



Regional Technical Forum

**May 22, 2025
Meeting Minutes**

Welcome, Agenda Review and Meeting Minutes

Jennifer Light, RTF Chair began the meeting at 9:00am by calling for attendance. She counted 22 voting members. David Baylon, independent, moved to adopt the minutes from the April 15, 2025 meeting. Kevin Geraghty, independent, seconded. The minutes were adopted unanimously.

Eric Miller, independent, moved to adopt the day's agenda. Andrew Grant, Cadmus, seconded. The agenda was adopted unanimously.

Management Update

Laura Thomas, RTF Manager [Presentation](#)

Staff presented updates. There was a question about supermarket retrofits.

Baylon asked if there is there more than one contractor involved in supermarket retrofits besides CLEARResult [Slide 5].

- Mark Jerome, CLEARResult: No one is doing this.
- Laura Thomas, RTF Manager: They are programs for example Snohomish PUD. It's just not one big regional program.

Sunset Date Extension Planning, Proven UES: Residential Heat Pump Water heaters and Consumer Heat Pump Water Heaters in Commercial Applications

Laura Thomas, RTF Manager [Presentation](#)

After seeing presented materials, the RTF approved the Sunset extension.

Grant asked if this is the same measure the RTF will be reviewing in July [Slide 4].

- Light: Yes.

MOTION

I, Gregory Brown, move that the RTF extend the sunset date for Residential Heat Pump Water Heaters UES and Consumer Heat Pump Water Heaters in Commercial Applications UES to July 31, 2025.

Jerome seconded.

Vote on the motion. The motion carries. (19 yes, 0 no, 0 abstain)

Update Proven UES: ENERGY STAR Ice Makers

Denis Livchak, RTF Contract Analyst (CAT) [Presentation](#)

Staff presented an update to the cost methodology for one ice maker class. After discussing a few points, the RTF approved the updated methodology.

Baylon asked if the vertical line on [Slide 5] is the ENERGY STAR® spec.

- Denis Livchak, RTF CAT: No, it's the average of machines that meet ENERGY STAR. The ENERGY STAR spec is to the right of this.

Jerome asked about what IMH is [Slide 6].

- Livchak: That is Ice Making Head. The compressor/condenser that sit on top of the bin.
- Eva Urbatsch, Puget Sound Energy: Are there are ice makers this efficient that don't use this technology? What are actual prices?
- Livchak: Yes, there are ice makers that do that and they're not that much more expensive.

Noe Contreras, NEEA, asked for an explanation of the table.

- Livchak: The second column is improvement from each tech. For example, for a baseline 4.71 kWh to get 12% savings, you need all rows above the drain water heat exchanger (HX). But we know machines are achieving this level of efficiency without the heat exchanger.

Grant pointed to the range of bin 4.65 to 4.24. He said he had no problems as you could skip the HX and use the ECM. Grant reiterated that you could use the incremental cost of the ECM.

- Livchak: That would be a similar result as the line fit.
- Grant: I prefer avoiding extrapolation in general.

Contreras observed that each tech gives about 1-2% efficiency improvement, but the HX gives 3-4%.

- Livchak: Yes, but it's still more expensive, which is why manufacturers don't use it.

MOTION

I, Dave Baylon, move that the RTF approve updated to the cost methodology for Batch (B) Ice Making Head (IMH) 800+lb/24h of the ENERGY STAR Ice Makers UES as presented.

Jerome seconded.

Vote on the motion. The motion carries. (20 yes, 0 no, 0 abstain)

Research Strategy: ENERGY STAR Commercial Refrigerators and Freezers

Laura Thomas, RTF Manager and Josh Rushton, RTF CAT [Presentation](#)

Staff presented the research strategy. The RTF discussed this measure not fitting well into the existing RTF category structure but determine for this instance. The RTF decided not to adopt the proposed research strategy for this measure and approved setting the category to Proven.

Light clarified that the staff recommended Proven when this measure was originally presented, but the RTF wanted Planning [Slide 3]. The staff still recommends Proven, but it's an RTF call.

