

Attendees

Energy Smart Industrial

Name: Alan Fraser Amanda Wagnon Amy Walton Bill Hough Billy Curtiss Brandy Neff Charlie DeSalvo Dan Kinnaman Danielle Hansen David Harris Jason Bird Jayln James Jen Langdon Julie Anderson Kelsey Lewis Lori Froehlich Maurilio Lopez Mike Arend Robert Frost Terry Mapes

Springfield Utility Board Lower Valley Energy Eugene Water & Elec Board Eugene Water & Elec Board PNGC* Columbia REA Grays Harbor PUD City of Centralia Springfield Utility Board Idaho Falls Power Lewis Co. PUD Cowlitz PUD Franklin PUD Snohomish PUD Clark Public Utilities Franklin PUD Columbia River PUD Benton PUD

Company:

Tacoma Power

Name: Christian Miner Eric Mullendore Jennifer Wood Mike Palmer Ming Kust Shelley Layton Steve Martin Todd Amundson Company:
ESIP, Cascade Energy
C&I Sector Lead, BPA
Program Specialist, BPA
COTR, BPA
Marketing Specialist, BPA
Program Specialist, Cascade Energy
ESI Operations Mgr, Cascade Energy
Industrial Eng. Technical Lead, BPA

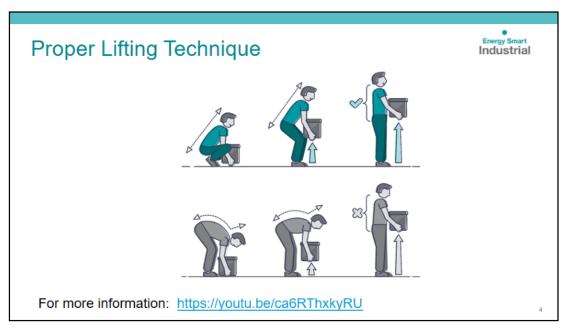
2

Benton PUD

<u>Eric Mullendore:</u> Welcome everyone; let's quickly review the meeting agenda. Invited Steve Martin to present this quarter's Safety Update.

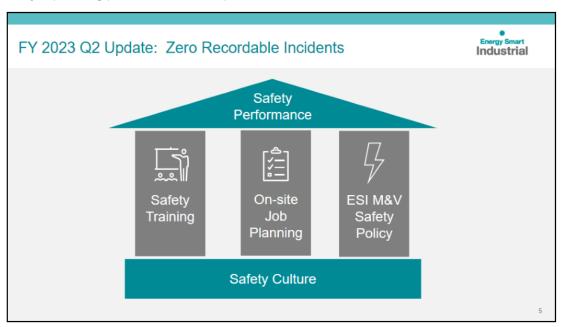
Agenda		Energy Smart Industrial
1. Welcome and Overview		
Safety Update	Eric Mullendore	11:00 – 11:10
2. ESI Program Updates	Steve Martin	
FY23 Gustom Project Close-outs Energy Management Updates	Eric Mullendore	
Rate Period IM Updates	Todd Amundson	11:10 – 11:30
3. UFG Open Forum		
Project Success	Christian Miner, all	11:30 – 11:50
4. Wrap-up and Reminders	Eric Mullendore	Remaining Time

Steve Martin: I am the ESI Operations Manager and the safety moment for May is Proper Lifting which can help us both at work and at home. Lifting heavy items is one of the leading causes of workplace injuries and it's the second cause of lost time at work only to the common cold. [Slide 4] 80% of adults will have a back injury in their lifetime – which can become a chronic condition for a small fraction.

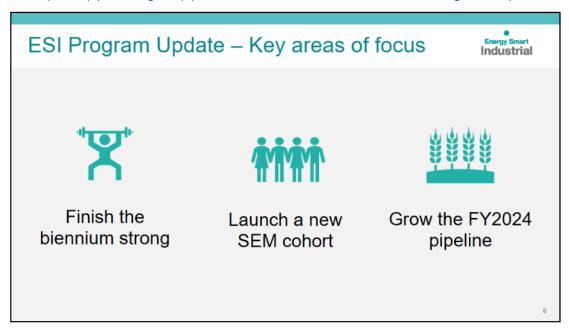


Tip 1: Be close to the object with feet shoulder width apart. Tip 2: Lift with legs while keeping back straight (never twist your body). Tip 3: Never jerk the load; lifting should be a slow, smooth controlled motion. I've included a link to a YouTube video that shows these tips, in action.

