

Shekóli
Oneida Nation
Solar Deployment
on Tribal Facilities

MTERA teleconference
January 4, 2018
(shortened version of OIE presentation 11/14/17)

Michael Troge
Oneida Nation





1

Oneida Energy Situation (results from EOM RFP)

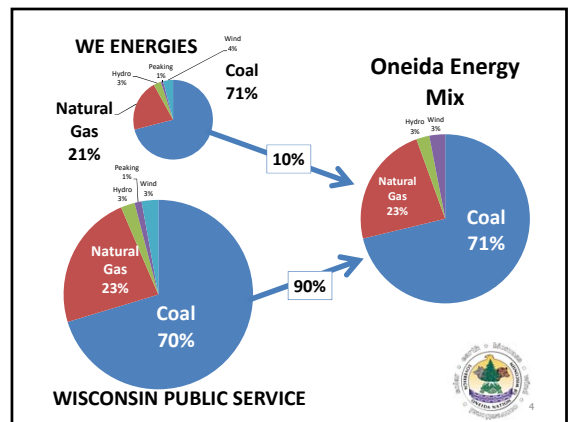
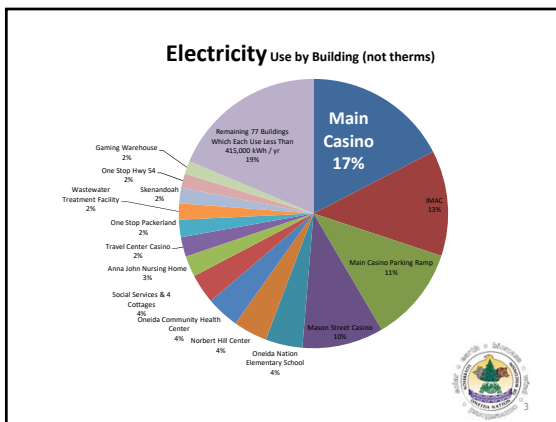
Current Tribal community energy usage as of 2011 = 412,000 MMBtu.
= 121 million kWh

Institutional electricity:	31,000,000 kilowatt-hours	=	105,000 MMBtu
Institutional natural gas:	540,000 therms	=	54,000 MMBtu
Institutional transp fuel:	145,000 gallons	=	5,000 MMBtu
Housing electricity:	16,000,000 kilowatt-hours	=	48,000 MMBtu
Housing natural gas:	2,000,000 therms	=	200,000 MMBtu

5% RPS = 20,600 MMBtu = 6 million kWh
10% RPS = 41,200 MMBtu = 12 million kWh
20% RPS = 82,400 MMBtu = 24 million kWh



2



Solar Deployment on Tribal Facilities

- Application Oct, 2014
- Notification Apr, 2015
- Acknowledged Sept, 2015
- RFP Nov, 2015
- ITC extended Dec, 2015
- Selection Mar, 2016
- Final site list Dec, 2016
- PPA documents Jan, 2017
- Approvals July, 2017
- Installation Fall, 2017



5

Grant Application Prep

- **Project:** 800 kilowatts for \$2 million
- **Budget:** DOE \$1M + Investor \$1M + Oneida \$60k + state OEI \$23,000
- **Soft cost budget items:**
 - Set aside grant funds for Electrician training (\$)
 - Set aside grant funds for Legal consultant (\$\$\$\$)
 - Set aside grant funds for Finance consultant (\$\$\$)
- **TC:** Set aside enough match and staff in-kind time to match soft cost budget items
- **Project team:** Stakeholders
- **Contracts:** Meet all grant and contract requirements
- **Code:** NEC 2017
- **Tribe:** Due diligence

6

Lessons

- **Project:** Don't skip any steps during contract development
- **Project:** Diversify project team (multi-dept.)
- **Project:** Calculate soft cost budget; now triple it!
- **Tribe:** Involve maintenance and Zoning personnel early
- **Tribe:** Attempt to inform throughout the schedule
- **Tribe:** Find support within
- **LLC:** Keep the negotiations moving forward
- **LLC:** Need the right people in place for ITC projects
- **Utility:** Learn the nuances and involve utilities early
- **Utility:** Address 3rd party situation
- **Project Manager:** Experience goes a long way!
- **Lesson:** The longer the project, the more expensive it gets!

7

checklist

- | | |
|---------------------------------------|-----------------------------|
| ✓ Consultant contracts and amendments | ✓ Stakeholder communication |
| ✓ O&M plan | ✓ Permitting |
| ✓ Training | ✓ Construction scheduling |
| ✓ Early participation | ✓ Inspection scheduling |
| ✓ Budget planning & adjustments | ✓ Accurate capital analyses |
| ✓ Agreements | ✓ FAA and airport approval |
| ✓ Capital calls | ✓ Utility agreements |
| ✓ Grants, invoices, and timing | ✓ Warranty issues |
| ✓ Equipment availability | ✓ Structural analysis |
| ✓ Qualified personnel | ✓ Backup plans |
| ✓ LLC formation | ✓ Staging plan |
| | ✓ Grant extensions |

8

Latest Project Details

- **Project design:** 800 kilowatts on 6 buildings
- **Project hard costs:** \$2 million
- **DOE grant:** \$1 million
- **Investor/partner:** \$1 million
- **Tribe's contribution:** \$80,000/yr for 6-7 years
 - **Estimated maint:** \$20,000/year (maint. agreement & TC)
 - **Tribal solar costs:** \$60,000/year
- **Install cost:** \$2,556 / kilowatt
- **Put-Call:** year 5 to 7
- **Selling point:** solar annual costs = utility annual costs

9

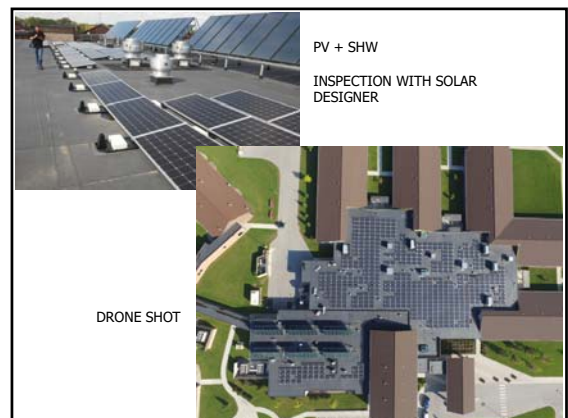


STAGING



ANNA JOHN
RESIDENT CENTERED
CARE COMMUNITY

168 KILOWATTS



PV + SHW

INSPECTION WITH SOLAR
DESIGNER

DRONE SHOT

ANOTHER VIEW.....



HEALTH CENTER
169 KILOWATTS



DRONE SHOT.....



COUNTY H RECREATION CENTER, 41 KILOWATTS



ELDER SERVICE APARTMENTS
68 KILOWATTS



IRENE MOORE ACTIVITY CENTER
+ ANNEX
260 KILOWATTS





FOOD DISTRIBUTION & PANTRY
100 KILOWATTS



ELECTRICIAN TRAINING ON PV GROUND MOUNT



UPGRADING AN OLDER SYSTEM

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



WEEKLY MEETINGS

ZONING, ELECTRICIANS & CONTRACTORS WORK SIDE BY SIDE

Yaw^ko!

Michael Troge
Environmental Project Manager
Oneida Nation
PO Box 365
Oneida, WI 54155
mtroge@oneidanation.org
920-869-4572

