June 17, 2025
Meeting Minutes

Welcome, Agenda Review and Meeting Minutes
Jennifer Light, RTF Chair, began the meeting at 9:00 by calling for introductions. She counted 25 voting members. Christian Douglass, RTF Vice Chair, moved to approve the minutes from the May 22, 2025 meeting. Mark Jerome, CLEAResult, seconded. The minutes were approved unanimously.

Eric Miller, independent, moved to approve the agenda. Micheal Hoch, Energy Trust of Oregon, seconded. The agenda was approved unanimously.

Management Update
Laura Thomas, RTF Manager Presentation
Staff presented updates. Staff confirmed that if any workbooks or other links on the website are not accessible they should let staff know so they can correct. All links on the website should be accessible at all times.

David Baylon, independent, asked if all workbooks are accessible, adding that they are not always on the website.

- Laura Thomas, RTF Manager: Yes, the updated workbook should be accessible on the website. Let me or Chad Madron, RTF Coordinator, know if you can't access one.

Sunset Date Extension: Retrofit Doors on Existing Display Cases
Laura Thomas, RTF Manager Presentation
RTF members approved the sunset date extension with no further discussion.

MOTION
I, Ben Mabee, BPA, move that the RTF extend the sunset date of the Retrofit Doors on Existing Display Cases to July 31, 2025.
Andy Nix, Energy Trust of Oregon, seconded.

Vote on the motion. The motion carries. (24 yes, 0 no, 0 abstain)

Update Ductless Heat Pumps for Zonal Heat MH and SF
David Bopp, RTF Contract Analyst (CAT), Laura Thomas, RTF Manager Presentation

Staff presented the update. After discussing removing the entire measure from the portfolio the RTF approved removing the screened option only at this time.

Baylon noted that the presentation proposes removing the "every" DHP measure, saying that in reality it only proposes removing the screened option [Slide 5]. Baylon asked if this is because no one is using it.

- Thomas: We're proposing to remove the screened version of DHP zonal. The unscreened version will stay the same, and we're working on a new multi-head measure. We have a screened measure in the new one-to-one measure. For now, we don't want to duplicate screened measures.
- Baylon: So why not remove the entire measure?
- Thomas: This covers multi-head. We could deactivate if the RTF wants, but we'd have a gap in coverage for six to nine months.

Baylon asked why only the unscreened option is left, as we can guarantee that won't lead to savings.

- Light: We'll be working on this. But we didn't want to leave a gap in our portfolio for the short term.
- Baylon: I think we should take it out and wait for utilities to demand it.
- Light: That's a motion a member could make.

Lisa Gartland, ODOE, called multi-head measures very important. She said a single head outdoor unit is often oversized and wasting capacity, so you might was well install multiple heads. Gartland said she sees so many one-to-ones installed calling it a lost opportunity.

- David Bopp, RTF CAT: If the outdoor unit is sized appropriately, it's not oversized.
- Gartland: Yes, but you can only go so small. This is especially an issue for Multifamily.
- Light: We can talk about this when we get to the proposed motion.
- Gartland: I'd hate to see this gap.
- Light: We're trying to preserve the multi-head measure and just remove the screened options, which no one is using anyway.
- Gartland: Okay, got it.
- Bob Davis, Ecotope: Indoor heads aren't free, they cost about $5,000 per room. Plus, the savings don't scale. We should keep that reality in mind.

Baylon stated that this drops the supplemental fuel presence screen.

- Light: Our unscreened measure captures this, and savings don't look as good. No programs are using multi-head screen applications. They throw the device out of the back of the truck and hope it lands in a home and maybe get some savings.
- Bopp: We don't allow gas furnace homes. A gas fireplace is okay.
- Douglass: The spec doesn't ask for the heat pump to be thrown off the truck. They can be set down gingerly.

Jerome voiced concern that if someone is getting a one-to-one unit, why would they use the screened measure versus unscreened. He understood that this is a stop gap measure and didn't have a different proposal.

Andrew Grant, Cadmus, asked if unscreened is a mix of single and multi-head savings [Slide 9].

- Bopp: Yes.

MOTION
I, David Baylon, move that the RTF deactivate the Ductless Heat Pump Zonal Heat MH and SF measure.
There was no second.

I, Eric Miller, move that the RTF deactivate the screened applications of the Ductless Heat Pump Zonal MH and SF measure.
Rob Marks, Snohomish County PUD, seconded.

Davis said he understood that this is an administrative move that doesn't address frustration with the measure. He hoped the RTF could make this a better measure sooner rather than later.

Vote on the motion. The motion carries. (23 yes, 1 no, 0 abstain)

Update Planning UES: Duct Sealing Single Family
Logan Douglass, RTF CAT Presentation
The RTF had a lively, if very familiar, discussion about this measure. Members were torn between the difficulties of implementing the measure, applicability of this measure to heat pump heated homes, and how to rescope the measure. and the need to move heat pumps forward. The RTF approved updates to the cost and extended the sunset date by two years for this measure. Staff will consider feedback from the RTF to inform the update and development of the new measures and when this measure is updated in two year. The RTF and experts in the region should reach out to staff with suggestions about recommendations of how the measure could be rescoped in the future.

Thomas stopped at [Slide 8] to note that the CAT is confident in these heat loads. She said staff is not concerned that this would change much with RBSA 2022.

