March 17, 2026
Meeting Minutes

Welcome, Agenda Review and Meeting Minutes
Kevin Smit, RTF Chair, began the meeting at 9:00am. Christian Douglass, RTF Vice Chair, took roll, counting 22 voting members in the room and on the webinar.

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

Douglass moved to approve the minutes from the February 18, 2026 meeting. Nick O'Neil, Energy 350, seconded. The minutes were approved unanimously.

Management Update
Laura Thomas, RTF Manager Presentation
Staff presented the updates. There was no discussion.

Sunset Date Extensions Planning, Proven EUS: Ductless Heat Pump for Forced Air Furnace SF and MH and Proven UES: Ductless Heat Pumps for Zonal Heat MH and SF
Laura Thomas, RTF Manager Presentation
Staff presented the materials. After discussing if there would be enough time for the work the RTF approved the extension.

Grant asked if the extension gives the Contract Analyst Team (CAT) enough time to complete the work [Slide 4].

- Laura Thomas, RTF Manager: I think so. If not, we can request an extension for another month.

MOTION
I, Mark Jerome, CLEAResult, move that the RTF extend the sunset date of the Ductless Heat Pump for Forced Air Furnace SF and MH UES and Ductless Heat Pump for Zonal Heat MH and SF UES to December 31, 2025.
Kyle Chase, Jefferson PUD, seconded.

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

Sunset Date Extension Small Saver UES: Irrigation Hardware Maintenance
Laura Thomas, RTF Manager Presentation
After the presentation and light discussion, the RTF approved the extension.

David Baylon, independent, said the graphic on [Slide 5] suggests many reasons for poor water uniformity.

- O'Neil: I suggest a subcommittee meeting to discuss this.
- Thomas: This is the only question we have. I will reach out to folks for feedback. It should be a short subcommittee meeting.

MOTION
I, Ben Mabee, BPA, move that the RTF extend the sunset date of the Irrigation Hardware Upgrades UES to May 31, 2026.
O'Neil seconded.

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

Discussion: Commercial EV Market Characterization
Thomas Timbario, Samuel McLaughlin, Brian Smist, Russell Owens, CLEAResult Energetics Presentation
Guest speakers from CLEAResult Energetic presented on the project they completed for the RTF to characterize the commercial electric vehicle market. The focus of the study was on light and heavy duty vehicles. The RTF was curious and appreciative of the work. RTF staff indicated that the work from this project would be available on the RTF website in April and notice when it would be available would be provided in an upcoming management update. Staff also indicated that based on the results of the study, it seems the opportunity at this time would be to focus on demand response for commercial EVs and continue to monitor the data and market to see if an opportunity for energy efficiency would be possible in the future.

Douglass confirmed that the numbers on [Slide 21] represent the number of registrations in the region.

- Thomas Timbario, CLEAResult Energetic: Yes.
- Baylon: Why do we care about that?
- Thomas: We are trying to understand the market so we can prioritize what to look at.

Grant asked the age of the data.

- Timbario: The data is from 2025.

David Tripamer, BPA, noted that Chinese-made vehicles are finding their way into the North Amercian market [Slide 30]. Tripamer asked about their battery technology.

- Timbario: They prefer an LFP for light duty vehicles, but we don't know if that will translate into medium or heavy vehicles.

Baylon asked if battery type was linked to milage per kWh in the different classes.

- Timbario: No but NMC batteries are more energy dense than LFP batteries. However the NMC is more expensive so there are trade offs.
- Baylon: Only one manufacturer uses the NCA?

- Timbario: Right, just Volvo.
- Baylon: It might be useful to compare Volvos to other types.

Baylon then asked if Class 8 trucks get more milage per kWh than other types.

- Timbario: This graph represents energy use, not efficiency.

BREAK

Douglass asked about efficiency [Slide 31] asking if the spread is a reflection of battery size/weight.

- Timbario: No there's more to it than that including body style and market segment.
- Douglass: I get there are aerodynamic differences but I wonder how much is due to the weight. It feels like it should be a primary driver.
- Russell Ownes, CLEAResult Energetics: The duty cycle of the truck also plays big role.
- Douglass: Is this emprical data or based on a rating?
- Timbario: It's calculated using battery capacity and range. It's not real world data.

Denis Livchak, RTF Contract Analyst, asked if towing capacity was considered.

- Timbario: No, these are not real world numbers.
- Livchak: Is the stated vehicle range based on a certain duty cycle or an EPA cycle?
- Timbario: We will get to that. But manufacturers don't disclose the range.

Baylon asked about the end point of this work [Slide 41].