<u>Steve M:</u> Through the end of April 2023, we've had zero (0) recordable incidents. **[Slide 5]** Things are picking up, as many of you know, this a busy time of year – especially for measurement and verification work. Our job planning process has been updated to enable online use on different mobile devices.



Last February we shared the three key areas of focus **[Slide 6]** (1) Finish strong by hitting program savings targets, (2) Launching the new Timber & Wood Products cohort (more details to come later in the presentation), and (3) Growing the pipeline – to ensure the next Rate Period is in good shape.



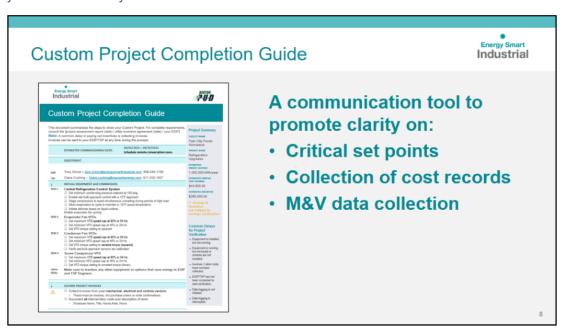
Steve M: This chart is to be read left to right -------

[Slide 7] Mentioned earlier, the last six (6) months of the rate period is an extremely busy time – and the chart shows there's a little over 150 custom projects (CPs) yet to close-out. Back in February, we set the goal that by mid-year half of the CPs would be in the Post-Implementation M&V status.

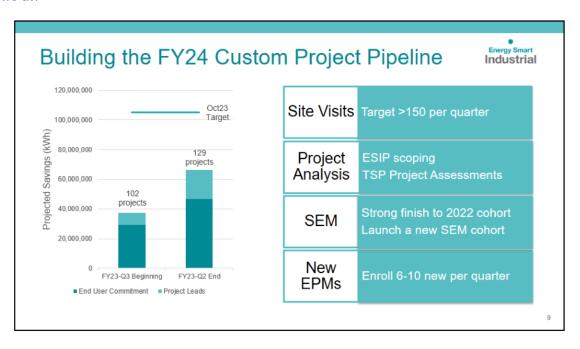


The ESIPs should keep utilities updated on the status of projects. The highest column to note [Post-Implementation M&V] is roughly half of this year's pipeline that we are focusing on – with the intent to avoid the two-month push to the end of the rate period/fiscal year.

[Slide 8] There is a handy tool that is not required to provide a clear line of sight on what's next. Reach out to your ESIP or me if you have are interested



Steve M: These are key tactics to complete this rate period and building for the next [Slide 9]. Our site visits are back up to pre-COVID levels. Project studies help get industry commitment. SEM cohorts increase the volume of capital projects. Our goal shared three months ago, enroll new Energy Project Managers, they help to maintain strong pipelines. With only 4 ½ months until the new rate period – where are we at?



Shared a poll – How are you feeling about your FY24 Pipeline?

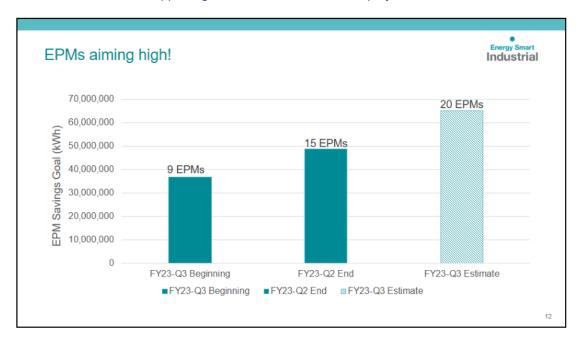
[Slide 10] Here is a visual of the number of EPMs and where they are in the region, at the start of FY23.



Steve M: At the end of April [Slide 11] you see more EPMs and better geographic coverage throughout the region. We should have 20 EPMs by the end of the quarter. Also the size of the circles relate to their planned energy targets. This is very encouraging.



