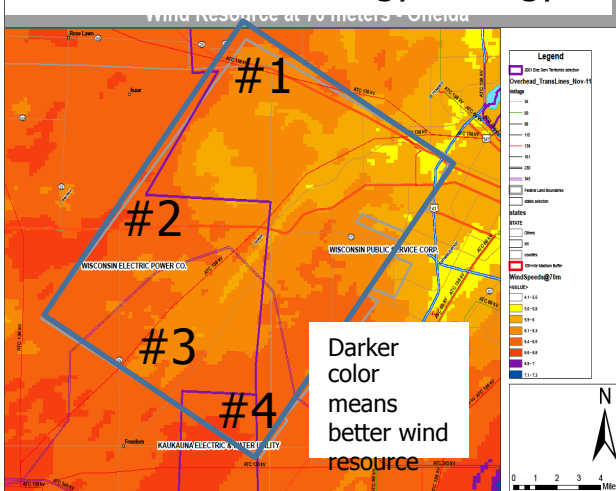
Anna John Solar

- 48 collectors, 75% of hot H2O
- 75% grant funded

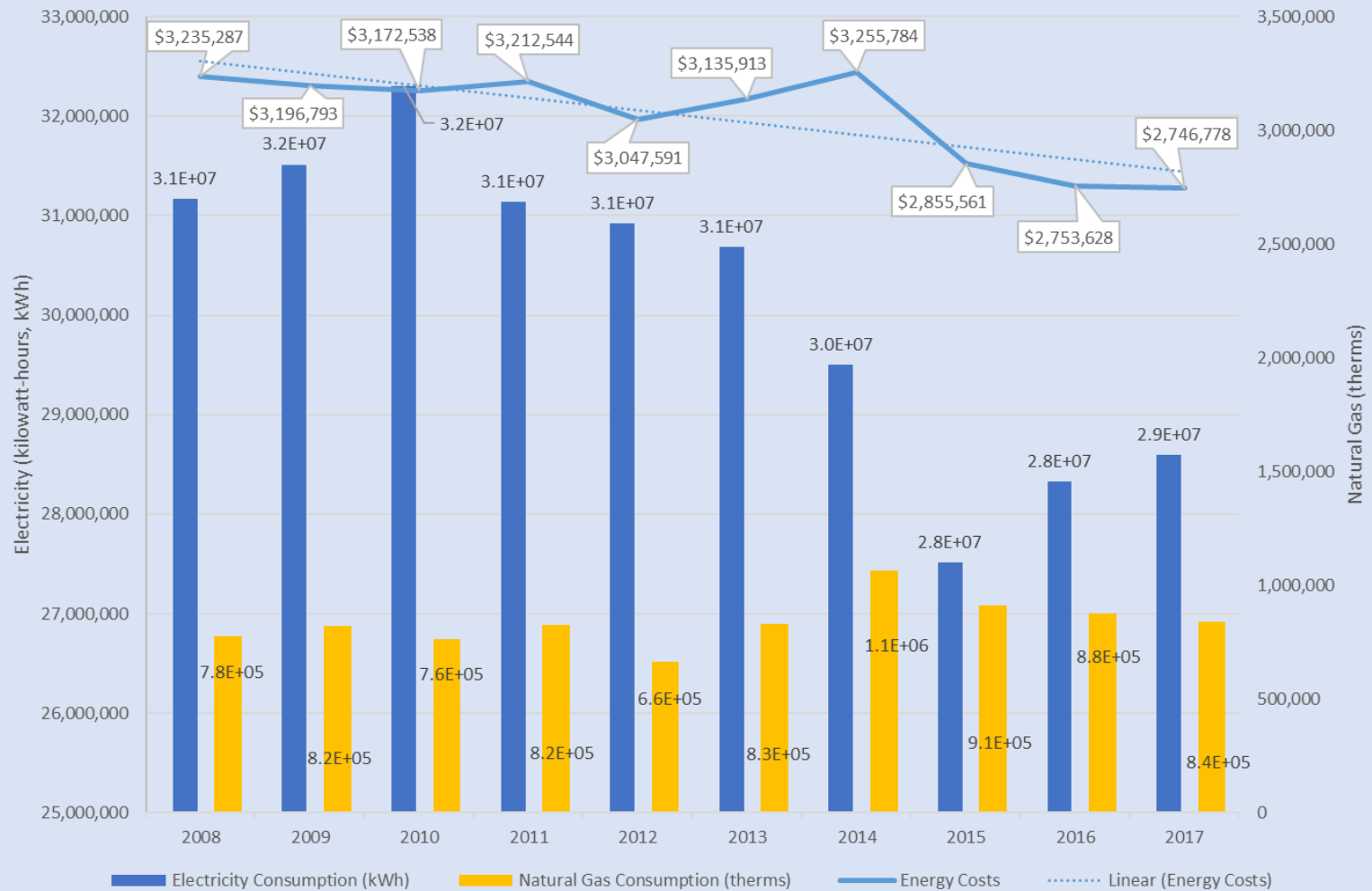


Wind Power Study

- Wind best in the west
- Part of clean energy strategy



Facility Energy Consumption for Oneida Nation



PV + SHW

INSPECTION WITH SOLAR
DESIGNER

AERIAL SHOT





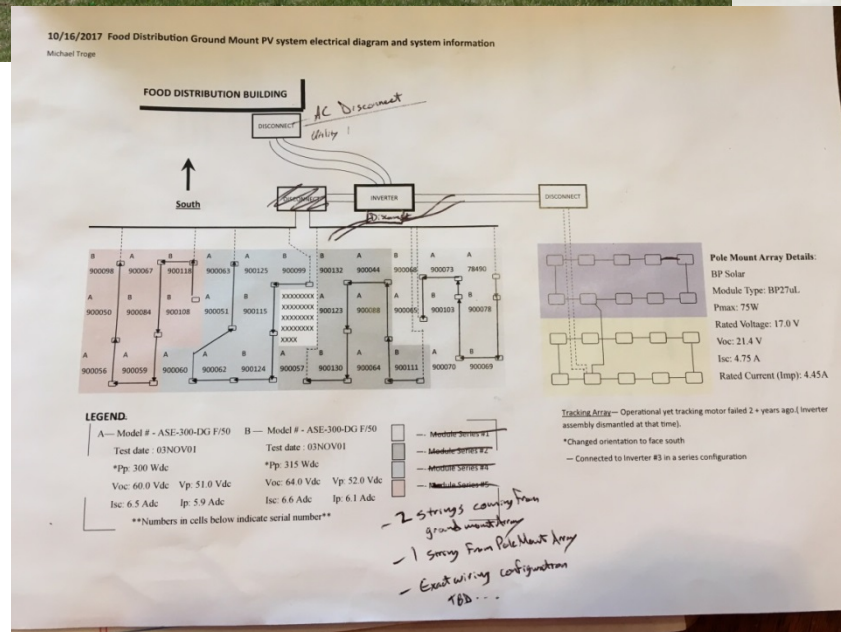
WEEKLY MEETINGS

ZONING, ELECTRICIANS
& CONTRACTORS WORK
SIDE BY SIDE

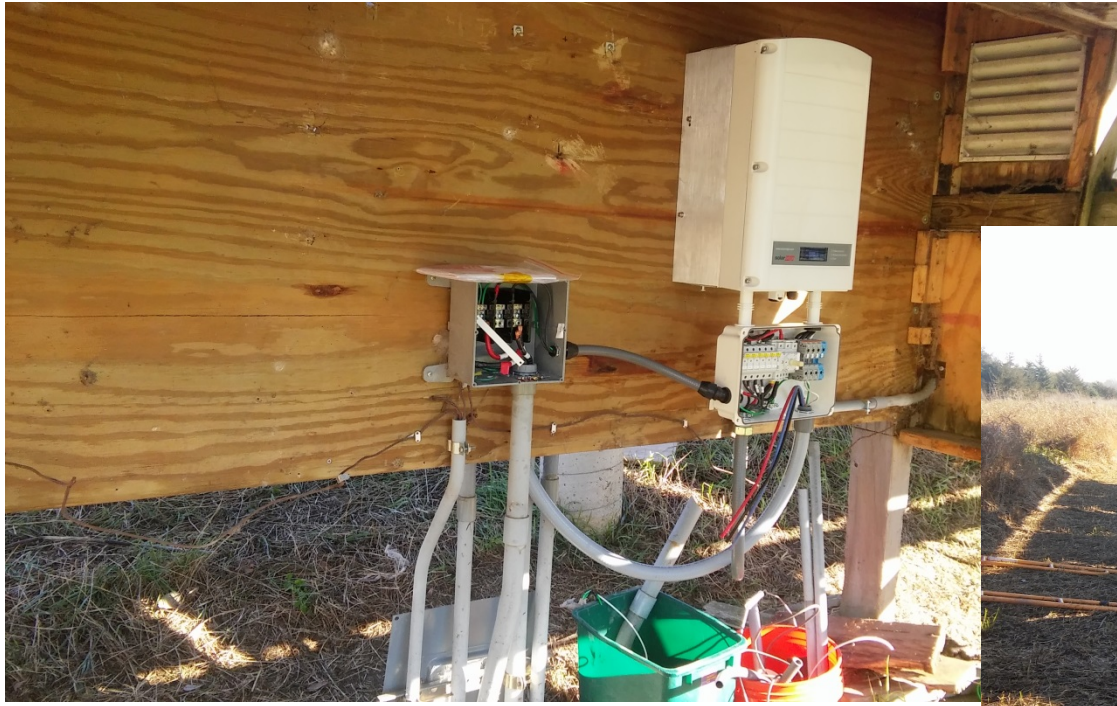


ELECTRICIAN TRAINING ON PV GROUND MOUNT

Upgrading an older PV system November, 2017



before



after



CLASSROOM, SAFETY, STAGING,
SCAFFOLD, WIRING,
MC4 CONNECTORS,
