




## Audio instructions

# Welcome to BPA's AUG Webex Meeting!

**Note:** Your audio is muted upon entry.

Audio connection **Preferred choice**

☒ Use computer audio

☐ Call me at  +1

☐ Call in

☐ Don't connect to audio

**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.

Call In

Call in from another application ⓘ

- Call**  
US Toll  
**+1-415-XXX-XXX**  
[Show all global call-in numbers](#)
- Enter**  
Access code: **XXX XXX XXXX #**  
Attendee ID: **XXXXXX #**

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



Use to mute  
and unmute

Use to  
express emotion

Use to view  
participant list  
and chat panel

# **AGRICULTURAL**

## **Utility Group Meeting**

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**August 13, 2024**





# Ice Breaker



There is still some summer left.....  
What would you like to experience before the summer ends?



# Agenda




- |                 |  |
|-----------------|--|
| 10:00 – 10:05am | Come Together, Meeting Norms, Roll Call/Ice Breaker – David Lee            |
| 10:10 – 10:35am | Ag Measure Show and Tell Training – Tom Osborn                             |
| 10:35 – 10:45am | BEETS Ag Submissions' Insights – David Lee and Tom Osborn                  |
| 10:45 – 10:50am | Small/Medium Farm ZVRI and PIA Measure Research – Ben Mabee and Tom Osborn |
| 10:50 – 10:55am | Ag Energy Audit Measures, Incentive Increases, Hemp Policy – David Lee     |
| 10:55 – 11:00am | Closing – David Lee  |




# Ag Sector Team Members


 David Lee - Ag Sector Lead/Program Manager

 Dena Hilde - EER Liaison

 Tom Osborn - Sector Tech Lead

 Lita Mahan - Ag COTR

 Ben Mabee - Planning and Evaluation

 Larry King - Ag Program Specialist

 Dick Stroh, Travis Wood, Todd Amundsen,  
Craig Voltz, Ian Vrincean - Engineering

 Jonathan Farmer - Ag Program Support Specialist

 Rachael Ettelman - Marketing Support





# SPRINKLER HARDWARE

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## A Primer





# Implementation Manual



**7.5.1 LESA/LEPA/MDI (R or NC) = \$18/drop**

**7.5.2 Sprinkler Package Replacement (R) =**

- Hi Press - \$16, MESA - \$15, LESA/LEPA/MDI - \$7

**7.5.3 Low Pressure Conversion Existing =**

- Pivot - \$18, WL - \$16

**7.5.4 Irrigation Hardware**

Replace leaking impact sprinkler with new or rebuilt impact sprinkler \$1

Replace nozzle \$3 per nozzle Replace pipe section gasket \$4 per gasket

Replace leaking drain gaskets with new gaskets \$3 per drain.

Replace Thunderbird wheel-line hubs \$4 per hub.

Rebuild or replace leaking or malfunctioning leveler with new or rebuilt leveler \$1 per leveler.





## Located at BPA Document Library:

<https://www.bpa.gov/-/media/Aep/energy-efficiency/document-library/231001-agriculture-hardware-conversion.docx>

### Utility LOGO or Name

#### Irrigation System Conversion and Hardware Rebates (10/1/23)

##### For Irrigated Agriculture Applications

[www.yourutility.com](http://www.yourutility.com)

Irrigator Member Name	Phone #
Member Account #	Meter #
Mailing Address	City State Zip
Installation Address or service location (if different than above) or GPS Lat + Long	
Pivot ID or field name or number(s)	
Email	Installed date

System	New System	Quantity		Rebate Per Drop		Subtotal
A. High Pressure conversion from high to low pressure ARRHA0227  ( <del>or</del> reduce system pressure by 15 psi) or from MESA ARRHA0228 (include gooseneck, drop tube, regulator, sprinkler, <del>manhole</del> <del>shut</del> 7.5.1)	LESA (Low Elevation Sprinkler Application)		X	\$18	=	
	LEPA (Low Energy Precision Application)		X	\$18	=	
	MDI (Mobile Drip <del>to</del> )		X	\$18	=	

B. Sprinkler replacement IM 7.5.2	High Pressure ARRHA0225		X	\$16	=	
	MESA ARRHA0226		X	\$15	=	
	LESA ARRHA0229		X	\$7	=	
	LEPA ARRHA0229		X	\$7	=	
	Mobile Drip ARRHA0229		X	\$7	=	