- Timbario: GEM is used for electric truck/bus power train and there is certification data on the EPA website, but there is no examples or guidelines on how to do it.
- Baylon: So we don't know what goes into a rating. We have to trust the EPA and OEMs.
- Timbario: We know how it's done. We don't have access to the data inputs or the results.

Jim White, Chelan County PUD, thought the charge characteristics were the most important factor for the RTF to consider. White pointed to a fleet of electric buses in Chelan County and that he has found no need to get into transmission characteristics.

- Thomas: We trying to understand the data for the tools. I agree with your point but we will get to local duty vehicles later in the presentation.
- White: Right now market permeation is low but in China 50% of these vehicles are electric so this conversion can happen quickly.

Baylon said none of this presentation has much to do with electric vehicle emissions or gallon per mile [Slide 44]. Baylon asked for a compatable metric that can be compared to diesel.

- Timbario: The standards are written as gallons per 1,000 ton miles which can be converted easily.

Grant reminded the room what while the drivetrain emits no CO2 the power used to generate the electricty does.

- Timbario: This isn't a well-to-wheels analysis. It's just what comes out of the tailpipe.
- Thomas: And any RTF work would compare an electric vehicle to another electric vehicle.

Grant asked if the analysts looked at the economics between diesel and EV trucks to find if incremental costs versus the cost of energy made it economically viable to ramp up [Slide 47].

- Thomas: That was out of scope of the project. They were just looking at the market in general.
- Samuel McLaughlin, CLEAResult Energetics: That's correct.
- Baylon: But it would be a useful back of the envelope calculation. You have almost everything you need to make a quick pass at it.
- Thomas: It's out of scope for Energetics to deliver that. Also the RTF wouldn't look at that perspecteve. We compare electric to electric.
- Baylon: It might give insight to how attractive or unattractive electric trucks are to operators.
- Thomas: Sure, but a lot of things will drive adoption. I'll talk to the CAT to see if it's vialbe.
- Grant: It would also help when you look at regional potential.
- Smith: It would help with the load forecast and bigger picture work.
- Timbario: Total cost of ownership analysis is widely available so probably not worth duplicating efforts.

Grant asked if battery chemistry impacts charge time [Slide 50].

- Owens: I think so.
- Grant: The RTF may want to consider that if they're going to develop a DR product.
- Owens: The limitation is on the higher end. All the batteries should be able to take the lower charge without limitation.

Q&A

Jamie Anthony, BPA, asked if cab heating was considered in the calculations.

- Timbario: No, that is not part of the test cycle. It could be accounted for but we don't know because we don't have the input files.

Grant referenced the EPA Smartweight standards asking if the analysts found claims of fuel performance efficiency gains.

- Timbario: Yes [Slide 36]. They call it fuel savings.
- Grant: Did you look outside the NW when looking at the state programs for electric to electric upgrades?
- Timbario: No one is looking at efficiency outside of these truck products beyond trying to meet a carbon goal.
- Grant: This would be a good time for the RTF to reach out and partner with other regional agencies. This will be a national problem and maybe CALTF might be interested.
- Thomas: We've heard a lot of interest from other agencies about the passenger class work. We are not well positioned to do national work but there are a lot of organizations that could. I will bring this up with the RTF PAC.

White offered data on bus electrification, including in-route charging and night charging strategies.

- Thomas: Thanks. Also this might be a good DR measure. It would be a good entry point.

Thomas thought a DR charging product might fit here and help build out the suite of DR offerings. She said the presentation will be featured on the website and urged RTF members to direct people to the work. Thomas added that work on passenger class EVs will start next year.

- Smit: This is a potentially a huge load. It's growing and is something we need to think about. Right now we're waiting for the data sets to catch up.

BREAK

RTF Orientation: VBDD
Josh Rushton, RTF CAT Presentation
The RTF appreciated the orientation, asking questions about applications, weather data sources, and future calibrations.

Grant acknowledged that [Slide 6] shows a basic residential example. He asked what would be used for commercial or industrial.

- Josh Rushton, RTF CAT: Usually more parameters are added. I don't know what tools are currently available, but people used to use ECAM.
- Grant: Would data be broken into seasonal bins?
- Anthony: You can. You isolate the data.

White said he does this every day with commercial and residential buildings, and this looks overly complicated. He said if you follow the heating line you get to the temperature set point in the home, while heating and cooling in the same month can be represented with an R^2.

Rob Marks, Snohomish County PUD, said TMY data is where you can analyze that temperature bin.

Tripamer said he has done the work found on [Slide 10] in Excel and was looking for feedback. He said change point models can be recreated with VDD, explaining his method.

