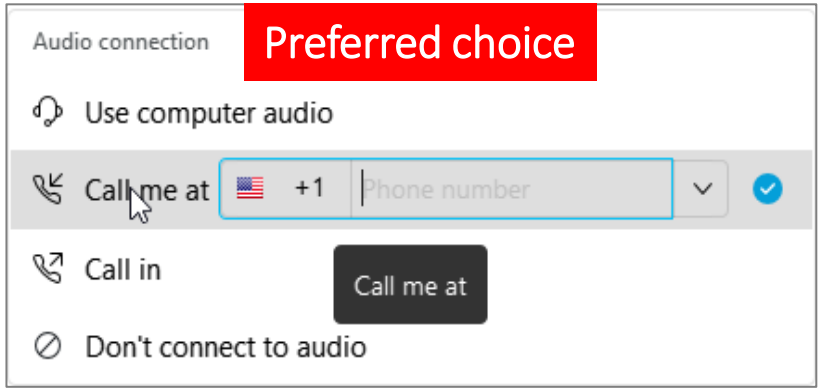
Audio instructions

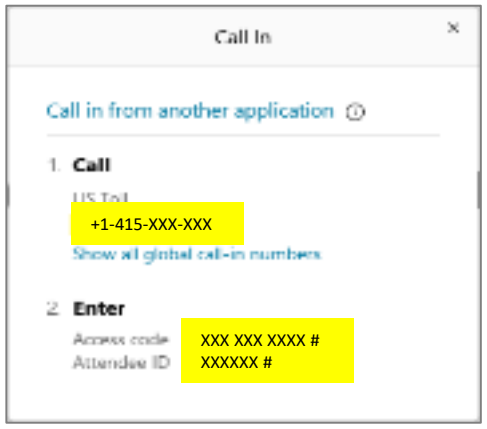
Welcome to BPA's AUG Webex Meeting!

Note: Your audio is muted upon entry.

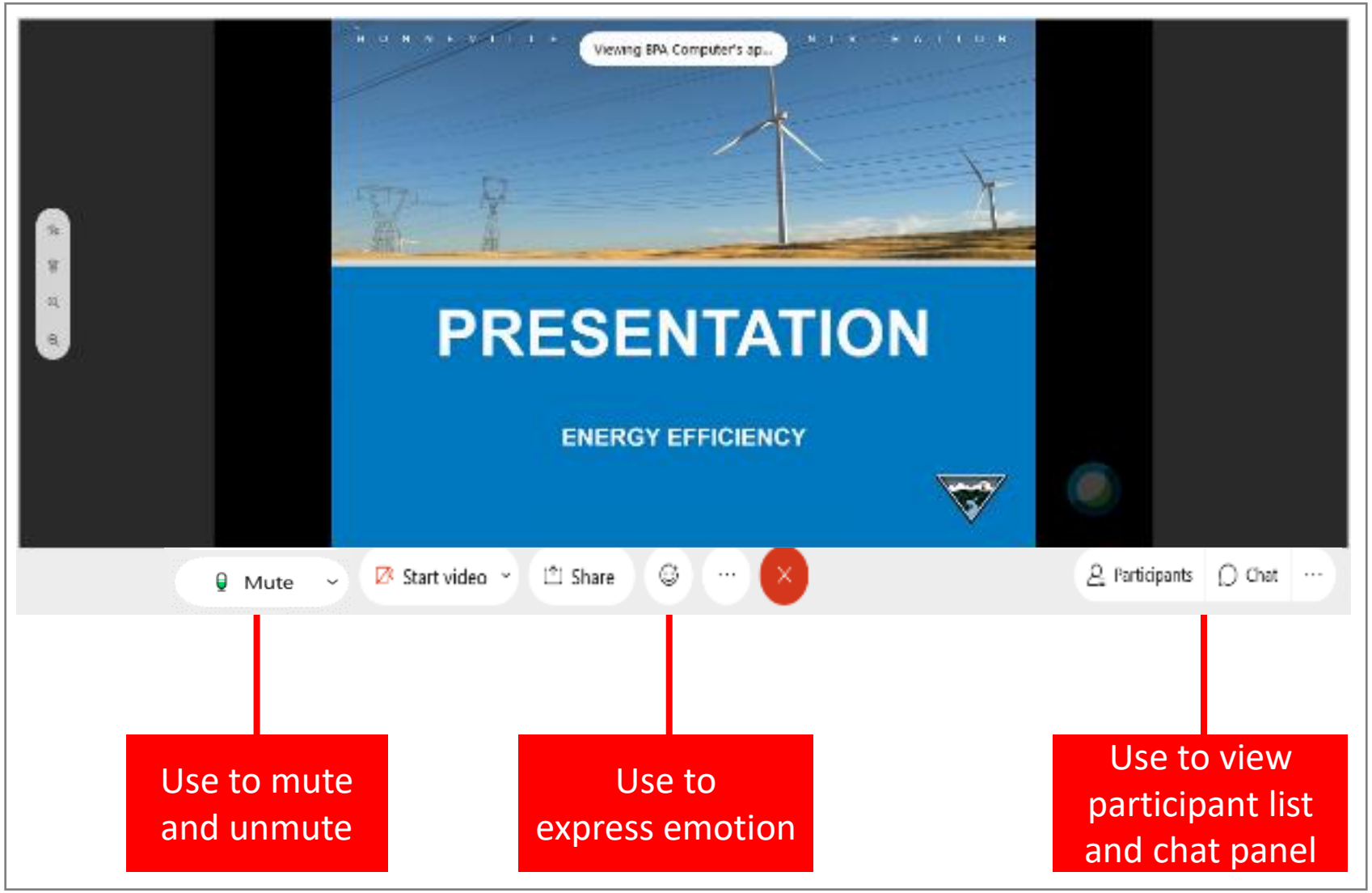


Note: The incoming call may be listed as **POTENTIAL SPAM**.