C. Existing System Conversion from High Pressure to MESA IM 7.5.3	MESA ARRHA0224		X	\$18	=	
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D. Pivot/Linear Move	Replace leaky drain gasket		X	\$3/drain	=	
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System	Component	Quantity		Rebate		Subtotal
E. Wheel and Hand Lines & Pivot Sprinklers on Top	High Pressure to low pressure conversion ( <del>or</del> reduce pressure by 15 psi) with new sprinkler, nozzle, and <del>low-pressure</del> regulator ARRHA0230		X	\$16/head		
F. Wheel and Hand Lines	Replace leaky drain gasket with new gasket		X	\$3/drain	=	
	Replace leaky gasket		X	\$4/gasket	=	
	Replace worn impact sprinkler w/new or rebuilt impact sprinkler		X	\$1/sprinkler	=	
	Replace worn nozzle (includes Flow Controlling Nozzle)		X	\$3/nozzle	=	

G. Wheel Lines	Replace Thunderbird wheel line hubs		X	\$4/hub	=	
	Rebuild or replace leaky malfunctioning leveler		X	\$1/leveler	=	

Invoice	Vendor/supplier invoice(s)			Attach invoices!
Grand Total Page 1 and 2:				\$

Please contact your serving utility Agriculture Rebate Program specialist for more information. Purchase and installation must be made after 10/1/2023 and installed in your utility service territory to be eligible. All incentives are subject to availability and may change at any time. Your utility reserves the right to inspect for program compliance. By signing, the Member certifies that the above information is true and accurate to the best of their knowledge.

Member Signature \_\_\_\_\_ Date \_\_\_\_\_

Utility Representative _____	Utility Use Only	Pay \$ _____
Effective 4/1/2023		Date: _____

Return form(s) to:  
Utility contact,  
address + email address  
phone number







**LEPA**


Low Energy/Elevation  
Precision Application

GERMINATE  
IRRIGATE  
CHEMIGATE  
BUBBLE  
DRAG

U3030  
+ HOSE  
DRAG

BUBBLER  
MODE WITH  
SPRINKLER  
CONVERTER





**LEPA (3000 SERIES)**

Transform D3000 into LEPA Bubbler by  
inverting D3000 Cap and attaching  
Bubbler Clip to the D3000 Body.  
(Not to be used with second spray plate.)



HD3000 HOSE  
DRAG ADAPTER

Use the 3/4" hose drag  
adapter on the 3000  
Series to apply a hose  
drag or a drag sock.




**LESA**


Low Energy/Elevation  
Spray Application

SPRAY  
OR  
ORBITING  
SPRINKLERS

D3030  
SPRAYHEAD

SPRAY  
MODE WITH  
SPRINKLER  
CONVERTER







**LENA**

Low Energy/Elevation  
NELSON ADVANTAGE

MOVING  
SPRINKLERS:  
ROTATOR  
ACCELERATOR  
SPINNER

A3030  
ACCELERATOR

ACCELERATOR  
MODE WITH  
SPRINKLER  
CONVERTER

There is considerable talk about Low Energy/Elevation Solutions for pivots these days. The need to save water and energy is greater than ever. Nelson Irrigation takes this charge seriously and would like to add the NELSON ADVANTAGE to the mix.





**Senninger  
LOW DRIFT  
LEPA/LESA**



LDN® LEPA



LDN® – LOW DRIFT NOZZLE



**DragonLine  
MOBILE DRIP  
IRRIGATION**







**Nelson  
IRRIGATION  
ROTATOR**



**Senninger  
WOBBLER**



**PIVOT WOBBLER®  
SPRINKLERS**



# BEETS COTR Insights



## Ag Reporting

**Overall Ag reporting is on point!! You are doing a great job!**

- 7.3 Thermostatically Controlled Outlets – Look good!
- 7.4 Transformer De-Energization - Look good!
- 7.5 Irrigation Measures – Look good!

**The biggest area of corrections needed are from AGRICULTURAL PUMPS AND VFDS**

**With a focus on three areas:**

- Ensure you are using the most current version.
- Completely filling out the calculator
- Entering the measure on the UES template





# BEETS COTR Insights – Bulk Reporting



Not easy to have to manually enter those in BEETS individually.

