



Agricultural Utility Group Meeting

July 22, 2026



ICE BREAKER:

**What is your
favorite ice cream
flavor?**



Agenda

Start Time	Agenda Item	BPA Staff
9:35 a.m.	Ag Energy Audit Measures	David Lee
9:40 a.m.	Energy Conservation Opportunities for Dairy Farms	David Lee
9:55 a.m.	HPWH Demonstration Project	Keshmira Engineer
10:05 a.m.	BPA Marketing Support	Robin Moodie
10:10 a.m.	UES Cost Documentation and The Improved Pump Efficiency Project Information Form (PIF)	Lita Mahan and David Lee
10:15 a.m.	Variable Frequency Drive (VFD) for Ag Pumps Energy Savings Calculator	Kathy Yi



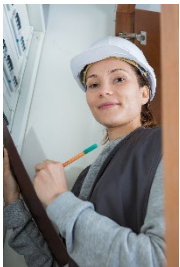
Ag Customer Support Team Members

- David Lee – Ag Sector Lead / Program Manager
- Kathy Yi – Energy Conservation Account Exec. (ECAE)
- Lita Mahan – Ag Program Compliance Specialist (PCS)
- Ben Mabee – Planning and Evaluation
- Larry King – Ag Program Specialist
- Dick Stroh – Ag Engineer
- Tom Osborn – Ag Engineer
- Keshmira Engineer – Emerging Tech
- Robin Moodie – Marketing Specialist
- Cody Bingham – Ag Engineer

What is an Ag Energy Audit?

- **Identifies/analyzes on-farm energy conservation opportunities in a comprehensive report for the farmer.**
 - For example:
 - Irrigation system conversions/hardware upgrades.
 - VFDs for pumps, pump efficiency upgrade.
 - General lighting upgrades.
 - Dairy farm energy conservation upgrades.
- **Follows American Society of Agricultural and Biological Engineers (ASABE) 2009 standard. Meets BPA Ag On-farm Energy Audit guidelines.**
- **Performed by a Certified Energy Manager (CEM), United States Department of Agriculture Natural Resources Conservation Service Technical Service Provider (USDA NRCS TSP), Professional Engineer (PE), or experienced Ag energy auditor.**

Why do it?



For the Utility

- **Creates pipeline of energy conservation projects.**
 - Assists in Energy Efficiency Incentive (EEI) spend planning.
- **Helps your members improve their farm operation.**

[Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans | Rural Development](#)

[On-Farm Energy Initiative | Natural Resources Conservation Service](#)



For the Farmer

- **Comprehensive Energy Audit Report.**
 - Business case for the farmer to make financial decision on implementing energy conservation projects.
 - Energy and operations and maintenance (O&M) cost savings
 - Available utility incentive
 - Available funding sources
 - Enables quick implementation of low-cost measures
 - Assists in planning for capital intensive projects
- **Completes necessary step to get USDA Rural Energy for America (REAP) guaranteed loan or USDA NRCS financial assistance for their energy conservation project.**

First Step – Ag Energy Audit Screening



Agricultural Energy Audit - Screening Tool

Instructions: The purpose of this form is to assess if there are potential electrical energy savings that could be identified by performing an on-site energy audit at an agricultural production site. Questions include high-level information about electrical energy-consuming equipment as well as information about farm type and agricultural production activities. This form should be completed by an on-site individual most knowledgeable about the energy-using equipment at the agricultural production site or by an experienced agricultural energy auditor. The completed form must be returned to the agricultural producer's electric service utility for review and processing. If an on-site energy audit is determined necessary, additional information will be requested from the participating agricultural producer and their chosen experienced agricultural energy auditor.

If any information does not apply, please enter N/A into the text box.

CUSTOMER INFORMATION			
Farm Business Name:			
Site Address:			
City:	State: Zip:		
Email:	Phone:		
Is the farm owned or leased?: ☐ Owned ☐ Leased			
Electric Utility Name:			
Electric Utility Account Number:			
ANNUAL ELECTRICITY USE (KWH/YR)			
Irrigation Electricity Usage	Farm Operations Electricity Usage		
AGRICULTURAL SITE INFORMATION			
SITE TYPE: (select all that apply)	☐ Dairy	☐ Irrigated Crop	☐ Other (please describe below):
	☐ Poultry	☐ Green House	
	☐ Ranch	☐ Forestry Products	
	☐ Orchard	☐ Nursery Stock	
	☐ Vineyard	☐ Produce Storage	
FARM BUILDINGS			
Fuel Source for HVAC system in heated and/or cooled buildings: ☐ Natural Gas ☐ Propane ☐ Electric			
☐ Other (please describe):			
How many heated and/or cooled buildings are on site?			
Total square footage of heated and/or cooled buildings:			
Age of HVAC system in heated and/or cooled buildings:			
How many lighted buildings are on site?			
Total square footage of lighted buildings:			
Yard Lighting? ☐ Yes ☐ No ☐ Don't know			