Second choice: In the example above, instead select **Call in** and use your phone to call into the webinar. A window will pop-up with your meeting Call in information.



Last choice: **Use Computer for Audio.** Connect a headset to your computer for best results.



BONNEVILLE POWER ADMINISTRATION

AGRICULTURAL UTILITY GROUP MEETING

December 17, 2024

Ice Breaker

What's your favorite winter activity, and food?











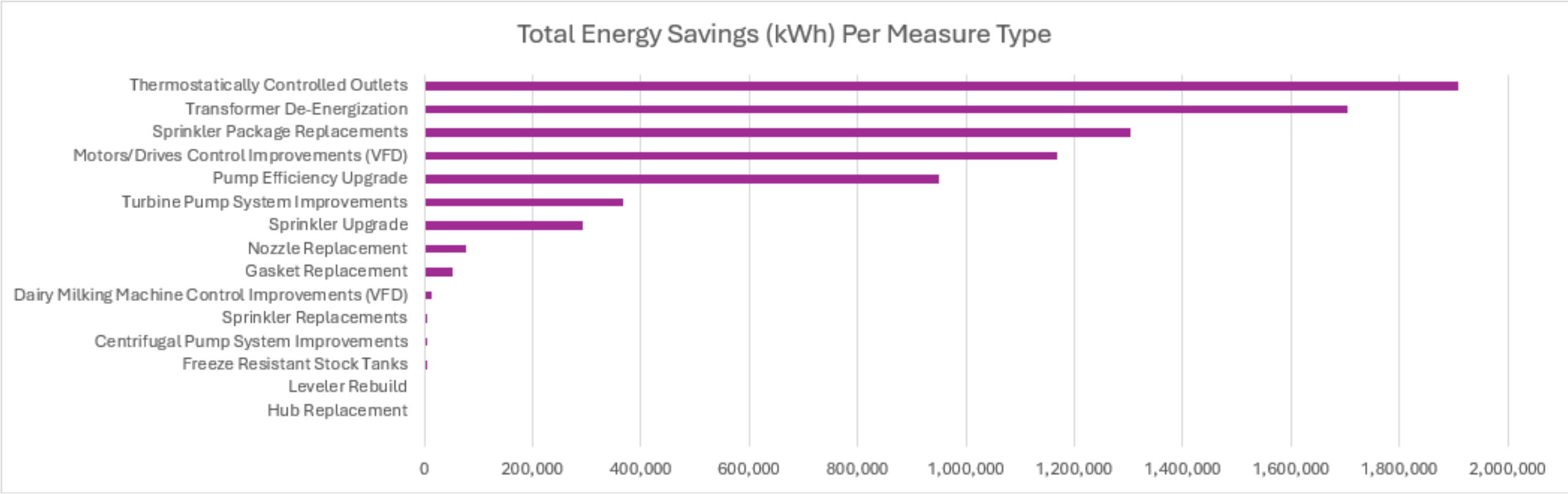

Agenda

10:00-10:05 AM	Welcome/Ice Breaker – David Lee
10:05-10:10 AM	FY24 Ag Sector energy savings by measure – David Lee
10:10-10:15 AM	Ag marketing support and collateral refresh efforts – Rachael Ettelman
10:15-10:25 AM	Ag Irrigation Management (AIM) Measure research – Tom Osborn
10:25-10:30 AM	Rate Period IM changes being pursued – Lita Mahan
10:30-10:37 AM	Training on Ag VFDs for pumps and VFD for pumps Calculator – Tom Osborn
10:37-10:50 AM	Ag energy audit measures & Rural Energy for America Program (REAP) Grants – David Lee
10:50-11:00 AM	Utility Share-out on their Ag program - Utilities
	Closeout – David Lee

Ag Sector Team Members

- David Lee - Ag Sector Lead/Program Manager
- Dena Hilde - EER Liaison
- Tom Osborn - Sector Tech Lead, Customer Service Engineer
- Lita Mahan - Ag COTR
- Ben Mabee - Planning and Evaluation
- Larry King - Ag Program Specialist
- Dick Stroh, Travis Wood – Customer Service Engineer
- Jonathan Farmer - Ag Program Support Specialist
- Rachael Ettelman - Marketing Support

FY24 Ag Sector energy savings by measures for all utilities



FY24 Ag Sector total energy savings: 1.34 aMW (11,738,400 kWh)