- Although you can copy/export from an Excel file to the UES template

Current IM language requires end-user identifying information including Site ID, and address etc.

- Refnos are singular
- No separate Refno for bulk reporting)

Considering to clarify IM language so submission could be treated as a bulk entry measure.

## 7.3 THERMOSTATICALLY CONTROLLED OUTLETS

### Basis for Energy Savings

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

### Requirements and Specifications

This measure is available to all sectors, but it must be reported under the Agricultural program. Thermostatically controlled outlets should turn on at approximately 39°F to prevent freezing conditions and turn off at temperatures no higher than 50°F. Only one outlet per pump house or utility room is eligible.

### Documentation Requirements

DOCUMENTATION DESCRIPTION	RETENTION/SUBMITTAL LOCATIONS	
	BPA ENERGY EFFICIENCY TRACKING SYSTEM	CUSTOMER FILE
End-user identifying information including unique site ID and address (e.g., field location, meter number, GPS coordinates, farm name, or legal property description).	X	X
Equipment or contractor invoice is to include: Manufacturer, model number, type or size of equipment or product installed/used, quantity, order/purchase date, and cost.		X



# BEETS COTR Insights – Measure Calculators



- Please ensure UES Reference No. (Refno) relates to the same reimbursement amount within the calculator and on the UES Upload template.
- Incentive per unit must match...calculator and refno.
- Since no system anomalies' automatic review....COTRs must manually review these.
- We are exploring whether or not the BEETS system could be programmed to automatically flag and/or correct.

## Quick example:

The Refno AMDMC40239 is a reimbursement of \$70 per HP unit.

AMDMC40238	\$100.00	0.00	Motors/Drives Control Improvements (VFD) On Irrigation Turbine Pump 7.5 to 1000 horsepower
AMDMC40239	\$70.00	0.00	Motors/Drives Control Improvements (VFD) On Irrigation Centrifugal Pump 7.5 to 1000 horsepower
AMDMC40240	\$100.00	0.00	Motors/Drives Control Improvements (VFD) On Irrigation Turbine Pump 7.5 to 1000 horsepower
AMDMC40241	\$70.00	0.00	Motors/Drives Control Improvements (VFD) On Irrigation Centrifugal Pump 7.5 to 1000 horsepower





# BEETS COTR Insights – Measure Calculators



The example here shows when the calculator was filled out, pump VFD incentive rate was entered as \$100, resulting in an overpayment:

## DEEMED ENERGY SAVINGS AND INCENTIVE

Site Annual Energy Savings (based on calculated pump usage)

Busbar Annual Energy Savings (site savings \* 1.10320))

Pump VFD Incentive Rate (\$/HP) (reimb per unit)

Total Pump VFD Incentive (\$)

Calculated Site Savings per HP =

Project Cost of VFD & harmonic mitigation =

Simple Payback with incentive =

6,326
6,979
\$100
\$6,000
105.44
\$17,336
30.7

ENTER THE FOLLOWING VALUES IN THE DEEMED MEASURE UPLOAD:		
UES REFERENCE NUMBER =	AMDMC40239	REFNO
QUANTITY =	60	HP is Unit
CALCULATOR SAVINGS PER UNIT =	105.44	kWh/HP
B/C Ratio =	0.40	



# 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**



# Why do it?



## For the Utility

- Creates pipeline of customer energy efficiency projects
- Assists in EEI spend planning
- Helps your members