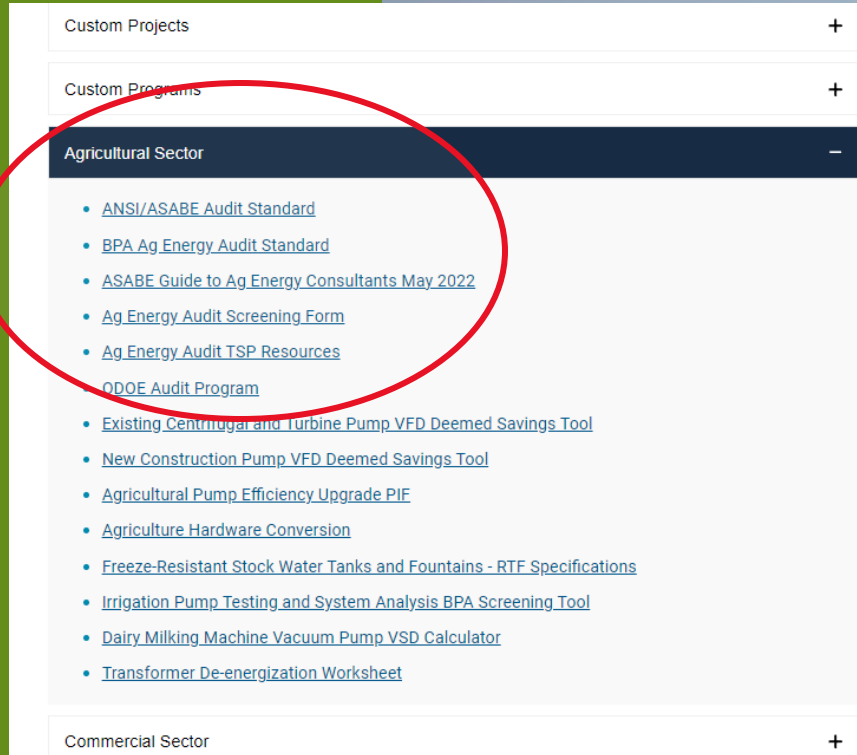
- Simple to complete.
 - Can be completed by the farmer
- \$150 per farm.
- Required for 7.8.2
Determines if an on-farm energy audit is warranted.
- Optional dairy farm specific energy audit screening

Dairy On-farm Energy Audit Process



Ag Energy Audit Measures Resources

Located in the BPA Document Library:
bpa.gov/energy-and-services/efficiency/document-library



Dairy Farms



- Power Council's 9th plan identified significant dairy energy savings potential (5-7 aMW).
- BPA Territory has ~300,000 dairy cows across ~600 dairy farms.
- Variable but controllable energy costs.
- New technologies open additional opportunities.
- Demonstrations and case studies sought to get to Unit Energy Savings (UES) and incentive values.

Dairy Farms



Energy consumption is a *significant and controllable variable* operating cost.

- Milking center/dairy parlor

**Milk Vacuum and
Transfer Pumps**

10-20%

Lighting & Ventilation

10-15%

Milk Cooling

25-35%

Water Heating

30-40%



Dairy Farms Examples

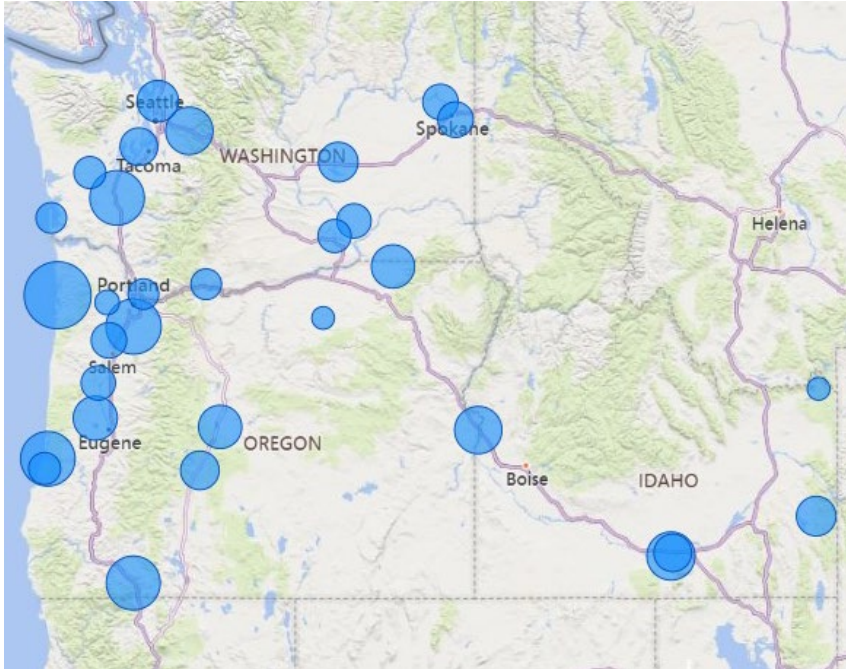
150 Cow Farm

vs.