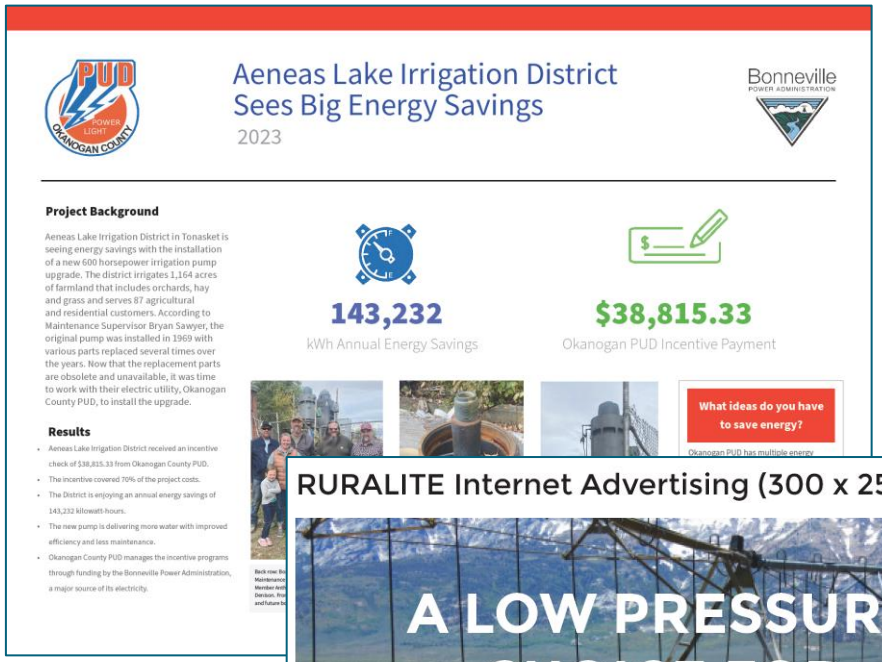
Marketing Materials

Marketing materials are available on the BPA website, ready for utility customization

bpa.gov > energy & services > energy efficiency > utility resources > marketing resources

- **Flyers**
- **Bill Stuffers**
- **Postcards**
- **Presentations**
- **Social media content**
- **Email Newsletters**

CUSTOMIZED FOR YOU!



Aeneas Lake Irrigation District Sees Big Energy Savings

2023

Bonneville Power Administration

Project Background

Aeneas Lake Irrigation District in Tonasket is seeing energy savings with the installation of a new 600 horsepower irrigation pump upgrade. The district irrigates 1,164 acres of farmland that includes orchards, hay and grass and serves 87 agricultural and residential customers. According to Maintenance Supervisor Bryan Sawyer, the original pump was installed in 1969 with various parts replaced several times over the years. Now that the replacement parts are obsolete and unavailable, it was time to work with their electric utility, Okanogan County PUD, to install the upgrade.

Results

- Aeneas Lake Irrigation District received an incentive check of $38,815.33 from Okanogan County PUD.
- The incentive covered 70% of the project costs.
- The District is enjoying an annual energy savings of 143,232 kilowatt-hours.
- The new pump is delivering more water with improved efficiency and less maintenance.
- Okanogan County PUD manages the incentive programs through funding by the Bonneville Power Administration, a major source of its electricity.

143,232
kWh Annual Energy Savings

$38,815.33
Okanogan PUD Incentive Payment

What ideas do you have to save energy?

Okanogan PUD has multiple energy

RURALITE Internet Advertising (300 x 250)

Improve the quality of your crops and increase your yield with Low Energy Precision Application (LEPA), designed to reduce water and save energy with lower pressure, higher efficiency irrigation.

CALL YOUR LOCAL UTILITY TO GET STARTED.

Marketing Materials

Updated marketing materials will be available early next calendar year

COMPANY LOGO
PUBLIC UTILITIES

AG PROGRAM MEASURE LIST

AG ENERGY AUDIT
- Rebate for Ag Energy Audit Screening is $150
- Rebate for Ag Energy Audit is up to $15,000 minus outside funding
- Necessary to apply for a USDA Renewable Energy for America Program grant or loan

VFDs FOR IRRIGATION PUMPS
- Rebates vary from $70 to $100 per motor hp depending on pump type
- For new or existing centrifugal or turbine irrigation pumps
- Self-installed or by a licensed contractor

HIGH EFFICIENT IRRIGATION PUMPS
- Rebates are $70 per motor hp
- For new high efficient pumps from 20 to 500 hp
- Self-installed or by a licensed contractor

IRRIGATION SYSTEM LOW-PRESSURE CONVERSION: HIGH-PRESSURE TO LOW-PRESSURE
- $16 per head per Wheel-line or Hand-line
- $18 per drop per Center-pivot or Lateral-move
- Self-installed or by a licensed contractor

IRRIGATION HARDWARE UPGRADES
- Rebates vary from $1 to $4 depending on rebuild or replaced hardware
- Rebuild or replace existing irrigation hardware
- Self-installed or by a licensed contractor

SPRINKLER PACKAGE REPLACEMENT
- $7 to $16 per package; depending on the type of sprinkler
- Many types qualify - High Pressure, MESA, LESA, LEPA, MDI
- Self-installed or by a licensed contractor