## 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 projects

**Completes necessary step to get USDA Rural Energy for America (REAP) grant or loan**

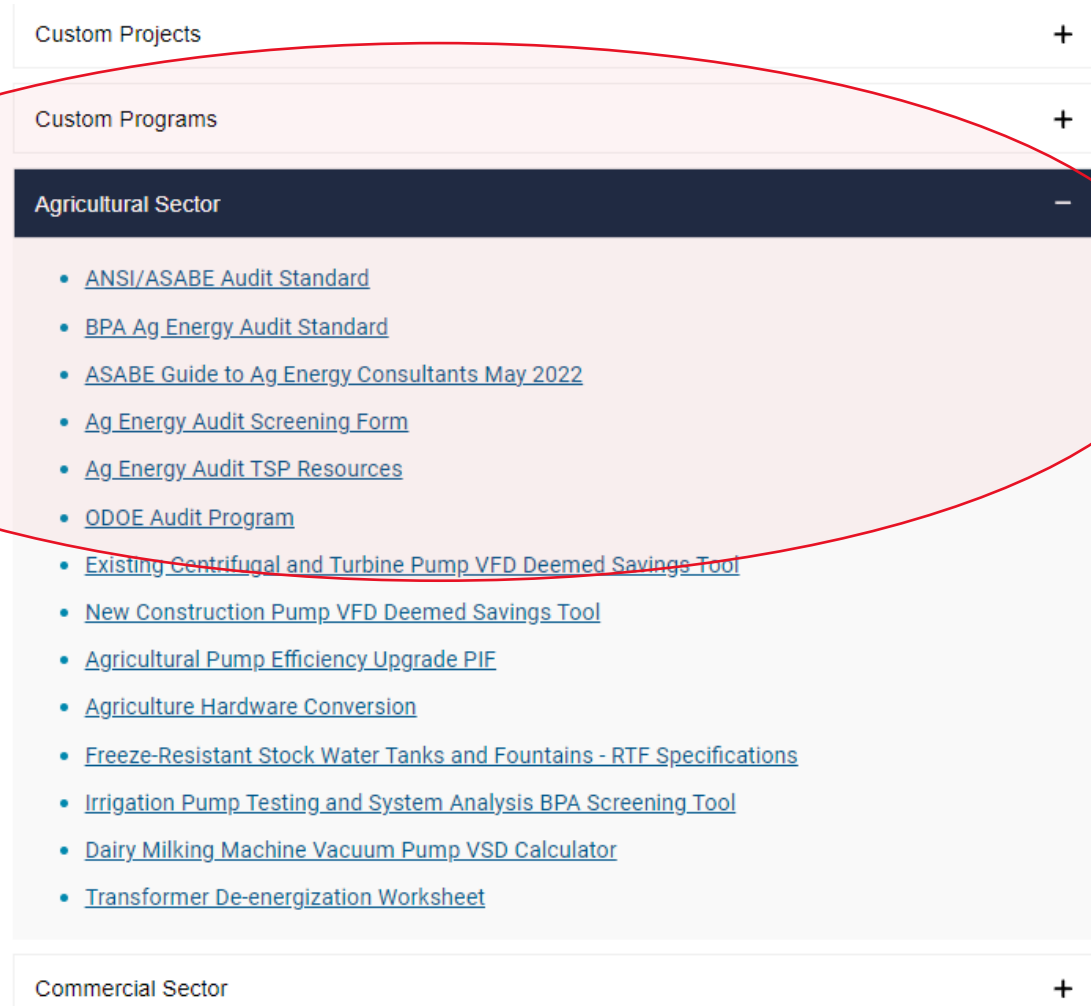




# Ag Energy Audit Measures Resources

Located at BPA Document Library:

[bpa.gov/energy-and-services/efficiency/document-library](https://bpa.gov/energy-and-services/efficiency/document-library)



A screenshot of the BPA Document Library website. The page shows a list of resources under the 'Agricultural Sector' category. A red oval highlights the 'Agricultural Sector' section and its list of resources. The resources include links to various standards, guides, forms, and tools. The 'Commercial Sector' section is partially visible at the bottom.

Custom Projects	+
Custom Programs	+
<b>Agricultural Sector</b>	-
<ul style="list-style-type: none"><li>• <a href="#">ANSI/ASABE Audit Standard</a></li><li>• <a href="#">BPA Ag Energy Audit Standard</a></li><li>• <a href="#">ASABE Guide to Ag Energy Consultants May 2022</a></li><li>• <a href="#">Ag Energy Audit Screening Form</a></li><li>• <a href="#">Ag Energy Audit TSP Resources</a></li><li>• <a href="#">ODOE Audit Program</a></li><li>• <a href="#">Existing Centrifugal and Turbine Pump VFD Deemed Savings Tool</a></li><li>• <a href="#">New Construction Pump VFD Deemed Savings Tool</a></li><li>• <a href="#">Agricultural Pump Efficiency Upgrade PIF</a></li><li>• <a href="#">Agriculture Hardware Conversion</a></li><li>• <a href="#">Freeze-Resistant Stock Water Tanks and Fountains - RTF Specifications</a></li><li>• <a href="#">Irrigation Pump Testing and System Analysis BPA Screening Tool</a></li><li>• <a href="#">Dairy Milking Machine Vacuum Pump VSD Calculator</a></li><li>• <a href="#">Transformer De-energization Worksheet</a></li></ul>	
Commercial Sector	+