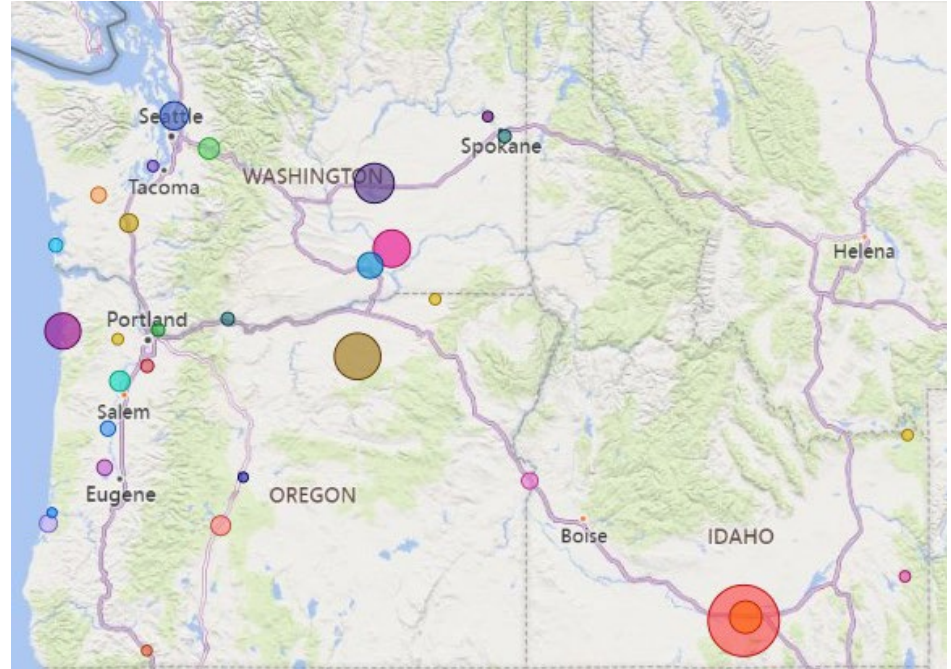
1,500 Cow Farm



Dairy Farms



Number of Dairy Farms



Number of Dairy Cows

Dairy Farms

State	County	Approx. Serving Utility	Farms	Cows
Idaho	Minidoka	CITY OF HEYBURN/Riverside Elect Co./United Electric Coop	15	18,626
Idaho	Fremont	FALL RIVER RURAL ELECTRIC COOPERATIVE	4	500
Idaho	Bonneville	LOWER VALLEY ENERGY	17	426
Idaho	Cassia	Raft River Electric/Southside Electric/United Electric	27	120,000
Oregon	Lane	BLACHLY-LANE ELECTRIC Coop/Central Lincoln PUD/Emerald PUD/EWEB/Lane Electric Coop/Pac Power/Springfield UB	22	2,000
Oregon	Deschutes	CANBY UTILITY BOARD/CEC/Midstate EC/Pac Power	21	230
Oregon	Clackamas	CANBY UTILITY BOARD/PGE	37	946
Oregon	Coos	CENTRAL LINCOLN PUD/City of Bandon/Pac Power	10	3,228
Oregon	Douglas	CENTRAL LINCOLN PUD/Douglas Electric Coop	36	221
Oregon	Jackson	CITY OF ASHLAND/Pac Power	35	296
Oregon	Washington	CITY OF FOREST GROVE/PGE	5	500
Oregon	Umatilla	CITY OF MILTON-FREEWATER/Hermiston ES/Pac Power/Umatilla Elec Coop	21	30,000
Oregon	Morrow	COLUMBIA BASIN ELECTRIC COOP/Umatilla Elec Coop	4	44,865

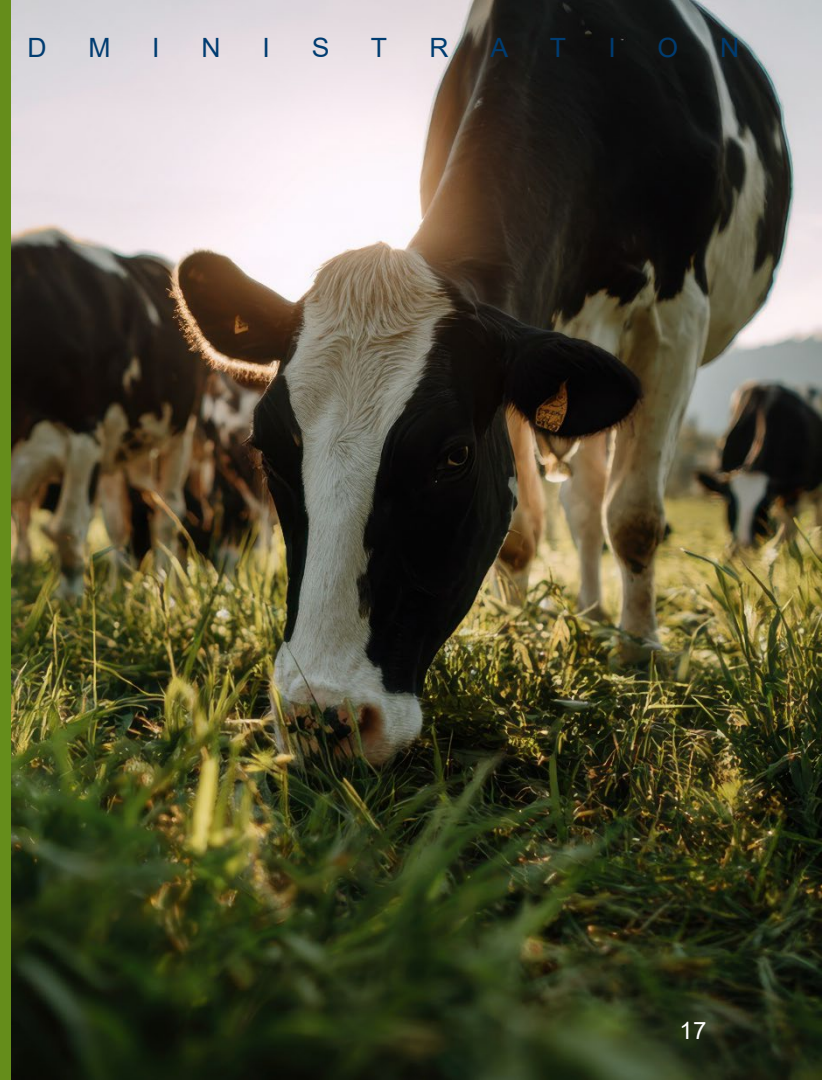
State	County	Approx. Serving Utility	Farms	Cows
Oregon	Benton	CONSUMERS POWER/Pac Power	12	1,786
Oregon	Malheur	Idaho Power soon to be OTEC	26	2,445
Oregon	Klamath	MIDSTATE Electric Coop/Pac Power	16	4,431
Oregon	Polk	SALEM ELECTRIC/PGE/City of Monmouth/Pac Power	13	5,063
Oregon	Tillamook	TILLAMOOK PUD/Pac Power	57	24,053
Washington	Benton	BENTON REA/City of Richland/Benton Co. PUD	11	10,210
Washington	Franklin	BIG BEND ELECTRIC COOP/Big Bend Electric Coop	12	26,183
Washington	Clark	CLARK PUBLIC UTILITIES	9	1,037
Washington	Grant	GRANT Co. PUD No.2	17	30,525
Washington	Grays Harbor	GRAYS HARBOR Co. PUD No.1	10	1,967
Washington	Stevens	INLAND POWER AND LIGHT Co./City of Chewelah/Avista	13	355
Washington	Spokane	INLAND POWER AND LIGHT Co./Modern Electric Water Co./Avista/City of Cheney/Vera Water and Power	13	1,000
Washington	Klickitat	KLICKITAT COUNTY PUD	9	1,000
Washington	Lewis	LEWIS COUNTY PUD/City of Centralia	36	3,631
Washington	Pacific	PACIFIC COUNTY PUD No. 2	9	1,231
Washington	Pierce	PENINSULA LIGHT Co./PSE/Tacoma Power/Town of Steilacoom	15	469
Washington	Snohomish	SNOHOMISH COUNTY PUD	19	12,722
Washington	King	TANNER ELECTRIC COOP/SCL/PSE	26	5,533