LIGHTING UPGRADES
- Nonresidential rebates of up to $0.25 per kWh savings
- Must achieve at least 25% kWh reduction
- Self-installed or by a licensed contractor

IRRIGATION PUMP TESTING AND SYSTEM ANALYSIS
- Rebates vary $100 to $600 based on complexity of pumping system and acreage
- Testing and analysis of existing simple or complex pumping system
- Performed by a knowledgeable consultant

THERMOSTATICALLY CONTROLLED OUTLETS
- Rebate of $14 per outlet
- Prevents freezing conditions in a space
- Only 1 per pump house or utility room is eligible

FREEZE RESISTANT STOCK WATER TANKS/FOUNTAINS
- $140 - $225 per tank/fountain based on heating zone

Utility Contact Name
Utility Address
City, State, Zip

Utility Phone Number
Utility Website
Additional Information

Updated 11/2024

- **Ag Measure Specific**
- **Industries**
  - **Irrigated Crops**
  - **Dairies**
  - **Vineyards**

If you need assistance in creating or customizing marketing materials, please contact your Energy Efficiency Representative (EER) or email EEmarketing@bpa.gov.

Ag Irrigation Management (AIM) Research

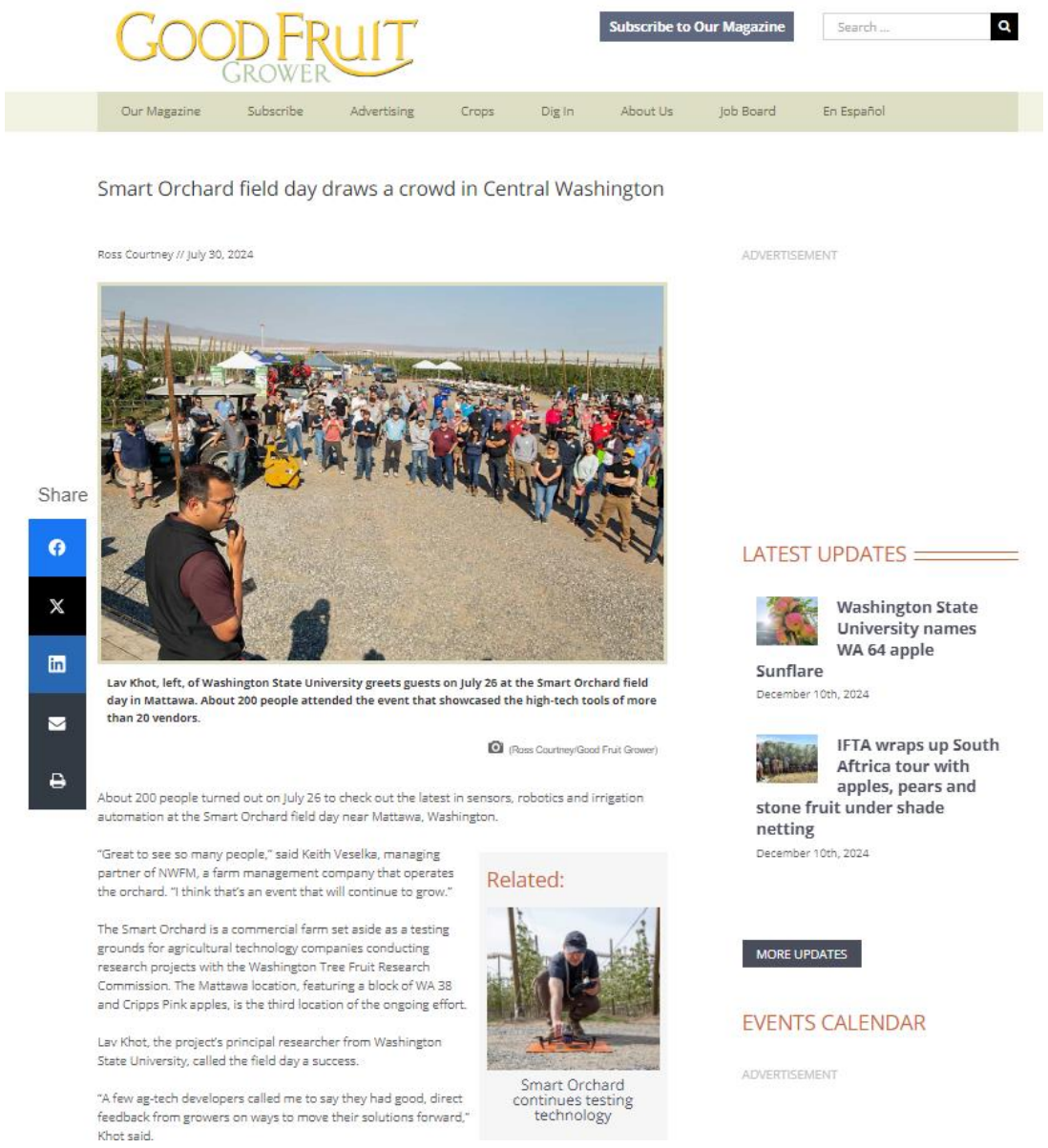
- Irrigated Agriculture has generally been early adopters of technology and innovation
- Some of the first remotely controlled devices were large farm irrigation systems (pumps, valves, pivots)
- BPA Scientific Irrigation Scheduling research Historically 10% +/- over non SIS fields
- 2017 study found no statistical difference
- How to unlock the potential for water and associated energy savings

