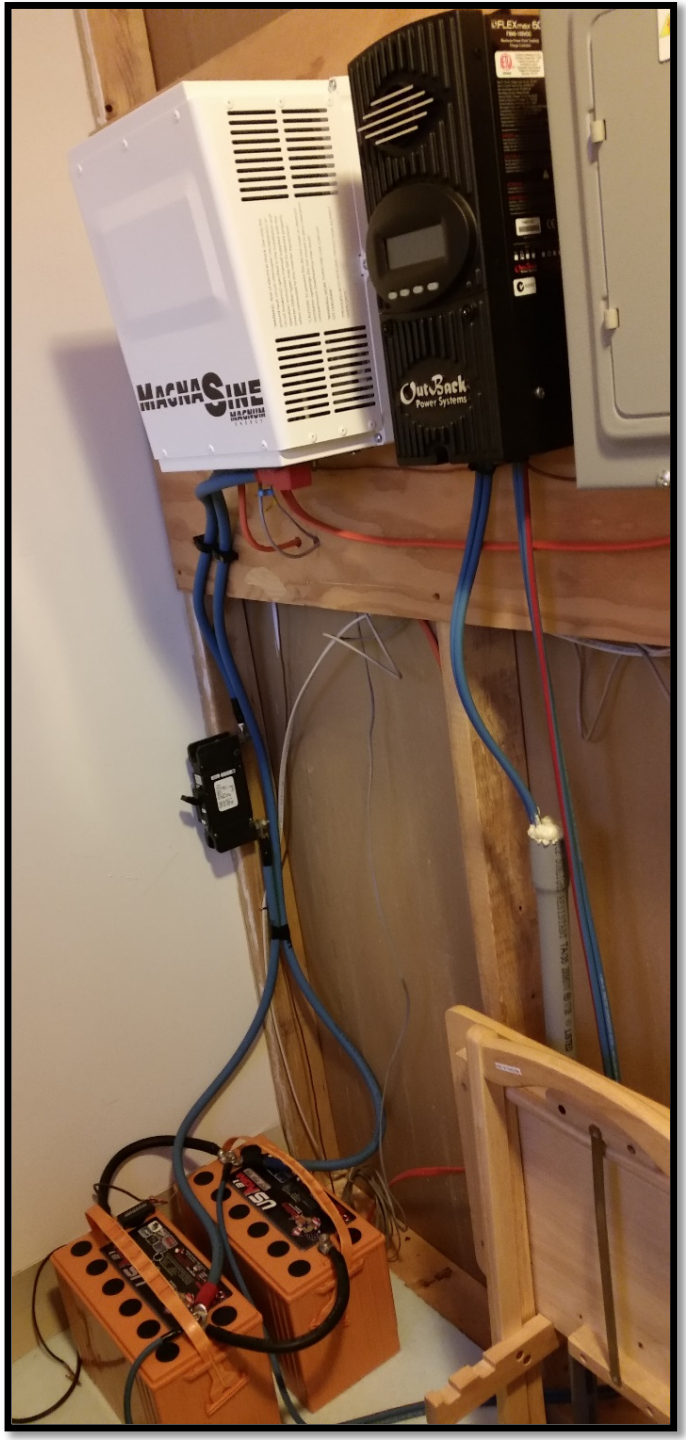
System examples

- On grid public systems – live data
- On grid residential
- Off grid small and large

Slana – Nabesna, AK

Off grid cabin

Generator back up



ALASKA CENTER
for Appropriate Technology

Grid-Tied System

Anchorage Aviation Museum – Tracker, with wind and snow sensors

Grid-Tied System

MatSu Valley Recycling Center – Vertical mount – 5.5kW

ALASKA CENTER for Appropriate Technology

Grid-Tied System

East Fifth Ave. – Vertical mount used as siding – The Solar Building – 17.28 kW

ALASKA CENTER for Appropriate Technology

Grid-Tied System

RES – Solar and wind using SMA inverter

www.sunnyportal.com

Mat-Su Valley Recycling Center
Installed in 2012

http://www.anchoragesolarbuilding.com/one-megawatt-generated/

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Grid-Tied System

Concept 2010

Built 2012

Student Rec Building – UAF – Installed 2012 designed 13 kW

https://monitoringpublic.solaredge.com/solaredge-web/p/site/public?name=University%20of%20Alaska%20Fairbanks#/dashboard

Grid-Tied System

University Ave. Fire Station
UAF – 3.2kW - SNAP program
Installed 2012

https://enlighten.enphaseenergy.com/pv/public_systems/HHUF169116/overview

ALASKA CENTER for Appropriate Technology

Remote Power Inc

Residential Grid-Tied System

Residential System – Grid Tied
24 panel - 7kW - Tok, AK

- 5$ a Watt – paid install
- 30% federal tax credit
- $24,500 investment after TC
- 2,500 sq/ft house
- Installed in 2012
- AP&T Net Metering
- Adjustable Top Pole Mount

- March/April to Oct/Nov. produces 100% with excess power in many months - meter runs backward.

- Nov – Feb produces about 50% of need
- Saving $1,900 a year

- 12 year simple pay back

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Stand Alone Systems

ALASKA CENTER for Appropriate Technology

2008 Cabin System – Generator & batteries

Six Sharp 175 watt high efficacy panels = $2,582
4024 Magnum Inverter 4000W 24VDC = $2,223.20
Schneider Electric XW-MPPT 60 = $685.00
Four Rolls 530 6 volt Batteries = $377 each = $1,510
Balance of systems = $1,000
Total Cost = $8,000

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Remote Lodge - Stand Alone System

Remote Lodge - Stand Alone System

<u>Original System</u>

Generator: 2: 12 KW Northern Lights Generator ,
20 KW Standby Diesel Generator
Monthly Generator Run Time: 420 Hours (14 hours per day)
Monthly Diesel Consumption: 378 Gallons
Monthly Diesel Cost: $3,118.00 (Cost of Diesel Flown in)
Monthly Maintenance Time: 20 Hours
Monthly Time without Power: 300 Hours

Annual Cost to Power Lodge **58%** of the Time: **$37, 416**

Remote Lodge - Stand Alone System

New PV System

PV Capacity: 2- 3.42 KW Arrays = Total of 6.84 KW Arrays
Type of Mount: Adjustable Top of Pole Mounts
Number of Panels: 24
Inverter: 3- 6.8 KW Schneider Electric XW Inverter/Chargers
Batteries: 32- 6Volt AGM L16 400 AH Batteries
Installed Cost: $51,000

Remote Lodge - Stand Alone System

Remote Lodge - Stand Alone System

New PV System

Summer Monthly Generator Run Time: 64 Hours
(8 hours every 4 days)
Winter Monthly Generator Run Time: 96 Hours
(8 hours every 2.5 days)
Average Monthly Generator Run Time: 80 Hours
Average Monthly Gallons of Diesel: 96 Gallons

Monthly Diesel Cost: $792 (Cost of Diesel Flown in)
Monthly Maintenance Time: 5 Hours
Monthly Time without Power: 0 Hours

Annual Cost to Power Lodge **100%** of the Time: **$9,504**
Energy Savings per Year: $27,912
30% Federal Tax Credit: $15,300
Net Cost of System: $35,700
Payback: 16 Months

10 Minute Break