Dairy BPAQ Measures Pursuit (for April or Oct. 2027)

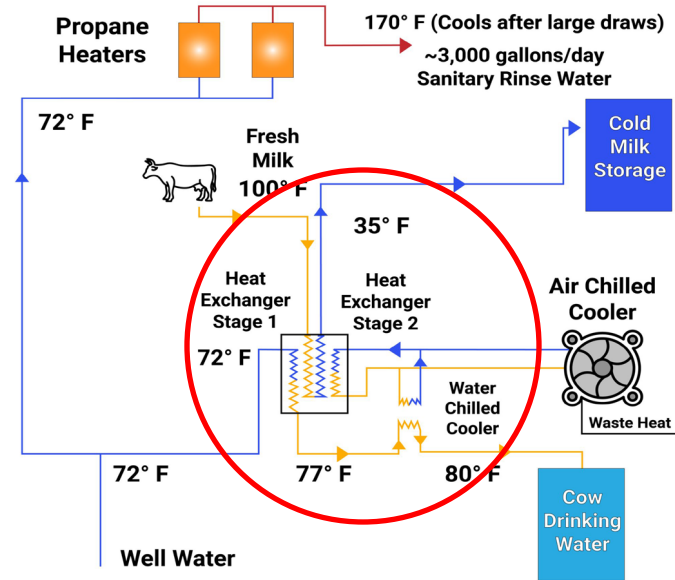
Measure Description	kWh Unit Energy Savings	Unit
VFD on milk vacuum pumps	TBD	hp
VFD on milk transfer pumps	TBD	cow
High efficiency ventilation with VFD and humidity/temperature control	TBD	hp
Water Source HPWH System Configurations	TBD	cow
High Efficiency Chiller System (with or without waste heat recovery)	TBD	cow
Raw milk plate pre-cooler	TBD	cow

Keshmira Engineer

Emerging Technologies



Dairy Farm Hot Water and Chiller System Integration





- Large hot water load.
 - The larger the load, the faster the payback.
- Aging sanitation and chiller equipment.
- Agricultural audit to assess feasibility.
- Emerging technology research incentive.

Robin Moodie

Energy Conservation Marketing



Marketing Materials

BPA offers Utilities Marketing Services and Resources for all Ag needs:

- bpa.gov > energy & service > utility resources > marketing resources



- Graphic design.
- Measure Incentive promotion (bill stuffers).
- Copyediting / storytelling / PR.
- Social media / website content and strategy.
- Digital assets and print collateral.
- Presentations and forms.

To find out how a BPA Marketing Specialist can help you, please contact your ECAE.

Graphic Design Services

Original Graphic Design Services | Template Customization | Forms



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\$14
per outlet, one per utility room

COMPANY LOGO
PUBLIC UTILITIES



Water Where You Need It

Lower your irrigation system, your on-field water, and your energy use!

Savings for Irrigators

Harney Electric Cooperative, Inc. offers eligible customers rebates for upgrading to lower elevation, more precise irrigation systems and VFDs.

