

Rural Energy at Work

Oregon Technical Advisory Committee

September 15th, 2016

Wy'East RC&D:

Sustainable Northwest:

Northwest Energy Engineering:

Klamath Watershed Partnership

REDA Oregon

▶ **Project Partners:**

Wy'East RC&D - Project Lead

Sustainable Northwest

Northwest Energy Engineering, LLC

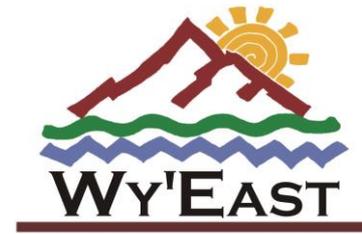
Klamath Watershed Partnership.

▶ **Funding:** USDA - Rural Development - REAP Program

▶ **Objectives:**

- ▶ Educate producers and rural small businesses about EE/RE options
- ▶ Evaluate economic feasibility of using EE/RE to offset farm energy use
- ▶ Provide project consultations and hands-on technical assistance
- ▶ Increase number of successful applicants to REAP grant/loan programs

About Wy'East RC&D



- ▶ Regional nonprofit, based in The Dalles, OR
- ▶ **Mission:** The mission of Wy'East is to invest in people, partnerships and resources that achieve solutions leading to a sustainable future in Pacific Northwest
- ▶ Wy'East focuses on energy projects with Rural Small Businesses and Agricultural Producers. Helped operators install roughly **600 energy projects** since 2010.



About Sustainable Northwest

- ▶ **Mission** ~Sustainable Northwest brings people, ideas, and innovation together so nature, local economies, and rural communities can thrive.
- ▶ **Vision** ~*We envision a prosperous Northwest with sustainably produced goods and services, healthy natural systems, and strong communities*



About Northwest Energy Engineering - Fred Vosper

- ▶ Past Researcher at National ARS Lab in Bushland, Texas
- ▶ 20 Years High Tech and Green Technology Experience
- ▶ Technical Service Provider (TSP) for NRCS Energy Programs
 - ▶ Completed 450+ Ag Energy Audits (AG EMPs) in Pacific NW
- ▶ Lead Technical Reviewer and Contributor for REDA Project

Northwest
Energy
Engineering, LLC
Fred Vosper Ph.D., PE, CEM

Why work with farmers in Oregon?

- ▶ **The gap:** Why aren't more farmers and rural small businesses investing in Energy Efficiency & Renewable Energy and projects?
- ▶ A bit of research showed...
 - ▶ Lack of awareness
 - ▶ Prohibitive upfront costs
 - ▶ Complexity of project implementation
 - ▶ Program silos between agencies

REDA Oregon | Eligible Applicants

Agricultural Producers

- ▶ At least 50% of income must come from ag operations
- ▶ Exempt from rural requirement

Small Businesses

- ▶ Must meet Small Business Association size standards
- ▶ Must be rural (not in Portland, Salem-Keizer, Eugene-Springfield, Bend, or Medford)

Not eligible:

- ▶ Nonprofits & public entities (Irrigation Districts)
- ▶ Residential projects



**PV Solar Energy - Klamath Falls, OR
Net Metered w/ Irrigation Pump**

Dual Variable Frequency Drive (VFD) Three Sisters ID - Sisters, OR



REDA Oregon | Interested?

...or know someone who might be?

Questions?

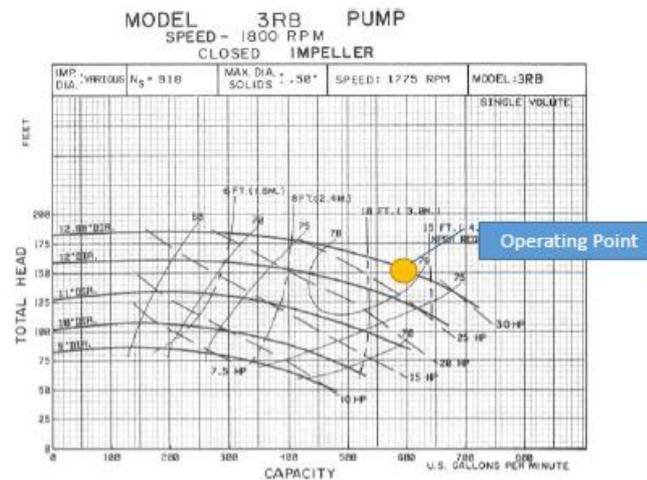
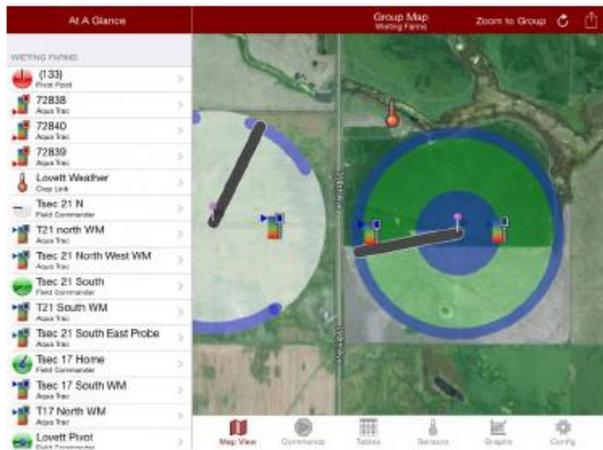
Project Contact:

Randi Wallace - Project Coordinator

randi@wyeast-rcd.org

Ph 541-223-9683

NRCS CIG | Advanced Precision Irrigation 2.0



Pumping Plant Efficiency



Irrigation Uniformity



Pressure
64.5
PSI

Flow
589
GPM

Electric
20.1 kW
\$2.41/Hr

Pump Station Operation and Efficiency

NRCS CIG | Advanced Precision Irrigation 2.0



	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
Monday 2015-11-09								Wind 3.1	Wind 5.5 7	Wind 5.5 7	Wind 5.5	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 5.5	Wind 3	Wind 3	Wind 5.5	Wind 5.5	Wind 5.5	Wind 5.5	
Tuesday 2015-11-10	Temp < 1C	Temp < 1C	Wind 5.5	Wind 5.5	Wind 5.5	Wind 3	Wind 3	Wind 3	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 5.5	Wind 5.5	Wind 3					
Wednesday 2015-11-11	Wind 3	Wind 3	Wind 5.5	Wind 5.5	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 5.5	Wind 5.5	Wind 3	Wind 3	Wind 3	Wind 3					
Thursday 2015-11-12	Wind 3	Wind 3	Temp < 1C	Temp < 1C	Temp < 1C	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	
Friday 2015-11-13	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3					
Saturday 2015-11-14	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 5.5	Wind 5.5	Wind 8	Wind 8	Wind 5.5	Wind 5.5	Wind 3									
Sunday 2015-11-15	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 3	Wind 5.5	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8	Wind 8				
Monday 2015-11-16	Wind 8	Wind 5.5	Wind 5.5																						

Field and Irrigation Application Efficiency