Ag Irrigation Management (AIM) Research

- BPA met a few companies at Smart Orchard demo (I can send a couple of photos?)
- Today farms can look at weather, soil moisture, soil density, plant status, # blossoms, sap movement, fruit growth, autonomous weeding/spraying, drone IR data, satellite imagery, in field zonal differences, pest management
- Lots of layers and data formats
- How can AI type strategies integrate data to help farms make more informed decisions

Ag Irrigation Management (AIM) Research

- BPA grant to WSU Prosser to looking at research and interviewing industryDraft report does not find much research on these all encompassing strategy set
- AI movement/offerings accelerating
- BPA may want to partner with a few farms on AIM in 2025



GOOD FRUIT GROWER

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Smart Orchard field day draws a crowd in Central Washington

Ross Courtney // July 30, 2024

ADVERTISEMENT

Share

Lav Khot, left, of Washington State University greets guests on July 26 at the Smart Orchard field day in Mattawa. About 200 people attended the event that showcased the high-tech tools of more than 20 vendors.

(Ross Courtney/Good Fruit Grower)

About 200 people turned out on July 26 to check out the latest in sensors, robotics and irrigation automation at the Smart Orchard field day near Mattawa, Washington.

"Great to see so many people," said Keith Veselka, managing partner of NWFM, a farm management company that operates the orchard. "I think that's an event that will continue to grow."

The Smart Orchard is a commercial farm set aside as a testing grounds for agricultural technology companies conducting research projects with the Washington Tree Fruit Research Commission. The Mattawa location, featuring a block of WA 38 and Cripps Pink apples, is the third location of the ongoing effort.

Lav Khot, the project's principal researcher from Washington State University, called the field day a success.

"A few ag-tech developers called me to say they had good, direct feedback from growers on ways to move their solutions forward," Khot said.

Related:

Smart Orchard continues testing technology

LATEST UPDATES

Washington State University names WA 64 apple Sunflare

December 10th, 2024

IFTA wraps up South Aftrica tour with apples, pears and stone fruit under shade netting

December 10th, 2024

MORE UPDATES

EVENTS CALENDAR

ADVERTISEMENT

Ag Irrigation Management (AIM) Research

Smart Orchard Pilot In Sunnyside

[Smart Orchard field day draws a crowd in Central Washington – Good Fruit Grower]

2026/27 IM Updates

The BPA Agricultural team is adding clarifying language to Section 7.3 for THERMOSTATICALLY CONTROLLED OUTLETS

Current language:

This measure requires the addition of a thermostatically controlled outlet or controller to control the heating load in a pump house or utility shed to prevent piping and other equipment from freezing. The base case for this measure is an electric-resistance heater operating in a pump house or utility room to provide freeze protection to piping and other equipment. The more efficient case for this measure adds thermostatically controlled outlets that provide power in specific temperature bands. The thermostatically controlled outlet will turn on when the building ambient temperature is below 39° Fahrenheit (F), and will stop providing power at a temperature no higher than 50°F.

The BPA Agricultural team feels this language is limiting as it only refers to pump houses and utility sheds.

Proposed new language:

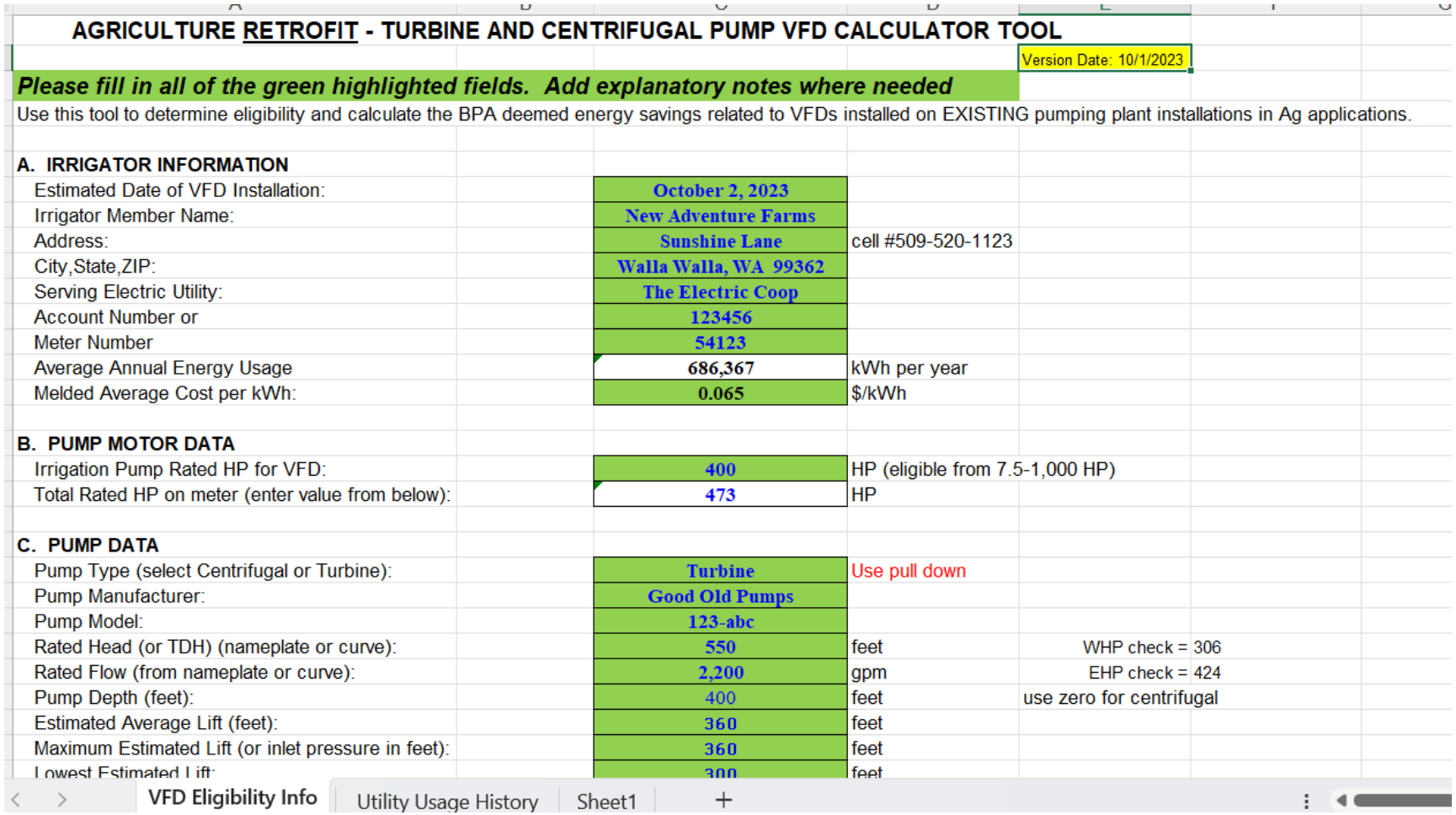
We would like to update the specific language to make it more descriptive as this measure does allow for placement in also barns and chicken houses.

We propose amending the description to say: a pump house, utility shed, barn or chicken house….

Variable Frequency Drive (VFD) for pumps

Located at BPA Document Library:

bpa.gov/-/media/Aep/energy-efficiency/document-library/231001-Existing-Pump-VFD-Deemed-Savings-Tool.xlsx



AGRICULTURE RETROFIT - TURBINE AND CENTRIFUGAL PUMP VFD CALCULATOR TOOL

Version Date: 10/1/2023

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

Use this tool to determine eligibility and calculate the BPA deemed energy savings related to VFDs installed on EXISTING pumping plant installations in Ag applications.

A. IRRIGATOR INFORMATION			
Estimated Date of VFD Installation:	October 2, 2023		
Irrigator Member Name:	New Adventure Farms		
Address:	Sunshine Lane	cell #509-520-1123	
City,State,ZIP:	Walla Walla, WA 99362		
Serving Electric Utility:	The Electric Coop		
Account Number or	123456		
Meter Number	54123		
Average Annual Energy Usage	686,367	kWh per year	
Melded Average Cost per kWh:	0.065	$/kWh	
B. PUMP MOTOR DATA			
Irrigation Pump Rated HP for VFD:	400	HP (eligible from 7.5-1,000 HP)	
Total Rated HP on meter (enter value from below):	473	HP	
C. PUMP DATA			
Pump Type (select Centrifugal or Turbine):	Turbine	Use pull down	
Pump Manufacturer:	Good Old Pumps		
Pump Model:	123-abc		
Rated Head (or TDH) (nameplate or curve):	550	feet	WHP check = 306
Rated Flow (from nameplate or curve):	2,200	gpm	EHP check = 424
Pump Depth (feet):	400	feet	use zero for centrifugal
Estimated Average Lift (feet):	360	feet	
Maximum Estimated Lift (or inlet pressure in feet):	360	feet	
Lowest Estimated Lift:	300	feet	

VFD Eligibility Info | Utility Usage History | Sheet1 | +

BPA Agriculture Energy Audit Measures

- Became effective October 1, 2023
- 7.8.1 Ag Energy Audit Screening
  - $150 per site
- 7.8.2 Ag On-site Energy Audit (must complete 7.8.1 prior to proceeding)
  - Up to $15,000 (minus outside funding)
- No savings measures that should lead to identifying and implementing other Ag program UES measure and custom projects that have energy savings.

What is an Ag Energy Audit?

- Identifies/Analyzes Ag energy efficiency opportunities
  - Irrigation system/hardware upgrades/conversions
  - VFDs for pumps, pump efficiency upgrade opportunities
  - Lighting upgrades
- Follows American Society of Agricultural and Biological Engineers
  - (ASABE) 2009 standard
- Performed by a CEM, USDA NRCS TSP, P.E., or experienced Ag Energy Auditor

Where? Ag sector sites

- Irrigated Crops
- Dairy
- Livestock or Poultry Farm
- Indoor Ag Grow/Greenhouse/Controlled Environment Ag Facility
- Vineyard
- Fish farm
- Any other Ag Operation

Why do it?