Grant referenced the 350 values for therms in the workbook, noting that it comes from a modeling simulation that converts kWh to therms. Grant asked if this accounts for the conversion efficiency of gas furnace.

- Josh Rushton, RTF Contract Analyst: We were pretty careful about that. I can check through the workbooks to make sure we're accounting for that appropriately.

Bruce Manclark, Earth Advantage, stated that post testing is perhaps more important than pre-testing [Slide 9].

- Thomas: Post testing is required here.

- Bopp: To clarify, post testing is required, but there's no CFM requirement. It's just to provide feedback to contractor.

Dan Groshans, CLEAResult, said he's been peripherally involved in the Energy Trust of Oregon delivery pilot program that has 60 homes in Oregon [Slide 10]. Groshans said he worked with contractors to deliver effective duct sealing as part of other heat pump/HVAC improvements. He noted that pre/post testing is required in this pilot, and it garnered interesting findings. He said it is not clear if the region will be able to make a cost-effective measure. Groshans said that Andrew Sheppard, Energy Trust of Oregon and Eli Claudell, Energy Trust of Oregon, can provide more information

Philip Kelsven, BPA, stated that some BPA utilities do QA on all sites while some don't. He didn't have a list of what programs do QA.

- Baylon: Do you track who's doing QA when you do evaluation?
- Kelsven: No.
- Bopp: What QA are they doing? If different utilities do different things, what does that mean?
- Kelven: As far as I know it's a visual inspection and not blower door testing.

Davis said he had lots of things to say about this measure [Slide 13] He noted that it is really outdated relative to what needs to be done in the heat pump environment. Davis admitted that this measure was a big deal in the early 2000's and the duct blaster allowed for new measures. He insisted that just sealing is not enough for heat pumps and duct sealing was decoupled from heat pumps in 2010 (CCS). Davis called that a bad move, adding that if you want heat pumps to succeed, you need things like good leaks and a larger return and supply. Davis insisted that insulated ducts is also important, pointing to BPA research.

Davis then addressed the $869 costs, comparing it to Puget Sound Energy retrofit results which cost $420 in 1998 (comparable to $840 today). He said adding screening, the cost in 1997 was $1400. Davis asked what the testing is now, wondering if people are just better at it leading to lower costs.

Davis concluded by saying if you want an effective measure, and for heat pumps to succeed, it shouldn't be just about sealing ducts.

- Thomas: We're putting a short sunset on this so we can address duct sealing in context of our new heat pump measures.
- C. Douglass: Maybe we could consider a broader heat pump duct improvement measure.

Gartland wrote, "Probably beyond the scope of this measure, but pairing larger return ducting with supply duct sealing was found to be beneficial in testing in CA." in the question pane.

Grant addressed labor costs, pointing to reviews of hourly rates in previous RTF meetings. He asked if labor costs were updated here.

- L. Douglass: I didn't do that, but I can.
- Bopp: Our labor rates are in line with the current SIW version.

Kyle Chase, Jefferson PUD, admitted that this doesn't affect savings, but said since the PTCS is gone, it would be good to adjust to CFM 25 for testing, because that's what code requires.

- Bopp: The spec does include a CFM 25 variation.

Baylon asked if we specify duct blaster values as part of specification [Slide 19].

- L. Douglass: Yes, details of the duct blaster are in the specification.

Baylon said that [Slide 21] implies that existing analysis and/or evaluation that are mostly pre/post billing are inadequate to our question/measure. He asked for confirmation of this point, wondering if we have any evaluations that we can use to judge this measure.

- Thomas: This measure is based on the evaluation of other measures that are as closely aligned to our measure that we could find. But they don't align. We need evaluations of this measure that align with our spec.
- Baylon: There have been many evaluation of this measure. The problem of evaluating the impact of duct leakage is not different. What is this research strategy doing that the existing evaluations did not already do?
- Light: This measure had been Planning for years. We looked for pre/post evaluations. But this is a more targeted duct sealing measure.
- Rushton: I agree with Light. We've seen evaluated savings all over the place. How do you explain this? We proposed to rebuild the measure around a careful spec and delivery requirements. But now we need an evaluation of our rebuilt measure. We don't know which evaluations speak most closely to our measure.

Gregory Brown, Tierra Resource Consultants, pointed to other programs with measures similar to the RTF, asking if they claim savings of an RTF measure.

- Light: Technically, they can claim savings, but they're not RTF savings.

Brown asked about the level of activity of this measure in the region.

- Thomas: I get the impression that it's pretty low, based on what L. Douglass's outreach found. And it's not high in the RCP, weatherization as a whole is less than 8 aMW per year in the RCP.

Davis recalled working with Puget and WA Natural Gas in the mid 1990s, which provided the basis for savings. He said that this work found that without screening, you'd get a lot of homes with little potential for savings, adding that screening added about 35% to the cost. Davis said that even with this, you can spend much of a day sealing and not get good duct blaster savings, adding that single family duct sealing is much more complicated than you think.

Davis continued, saying that manufactured home duct sealing is faster, more predictable, and requires less materials. He mentioned that manufactured home savings were reduced due to contractor fraud.

Davis said the hardest part of single-family work is finding a site that needs duct sealing and then getting significant reductions. He called it harder than you think to get savings.