Irrigators are constantly faced with increasing energy prices and demand on water, but there are opportunities to invest in efficient irrigation equipment with relative to help lower your on-field water and energy use. It starts with lowering your irrigation system. Converting to drip irrigation or a lineasprink system saves both water and energy. Drip systems and drop tubes also reduce evaporation and increases water application by lowering the spinner to the ground. Which lower elevation irrigation system will depend on your crop type.

Variable Frequency Drives (VFDs) are designed to adjust water pump motor speed to match your changing irrigation needs, controlling the frequency of the electrical power that's supplied to your motor. One device is often all you will need to control your varying irrigation needs. Even small speed adjustments using a VFD can create big energy savings often as much as 20 percent! That means big savings today, and even bigger savings on your overall operation costs every year after installation.

WE'RE HERE TO HELP!
To learn more, contact Harney Electric Cooperative, Inc., call (541) 555-5555 or email irrigation@hec.coop

One-Stop Electric Cooperative, Inc.

OFFICE USE ONLY | Date Received: | Date Complete: |
Date Entered: | Date Entered: | Date Entered: |
Account Credit: | Other: | Received by: |

Residential Insulation Rebate Application

BEFORE INSTALLATION: Please refer to the Program Participation Guidelines.
AFTER INSTALLATION: Please complete all sections of this application to process the rebate. The completed form, paid customer receipt, and/or pre- and post-project photos are required for processing.

MEMBER INFORMATION

Account # (required): | Today's Date: |
Date of Installation: | Are you the account holder? | Yes | No |
Member Name: |
Relationship to Member: (if not the account holder) | Family Member | Landlord | Tenant | Other: |

INSTALLATION ADDRESS

Street: | State: | Zip: |
City: | Phone: |
Mailing Address (if different): |
Street: | State: | Zip: |

HOME INFORMATION

Residence Type: | Site Built Home (up to 4-pipes) | Manufactured Home | Multi-Family |
Electric Heat Source: | Electric Forced Air | Electric Zone | Heat Pump | Other |
*Residence must have permanently installed central electric heat system serving 50% or more of the conditioned area. CFI if permanently installed electric system served with a wood stove, pellet stove, or fireplace. CFI a heat pump integrated with a non-electric furnace.

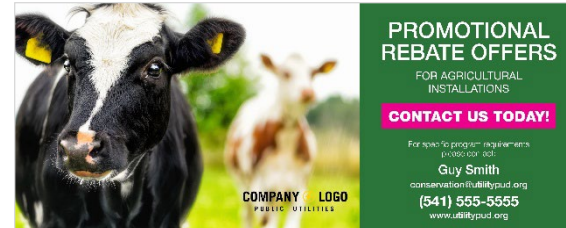
INSTALLATION INFORMATION

Who installed unit: | Contractor | Homeowner |
Complete this section with existing and new values for each area where insulation was installed.
Type | Existing R Value | New R Value | Area Sq. Ft. | Product Type (Blown, Rigid, etc.) | Installed Cost |
Attic: | | | | |
Floor: | | | | |
Bldg. | | | | |
*This incentive does not apply to new construction and does not apply to any unheated areas of the home such as a garage or porch.

MEMBER SIGNATURES

Member Signature: | Date: |
We electronic signature will be accepted as consent to the rules and restrictions of the program.

This program is available through the Bonneville Power Administration. BPA programs are subject to change without notice.



PROMOTIONAL REBATE OFFERS

FOR AGRICULTURAL INSTALLATIONS

CONTACT US TODAY!

For space program information, please call or visit:
Guy Smith
conservation@utilitypub.org
(541) 555-5555
www.utilitypub.org

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- Irrigation Hardware Upgrades
- Irrigation Pump Testing
- Livestock Water Tanks
- Thermostatically Controlled Outlets
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- * Customized social media or other digital graphics.
- * Print collateral, including flyers and case studies.
- * Form development and audit forms for BPA requirements.
- * Customized bill inserts promoting incentives.

Public Relations & Communication

Articles | Project Success Posters | Case Studies | Big Checks

Water Conservation in The Big Lost River Valley



Project Background

The Big Lost River Valley holds approximately 76,000 acres of farmland in the mountains of south-central Idaho. Water is the lifeblood of farmers in this mountainous region. For years, farmers relied on open canals to deliver their water, which presented challenges with losses through evaporation or leakage.

A system of pipelines was proposed to distribute water across the valley. The Big Lost River Irrigation District—within its broader scope of fairly and efficiently delivering irrigation water to the basin—assisted in the effort with Lost River Electric Co-op, Inc., Natural Resources Conservation Service, and participant irrigators to make it a reality. The pipeline project received funding through energy conservation grants from Bonneville Power Administration (BPA). As of early 2025, 11 systems have been or will be improved upon across the Big Lost River Valley. Once complete, more than 45 miles of liner and/or pipe will serve a significant portion of the farmground in the valley.



252,865 kWh
Annual Energy Savings



Insteep Pipeline farmer 56-in.



The pipeline project under way.

Results

- Improved water conservation:** In addition to the pipelines and liners, farmers received technical and financial assistance to help install low-elevation spray application (LESA) sprinkler package on pivot irrigation systems to conserve water.
- Energy Savings:** The Insteep Pipeline project resulted in 169,187 kWh of energy saved annually, while the Alkele Pipeline project delivered 83,678 kWh of energy savings annually.
- Increased Water Availability:** Reduced losses in the delivery system are expected to provide additional water to the southern portion of the valley.