- Baylon: So, this presentation is to appeal to our better angles and drop the research strategy?
- Light: No, we have a research strategy here. But the RTF now needs to decide if that's worth it.

Baylon asked if the CAT are going to explain how they estimated the numbers on [Slide 7] in the absence of the more direct metering of equipment.

- Josh Rushton, CAT: That's on [Slide 8].

Brown moved back to [Slide 7] voicing concern about getting market efficiency for efficient and inefficient equipment. He said this approach is valid, but common across measures, wondering what's different about this measure.

- Rushton: I'm not sure if there is anything different.
- Light: There are a lot of Current Practice Baseline (CPB) measures where we rely on a proxy methodology for CPB. For this measure, you all said "not good enough" which is why we're here.

Grant explained that ENERGY STAR shipment data is used for a lot of market share values, but this category is very broad, and we only have one number. Grant said this creates exceptional uncertainty.

Light stopped at [Slide 12] to emphasize that RTF judgement is needed for the question: Do we want to do research to reduce uncertainty, or just eat the uncertainty?

Jerome said the RTF doesn't have a category for this [Slide 14]. He didn't think having a research strategy and asking the region to invest in something that won't improve our understanding doesn't sound good. Jerome wondered if the RTF is meeting the reliability threshold, agreeing that the Guidelines could be improved. Still, Jerome called this measure Proven, with an asterisk.

- Geraghty: I agree with Jerome. It's a failing of the Guidelines. We need a category for "it probably saves energy but is not worth doing more research." We have no hope of satisfying statistical requirements. I'm generally not a fan of market baseline because we usually can't know it. It's informative to collect market data but we need other ways of indicating that it probably saves energy. For example, only incenting up to 50% of ENERGY STAR units. Proven makes sense for now, but we need another category, and we need to deal with market baselines.
- Light: Let's not open that can of worms today.

Light explained that Proven has a specific meaning, but it's also tied to evaluation guidance. She said this signals to just do the delivery verification of counting units. Light said we could call it something else, but the guidance would be the same.

- Brown: I'm outside the region, so I'm more sensitive to the signal being sent. I fully agree that we need a new category for this to live in. We need to adopt more Proven and less Planning measures. We need to change our habits. We have Planning measures now that have been there for decades and the region has spent hundreds of thousands and it's still not been sufficient. We haven't even tried on this one. We don't know anything about this market, and we've decided that we're going to fail right out of the gate. This is the cheapest research I've seen yet. It could even be part of the CBSA data collection. The data is available, and this research needs an opportunity.
- Light: There are lots of measures in Planning with no one research them.

Baylon stated that the Federal Minimum appears to be real here, and we have ENERGY STAR so to make a Common Practice Baseline, we just split the difference. Baylon wondered how much of the 18 aMW was given away by splitting the difference. He wondered about the risk of guessing this wrong and not doing anything to confirm our guess. Baylon said we know the portion that's ENERGY STAR and asked what we don't know.

- Rushton: The market average of sales. Is it close to the standard? Or more efficient?
- Baylon: What is the risk of not doing this?
- Rushton: That's hard to answer. For some applications we're probably 100% over, some 100% under, but how far off are we on average?

Light confirmed that this is a combination of the ENERGY STAR market share and the current practice within each category, and not ENERGY STAR versus non-ENERGY STAR.

- Rushton: This goes back to the common practice framework. There can be a low-end model with a huge market share that doesn't really compete with a high-end, energy efficient model. But this gives us a way forward.

Baylon asked what the ENERGY STAR saturation is.

- Light: 50%. It's from the 2023 ENERGY STAR market penetration report.
- Baylon: Ok. I don't object anymore.

Grant stated that the secondary market is probably bigger than we think and using one ENERGY STAR number across eight categories creates uncertainty. He said we could have broken this into solid versus glass door, called it a Small Saver, and moved on. Grant did not think research is worth it.

- Light: Yes, but the RTF can't slice things to make Small Savers.

Lisa Gartland, ODOE, asked why the RTF could not broaden the measure to an ENERGY STAR saturation of all commercial kitchen equipment.