- Light: I don't think the fact that not much is happening means that there shouldn't be a lot of savings. We can push the region in the right direction.

Jes Rivas, Illume Advising, called [Slide 25] helpful to remember why we picked certain studies over others. She thought the research price tag needs to be updated. Rivas asked Thomas if she senses that there's any research going on.

- Thomas: No, no sense of that. Maybe some evaluations will be helpful.

Manclark admitted that fraud is a big issue, adding that, ironically, low-income programs do a lot of things right like screening, pre and post testing, and duct sealing. Manclark stated that most HVAC contractors don't want to do this, as it's a money loser. He called it a measure that can't exist without meaningful third-party QC. Manclark concluded by saying he doesn't see utilities doing this.

- Baylon: One problem with evaluations is the variety of savings. It is unlikely that QC will reduce this variation. There's a lot of variation in how leaks are distributed within a home. Even with screening, duct blaster test, and so on, you don't know what you're going to get. If you want this to happen, you need to relax your concern about variation in savings. This is just really different from house to house, even with QC.
- Light: This reminds me of past times when this used to be a standard protocol. That meant you do the work, and you evaluate it. But the question is, if we use a more focused spec, can we get a UES? Or is this just not UES-able?

Davis looked back at the Puget report (of which he was a co-writer) saying heat pump homes were a subset and there were lots of gas homes. Davis reported that savings in heat pump homes were about the same. He added that supply losses count double for HPs because of air isn't that warm versus a gas furnace.

- Light: Note that costs were updated to reflect the SIW. So, if there is a proposed change to cost. We'll add that to the motion.

Rivas said this will take work to fix [Slide 23]. She asked if there is a duct sealing and/or a quality install portion of the heat pump measure.

- Thomas: Yes, we have a centrally ducted HP retro-commissioning measure in the queue. Duct sealing will likely come up, as will other new measures for CDHP. Do we have a last measure in version? What would we need to do to the home to prepare for the CDHP. I think we should work through this before June 2027, get that new measure up, and then come back to this measure. And maybe remove heat pumps from it at that point.

Grant asked when REEDR is going to be calibrated.

- Thomas: RBSA 3 HEMS homes will get put into REEDR later this year. I'm not sure what that process will look like, so I can't say.

- Grant: Would you still include previous RBSAs in the calibration?
- Thomas: That will depend on what we find.
- Light: REEDR is calibrated with RBSA 1 and 2. We didn't use REEDR for an update here because we don't have new information. Any change in savings wouldn't be meaningful.

Grant then asked about changes of HDD and CDD heating zones, wondering if that would impact the SEEM results.

- Light: I don't think so. The CDD/HDD definitions just tell you what zone you sit in.

Baylon said the way we estimate heating zones for duct sealing measures is relatively well established but agreed that duct sealing isn't that simple. He said the measure we developed is mostly based on our regional work plugged into SEEM. Baylon said what's in EnergyPlus is a different model that diverged with SEEM. He agreed that there's a question of how REEDR identifies savings from duct sealing, saying that this is not an evaluation problem but an engineering problem: how do we model it?

- Light: I recall the question around of duct sealing in REEDR. We need to keep that in mind.

MOTION

I, Jes Rivas, move that for the Duct Sealing SF UES the RTF, Keep the status at Active, Keep the category at Planning, Update costs as presented, Set the sunset date to June 30, 2027. Miller seconded.

Davis recalled testing to see the energy needed to keep a home the same temperature with ducts and with space heaters. He reported a 30% average loss in homes and even more with heat pumps. Davis called these big numbers, especially when regarding heat pump sizing. Davis asked about the consequences of voting no on this motion.

- Light: It sunsets this month so we need to take some kind of action: extend the sunset, deactivate, or something. We can't just end it.

Jackie Goss, Energy Trust of Oregon, was worried about this as a Planning measure with a research plan requiring an RTF-designed measure, that no one is doing. She said this will lead to it being in Planning forever. Goss then asked if this has been discussed with the implementer's group.

- Light: It hasn't, but it could.
- Bopp: For context, when this came up last, I tried to deactivate the measure because of erratic savings and lack of activity. The RTF insisted on keeping it. There was a lot of discussion that led to our current measure, and the belief that this was what's needed to get to reliable savings. If it's not implementable, we have a problem.

Adam Hadley, RTF CAT, called this discussion familiar, like something he was listening to in 2001. Hadley advocated for going back to a Standard Protocol where you run a program as you like, then evaluate it to determine savings.

- Light: The current motion is to extend the sunset date out two years and update costs. That keeps this measure on the books for two years. If this motion fails, we could consider other options, including reworking/redesigning the measure, or deactivating the measure. We couldn't vote on turning it into a Standard Protocol today.

Brown appreciated the reminder about deactivation attempt. He then moved to Goss' point about research, saying if the research is done in the next couple of years would it really be informing a future version of this measure as the region is already envisioning the measure changing significantly anyway.

- Thomas: Given the full rework done a few years ago, I don't think we'd do another full rework. We could just remove ASHPs from this measure and bundle duct sealing with heat pumps. That's a question for the RTF. If this is not what the region needs, what is? That's not the trajectory I thought we were on, but I could pivot.