# Irrigation Measure Incentives



As of Oct. 1, 2023

IMPLEMENTATION MANUAL SECTION AND MEASURE TITLE	STANDARD PAYMENT RATE PER UNIT: EFFECTIVE OCT. 1, 2022 – SEPT. 30, 2023	PROMOTIONAL PAYMENT RATE PER UNIT: EFFECTIVE APRIL 1, 2023 - SEPT. 30, 2023	STANDARD PAYMENT RATE PER UNIT: EFFECTIVE OCT. 1, 2023
7.6.1 Irrigation System Conversions: High Pressure to LESA/LEPA/MDI	\$14	\$18	\$18
7.6.1 Irrigation System Conversions: MESA to LESA/LEPA/MDI	\$14	\$18	\$18
7.6.2 Sprinkler Package Replacements – High-Pressure	\$14	\$16	\$16
7.6.2 Sprinkler Package Replacements - MESA	\$10	\$15	\$15
7.6.2 Sprinkler Package Replacements - LESA/LEPA/MDI	\$4	\$7	\$7
7.6.3 Irrigation System Conversions: High to Low Pressure – Center-pivot or Lateral-move	\$12	\$18	\$18
7.6.3 Irrigation System Conversions: High to Low Pressure- Wheel-line or Hand-line	\$12	\$16	\$16



# VFD and Pump Efficiency Measure Incentives

As of Oct. 1, 2023

IMPLEMENTATION MANUAL SECTION AND MEASURE TITLE	STANDARD PAYMENT RATE PER UNIT: EFFECTIVE OCT. 1, 2022 – SEPT. 30, 2023	PROMOTIONAL PAYMENT RATE PER UNIT: EFFECTIVE APRIL 1, 2023 - SEPT. 30, 2023	STANDARD PAYMENT RATE PER UNIT: EFFECTIVE OCT. 1, 2023
7.7.1 Pump Testing Service Simple System Evaluation	\$50	\$100	\$100
7.7.1 Pump Testing Service Irrigation Pump Test Simple System or Open Discharge	\$100	\$200	\$200
7.7.1 Pump Testing Service Irrigation Pump Test System Analysis 400 acres or less	\$200	\$400	\$400
7.7.1 Pump Testing Service Irrigation Pump Test System Analysis Over 400 acres	\$300	\$600	\$600
7.7.1 Pump Testing Service Irrigation Pump Test (main pump) Complex System Over 400 acres	\$200	\$400	\$400
7.7.1 Pump Testing Service Irrigation Pump Test (booster pump) Complex System Over 400 acres	\$50	\$100	\$100
7.7.2 VFDs for Ag Centrifugal Pumps (BPA-Qualified)	\$50	\$70	\$70
7.7.3 VFDs for Ag Turbine Pumps (BPA-Qualified)	\$80	\$100	\$100
7.7.4 VFDs for New Ag Turbine Pump Installations (BPA-Qualified) – New Turbine pump	\$80	\$100	\$100
7.7.4 VFDs for New Ag Pump Installations (BPA-Qualified) – New Centrifugal pump	\$50	\$70	\$70
7.7.5 Pump Efficiency Upgrade New Efficient Pump 20 to 500 horsepower	\$50	\$70	\$70



# BPA Hemp Policy Summary



<https://www.bpa.gov/-/media/Aep/energy-efficiency/document-library/220201-hemp-in-the-energy-efficiency-program.pdf>

Industrial Sector

+

Utility Distribution Sector

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Multi-sector

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- [Option 2 Custom Project Enrollment Request Form](#)
- Option 1 Custom Project Proposal
- [Measure Distribution Log](#) (Residential)

## Hemp and Marijuana

- [Hemp in the Energy Efficiency program](#) (Updated Feb 2022)
- [Hemp Frequently Asked Questions](#) (Feb 2022)
- [Clarification on BPA's EE Programs and Marijuana](#) (August 2020)

BEETS

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Other Documents

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# QUESTIONS?

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**Please contact your:**  
**Energy Efficiency Rep (EER)**  
**Customer Service Engineer (CSE)**  
**Contracting Officer's Technical Rep (COTR)**

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# Thank you!

