

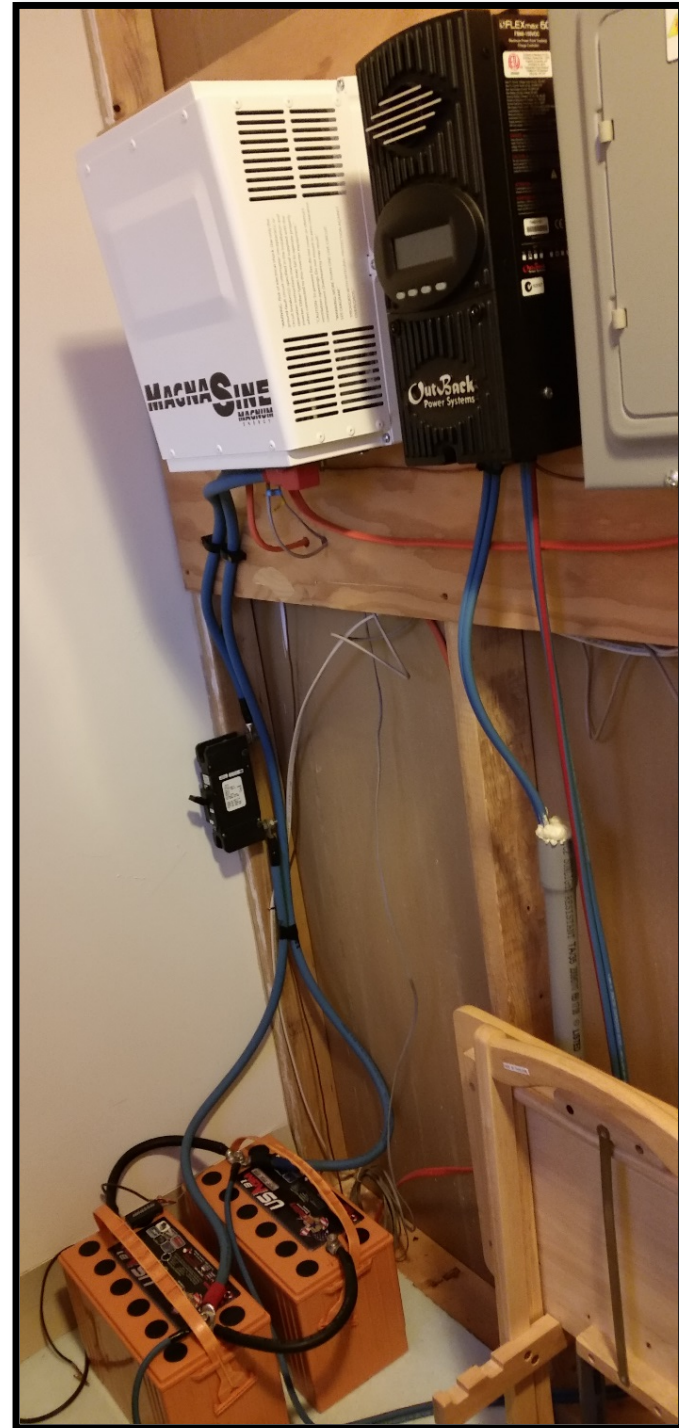
System examples

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

Slana – Nabesna, AK

Off grid cabin

Generator back up



Grid-Tied System



Anchorage Aviation Museum – Tracker, with wind and snow sensors

Grid-Tied System

Valley Recycling adds renewable energy to its facility!

Respecting Precious Resources

Our new facility is now a little "greener" with the addition of a 4.23kw solar array. The panels will help power the center's mission to educate and provide community opportunities to reduce, reuse, and recycle for the long-term good of all.

Our new system allows the more efficient use of resources and creates a healthier and more energy-efficient building.

The VCRS solar installation incorporates 24 180w Trina solar panels and a 3kw SMA Sunny Boy grid-tie inverter.

How a solar electrical system works:



VCRS thanks our solar energy project contributors:



Renewable Energy Systems

ARTECH ENGINEERING

Walmart



Ahtna Engineering



VALLEY COMMUNITY
for RECYCLING
SOLUTIONS

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

Grid-Tied System

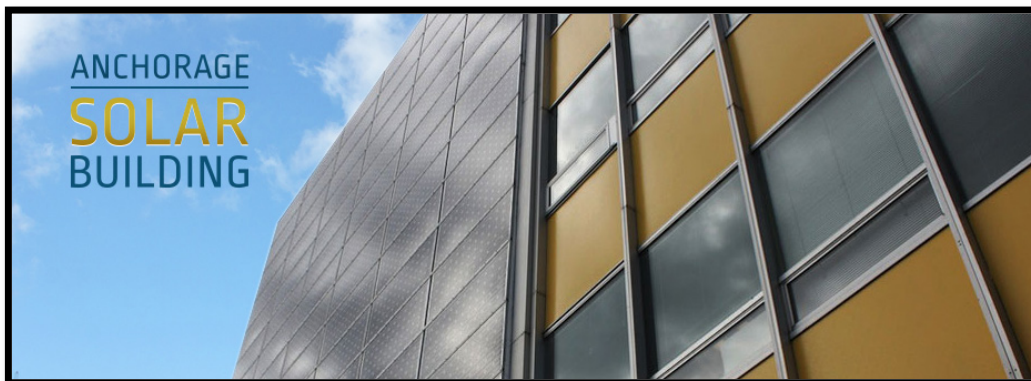


RES – Solar and wind
using SMA inverter

www.sunnyportal.com



Mat-Su Valley Recycling Center
Installed in 2012



[http://
www.anchoragesolarbuildi
ng.com/one-megawatt-
generated/](http://www.anchoragesolarbuilding.com/one-megawatt-generated/)

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.enphaseen
ergy.com/pv/
public_systems/
HHUF169116/
overview](https://enlighten.enphaseenergy.com/pv/public_systems/HHUF169116/overview)



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 9



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Stand Alone Systems



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



*Mystic Lake Lodge
Operation Wounded
Warrior
Samaritan's Purse*

Remote Lodge - Stand Alone System

Original System

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