Rivas did not think this was the right measure but didn't know that the RTF could rejigger it enough to make it right. She argued to let it exist for now and find a better measure in the meantime. Rivas didn't think the research is worth doing and suggested an amendment to the motion asking staff to interact with implementers group.

Baylon pointed to the sunset date and the actual work needed to make the measure successful. He wondered if staff has the time to do that, calling this an important measure. Baylon was confident REEDR could handle this measure for non-heat pump homes, but not for heat pumps.

- Thomas: We put out a two-year sunset date not because we think heat pumps will take two years. We're waiting for data coming in the next few months and starting conversations now so we could develop the measures quickly. I'm scheduling subcommittee meetings now to expedite this. In regard to duct sealing, we can prioritize duct sealing as the RTF wants. We can shift work, use contractors, etc.

Light pointed to the time and effort to rebuild this measure that everyone now wants to get rid of. She did not think it would be fair to get rid of this without someone bringing us something different. Light said we need space and good ideas from the RTF if we want to rework this and not expect the CAT to do all the lifting. Light stressed that staff needs ideas from the RTF.

Kelsven said that the market isn't offering this measure, noting that the region spent 20 years doing PTCS, only to see contractors not want to do this as they want to sell equipment. Kelsven wondered where we go now as the region doesn't have the momentum. He concluded by saying it's not an issue with the measure.

- Light: Maybe someone in the region that works on market transformation has ideas?

Davis called it necessary to vote for this. He then addressed Kelsven's point, saying how we do this measure is important asking who we give the incentives to. He said installers do the work and take the risk. Davis said he would reluctantly vote for this to avoid putting the measure in limbo.

Vote on the motion. The motion carries. (23 yes, 2 no, 0 abstain)

Light said staff will take the feedback we received to heart and consider updates to this measure as we update other HVAC measures.

BREAK

Update Planning UES: MH Duct Sealing
Logan Douglass, RTF CAT Presentation
*After discussing how many manufactured homes are needed, potential costs, different sealing products, and a difference in savings between gas and electric homes, the RTF approved the updates to the measure and extended the sunset date. *The notetaker also learned some HVAC humor.*

C. Douglas began the presentation with the following joke: "What do plumbers call Flexstep?":

- Kneepads
- There were roars of laughter in the room, [except for the RTF notetaker*].

C. Douglas then told another joke: What do you call a Kokanee Salmon that is trying to slim down?

- Diet Kokanee
- More roars of laughter.

Brown recalled a single-family duct sealing presentation that showed that the deflator looks different from 2025 to 2016 [Slide 10]. He said that is should be the same.

- L. Douglass: I'll double check that.

Jerome stated that California recently updated measure life to 23 years in a workpaper for AC and duct sealing [Slide 12]. He stressed that he is not proposing a change to our 18-year assumption.

Baylon called [Slide 16] purple unicorn territory, saying a proposed 500 manufactured homes going through this program is about all existing homes times three. He asked how staff arrived at this number.

- Rushton: 500 was based on sample sizes and the uncertainty seen in existing studies.
- Baylon: Suppose you can't get that. You're dealing with rather extreme manufactured home adjustments. What would we get?
- Rushton: A small sample size equals less certainty.
- C. Douglass: We say what's ideal. But if we get an evaluation with a smaller sample size, we'll take it. Maybe it would be sufficient. We have RTF to decide if it's sufficient.

Davis asked what the estimated potential is estimating 19 aMW. He asked how many Northwest manufactured homes are left that haven't had duct sealing.

- Manclark: I know Energy Trust of Oregon made estimates in their territory of about 40,000 homes.
- Davis: I know there has been a lot of work in the Olympic peninsula, EWEB, and Idaho Power have all done a lot.
- Manclark: There are 110K manufactured homes in OR with 40% remaining. A lot of manufactured homes are aging out. And thanks to our programs, new homes are better.
- Michael Hoch, Energy Trust of Oregon: Energy Trust of Oregon thinks there's a lot left, but we don't know exactly how much.
- C. Douglass: I put this in the 9th Plan drafts supply curves. RBSA 2022 didn't have sufficient data to answer this, but in 2017 RBSA, about 25% of manufactured homes have some evidence of duct sealing. Maybe another 5% has been done since then?
- * This is when the notetaker got the Flexstep joke!

Davis proclaimed his love for this measure but called the cost interesting [Slide 17]. He said 30 years ago this was $220 which is about $440 in today's dollars. Davis said that's close to the $450 in 2025 dollars that you have asking if this measure include screening.

- L. Douglass: See [Slide 6].
- Davis: The advantage of MH is standardization. Everything is faster. This reduces the time and cost to decide to work on a home and/or just work on it. Besides how motivated crews are, we don't need new numbers. Comfort Seal found 13% savings. We found a similar number for PSE because the same people were doing it. We know how to seal manufactured home ducts. They're all the same. I'm not convinced that we need more evaluation.

Light pointed to [Slide 21] which summarized existing evaluations, saying it shows that there's variation.

- Davis: Different people with different motivations did the work that resulted in lower savings.
- Light: Last time, the RTF said that this wasn't good enough for Proven. The RTF could move to Proven now if they want. Our current savings number is 900 kWh.

Brown stated that the single-family measure had cooling savings and wondered why this one doesn't.