What ideas do you have to save energy?

Lost River Electric Cooperative, Inc. (LREC) makes electric energy available to the members at the lowest cost consistent with sound economy and good management.

Lost River Electric Cooperative, Inc.
(208) 588-3311
www.lostriverelectriccoopinc.com





Lita Mahan and David Lee

UES Cost Documentation and
The Improved Pump Efficiency Project
Information Form (PIF)

UES Cost Documentation

- **Effective April 1, 2026**, utilities must submit cost documentation to BPA **at the time of submission** when requesting Energy Efficiency Incentive (EEI) payment for Unit Energy Savings (UES) measures that incur a cost. The primary change is the method of data collection, with only minor changes to what documentation is required.
- Are there any situations where cost documentation is NOT required at the time of submission?
 - Yes, there are exceptions where cost documentation is not required at the time of submission to BPA:
- **Self-funded measures:** For UES measures when the utility is not requesting BPA payment, cost documentation is not required for submission. However, it must be kept in the customer file and provided to BPA if selected for oversight.
- Cost documentation can be directly uploaded into **BEETS** or via the **BOX** upload site, which works best for bulk uploads.

Improved Efficient Pump PIF

Agricultural New Pump Efficiency Upgrade Rebate Project Information Form (PIF) for BPA-Qualified Measure

CLEAR FORM

Instructions: Complete this form for **each** Agricultural New Pump Efficiency Upgrade and submit it to your serving utility. Eligibility requires replacement of an existing pump, not meeting an irrigation system's requirements due to wear or irrigation system changes, with a **new, not rebuilt nor used**, pump with the same or lower hp unless a VFD is installed.

A. FARM AND PUMP LOCATION INFORMATION

Service Location:	Farm Identifier:	County / State:
Serving Utility:	Meter Number:	Account Number:
Utility Contact:	Contact Phone Number:	

B. PUMP INFORMATION

Total irrigation system size (acres) served by the irrigation pump:		acres
Primary lift (ft) from water source (e.g. well or canal)		feet
Old Pump hp (20 hp to 500 hp)	hp	New Pump hp (20 hp to 500 hp) hp
Is a VFD controlling the speed of the new pump?	☐ YES ☐ NO	
Age of old pump being replaced	years	Old Pump efficiency % Efficiency Source ☐ Curve/Design ☐ Estimated ☐ Pump Test
New pump impeller material used:	☐ Bronze ☐ Stainless steel	
Pump manufacturer and model number:		Attached Invoice & Curve w/design point ☐ YES

C. FINAL PROJECT INSTALLATION FINANCIAL INFORMATION

- BPAQ measure so we collect specific installation data to maintain and renew the measure.
- Moved the form from MS Word format to Adobe Acrobat.
- Easier navigation and data entry

Agricultural New Pump Efficiency Upgrade Rebate Project Information Form (PIF) for BPA-Qualified Measure

CLEAR FORM

Instructions: Complete this form for each Agriculture New Pump Efficiency Upgrade and submit it to your serving utility. Eligibility requires replacement of an existing pump, not meeting an irrigation system's requirements due to wear or irrigation system changes, with a **new, not rebuilt nor used**, pump with the same or lower hp unless a VFD is installed.

A. FARM AND PUMP LOCATION INFORMATION

Service Location:	Farm Identifier:	County / State:
Serving Utility:	Meter Number:	Account Number:
Utility Contact:	Contact Phone Number:	

B. PUMP INFORMATION

Total irrigation system size (acres) served by the irrigation pump:		acres
Primary lift (ft) from water source (e.g. well or canal)		feet
Old Pump hp (20 hp to 500 hp)	hp	New Pump hp (20 hp to 500 hp) hp
Is a VFD controlling the speed of the new pump?	☐ YES ☐ NO	
Age of old pump being replaced	years	Old Pump efficiency % Efficiency Source ☐ Curve/Design ☐ Estimated ☐ Pump Test
New pump impeller material used:	☐ Bronze ☐ Stainless steel	
Pump manufacturer and model number:		Attached Invoice & Curve w/design point ☐ YES

C. FINAL PROJECT INSTALLATION FINANCIAL INFORMATION

Total installed cost of the new pump (before the incentive)	\$
Cost may include pump, labor and travel	
What else included by other contractors?	☐ YES ☐ NO
SIGNATURE	
By signing this form, I confirm that the above information is correct to the best of my knowledge.	
Print name:	Date:
Signature:	Phone:

UTILITY COMPLETES THE SECTION BELOW

ANNUAL ENERGY-USE INFORMATION	2023	2024	2025	2026*
Primary pumping plant (wh/yr)				

*Only can occur in the current irrigation season, the 2026 data can be entered upon completion of the 2026 irrigation season.

ENTER THE FOLLOWING VALUES IN THE MEETS GHS TEMPLATE UPLOAD

USE REFERENCE NUMBER X	A-0PP420237	REFNO	Column D
QUANTIFY PUMPING PLANT AND ITS LOCATION (M-1)	hp to unit		Column E

Version: 08/15/2023

Kathy Yi

VFD for Ag Pumps Calculator



Background

- Presented VFD Calculator changes at April AUG meeting
 - Described purpose of the calculator
 - Barriers/issues of the current calculator
 - Compared new calculator to the current calculator
 - Live demonstration of the new calculator

AGRICULTURE - VFD CALCULATOR TOOL (7.5 - 1,000 Horsepower) Version Date: MM/DD/2023

Please fill in all of the green highlighted fields. Add explanatory notes where needed.
Orange fields are required.