- Light: We're confident in the 50% ENERGY STAR number. The question is, what is the average efficiency on non-ENERGY STAR and ENERGY STAR units? Is the delta between the standard and ENERGY STAR spec representative of this?
- Gartland: You could go door to door and see what's been installed.
- Brown: Nods head in agreement.

- Thomas: The RTF did split this further than ENERGY STAR. We did this to try to be more precise, by splitting into bigger volume categories.

Grant stated that when the DOE works on final rule, there's usually a TSD. He asked if the RTF looked at this, wondering if it provided market data or relieved some uncertainty around test procedures.

- Livchak: Test procedure has been around, with refinements, for 20 years. The market is the food service industry, and they don't change unless forced. ENERGY STAR version 5 came out a few years ago, so there will be no new version of ENERGY STAR anytime soon. Plus, the DOE doesn't look like it's going forward with a rulemaking.
- Brown: I won't make a motion. I recognize I'm in the minority. But 18 aMW is not big or small. We're relying on lines set through federal research, but we regularly demonstrate shortcomings in the federal TSDs. These lines can be divorced from reality, and I'd like to know what the reality is.
- Baylon: I read the newspaper all of the time. The odds are this is it for at least the rest of the decade. The best we can hope for is spending money to find these things out.

MOTION

I, Dave Baylon, move that the RTF for the ENERGY STAR® Commercial Refrigerators and Freezers UES: Change the Category to Proven and Set the sunset date to May 31, 2030. Miller seconded.

Vote on the motion. The motion carries. (20 yes, 2 no, 1 abstain)

BREAK

Thomas retold a terrible joke about a power outage. The RTF responded with polite, muted chuckles.

Research Strategy: C&I Fans

Josh Rushton, RTF CAT, [Presentation](#)

Staff presented the proposed updates to the research strategy. Discussion touched on FEI as a valid research point, difficulties around a system designer not knowing pressure in ducts, and the research's segmentation approach. The RTF approved the updates to the research strategy.

Jim White, Chelan County PUD, offered a general comment saying he has strong views on the proposed methodology. White recalled evaluating pumps by using pump curves to measure performance in the field and correlate to billing data. He brought up issues researchers will run into when trying to measure performance of fans in the field and speculated that the overall strategy being proposed isn't going to work. White proposed what he thinks is needed, calling Greenheck fan curves excellent and necessary for all fans along with the baseline.

White concluded by saying the RTF needs fan curves for all fans, baseline, and measuring static pressure across the fans. White admitted that trying to get airflow gets very complicated but said with curves, static pressure, and power, you can get very close.

Baylon was unclear where the FEP reference comes from [Slide 11].

- Rushton: It's a hypothetical fan defined in the test procedure.
- Baylon: Does it vary with drive type?
- Rushton: There is an efficiency for a belt drive versus direct drive, but the fan efficiency itself would be the same in the reference models.

Grant asked why less efficient fans are having lower operating cost [Slide 13].

- Rushton: I'm not sure.

Baylon stated that it looks like there are number of very significant uncertainties that are not FEI and FEP, like load factor [Slide 15].

- Rushton: BPA provided data on that. It's also in the research. Same with HOU.
- Light: Those are still in the research strategy, but we're not proposing a change in approach, so it's not a focus of today's presentation.

Baylon called attention to a segmentation problem [Slide 19]. He said this is saying segmentation might not be at level of use/hours of use and instead it just looks at how FEI and FEP are related across the whole sector. Baylon admitted that this might be reasonable but asked what else we get out of segmentation. He also asked how to guarantee that this is generalizable.

- Rushton: Our first mission is to understand the market and segments. Then to research the segments that are most important.
- Baylon: OK, so this is per segment research?
- Rushton: Yes.

Grant asked a design point, wondering if this work is just a fan-by-fan basis. He also wondered what happens if multiple fans are installed.

- Jerome: I'm not aware of multiple fan applications. For size, we assume like-for-like and don't assume a change in fan size.

White stressed that none of the fans will operate at optimal, saying you need a fan curve for baseline and actual fans. He insisted that you can't proceed without them. White said you'll pick the actual flow rate, which could vary and define the percentage of time the fan runs at multiple flow rates.