- L. Douglass: This measure combines the heating and cooling savings.
- Brown: But you have a savings shape that's all heating. You should roll in 9% cooling.
- Bopp: We'd need to go back to evaluations to see how they handled cooling. We could look at that and, if appropriate, change the savings shape to better reflect heating and cooling.

Gartland asked if programs have been using Aeroseal. She acknowledged that the product is more expensive but understood it to be more effective than mastic.

- Jerome: There's less Aeroseal in manufactured homes than single family.
- Manclark: There's the same issues with fraud with Aeroseal. Plus, Aeroseal only fixes small holes, not the large ones prevalent in manufactured homes.

Grant pointed to 63 therms per home equating it to nearly 1,500 kWh for an electric home. He asked about the disconnect.

- Bopp: Generally, gas homes have a higher thermal load, so percentage-based savings result in higher savings for gas.
- Rushton: That's correct. We see that consistently with gas versus electric homes.
- Baylon: Plus, almost all gas manufactured homes are in HZ 2, not in HZ1, so heating loads are higher.

MOTION
I, Dave Baylon, move the motion as written but change the sunset day to January 31, 2026.
There was no second.

I, Mark Jerome, move that for the MH Duct Sealing UES the RTF, Keep the status at Active, Keep the category at Planning, Update costs as presented, Change the name to Duct Sealing MH, Set the sunset date to June 30, 2027.
Chase seconded

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

Deactivate Small Saver UES: ENERGY STAR Refrigerated Beverage Vending Machines
Denis Livchak, RTF CAT Presentation
After staff presentation, the RTF deactivated the measure.

Grant stated that ENERGY STAR includes new and rebuilt systems [Slide 12] asking if the regional potential only considers new units.

- Denis Livchak, RTF CAT: The potential estimate is based on ENERGY STAR shipments. That includes rebuilt machines, so the potential should be inclusive of that portion of the market.

MOTION
I, Dave Baylon, move that the RTF deactivates the ENERGY STAR Refrigerated Beverage Vending Machines UES.
Brown seconded.

Brown recalled the RTF making this measure five years ago for the Plan and not because of regional interest. He called the first analysis rubbish, admitting that he did the work. Brown reiterated that it is not worth RTF resources to make a QPL given the size of the potential.

Vote on the motion. The motion carries. (22 yes, 0 no, 0 abstain)

Thomas told the following joke. Why was the coach yelling at the vending machine?

- He wanted his quarter back.
- The RTF responded with applause.

LUNCH

Update Small Saver UES: Anti-Sweat Heater Controls
Paul Sklar, RTF CAT, Presentation
Staff presented the update. RTF discussion centered around disparities in 2021 Plan potential, including cooling savings, and advances in new equipment before approving the update. The RTF approved the updates as presented and set the sunset date to 2030.

Baylon asked if the new measure includes low and medium temperature devices [Slide 4].

- Paul Sklar, RTF CAT: Most new cases and medium temperature cases don't have Anti-Sweat Heater Controls (ASHC). The Plan's potential is based on low temperature cases, but this is a retrofit measure and there are low temp applications. I'm not sure why the 2021 Plan potential is double. Only low temperature cases are being considered.
- Light: We can look into why the potential changed so much. It's not so relevant for today's discussion. This is still a small saver.

Grant stated that the 9th Plan draft file assumes cooling [Slide 8]. He asked what happens if our plans don't align with the Council analysis, using 68 watts versus 64 watts for heater size as an example.

- Sklar: We can put cooling savings into our work. They'd be small, but we can add them.
- Light: Grant is saying that the Plan assumes cooling savings and asking why it's not here.
- Sklar: There's no particular reason that they're not included here. The difference would be small.

Brown pointed to a door length of 2.6 feet [Slide 13]. He thought that the draft slides assume 12 feet of door wondering if these are incongruent.

- Sklar: That was the length of the doors controlled by a controller. We changed that because the 12-foot controller was our estimate but that didn't differentiate between low and medium temperature cases. Low temperature cases have more sensors and more controls. The upshot is that a medium temperature controller controls more feet of case. This methodology of calculating costs is more sensitive to that reality.

Baylon asked if at this point the contention is that the anti-sweat design is already implemented with a controller for new cases [Slide 14].

- Sklar: The federal standard for efficiency is based on total case consumption. It's tech agnostic but ASHC is pretty easy to do.
- Baylon: So, we're assuming the as-built controls are sufficient.

Rivas wanted to know why regional potential is so high considering the assumption about ASHC on new systems is nothing new.

- Light: Kevin Smit, NWPCC, is looking into this. It's not an easy thing to determine. It's not an apples-to-apples comparison, but we'll look into this and recheck when we finalize our supply curves for the Plan.
- Baylon: It looks like medium temperature is in the measure.

- Light: It's in the RTF measure, not the Plan potential. This isn't an RTF discussion. The Council staff will look into this.
- Baylon: The Plan potential should consider the medium temperature measure, too.

Marks said they see medium temperature cases using better doors to avoid Anti-Sweat Heater (ASH). He asked if this exists for low temperature equipment.

- Sklar: It's possible to avoid the need for ASH for medium temperature equipment with better doors. But you need it for low temperature although you might just need it less.
- Marks: So, the potential is mostly for low temperature only cases?
- Sklar: Yes.