For the Utility

- Helps your Ag producer members
- Creates pipeline of energy efficiency projects that could be incentivized
- Assists in EEI spend planning

For the Ag Producer

- Comprehensive Energy Audit Report
  - Business case for Ag Producer to make financial decision on implementing EE projects
    - Energy and O&M cost savings
    - Available utility incentive
    - Available funding sources
      - Enables implementation of low-cost measures
      - Assists in planning for capital improvement projects
  - **Completes necessary step to get USDA Rural Energy for America (REAP) grant or loan**

Great example of web based promotion

USDA Rural Energy for America Program

Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans & Grants | Rural Development (usda.gov)

What does this program do?

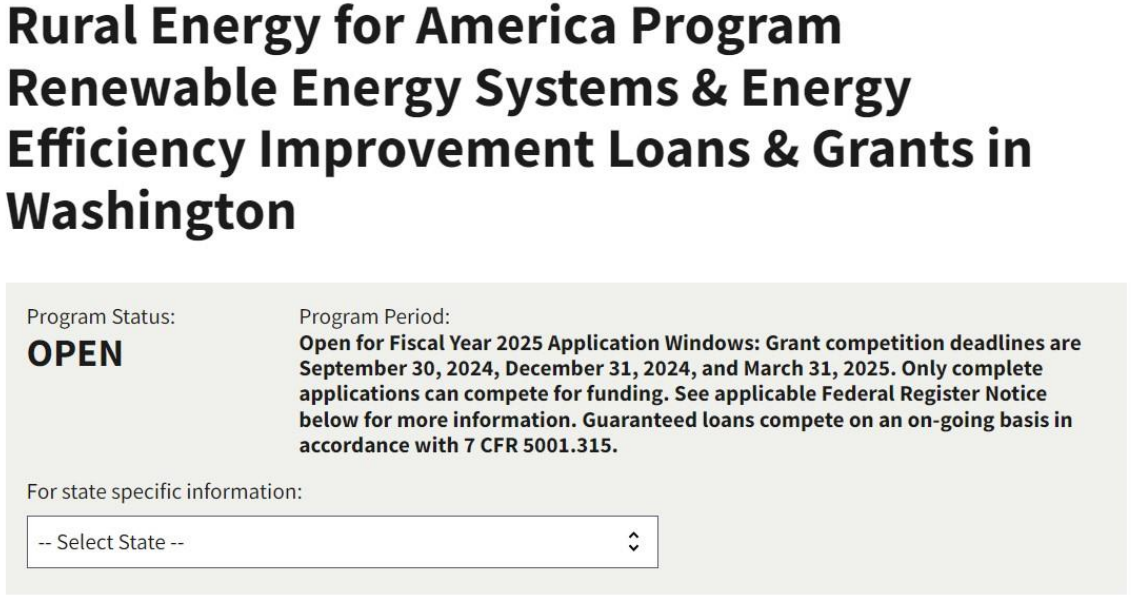
- Provides guaranteed loan financing and grant funding to agricultural producers and rural small businesses for renewable energy systems or energy efficiency improvements.
- Agricultural producers may also apply for new energy efficient equipment and new system loans for agricultural production and processing.

Why does USDA Rural Development do this?

Helps increase American energy independence by:

- Increasing the private sector supply of renewable energy
- Decreasing the demand for energy through energy efficiency improvements.

Over time, these investments can also help lower the cost of energy for small businesses and agricultural producers.



Who may apply for this program?

- Agricultural producers
  - An entity directly engaged in production of agricultural products where at least 50 percent of their gross income coming from agricultural operations.
- Small rural businesses
  - Must be located in eligible rural areas and one of the following:
    - Private for-profit entity (sole Proprietorship, Partnership, or Corporation)
    - A Cooperative [including those qualified under Section 501(c)(12) of IRS Code]
    - An electric utility (including a Tribal or governmental electric utility) that provides service to rural consumers and operates independent of direct government control)
    - A Tribal corporation or other Tribal business entities that are chartered under Section 17 of the Indian Reorganization Act (25 USC 477) or have similar structures and relationships with their Tribal entity without regard to the resources of the Tribal government.
  - Must meet the Small Business Administration size standards in accordance with 13 CFR 121.
    - Depending on Ag production type, $2.25-$5.0 Million Gross Revenue
    - Electric Power Distribution, <1,100 employees

Who may qualify for loan guarantees?

Eligible borrowers are:

- Rural small businesses.
- Agricultural producers.

What are the borrowing restrictions for loan guarantees?

- Individual borrowers must be citizens of the United States or reside in the U.S. after being legally admitted for permanent residence.
- Private-entity borrowers must demonstrate that loan funds will remain in the U.S.

What is an eligible area?

- Projects must be located in rural areas with populations of 50,000 residents or less*.
- Check eligible rural areas

Agricultural producers may submit projects to be located in non-rural areas as long as the project is associated with an on-site production operation.

How may the funds be used?