A. IRRIGATOR INFORMATION

Unique Site ID:

Serving Electric Utility:

Estimated Date of VFD Installation:

B. PUMP AND MOTOR DATA

New Pump or Retrofit?

Pump Specifications

Pump Motor Rated Horsepower:

Variable Frequency Drive Rated Horsepower:

Pump Manufacturer:

Pump Model:

Type of Pump:

Number of Stages:

Impeller Trim (inches):

Design Flow (gpm):

Design Head (ft):

C. OPERATIONAL DATA

Is lift (ft) or pump intake (psi) used to calculate head?

How will the VFD be controlled?

Reason(s) for the VFD (Check all that apply)
In order to determine eligibility, select at least one reason (not including Other) for the VFD.

Flow Management: ☐

Lift Management: ☐

Pump Intake Pressure Management: ☐

Pump Discharge Pressure Management: ☐

Elevation Change Management: ☐

Other: ☐

Informational Only - For BPA Use

Vhp check = 0	Efficiencies
Bhp check = 0	Pump: 0.00%
Ehp check = 0	Motor: 0.00%

Background

- Met with utilities that requested an in-depth overview
- Sent draft VFD calculator to four utilities to review
- Incorporated feedback

AGRICULTURE - VFD CALCULATOR TOOL (7.5 - 1,000 Horsepower) Version Date: MM/DD/2025

Please fill in all of the green highlighted fields. Add explanatory notes where needed.
Orange fields are required.

A. IRRIGATOR INFORMATION

Unique Site ID:

Serving Electric Utility:

Estimated Date of VFD Installation:

B. PUMP AND MOTOR DATA

New Pump or Retrofit?

Pump Specifications

Pump Motor Rated Horsepower:

Variable Frequency Drive Rated Horsepower:

Pump Manufacturer:

Pump Model:

Type of Pump:

Number of Stages:

Impeller Trim (inches):

Design Flow (gpm):

Design Head (ft):

C. OPERATIONAL DATA

Is lift (ft) or pump intake (psi) used to calculate head?

How will the VFD be controlled?

Reason(s) for the VFD (Check all that apply)
In order to determine eligibility, select at least one reason (not including Other) for the VFD.

Flow Management: ☐

Lift Management: ☐

Pump Intake Pressure Management: ☐

Pump Discharge Pressure Management: ☐

Elevation Change Management: ☐

Other: ☐

Informational Only - For BPA Use

Vhp check = 0	Efficiencies
Bhp check = 0	Pump: 0.00%
Ehp check = 0	Motor: 0.00%

Changes – Print Versions

FILLED

AGRICULTURE - VFD CALCULATOR TOOL (7.5 - 1,000 Horsepower)

A. IRRIGATOR INFORMATION

Unique Site ID:
Serving Electric Utility:
Estimated Date of VFD Installation:

B. PUMP AND MOTOR DATA

New Pump or Retrofit?

--Select Application Type--

Pump Specifications

Pump Motor Rated Horsepower:
Variable Frequency Drive Rated Horsepower:
Pump Manufacturer:
Pump Model:

Type of Pump:
Number of Stages:
Impeller Trim (inches):
Design Flow (gpm):
Design Head (ft):

--Select Pump Type--

C. OPERATIONAL DATA

Is lift (ft) or pump intake (psi) used to calculate head?

--Select--

If Retrofit, how is the current pump controlled?

--Select Existing Control--

How will the VFD be controlled?

--Select Control Type--

If at the pressure transducer, where is the transducer location?

--Select Location--

Reason(s) for the VFD (Check all that apply)

In order to determine eligibility, select at least one reason (not including Other) for the VFD.

Flow Management ☐ ☐ Minimum Flow (gpm)
Maximum Flow (gpm)

Lift Management ☐ ☐ Minimum Pump Lift (ft)
Maximum Pump Lift (ft)
Lift Change (ft)

BLANK

AGRICULTURE - VFD CALCULATOR TOOL (7.5 - 1,000 Horsepower)

Version Date: X/0X/2025

Page under construction

A. IRRIGATOR INFORMATION

Unique Site ID:
Serving Electric Utility:
Estimated Date of VFD Installation:

B. PUMP AND MOTOR DATA

New Pump or Retrofit?
(Circle one)

New Pump Installation Retrofitting Existing Pump

Pump Specifications

Pump Motor Rated Horsepower:
Variable Frequency Drive Rated Horsepower:
Pump Manufacturer:
Pump Model:

Type of Pump (Circle One):

Horizontal Split Case Centrifugal End-Suction Centrifugal
Short Coupled Turbine Deep Well Turbine Axial Flow Mixed Flow

Number of Stages:
Impeller Trim (inches):
Design Flow (gpm):
Design Head (ft):

C. OPERATIONAL DATA

Is lift (ft) or pump intake (psi) used to calculate head?

Circle one:
Lift Pump Intake

If Retrofit, how is the current pump controlled?

Throttling Pressure Regulating Valve Bypass (Dumping) No Control

How will the VFD be controlled?