Smit addressed Rivas' earlier comment, explaining that the main difference between the two Plans is the presence of more eligible linear feet. He said the CBSA data on this was suspect, so Sklar and Livchak came up with better number of eligible linear feet.

- Livchak: The DOE did this analysis in 2023. They analyzed baseline equipment and assumed all new medium temperature cases now have double pane argon windows while low temperature cases have triple pane argon glass. That reduced ASH for low temperature cases, but it didn't consider controllers.

Gartland asked what "hourly savings per annual kWh" means [Slide 17].

- Sklar: It's the percentage of annual savings that occur at each hour

Baylon asked about the denominator of the share of annual savings.

- Ryan Firestone, RTF CAT: The graph on the left is the distribution of savings for 12 months. The graph on the right is the distribution of annual savings across all hours, all years, all days.
- Baylon: So, the graph on left says that 20% of all heating interaction occurs in January?
- Sklar: Yes.

Baylon asked if medium temperature is included in the measure [Slide 18].

- Sklar: Yes.
- Jerome: Older cases had single pane glass and continuously operating heaters. There are still a lot of them out there.

Gartland asked what happens to old equipment wondering if it gets scrapped [Slide 19]. She pointed to a significant re-use market voicing concern that seven years is too low.

- Sklar: That's possible. But we don't include the second life of the equipment in our analysis.
- Livchak: This measure is mostly for remote condensing cases. They're less likely to be reused because of the refrigeration labor involved in re-piping and refrigerant.

Hoch noted that staff is suggesting sunsetting this measure this year due to low uptake. He wondered if other programs see uptake. He also wondered why potential changed.

- Marks: We did a lot of work 10-15 years ago, so much has already been done. Now we sometimes do it if a chain store turns over.
- Thomas: We considered deactivating this. The CAT suggested giving it one more iteration.

Light spoke about Plan potential saying we have better Bonneville data regarding the amount of linear feet available in the 2021 Plan. She said when we do the Plan, we look for technical achievable potential, and we see 4 aMW of remaining potential. Light said programs are the main avenue for delivering EE, but sometimes the market delivers it naturally. She said staff doesn't look at that distinction, just how much is possible.

Parking Lot
Light said it makes sense to include cooling savings estimates for consistency [Slide 20].

- Brown: We discussed the saturation of ASHC on new cases. Are we assuming 100% of new cases have this?
- Sklar: Yes.

MOTION
I, Gregory Brown, move that the RTF approve Anti-Sweat Hater Controls UES as presented, and Keep the Category at Small Saver, Keep the Status at Active, Set the sunset date to June 30, 2030. For the next review, check saturation of anti-sweat heater controls on new cases to determine if potential remains for this measure.
Baylon seconded

Vote on the motion. The motion carries. (24 yes, 0 no, 0 abstain)

DHP One to One Research Strategy
David Bopp, RTF CAT Presentation
During the presentation the RTF discussed tracking cooling numbers and the importance–or non-importance–of a control group. The RTF adopted the Research Strategy unanimously.

Baylon pointed to a 2013 study with about 100 Energy Trust of Oregon sites that kept track of both electric resistance heaters and heating and cooling of the DHP [Slide 10]. He said that made it possible to have a good idea of what kind of cooling and heating the study was getting. Baylon said that billing analysis doesn't show cooling but does impact the base case. He thought that this tends to bias the heating savings down. Baylon doubted that the RTF will get a metering project out of this, stressing that we need to be aware of the 2013 data. He did think it would work for western zones where there's about 100 kWh of cooling per year but might be dicey for the eastern zones where there's 400-500 kWh/year of cooling.

- Bopp: We'll keep that in mind.
- Baylon: And, if the base case has zonal cooling, it's a crappy window shaker with a COP of 1.3 or so. You could argue that we're not doing worse than this and it might be better.
- Rushton: A/C is a secondary objective. We're OK if we don't get it.

Brown said this sounds like a null hypothesis, noting that the RTF is planning on using 2013 results unless new data contradicts this. He stressed that that's not our typical approach of adding to existing body of data.

- Rushton: We don't intent to bind ourselves to a null hypothesis. But my back of envelope calculation is checking for heating moving by more than 250kWh. If it had, we have options, but we'd probably still use the 2013 data to inform our savings estimates.
- Baylon: 2013 had 3500 sample size, not 500.

MOTION
I, Eric Miller, move that the RTF adopt the Ductless Heat Pump one-to-one UES Research Strategy as presented
Davis seconded.

Grant asked how climate change is accounted for since this work compares to events that happened 12 years ago.

- Bopp: We don't have a plan currently. We could consider that when data comes in. We have SEEM temperatures and loads changing.

Baylon noted that the 2013 data had a detailed questionnaire with independent variables including "do you use supplemental heat" and "how big is the house." He said this allows you to do things in the analysis that you couldn't otherwise. Baylon thought it would be good to follow up the billing analysis with phone survey, even if it's a very simple survey.

- Rushton: The research strategy does include a phone survey.

Gartland did not see discussion in the Research Plan about increased use of A/C adding that she saw staff added this as a secondary objective. She thought this should be a primary objective: how much more A/C use is there, and what does it replace, pointing to an eventual summer peaking problem.

- Light: We assume A/C in the baseline. This will be a tricky part of the analysis, but we've noted the concern.