OPTIMIZERS, INVERTERS,
DISCONNECTS, GROUNDING,
WIRE MGT, TESTING,
TROUBLESHOOTING,
DATA MONITORING



2017 CREWS

ONEIDA ELECTRICIANS,
ZONING, LABOR POOL,
CONTRACTORS,
TECHNICAL COLLEGE
STUDENTS



NREL Strategic Energy Planning Workshops

- 2-day workshop at Oneida Nation to discuss Tribe's energy future
- Hoping to replicate at other member tribes



Oneida's energy objectives/goals

(not yet adopted)

- Net-zero community by 2028
- Set emission reduction goals
- Dedicate staff to energy action plan
- Communicate
- 25 residential energy audits per year
- Investigate net-zero campuses



MTERA
MIDWEST TRIBAL ENERGY RESOURCES ASSOCIATION

Empowering Midwest Tribes To
Manage Energy Resources
Through Collective Action

Establishing an Inter-Tribal
Technical Assistance Energy Providers Network
with Assistance from
Office of Indian Energy
Department of Energy

OUR MEMBERS

Our Mission

Empowering Midwest Tribes To Manage Energy
Resources Through Collective Action



Fond du Lac Band
of Lake Superior
Chippewa



Forest County
Potawatomi
Community



Ho-Chunk
Nation



Lac Du Flambeau
Band of Lake
Superior Chippewa



Leech Lake
Band of
Ojibwe



Mille Lacs
Band of
Ojibwe

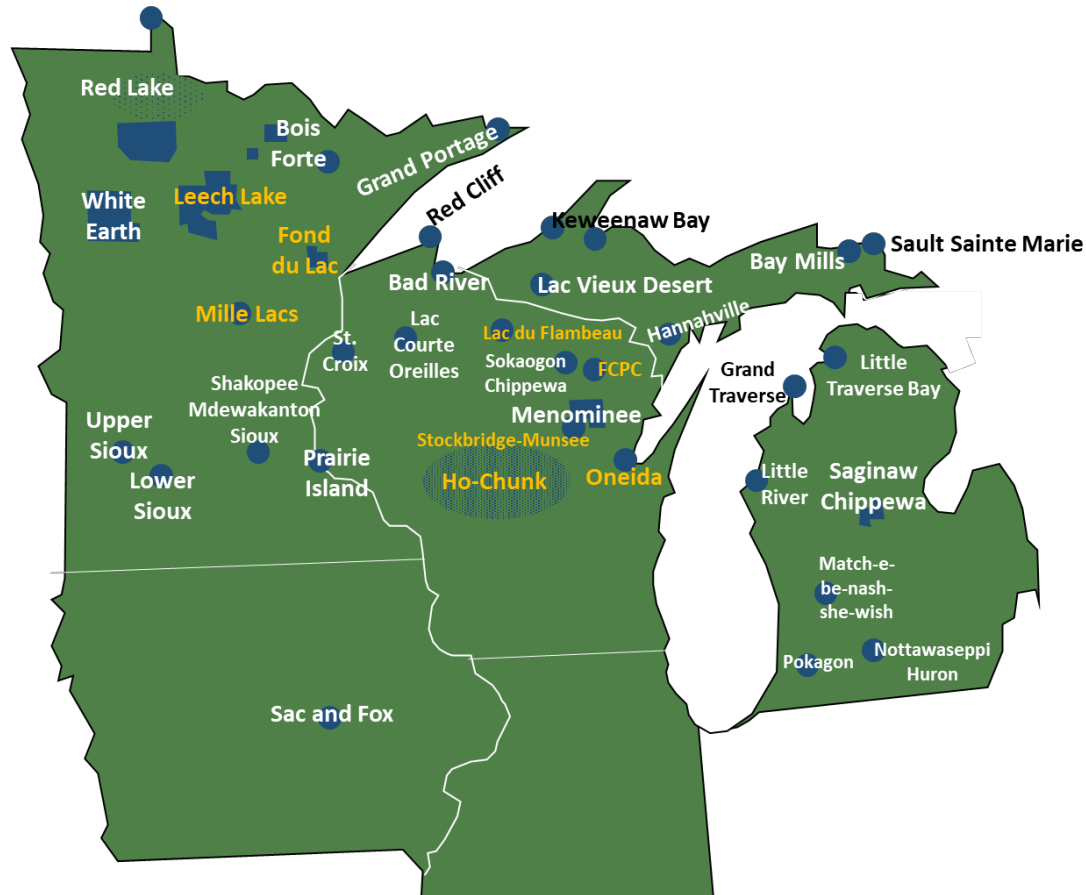


Oneida Nation



Stockbridge-
Munsee Band
of Mohican

MTERA aims to reach out to All Midwest Tribes!