- Rushton: At no point does the best efficiency point/optimal point come in. It's just the design point and the actual operating point.

Grant said that the work assumes the designer uses the Greenheck tool so you can compare pre and post [Slide 23]. He was worried that the models they're selecting between could be different than your competition group.

- Rushton: Yes, that could be an issue.

Geraghty stated that some numbers in the last column should be negative.

- Rushton: Yes, there's an error in the second to last row.

White asked if the RTF is only looking at Greenheck fans.

- Rushton: No, this is an example. Research would be more comprehensive.

Gartland asked if this is just a function of a system designer not knowing duct pressure.

- Rushton: Yes.
- Gartland: And this number could change as ducts are opened/closed.
- Ryan Firestone, RTF CAT: The design point could also include some oversizing practice, which means the actual varies from design.
- Jerome: What does "actual" mean?
- Rushton: It's the operating point of the actual selected fan. I'm assuming fans in the competition group all operate at that point.
- Gartland: This is great for a single fan. But we're trying for more Variable Speed (VS) fans. When the fan speed drops, the whole performance is different.

Baylon called this whistling past the graveyard where we take one measurement and make calculation.

- Rushton: We're sampling a lot of fans and capturing each at one specific point. If better FEI varies as speed varies, then this is not a good measure of efficiency.
- Baylon: So, the research is just to verify that FEI is a valid approach?
- Rushton: Yes.
- Baylon: And if it's not?
- Light: We'll go from there.
- Firestone: NEEA reached out to us with interest in doing research on this. We're working on this, in part, to help them.

Grant asked how invasive the metering approach is and if it involves open ducts or the need to drill into ducts [Slide 25].

- Jerome: Traversing a duct is pretty methodological. You have to take pressure measurements at different intervals. Static pressure can be challenging because it can vary due to turbulence. Power is easy to measure.
- Rushton: Sites might benefit from knowing actual operating points.

Grant asked if the presence of an economizer needs to be collected to get at HOU [Slide 27].

- Rushton: I don't know.

Urbatsch asked about the bias on [Slide 26].

- Rushton: Sites that are hard for us might be hard for owners, too. We should try to not walk away from them.

Baylon asked if this is in addition to segmentation, HOU, etc.

- Light: It's in the research strategy.
- Baylon: So quite a bit of the research strategy is not in this presentation?
- Light: Yes.

Bob Davis, Ecotope, pointed to the instrumentation cost on [Slide 24], saying the number seems really high, like three times too high.

- Baylon: On the other hand, data analysis isn't included.
- Davis: It's a minor point.

Geraghty asked where the potential estimates are from.

- Light: Our current UES.

White called the presentation excellent. He asked how much budget is allotted for air flow measurement, wondering if it is difficult and expensive.

- Rushton: Every site visit includes that. We haven't broken the work out by power versus air flow versus other data collection.

MOTION

I, Mark Jerome, move that the RTF approve the updates to the research strategy for the Commercial and Industrial Fans UES as presented, and: Keep measure category at Planning, Keep measure status at Active, Keep measure sunset date of April 2027.

Geraghty seconded.

Vote on the motion. The motion carries. (19 yes, 1 no, 2 abstain)

LUNCH

Thomas told another joke submitted anonymously and received a mildly better reception.

New Measure: One to One Residential Ductless Heat Pumps

David Bopp, RTF CAT, [Presentation](#)

Staff presented new measure analysis One to One Residential Ductless Heat Pumps UES. The RTF discussion focused on clarifying questions around the analysis. The RTF adopted the measure as presented.

Brown asked why the current measure is not applicable to midstream [Slide 3]. He also noted that the RTF is not supposed to get into program design.

- David Bopp, RTF CAT: We need to know the types of installs. Midstream doesn't allow for that.
- Light: The RTF does have measure identifiers connected to program design if it's needed to know savings: for example, a kit versus direct install purchase.
- Bopp: We also advertise that if programs have a particular design that they'd like savings for, to let us know.