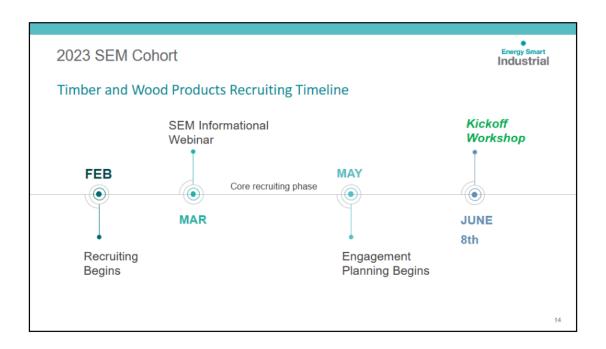
We are very encouraged by the interest shown [Slide 12], also we wanted to remind you the EPM measure can be multisector supporting commercial and industrial projects.



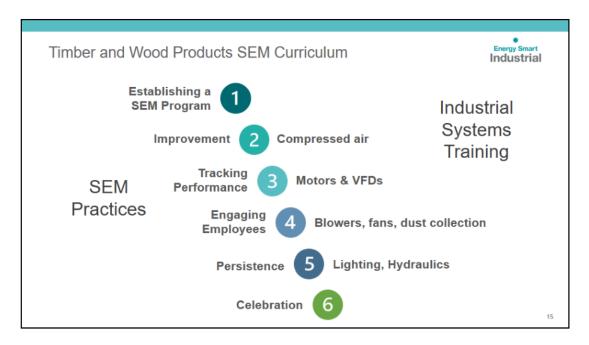
<u>Steve M:</u> We wanted to remind folks **[Slide 13]** that we have a one pager handout available online. Up next Jacob is going to talk about



Let's talk about the new SEM Timber and Wood Products Cohort and the timeline [Slide 14]. The March SEM Informational Webinar was well attended. The engagement planning begins in May – where the participants form energy teams and start preparing the baseline models. ESIPs started recruiting back in February and are continuing, we'd like to have 2-4 more sites participate. We're planning for this cohort to begin in early June.



<u>Steve M:</u> Here's what the SEM delivery will look like **[Slide 15]** over the first year. We are continuing with the hybrid approach with teams' being onsite for scans, etc. – the systems training is going to be tailored to what's common in mills.



[Slide 16] There are three (condensed) factors to ensure a successful SEM engagement. **Empowered** - this is easy to detect and the site is happy to share. **Stable** – we are seeking stability, major changes to a facility can detract. **High Potential** – it's nice to have large anchor facilities; however, if you have an interested site with an annual consumption of <5 million kWh, please reach out to your ESIP.



<u>Steve M:</u> As a reminder **[Slide 17]** this one pager can be shared with interested sites. Here's a link to the SEM Informational Webinar recording that was held on March 22, 2023: https://vimeo.com/817450913/54882cee59



<u>Todd Amundson:</u> This has been a busy season for updating the Rate Period Implementation Manual. **[Slide 18]** Some changes taking place on October 1, to BPA's willingness to pay (\$/measure life) for custom project payment rates - some have increased and there are changes to Commercial and Industrial new construction.

Rate Period IM Updates - Custom Project Payment Rates Industrial NONRESIDENTIAL LIGHTING ALL AGRICULTURAL, COMMERCIAL, \$0.13 INDUSTRIAL NEW OR RETROFIT CONSTRUCTION, MAJOR ALL \$0.025 RENOVATION (EXCLUDING NONRESIDENTIAL LIGHTING) 2-3 AGRICULTURAL, COMMERCIAL \$0.06 4-19 AGRICULTURAL, COMMERCIAL, \$0.33 INDUSTRIAL, RESIDENTIAL, UTILITY DISTRIBUTION CONSTRUCTION COMMERCIAL, INDUSTRIAL AGRICULTURAL, COMMERCIAL, INDUSTRIAL RESIDENTIAL LITH ITY DISTRIBUTION NEW CONSTRUCTION 45+ RESIDENTIAL S0.45 18

ESI and BPA are investigating the measure life for Industrial equipment, currently set at 10 year measure life. We are working with EE Planning to increase the measure life to a 15-20 year range.