- Rushton: Does that only work for months with both HDD and CDD?
- Tripamer: No, you can just sort temperatures lowest to highest and plot it.

Grant noted that there are three types of HDD/CDD calculations.

- Rushton: Right. I've always wondered if Min/Max was a vestige of the 1980s. More people do daily average.

Lisa Gartland, ODOE, confirmed that this models energy use versus temperature and the temperature is from actual data and not a projection.

- Rushton: Yes.

Haixiao Huang, NW Natural, found a typo on the page.

Gartland noted that this work will be used to make projections, wondering what weather data will be used in that case.

- Rushton: It depends on your application. We use a TMYx. There's a link on our webpage that shows how we made our selections.

Grant asked about multiple fuel use [Slide 13].

- Rushton: We haven't landed on a gas calibration as we move to REEDR, so there's work to do. Also, there are three types of fuels: electric, gas, and off grid that need considering.
- Grant: We should talk about this in the REEDR subcommittees.
- Kevin Geraghty, Independent: And that goes in the trash bin if you have two fuels answering the same need. You will not get VBDD results with that.

Anthony cautioned against hard coding R^2 when coding or batch processing.

- Rushton: Right.

LUNCH

Discussion Demand Response Products: Refrigerated Warehouse Controls and Commercial Lighting Controls
Josh Rushton, RTF CAT Presentation
Staff brought a discussion to the RTF about two of the RTF products to seek guidance on whether these workbooks should be updated. Based on staff review, these products are not currently part of any active demand response programs in the region and there appears to be little to no new data. Staff questioned whether these products as currently scoped continue to make sense for the RTF to maintain or if alternative technologies should be considered. After reviewing the materials, the RTF agreed that these products at this time should not be maintained and updated, and instead staff should bring suggested new products into consideration, prioritizing refrigeration and lighting. Based on the RTF feedback, these two products will be listed as inactive on the RTF website.

Anthony noted the two options on [Slide 4] wondering if there was an option to not do DR.

- Thomas: No. The RTF PAC approved and funded scope of the RTF including DR.

Baylon insisted that commercial lighting is a dead end but still saw potential in refrigerated warehouses [Slide 5].

- Rushton: I agree. The question is what can the RTF add to help programs or resource planners.
- Anthony: Will you talk more about custom programs in the warehouse space?
- Smit: Yes.

Anthony agreed with the conclusions on [Slide 13] but wondered how refrigerated warehouses compare to other RTF DR products and asked for an example of a good DR product.

- Rushton: EV chargers are a good example. People were surprised by their results and suspected some natural change management. The RTF clarified the issue, removing the surprise. This brings a lot of value.
- Thomas: Obviously refrigerated warehouses are a good measure, but will it help in a region that is just growing its DR portfolio?

Geraghty observed that refrigerated warehouses are concentrated in a specific area, limiting their regional appeal. He agreed that some utilities would be interested in developing incentive structures but thought the RTF shouldn't bother.

White also agreed with discontinuing the product and allowing it to be a custom measure, referencing his utilities past work and recent efficiencies in that space.

Baylon disagreed. He agreed that this is a regional issue but said it's a short-term system at the end of a distribution system and the RTF should describe how to use this resource. Baylon compared this to recent RTF irrigation work.

- Thomas: We agree this is a good resource and similar to irrigation. But the size and make-up of individual facilities have big impacts. There is also high uncertainty in individual warehouses.

Jes Rivas, Swift Strategy, asked if there are any DR guidelines.

- Rushton: Not yet. We are working toward it.
- Thomas: We're trying to figure out if the CAT should spend time on updating this product.
- Rivas: So, the question isn't is this a good DR product. It's should we prioritize it.

Jerome asked if the Council would use this work when developing the Power Plan. He then asked about winter DR.

- Joe Walderman, NWPCC: It's not in the Plan.
- Jerome: Then given the budget we should focus on things we can get a lot of.

Geraghty asked if this product could be a useful exercise in defining what an RTF DR measure is.

- Rushton: Maybe.
- Douglass: Do we even have enough data for this?
- Rushton: There's a handful of case studies.
- Douglass: That's a real limitation. We don't have enough sites right now.
- Thomas: And there's no new research.

Eva Urbatsch, Puget Sound Energy, pointed to the EE/DR paradox (more EE means less DR opportunity and vice versa) saying we should focus on DR products like EV charging that doesn't eat into EE.

Baylon wanted DR to be something other than an EE measure. He called DR an effort in distribution system resiliency.