Baylon addressed the screen for supplemental fuels on [Slide 9] asking if staff are qualifying the installation before an incentive is approved.

- Bopp: It depends on how it's done. You could survey a sample of homes afterwards and determine which measures to count. Or you could do it before hand.
- Light: This kind of program design is beyond the RTF. If the program didn't determine this beforehand, they'd hopefully assume a mix of homes and then do delivery verification on a sample of homes to true-up the assumed mix after.
- Baylon: A big reason for why these are not cost-effective is because we play games with supplemental fuels. We get wood, gas, etc. and end up offsetting those, rather than electric BTUs.
- Bopp: Ironically, homes with supplemental fuels have better cost-effectiveness because supplemental fuels are more expensive than kWh avoided costs.
- Light: Provided more context about cost-effectiveness and indicated that the methodology is updated with each power plan.
- Bopp: You need to know how the population of homes in your program reflect the measure applications.

Bruce Manclark, Earth Advantage, asked who does the true-up and if we just take them at their word.

- Light: Evaluators do the work. Commissions in some cases. For Bonneville it's tricky. There's evaluation and the Council oversees if it's done right. It's not a perfect system.

Baylon asked if Manufactured Homes are homes with Zonal Electric Resistance heat, adding that there are not many of those [Slide 12].

- Bopp: That's right. The MH potential is tiny: 0.3 aMW.

Baylon confirmed that the screening on [Slide 17] was just VBDD with no characteristics.

- Bopp: That's right.
- Baylon: You don't have to ask anyone anything with this method. You just look at the bills.

Grant asked what VBDD stands for [Slide 18].

- Bopp: It's variable based degree day. The analysis determines heating load versus outdoor air temperature.
- Baylon: PRISM.

Davis called the results on [Slide 21] "The Idaho Falls Effect." He found the same savings in HZ3 versus our average because of PNNL, explaining that the population has higher incomes than other parts of HZ3. Davis said that means this group keeps their homes warm with Electric Resistance because they can afford it leading to no takeback with DHP.

Davis said it's different in other parts of HZ3 which accounts for the high savings on the red dot in the slide.

Baylon pointed to the dots, asking if the category they land in is the average of the program.

- Bopp: Yes, there could be large variations, but the average load is the average of what was in the program.

Davis asked for the definition of “cold climate” [Slide 28].

- Bopp: AI searched to see if it showed up on [NEEP](#) (Northeast Energy Efficiency Partnership). They maintain a list.

Grant appreciated staff trying to understand cost differences, but said all of the variation could be explained by differences in contractors or differences in installation time.

Christopher Dymond, NEEA, addressed the definition of cold climate equipment saying that the industry is lining up behind 70% capacity at 5°F [Slide 30]. He said NEEA is working with AHRI to provide that data. Dymond said he’s curious about the differentiation between cold climate equipment and the others.

Manclark called the estimate for cleaning cost on [Slide 33] way too low.

- Bopp: I’ve heard that. But I did call many contractors, and that’s the cost I got.
- Manclark: If you’re including cleaning the blower wheel, it’s \$400 to \$500.
- Light: The RTF could suggest a different number.
- Bopp: There’s also judgement on the frequency of cleaning.

Grant asked how the RTF got positive cost-effectiveness when the workbook shows negative electric savings, and no supplemental fuel [Slide 36].

- Bopp: The only negative savings applications are with supplemental fuel. The non-electric, non-gas benefit is the supplemental fuel savings.
- Grant: Got it.

Davis called the unit capacity on [Slide 39] interesting. He recalled HZ3 had a lot of one-ton units, because tax incentive pushed for that. Davis thought that you’d get a better offset with a bigger system, even if you have lower COP as he sees something similar with cooling. Davis reiterated that a less efficient, bigger system gives you a bigger offset.

Thomas stopped on [Slide 42] to ask for feedback on research strategy before the June meeting.

Jerome called this work a good step in the right direction [Slide 43]. He thought cold climate equipment should be looked at in the future noting the value of more compressor capacity at cold temperatures displacing more Electric Resistance.