<u>Todd A:</u> We have two new Commercial measures that are applicable to industrial retrofits and new construction. **[Slide 19]** Taking the RTF measure for higher efficient pumps, we've created the Efficient Pumps that with a max 200hp range. Customers will use the new BPA Efficient Pumps Calculator (tool) to then manually fill out the UES Measure Upload Template. Hope to see uptake for this measure.

RP IM - New Measure: Efficient Pumps



8.7.5 Efficient Pumps (BPA-Qualified)

- ► Key Requirements:
- · This measure applies to commercial and industrial retrofit and new construction.
- Each efficient pump must be submitted as an individual project (i.e., pumps may not be combined or divided).
- Customers will use new BPA Efficient Pumps Calculator to determine the energy savings and payment.
- Savings and payment will be manually entered into the UES Measure Upload Template and uploaded into BEETS along with electronic copy of invoice(s) for program oversight.
- ► Payment:

MEASURE CATEGORY	PAYMENT PER KWH
Efficient Pumps	\$0.33

[Slide 20] The second Commercial measure that's also applicable to industrial retrofits and new construction - VFDs on Pumps, with a size rating up to 100hp. Any existing pump throttling or bypass devices must be removed or permanently disabled. I'm excited about this and to see uptake.

RP IM – New Measure: VFDs on Pumps Industrial 8.7.6 Variable Frequency Drives on Pumps (BPA-Qualified) Key Requirements: · This measure applies to commercial and industrial retrofit and new construction. · Utilities will report this measure to the applicable sector when reporting to BPA. · Pre-conditions: Building/facility heating fuel source may be either electric or gas. Existing VFD must be installed on a commercial or industrial single-speed pump that is less than 100hp. The system can be either a constant or variable load. · Post-conditions: The retrofit adds a VFD to control the pump with variable speed operation. Any existing pump throttling (i.e., flow control valve, etc.) or bypass devices (i.e., 3-way valve, etc.) must be removed or permanently disabled. Payment: MEASURE CATEGORY PAYMENT PER HORSEPOWER VFDs on Pumps

<u>Todd A:</u> This is a new, but familiar measure **[Slide 21]**. BPA's SEM impact evaluation supported increasing the SEM measure life to 8 years. Year-1 savings is all savings achieved from the baseline and subsequent year's savings is above and beyond the previous years' energy savings.

RP IM - New Measure: Multiyear SEM



10.3.2.2 Multiyear Strategic Energy Management – Added new SEM measure that provides increased payment rates because of increased measure life. It has some similarities with the existing Strategic Energy Management Legacy measure.

- ► Key Requirements:
 - This measure applies to commercial and industrial sectors and has a two-year performance period.
 - Energy savings is based on verified SEM Annual Savings, which in Year-1 is all savings achieved from the baseline; Year-2 and beyond, the savings achieved are the year-to-year changes in SEM savings reported from the previous year's energy use.
- ► Payment:

MEASURE CATEGORY	PAYMENT PER HORSEPOWER
Multiyear Strategic Energy Management	\$0.04 per kWh of verified SEM Annual Savings or utility-specified cap [industrial] \$0.08 per kWh of verified SEM Annual Savings or utility-specified cap [Commercial]

ESI Utility Focus Group (May 2023) Minutes

<u>Eric M:</u> We are excited to be offering higher incentives. The SEM Legacy **[Slide 22]** measure is being maintained in order to allow the existing cohort participants the ability to wrap-up and close out those engagements.

RP IM - Industrial Corrections & Updates

Energy Smart Industrial

10.3.2 Strategic Energy Management: Added a new section to separate the two SEM measures.

 10.3.2.1 Strategic Energy Management Legacy – It's the existing SEM measure. Cohort enrollments will end on September 30, 2023.

22

<u>Eric M:</u> The increased threshold to Small Compressed Air Systems measure aligns to the RTF Standard Protocols [Slide 23].