Building a Foundation of Success with MTERA

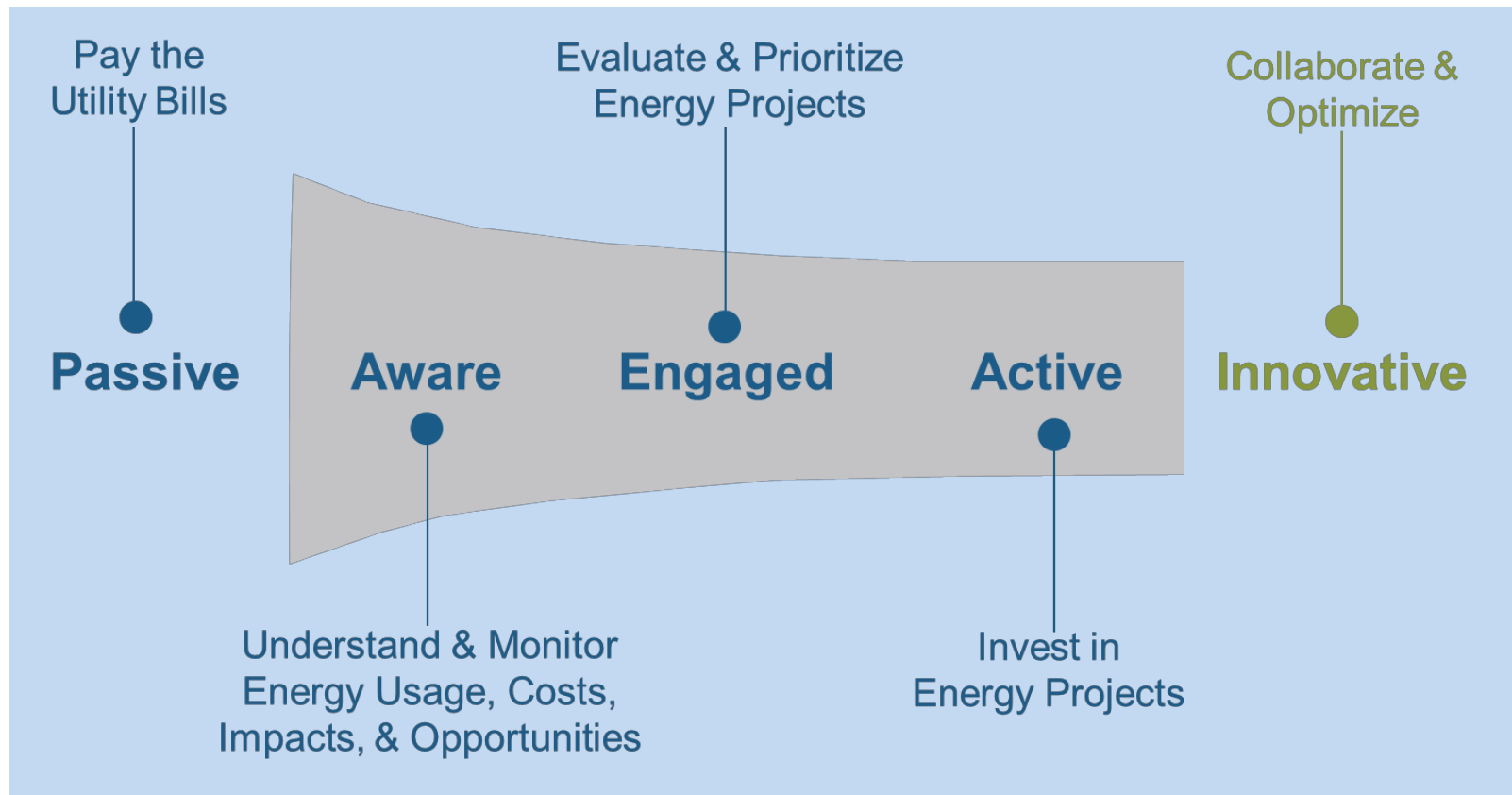
Outreach

Collective Action

Knowledge Sharing

Organizational Development

Spectrum of Tribal energy activity



Yaw^ko!

Michael Troge
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