Pressure Transducer Manual

If at the pressure transducer, where is the transducer location?

At Pump At Critical Sprinkler

Changes – Added Verbiage

- Added Verbiage for the Reason(s) for the VFD

- Calculator was built so that a minimum amount of information can be entered to determine eligibility.
- Calculator has logic and other visual indicators when fields are required.
- Wasn't clear that at least one item needed to be checked to determine eligibility

Reason(s) for the VFD (Check all that apply)

In order to determine eligibility, select at least one reason (not including Other) for the VFD.

Flow Management: ☐

Lift Management: ☐

Pump Intake Pressure Management: ☐

Pump Discharge Pressure Management: ☐

Elevation Change Management: ☐

Other: ☐

Changes – Removed option

- Removed “Existing Pump Replacement” option
 - Confusing
 - For scenarios where the existing pump is replaced and a new VFD is installed
 - Should be treated as “new construction”

B. PUMP AND MOTOR DATA

New Pump, Existing Pump Replacement or Retrofit?

Pump Specifications

Pump Motor Rated Horsepower

Variable Frequency Drive Rated Horsepower

Pump Manufacturer:

--Select Application Type--

--Select Application Type--

New Pump Installation

Existing Pump Replacement

Retrofitting Existing Pump

B. PUMP AND MOTOR DATA

New Pump or Retrofit?

Pump Specifications

Pump Motor Rated Horsepower:

Variable Frequency Drive Rated Horsepower:

--Select Application Type--

--Select Application Type--

New Pump Installation

Retrofitting Existing Pump

Changes – Updated Instructions

• Updated Instructions and Notes

B. PUMP AND MOTOR DATA

New Pump or Retrofit?

Pump Specifications

Pump Motor Rated Horsepower:

Variable Frequency Drive Rated Horsepower:

Pump Manufacturer:

Pump Model:

New Pump Installation: When there is a new pump installation, and a new VFD is also installed, select **New Pump**.

Retrofitting Existing Pump: If a VFD is added to an existing pump, select **Retrofit**.

AGRICULTURE - VFD CALCULATOR TOOL (7.5 - 1000 Horsepower) Instructions

The purpose of the Agriculture - VFD Calculator Tool is to determine the eligibility of the variable frequency drive (VFD) installed on a turbine or centrifugal pump.

Instructions: Complete the **VFD Eligibility Info** and the **Utility Data** tabs with the applicable information.

Data entered into the VFD Eligibility Info tab will automatically populate the **PRINT VERSION (FILLED)** tab. Use this filled version if you need to print a physical copy for the customer. If you need to distribute or print a blank copy of the form, please use the **PRINT VERSION (BLANK)** tab.

Below are additional clarification for certain fields.

For any questions, please contact your BPA customer service engineer.

Enter information in **GREEN** or **ORANGE** fields. If the font turns GREY, the information is unnecessary or will result in an error if the selection is chosen.

VFD Eligibility Info Tab

B. PUMP AND MOTOR DATA

New Pump, Existing Pump Replacement or Retrofit?

--Select Application Type--

--Select Application Type--
New Pump Installation
Retrofitting Existing Pump

New Pump Installations: Select this option for New Construction. Examples include:

Installation of a new pump service with a VFD that does not replace an existing pump service.

Retrofitting Existing Pump: If a VFD is added to an existing pump, select this option.

This is the rated horsepower listed on the nameplate of the motor with the VFD. If a new motor is installed, enter the horsepower of the new motor.

If the motor has been rewound to a different horsepower rating, enter that value.

If the motor nameplate is not available, enter the approximate monthly peak. This is the manufacturer's horsepower rating of the variable frequency drive. If the VFD horsepower is not listed on the invoice, the motor horsepower shall be used.

Pump Motor Rated
Horsepower

Variable Frequency
Drive Rated Horsepower

Next Steps

- Still working on the Instructions tab and updating other notes
- Launch on October 1 with the other Implementation Manual updates

AGRICULTURE - VFD CALCULATOR TOOL (7.5 - 1,000 Horsepower) Version Date: MM/DD/2023

Please fill in all of the green highlighted fields. Add explanatory notes where needed. Orange fields are required.

A. IRRIGATOR INFORMATION

Unique Site ID:

Serving Electric Utility:

Estimated Date of VFD Installation:

B. PUMP AND MOTOR DATA

New Pump or Retrofit? **--Select Application Type--**

Pump Specifications

Pump Motor Rated Horsepower:

Variable Frequency Drive Rated Horsepower:

Pump Manufacturer:

Pump Model:

Type of Pump: **--Select Pump Type--**

Number of Stages:

Impeller Trim (inches):

Design Flow (gpm):

Design Head (ft):

C. OPERATIONAL DATA

Is lift (ft) or pump intake (psi) used to calculate head? **--Select--**

How will the VFD be controlled? **--Select Control Type--**

Reason(s) for the VFD (Check all that apply)
In order to determine eligibility, select at least one reason (not including Other) for the VFD.

Flow Management: ☐

Lift Management: ☐

Pump Intake Pressure Management: ☐

Pump Discharge Pressure Management: ☐

Elevation Change Management: ☐

Other: ☐

Informational Only - For BPA Use

Vhp check = 0	Efficiencies
Bhp check = 0	Pump: 0.00%
Ehp check = 0	Motor: 0.00%



Questions?

Thank you!