RP IM - Industrial Corrections, cont'd



- 10.4 Other Industrial Measures: Added the new section and renumbered the measures.
 - 10.4.2 Small Compressed Air Updated measure requirements:
 - Increased horsepower threshold to 150hp,
 - Replaced the terms "RTF-approved Small Compressed Air" with "NWRCAT," and
 - Added other eligible project measures:
 - New compressor (rotary screw oil-flooded or part of a single compressor system)
 - Permanent demand reduction
 - · Permanent pressure reduction
 - New receiver (minimum volume of 3 gallons/scfm)
 - New efficient air dryer (refrigerator cycling or desiccant dryer that is heat or blower purged)
 - 10.4.4 BPA-Funded Green Motors Rewind Initiative Updated section because it is a BPA-funded, direct acquisition program.

RP IM - Measure Expirations



These measures will expire on September 30, 2023:

- · High Frequency Battery Charger Upgrade (BPA-Qualified)
- Welder Upgrade (BPA-Qualified)

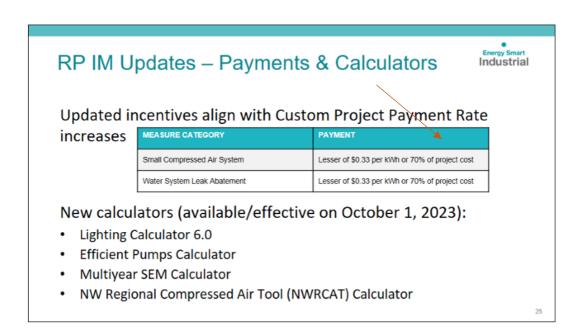
This will expire on March 31, 2024:

· Lighting Calculator 5.1

24

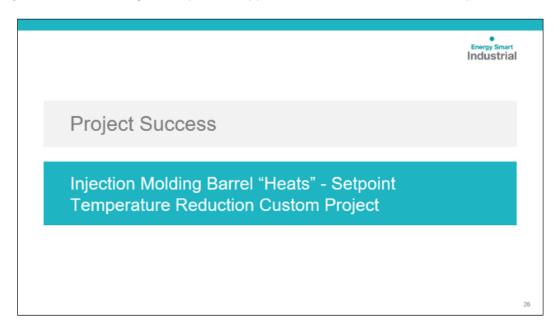
The new lighting calculator will be available on October 1, 2023.

<u>Eric M:</u> It is good to see a healthy increase **[Slide 25]** to these incentives. **Lighting Calculator 6.0** breaks apart the Type A Plug & Play, Types B and C will have higher incentives, and Network Lighting Controls will also have higher incentives. Multiyear **SEM Calculator** will ensure inputs for annual savings are appropriate.



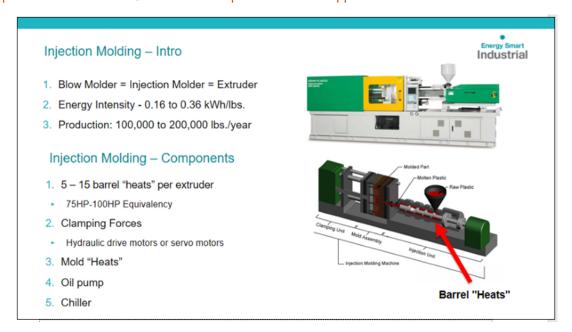
Let's invite Christian Miner, ESIP to share an operations-based project that was relative low-cost for the end-user.

<u>Christian Miner:</u> For those that do not know me, I am the ESIP for Southwest Washington and the Columbia Gorge. I want to thank Canby and Columbia River PUD for sharing projects with me. **[Slide 26]** The project that I'll be sharing shows practical application in the field – Barrel Heat Optimization.



<u>Christian M:</u> Here's an overview **[Slide 27]** of an injection molding machine (IMM), some common terms and a 'good rule of thumb' regarding energy intensity. Some IMMs can be on all of the time, others are

on, as needed. Barrel "heats" is an industry term, they are heat coils that melt plastic. The Mold "heats" is how plastic is formed. The Chiller cools the plastic and oil. Hopper



[Slide 28] They have 25 sites throughout the United States.



The lower left picture is the Arburg site, middle picture is the Milacron site, and lower right picture shows plastic shims that keep things plumb and level.