Kim Johnson, Okanogan PUD, wrote in the question pane: Our primary industrial customers are fruit warehouses. They are implementing VFDs and controls. They want to control their systems. These customers would not be for DR. Each fruit variety requires different temps. I don't think it's a good use of time for the RTF.

Grant was swayed to deactivate by the lack of new data and the fact that it would still live on in the portfolio, making the product easy to reactivate if needed. Grant then asked if there was a map of load peaking by utility.

- Smit: Yes.

Smit said it sounds like the RTF agrees this is a lower priority and moved on to lighting.

- Thomas: I agree. We may bring back other refrigeration topics in the future.

Douglass thought that the commercial lighting question felt a lot like the CVR/DVR issue [Slide 22]. He noted that EE programs have gone deep into lighting and controls are well set up.

- Jerome: I agree. Lights that are installed out of the box offer some opportunity but that is a small resource.
- Thomas: Also, NEEA is working on lighting and HVAC and something we will be tracking.
- O'Neil: And that's more about HVAC.
- Baylon: I also agree with the sentiment in this case. DR will not help us here, plus there is no real storage.

Geraghty confirmed that curtailment is not EE, asking if DR is paying for curtailment.

- Smit: There is a distinction between conservation and DR. DR is a resource but not conservation.

Smit said he did not hear any arguments against the proposal.

- There were head nods of agreement in the room and no objections on the phone.

BREAK

Continued discussion: Centrally Ducted Heat Pumps with No/Limited Electric Resistance Back Up New Measure
David Bopp, RTF CAT Presentation
Staff presented the materials. The RTF provided feedback on the proposed details for the new measure, including having a robust discussion about electric resistance backup, duct sealing, and the character of contractors ensued.

Thomas, who presented most of the material due to Bopp's illness, began the presentation with a solid HVAC pun.

- There were giggles and approval in the room.

Bob Davis, independent, said there is some resitivism when it comes to the defrost cycle or set back recovery [Slide 14]. He also talked about electric resistance lock out, where there was opportunity to wire in an aftermarket device. Davis called these active issues that require understanding at the installer level, insisting everyone is not on the same page.

- Baylon: Right. This will not happen without contractor buy in.

Tripamer said the baseline condition as described does not capture what the measure is trying to accomplish [Slide 15]. He said the “no or minimal electric resistance heat” involves duct sealing, wondering if the pre condition account for not getting duct repair.

- David Bopp, RTF CAT: There will be screening for this measure so the baseline will contain uncontrolled resistance with uncontrolled sizing and all other practices. There is a difference here so there will be an option to go from an average to a more upgraded system.
- Thomas: Also, RTF measures are stackable so you could do the weatherization first.
- Tripamer: My issue with stacking is the heat pump savings are diminished if you weatherize first. The slicing and dicing disinsentivies people because the programs offer less money.
- Bopp: It’s about where you want to claim your savings. Which bucket does it go into.
- Thomas: We have thoughts about creating packages and might still do that. Right now we’re woking on the pieces.

Jackie Goss, Energy Trust of Oregon, also worried about the current practice measure as weatherization takes weeks or months and would not be used in an emergency replacement situation.

Grant confirmed that suplmental baseboard heating would be excluded from the measure.

- Bopp: This is for centrally ducted homes so they wouldn’t have that.

Anthony said BPA is looking at a combined weatherization/heat pump measure, but was not sure if it included ducts.

Bruce Manclark, Earth Advantage, understood that weatherization took time but thought contractors could connect disconnects at the moment of install.

Manclark called getting a roughed up duct system to the numbers outlined on [Slide 17] daunting. He called for more acheivable numbers, focusing on requiring insulation to R8 and the number of R6 flex ducts in the region.

- Bopp: The 10% was a ratcheting down from the subcommittee. If everything is sealed to RTF requirments no testing is needed. Also you don’t have to add insulation to flex duct.
- Manclark: “Everything is sealed” is easy to check off. But hard to enforce.
- Bopp: Our “everything is sealed” requres independent verification.
- Manclark: Without testing you just can’t tell.

Davis asked for clarification of the 10% number.

- Bopp: It’s air handler flow, I think.
- Davis: That seems like a small number. It might be 10% of floor area.
- Baylon: I’m pretty sure it’s 10% of the flow.
- Jerome: In the PTS spec it was the square footage of the house.

Anthony confirmed that the measure under discussion is the “Cadillac” version and there will be step backs later [Slide 18].

- Thomas: We have the anything measure right now but yes this is the “Cadillac” version. It will also inform retrocommissioning.
- Baylon: This isn’t the “Cadillac” version. This is what heat pump investment looks like. The anything measure doesn’t work and we should stop it.

- