

New Renewable Energy Crops: Solar

November 8, 2016

Nebraska Wind & Solar Conf.

Art Tanderup – Farmer - Neligh

9 KWH System, 36 Panels



Frame and Backside



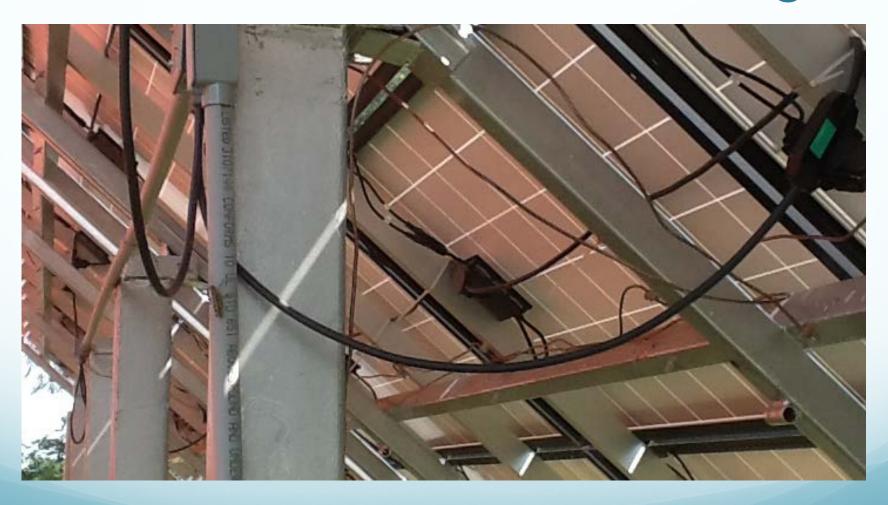
Four Season Adjustment Increases Efficiency 15%



Winch System



Inverters and Panel Wiring



Inverter Close-up



Breaker, Disconnect & Power Company Meter



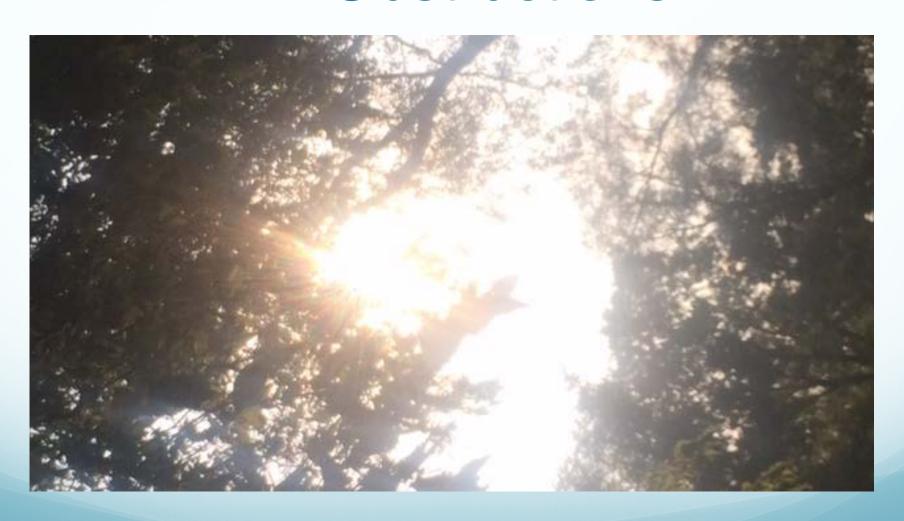
Fusebox Breaker and Connection to Grid



The Net Meter



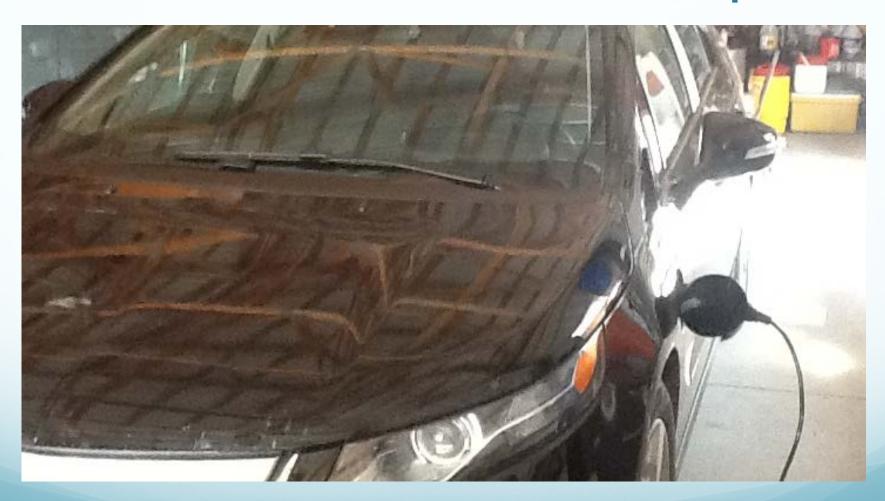
Obstructions



So, What Does All This Mean?

- Benefits
- Costs
- Savings
- Grants and Financing
- Future

Fewer Fossil Fuel Fill-ups



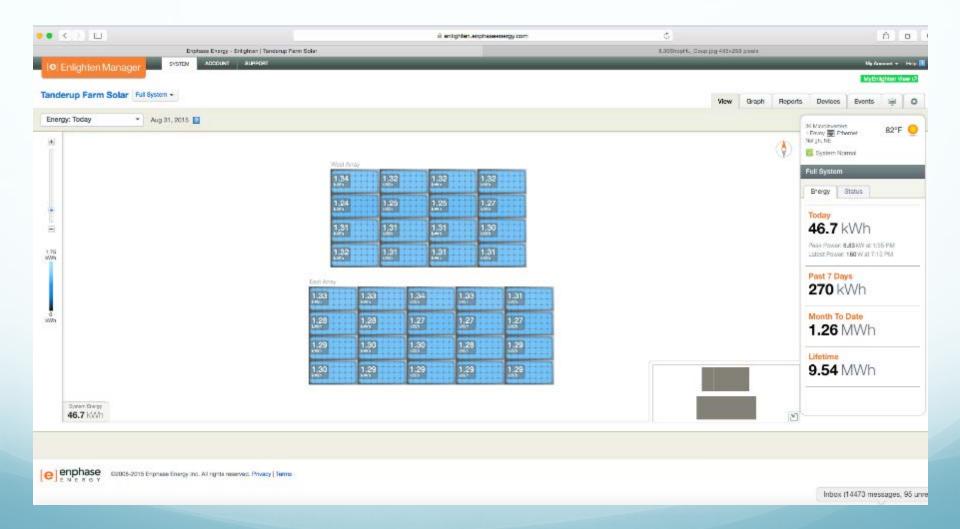
2015-16 Monthly Production

	<u>2015</u>	<u>2016</u>
January	811 kwh	667 kwh
February	848 kwh	900 kwh
March	1,382 kwh	1,105 kwh
April	1,234 kwh	1,130 kwh
May	1,141 kwh	1,461 kwh
June	1,392 kwh	1,579 kwh

2015-16 Monthly Production

	<u>2015</u>	<u>2016</u>
July	1,473 kwh	1,579 kwh
August	1,263 kwh	1,384 kwh
September	1,109 kwh	1,226 kwh
October	896 kwh	
• TOTAL	11,547 kwh	10,487 kwh

August 31 Report



August Weekly Production



Weekly

kWh

Our Usage – 10 Months 2015

- 11,547 KWH generated
- 2857 KWH purchased
- 14,404 KWH total used
- 80.2% of our energy used was solar

Our Usage – 9 Months 2016

- 10,487 KWH generated
- 855 KWH purchased
- 11,342 KWH total used
- 92.2% of our energy used was solar

2015 Savings

- \$588.79 2015, 10 Month Cost
- \$1700.97 2014, 10 Month Cost
- \$1112.18 Savings Over Last Year
- 65.4% Decrease From Last Year
- \$1270.17 2015, 10 Month Generated Income
- 73.3% Of Total Electric Bill Covered

2016 Savings

- \$298.35 2016, 9 Month Cost
- \$1597.88 2014, 9 Month Cost
- \$1299.53 Savings Over 2014
- 81.3% Decrease From 2014
- \$1299.53 2016, 9 Month Generated Income
- 81.3% Of Total Electric Bill Covered

Return On Investment

- \$38,000 Investment
- \$3,000 Approximate 2 Year Savings
- 4% Return On Investment

Residential Renewable Tax Credit

- 30% Of \$38,000 = \$30,400
- \$3,000 Approximate 2 Year Savings
- 4.9% Return On Investment
- Farm Depreciation Unknown At This Time

Grants / Financing

- USDA REAP Grants 25% of Cost
- Green Retrofit Grants
- Dept. of Energy Tribal Energy Program
- Nebraska Energy Office 2.5% 10 Year Loan Program
- Section 179 Depreciation for Farms & Businesses
- Bold Nebraska's Build Our Energy Grants and Mapping Project - \$500 - \$2000

Cleaning Up Solar Spills For a Better Climate