<u>Christian M:</u> How did this project come about? Walking through the Arburg facility, we talked about the possibility of turning down the barrel heats (from 520°F). **[Slide 29]** They were interested, but wanted "proof of concept;" so we lowered the temp on one machine and then showed the plant manager in real-time (using the power logger) what the energy savings would be turning down all of the machines by 15-20 degrees (then equated into \$\$\$). They agreed to adjust all five machines down 15-20 degrees that day!

Leviat Industries – Barrel Heats Turn-Down



- 1. Leviat expressed interest in proof of concept by turning down one machine
- 2. Fluke 1735 used to show real-time kW reduction
- 3. ESI worked with site to turn down four additional machines after proof of concept
- 4. Site savings are 192,951 kWh/yr or almost \$10k in annual savings to the plant

Machine Energy Savings Summary

Machine	Average Temp Reduction (F)	Baseline Energy (kWh/yr)	Energy Savings (kWh/year)	Energy Savings (%)
110 Ton	15	50,419	12,418	24.6%
300 Ton	17	244,608	50,669	20.7%
700 Ton #1	22	344,011	50,993	14.8%
700 Ton #2	20	317,534	32,334	10.2%
700 Ton #3	20	359,536	46,538	12.9%
Total Energy	Savings (kWh/year)		192,951	

[Slide 30] This project equated to 15-25% savings and Leviat updated the corporate standard operating condition to use across ALL their facilities. ESI created a checklist. Chiller supply temperatures is another opportunity; however, they can't usually change the setpoints 'on the fly' – takes machine down and each molder can have one chiller or it may have one chiller for all molders. Don't forget chillers – equals more savings. Significant trust, testing and pizza every now and again is necessary to receive plant buy-in.

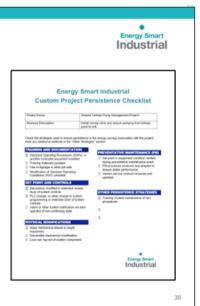
Take-Aways & Next Steps

1. Leviat Take-Aways

- 20-degree turn-down equates to 15% to 25% savings
- Persistence Leviat updated corporate standard operating condition for barrel heat set points
- Chiller Supply Temps are also a savings opportunity!

2. Future Opportunities

- Barrel heat optimization is a good opportunity on already-commissioned equipment
- Requires significant testing and plant buy-in



ESI Utility Focus Group (May 2023) Minutes

<u>Eric M</u>: What a great example of making operations-based setpoints and how it can be captured in a SEM engagement or with custom projects. It is cost-effective for both the end-user and utility. Plus avoided cost to the 2021 Power Plan – adding projects like these will be helpful. **[Slide 31]** Does anyone have any other projects you'd care to share? Or other topics for the Industrial sector?

No one spoke up.

Please reach out to your ESIP or EER is you have a question about the current rate period pipeline.



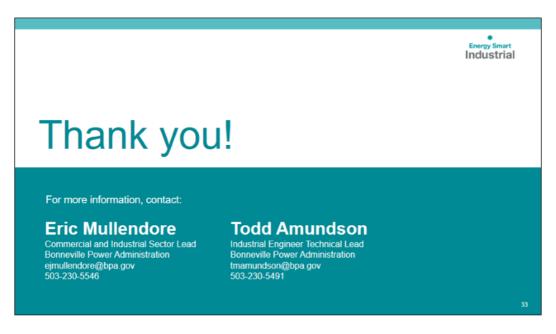
[Slide 32] Here are some reminders of things that will be happening until our next meeting. The Motor Systems Lunch & Learn has been developed for both utility and end-user staff, providing an intro into motor systems.

Wrap-up and Reminders



- Option 2 Custom Project Impact Evaluation Webinar May 11, 2023 at 10 am (Pacific)
- Motor Systems Lunch & Learn
 June 22, 2023 at 10 am (Pacific)
- Q4 Utility Focus Group Meeting July 11, 2023 at 11 am (Pacific)

<u>Eric M:</u> If you have any other topics that you'd like covered during our next meeting – please feel free to reach out. **[Slide 33]** Thank you for your time and we look forward to a successful wrap-up to this rate period.



Meeting adjourned: 11:54 am