- Bopp: I’m not sure if that’s part of the research strategy. Do you collect whether or not a unit is cold climate? Will ongoing BPA research inform this?
- Thomas: For BPA’s work, we’re waiting for their data before we update some of our other measures.
- Jerome: I see this as a revamping of our measure suite.

Davis asked if the screenings are supposed to determine NAC bins.

- Bopp: Yes, we're breaking out savings by NAC. We'd like to provide a simplified version of how to do it and we're discussing that internally.
- Geraghty: The obvious simplification is to just average years of data, and don't adjust.
- Bopp: Yes, we've considered that.

Baylon was unclear on why the RTF is gun-shy about screening.

- Davis: We're not.
- Light: The measure requires screening. You can't claim these savings without it. We're allowing flexibility in program design.
- Baylon: We're not saying exactly what we mean by "screening." I'm skeptical that we'll get screened results without proof that you've actually looked at the house.
- Light: We need to know if the home has supplemental fuels (or VBDD R2) and we need to know the bill amount. It's probably easier to do this before implementing than after. We'll provide a tool for implementing.

Davis confirmed that staff is not deactivating the previous measure which allows single or multi-head.

- Bopp: Existing there is unscreened until June. There will be proposal next month to remove the screened option in the Zonal UES measure.

Davis noted that Zone 1 is 1100 kWh savings with two times the savings for screened homes. He shared some of the skepticism about the number of utility people who will bother and suggested making the screening simpler.

- Light: The proposed new measure has these NAC bins.
- Davis: A lot of programs will just take the 1100 kWh savings because they don't want to bother with this.

Dymond argued that there is a lot of potential for cold climate equipment. He noted that NEEA and PNNL found that it depends on supplementary heat and when the furnace or baseboard comes on. Dymond asked if the RTF considers this relatively good savings estimates for other heat pumps, like a window heat pump for example.

- Bopp: We don't have the data to inform that right now.
- Dymond: We have heat pump data. This acts the same as a DHP.
- Light: That's a different measure. If there's something there, send it over to Thomas.

Dymond then asked if this measure includes low mount or a ceiling cassette.

- Bopp: Anything not ducted and is a split system.
- Davis: I've tested some of these. They haven't performed well to date. We studied ductless 15 years ago and they worked really well. They still do.

Hadley thought Dymond was right in a lot of ways. He agreed that this is the wrong presentation for this, but a \$2800 measure is way different than a \$7000 measure and suggested discussing it in the future.

Jerome asked which savings values staff is using.

- Bopp: The CAT analysis of 2013 NEEA study.
- Jerome: If I'm a program and there's low NAC, why not choose the unscreened measure?
- Bopp: Hopefully we can get rid of the unscreened variations.
- Light: And will we come back with a specifically multi-head measure that will get rid of "any?"
- Bopp: Yes.

Contreras observed that the savings looked at had a specific set of controls. He asked if that changed with different programs.

- Bopp: Controls are whatever people decided to use

MOTION

I, Eric Miller, move that the RTF adopt the Ductless Heat Pump One-to-One UES measure as presented, and: Set the Category to Planning for Single Family and Small Saver for manufactured Homes, Set the Status to Active, Set the sunset date to May 31, 2028. Jerome seconded.

Grant asked how the RTF would characterize cold climate for a measure down the line.

- Bopp: For centrally ducted, we have a cold climate spec, based on capacity. We'd likely rely on BPA high-capacity HP data.
- Grant: When will that data be available?
- Bopp: Maybe in September.
- Thomas: We have other new measures to work on in the meantime: whole home, multi-head, centrally ducted without ER, retro-commissioning.
- Davis: The limitation of the Bonneville study is that capacity and airflow were not measured. In 2011, we did measure airflow. Typically, we got about 60% of nominal capacity at lower temperature. Engineering may have changed by now.
- Jerome: NY TRM has a cold climate methodology. I've worked with it. It's squishy. Other TRMs mention cold climate but they point to HSPF/SEER.

Dymond noted that the Bonneville data is whole home systems, not single head.

- Bopp: I'm aware of that. We'll see if we can make a correction for that.