Manclark said the survey asks if a circuit for the DHP is added or a resistance heater removed.

C. Douglass asked if the "comparison" group is a "control" group. He also wondered what would happen if a program can get 1000 program homes but not a comparison group.

- Rushton: We think a control group is important. Sometimes we see unexplainable things without the comparison group.
- Baylon: In my experience, comparison groups just add confusion to the results. In 2013 we had a comparison group, but their results were all over the place.
- Light: Note that the research strategy is what we think it takes to get there, but research in other forms could be useful and get us to Proven.

Noe Contreras, NEEA, asked if staff would include integrated controls in the research.

- Bopp: No, we would not be looking at what type of controls are being used. We generally assume that DHP controls are independent of zonal heating controls.

Vote on the motion. The motion carries (23 yes, 0 no, 0 abstain)

BREAK

Member Orientation: Costs and Benefits
Ryan Firestone, RTF CAT, Presentation
Discussion touched on non-energy impacts and how costs come out of the Power Plan.

Grant pointed to avoided costs and energy prices, asking if they are in 2016 dollars [Slide 8].

- Light: Yes. That kind of parameter comes from the Power Plan.

Jerome voiced surprise and delight on how well the material in the Guidelines Section 7 has held up. He noted that it is several years old and still highly informative.

Anthony asked if the definition of cost-effectiveness is up to the RTF and if the body has the power to change it.

- Light: The Power Act provides the general framework for the definition and some case law has clarified that it comes down to comparing resources. The Council approves a lot of methodological specifics. So those aspects of the definition are out of our hands.
- Anthony: Does the Power Act specify whether this is a cost to consumer versus a cost something like the TRC?
- Light: The Power Act is clear that we need to focus on the total resource cost, not the consumer (utility) cost.

Grant asked how program incentives factor into cost-effectiveness.

- Light: It's what portion is paid for by end consumers versus utility. It is not something that affects our cost-effectiveness determinations.

Light stopped at [Slide 9] to say that when the RTF gets to the question of which costs ultimately get included in our analysis, this definition gets to the bulk of considerations that we are able to incorporate for all resources.

Light noted that the RTF has a long history of discussing non-energy impacts with the RTF PAC [Slide 13]. She admitted that there could be some impacts that some jurisdictions care about that are not addressed. Light said this could change as a matter of RTF spending resources, but it is at the discretion of the PAC and RTF funders.

- Thomas: We expect to take this up with the PAC in the late fall. There are a lot of related efforts being done by various stakeholders. We hope to bring those together in one place and sort through the details in a systematic way.
- Baylon: This comes down to an ad hoc decision, and for the most part we don't do it.
- Jerome: I'm glad the PAC is looking into this more because we could really use more clarity on what and why.

Grant asked if there is a definitive list somewhere, adding that this was unclear to him recently in some firewood-related cost adjustment to a DHP measure.

- Light: Fuel cost is specifically listed in the Act, so we always include those.
- Kelsven: The official list is "everything that's quantifiable and directly attributable" which necessarily requires a lot of judgment to specify.

Grant asked if the study on [Slide 23] looks at the actual costs coming out of the Power Plan or if it just takes those values as given.

- Light: No, it was just checking the rigor of RTF work, we've been pretty ad hoc with costs at times in the past.
- Grant: Will the Council consider doing an outside review of costs when the next Plan is done? It seems like by the time the Power Plan has been finalized the RTF has moved on.
- Light: It's less about reviewing the costs in the Plan and more about guiding the RTF to be more rigorous going forward. I have no idea what guidance will come out of this Plan.

Grant stopped on [Slide 35] to say that ProCost is great and so is [Slide 16]. He thanked RTF staff for their work. Grant then asked what the cost/benefit analysis is of using AI-generated cats.

- Firestone: It looks pretty good!
- C. Douglass: I second the props to ProCost. Thanks Ryan.

Member Orientation: Climate Zones and Methodology
David Bopp, RTF CAT, Presentation
Staff presented information on weather zones. Discussion focused on clarifying questions around how weather files and data are used at the RTF in measure work.

Grant asked if maps are available online [Slide 9].

- Thomas: Yes. The data, by zip code, is in our climate zone workbooks.
- C. Douglass: The climate zone workbooks have tons of data in them. They're a great resource.

Grant discussed data ranking, saying evaluation typically trumps simulation [Slide 13]. He asked about the aging of evaluation data relative to changes in climate and history "moving on."

- C. Douglass: In the Plan, we have to think long term and use future weather files. For the RTF, it's worth considering if the data is 10 or 15 years old if things have changed.
- Grant: Are RTF results adjusted to FMY weather for use in the Plan?
- C. Douglass: Maybe not FMY, but perhaps for some downstream resource adequacy adjustments which come later in the process.

Grant asked if there is a regular review of weather files [Slide 16].

- C. Douglass: TMYx, which covers 2004-2018, is what we use. That results from work we contracted from Ben Larson, Larson Energy Research, and meteorologist Justin Sharpe.

There is data that goes up to 2023, but we were advised against using it because it relies on satellite data with relatively large grid sizes. This isn't sufficient for temperature data because it can result in biases. For example, data for Seattle could be in the same grid cell as the nearby mountains, resulting in a "cold bias." When we did REEDR calibration with HEMS data, we used the actual data for the metered years.