Funds may also be used for the purchase, installation and construction of energy efficiency improvements, such as:

- High efficiency heating, ventilation and air conditioning systems (HVAC).
- Insulation.
- Lighting.
- Cooling or refrigeration units.
- Doors and windows.
- Electric, solar or gravity pumps for sprinkler pivots.
- Switching from a diesel to electric irrigation motor.
- Replacement of energy-inefficient equipment.

Energy Efficiency Improvement applications must contain an Energy Audit, or Energy Assessment (depending on Total Project Costs) that complies with Appendix A to RD Instructions 4280-B

Agricultural producers may also use guaranteed loan funds to install energy efficient equipment and systems for agricultural production or processing.

What funding is available?

- Loan guarantees on loans up to 75 percent of total eligible project costs.
- Grants for up to 50 percent of total eligible project costs.
- Combined grant and loan guarantee funding up to 75% of total eligible project costs.

What are the grant terms?

Energy Efficiency Grants:

- $1,500 minimum.
- $500,000 maximum.

Are there additional requirements?

- Applicants must provide matching funds if applying for a grant only.
  - 50% Federal grant share limited to projects that meet one of the following:
    - Project is a Renewable Energy System (RES), or RES retrofit that produces zero greenhouse gas emissions (Carbon Dioxide, Methane, Nitrous Oxide, or Fluorinated Gases) at the project level.
    - Project is located in an Energy Community as defined in 26 USC 45(b)(11)(B) and determined by the Department of the Treasury.
    - Project is an Energy Efficiency Improvement (EEI).
    - Is a project proposed from an eligible Tribal Corporation or other Tribal Business entity (including agriculture operations) as described in 7 CFR part 4280.
  - All other projects are limited to 25% Federal grant share
- Applicants must provide at least 25 percent of the project cost if applying for loan.
- All projects must have technical merit and utilize commercially available technology.
- Energy efficiency projects require an energy audit or assessment.
- All projects require an environmental review prior to award or construction

Types of project that have been funded via USDA REAP

United States Department of Agriculture

USDA Rural Development
Rural Energy for America Program
11.01.2023
Total Projects: 696; Grand Total $145,275,006;
Loan Total $30,300,000; Grant Total $114,975,006

States	Senators	Representatives	Recipient	Loan	Grant	Project Description
WA	Patty Murray Maria Cantwell	Cathy Rodgers (05)	Big Bird Farms Inc.		$18,120	This Rural Development investment will be used to help Big Bird Farms Inc., a business located in rural Lincoln County, Washington, purchase and install a 14.6 kWh solar array. This project will realize $1,912 per year in savings and will generate 17,943 kWh per year which is enough to power two homes.
WA	Patty Murray Maria Cantwell	Dan Newhouse (04)	Walking Rose LLC		$14,840	This Rural Development investment will be used to help Walking Rose LLC, a business located in rural Okanogan County, Washington, purchase and install a 16kW solar array. This project will realize $1,579 per year in savings and will replace 22,400 kWh per year, which is enough to power two homes.
WA	Patty Murray Maria Cantwell	Dan Newhouse (04)	Omak Mirage LLC		$15,899	This Rural Development investment will be used to help Omak Mirage LLC, a business located in rural Okanogan County, Washington, purchase and install an energy efficient HVAC system. This project will realize $1,024 per year in savings and will replace 26,000 kWh (38 percent energy savings) per year.
WA	Patty Murray Maria Cantwell	Rick Larsen (02)	Midnights Farm LLC		$5,999	This Rural Development investment will be used to help Midnights Farm LLC, a business located in rural San Juan County, Washington, purchase and install a 8kW solar array. This project will realize $417 per year in savings and will replace 4,721 kWh per year, which is enough to power one home.
WA	Patty Murray Maria Cantwell	Rick Larsen (02)	Hogstead LLC		$20,000	This Rural Development investment will be used to help Hogstead LLC, a business located in rural Snohomish County, Washington, purchase and install a 27.65 kWh solar array. This project will realize $2,318 per year in savings and will

How to get started?

Applications for this program are accepted year-round at your local office.

Who can answer questions?

Contact your State Rural Development Energy Coordinator

Program FAQs

Rural Energy for America Program - January 9 2023 Stakeholder Webinar Questions

Ag Energy Audit Measures Resources

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

Custom Projects +

Custom Programs +

Agricultural Sector −

- ANSI/ASABE Audit Standard
- BPA Ag Energy Audit Standard
- ASABE Guide to Ag Energy Consultants May 2022
- Ag Energy Audit Screening Form
- Ag Energy Audit TSP Resources
- ODOE Audit Program
- Existing Centrifugal and Turbine Pump VFD Deemed Savings Tool
- New Construction Pump VFD Deemed Savings Tool
- Agricultural Pump Efficiency Upgrade PIF
- Agriculture Hardware Conversion
- Freeze-Resistant Stock Water Tanks and Fountains - RTF Specifications
- Irrigation Pump Testing and System Analysis BPA Screening Tool
- Dairy Milking Machine Vacuum Pump VSD Calculator
- Transformer De-energization Worksheet

Commercial Sector +

Utility Share-out on their Ag Programs

- Interesting Ag EE project?
- Marketing approach to members or Ag equipment dealers?

Thank You!