Vote on the motion. The motion carries. (21 yes, 0 no, 2 abstain)

Light ended the meeting at 2:00.

Voting Record: May 22, 2025

Motion Language	Yea	Nea	Abs	Motion Passes?	Percent of Yea Votes		Number of Voting Members Present
					RTF Voting Members (40% min)	Members Voting (60% min)	
Motion: Approve the minutes from the April 15, 2025 RTF meeting. (Baylon/Geraghty)	22	0	0	Yes	76%	100%	22
Motion: Approve the agenda for the May 22, 2025 RTF meeting. (Miller/Grant)	22	0	0	Yes	76%	100%	22
Motion: Extend the sunset date for the Residential Heat Pump Water Heaters UES and Consumer Heat Pump Water Heaters in Commercial Applications UES to July 31, 2025. (Brown/Jerome)	19	0	0	Yes	66%	100%	19
Motion: Approve update to the cost methodology for Batch (B) Ice Making Head (IMH) 800+lb/24h of the ENERGY STAR Ice Makers UES as presented (Baylon/Jerome)	20	0	0	Yes	69%	100%	20
Motion: Change the Category to Proven and set the sunset date to May 31, 2030 for the ENERGY STAR Commercial Refrigerators and Freezers UES. (Baylon/Miller)	20	2	1	Yes	69%	91%	23
Motion: Approve the updates to the research strategy for the Commercial and Industrial Fans UES as presented, and: Keep measure category at Planning, Keep measure status at Active Keep measure sunset date of April 2027 (Jerome/Geraghty)	19	1	2	Yes	66%	95%	22

Motion: Adopt the Ductless Heat Pump One-to-One UES measure as presented, and: Set the Category to Planning for Single Family and Small Saver for Manufactured Homes Set the Status to Active Set the sunset date to May 31, 2028 (Miller/Jerome)	21	0	2	Yes	72%	100%	23
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May 22, 2025, Meeting Attendance

* Designates Voting Member

Name	Affiliation
Jamie Anthony*	BPA
Landon Barber*	Idaho Power
David Baylon*	Independent
David Bopp	RTF Contract Analyst
Gregory Brown*	Tierra Resource Consultants
Kyle Chase*	Jefferson PUD
Noe Contreras*	NEEA
Bob Davis*	Ecotope
Logan Douglass	RTF Contract Analyst
Christopher Dymond	NEEA
Ryan Firestone	RTF Contract Analyst
Wesley Franks	WA UTC
Trevor Frick	Clark PUD
Lisa Gartland*	ODOE
William Gehrka	NEEA
Kevin Geraghty*	independent
Andrew Grant*	Cadmus
Jackie Goss	Energy Trust of Oregon
Todd Greenwell	Idaho Power
Adam Hadley	RTF Contract Analyst
Wylie Hampson	NEEA
Michael Hoch*	Energy Trust of Oregon
Zachary Horvath	Independent
Aaron Ingle	NEEA
Masumi Izawa	BPA
Mattias Jarvegren*	Clallum PUD
Mark Jerome*	CLEAResult
Mitt Jones	Independent
Phillip Kelsven*	BPA

Cody Kleinsmith	Energy Trust of Oregon
Jennifer Light*	RTF Chair
Denis Livchak	RTF Contract Analyst
Matt Lutter	EWEB
Ben Mabee*	BPA
Bruce Manclark*	Earth Advantage
Rob Marks*	Snohomish County PUD
Eric Miller*	Independent
Ken Morgan	Gensco
Andi Nix*	Energy Trust of Oregon
Nick O'Neil*	Energy 350
Brian Owens	CLEAResult
Andrew Paul*	Avista Corp
Joe Prijyanonda	ICF International
Laney Ralph*	NW Natural
Samuel Rosenberg*	Pacific Northwest National Lab
Josh Rushton	RTF Contract Analyst
Tim Runyan	NEEA
Kenji Spielman	Energy Trust of Oregon
John Stalnaker	BPA
Laura Thomas	RTF Manager
Eva Urbatsch*	Puget Sound Energy
Jim White*	Chelan County PUD
Sara Widder	independent