Grant pointed to the CDD column on [Slide 23] that shows an increase from CZ1 to CZ3, but said HDD's don't follow this trend. He asked if we should keep this variation in mind when looking at output on a HZ/CZ level.

- C. Douglass: We can look at these as being roughly directional. Typically, we collapse these into HZs or CZs, so we shouldn't read the tea leaves here too much. Boise is right on the HZ1/HZ2 border, and it's a big city. It can lead to some weird results

Eva Urbatsch, Puget Sound Energy, stated that the station for Bellingham no longer has data. She asked how often data is checked.

- Bopp: We check when we update the analysis. Bellingham may not be an active station anymore.
- C. Douglass: And we have to QA the data. Sometimes we'll see a 5°F difference between two nearby stations.

Gartland noted that this work focuses on temperature, asking about humidity and solar insolation [Slide 31]. She wondered if there is any QC on those values and if they are used in the modeling.

- C. Douglass: Good question. We don't consider them when selecting representative locations. We could improve the methodology to check those values. Even the fact that we consider elevation is a big leap forward for the RTF.

Grant asked if HDDs are daily values, requesting that they be labeled in your spreadsheets.

- C. Douglass: Yes.

Grant then asked if SEEM was used in the extreme weather research.

- Bopp: Yes.

C. Douglass ended the meeting at 4:00pm.

Voting Record: June 17, 2025

Motion Language	Yea	Nea	Abs	Motion Passes?	Percent of Yea Votes		Number of Voting Members Present
					RTF Voting Members	Members Voting (60% min)	

					(40% min)		
Motion: Approve the minutes from the May 22, 2025 RTF meeting. (Douglass/Jerome)	24	0	0	Yes	83%	100%	24
Motion: Approve the agenda for the June 17, 2025 RTF meeting. (Miller/Hoch)	24	0	0	Yes	83%	100%	24
Motion: Extend the sunset date of the Retrofit Doors on Existing Display Cases to July 31, 2025. (Mabee/Nix)	24	0	0	Yes	83%	100%	24
Motion: Deactivate the screened applications of the Ductless Heat Pump Zonal Heat MH and SF measure. (Miller/Marks)	23	1	0	Yes	79%	96%	24
Motion: Approve the measure as presented, and: Keep the status at Active Keep the category at Planning Update costs as presented Set the sunset date to June 30, 2027 (Rivas/Miller)	23	2	0	Yes	79%	92%	25
Motion: Approve the measure and: Keep the status at Active Keep the category at Planning Update the costs Change the name to Duct Sealing MH. Set the sunset date to June 30, 2027. (Jerome/Chase)	21	0	2	Yes	72%	100%	23
Motion: Deactivate the ENERGY STAR Refrigerated Beverage Vending Machines UES. (Baylon/Brown)	22	0	0	Yes	76%	100%	22
Motion: Approve Anti-Sweat Heater Controls UES as presented, and: Keep the Category at Small Saver Keep Status at Active Set the sunset date to June 30, 2030. (Brown/Baylon)	24	0	0	Yes	83%	100%	24

Motion: Adopt the Ductless Heat Pump One-to-One UES Research Strategy as presented. (Miller/Davis)	23	0	0	Yes	79%	100%	23

October June 17, 2025, Meeting Attendance

* Designates Voting Member

Name	Affiliation
Jamie Anthony*	BPA
Kathryn Bae	NEEA
Landon Barber*	Idaho Power
David Baylon*	Independent
David Bopp	RTF Contract Analyst
Frank Brown	BPA
Gregory Brown*	Tierra Resource Consultants
Kyle Chase*	Jefferson PUD
Noe Contreras*	NEEA
Bob Davis*	Ecotope
Christian Douglass*	RTF Vice Chair
Logan Douglass	RTF Contract Analyst
Jesse Durst	PSE
Ryan Firestone	RTF Contract Analyst
Wesley Franks	WA UTC
Lisa Gartland*	ODOE
William Gehrke	NEEA
Kevin Geraghty*	Independent
Andrew Grant*	Cadmus
Jackie Goss	Energy Trust of Oregon
Todd Greenwell	Idaho Power
Dan Groshans	CLEAResult
Connor Grossman	CLEAResult
Adam Hadley	RTF Contract Analyst
Wylie Hampson	NEEA
Michael Hoch*	Energy Trust of Oregon
Aaron Ingle	NEEA
Masumi Izawa	BPA
Mattias Jarvegren*	Clallum PUD
Mark Jerome*	CLEAResult

Marshall Johnson	Energy Trust of Oregon
Nolan Kelly	BPA
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
Andi Nix*	Energy Trust of Oregon
Craig Patterson	independent
Andrew Paul*	Avista Corp
Joe Prijyanonda	ICF International
Laney Ralph*	NW Natural
Ron Ramey	Energy Solution
Jes Rivas*	Illume Advising
Samuel Rosenberg*	Pacific Northwest National Lab
Josh Rushton	RTF Contract Analyst
Paul Sklar	RTF Contract Analyst
Kevin Smit	NWPCC
John Stalnaker	BPA
Poppy Storm	2050 Institute
Samantha Taylor	CLEAResult
Laura Thomas	RTF Manager
Eva Urbatsch*	Puget Sound Energy
Jim Williams	independent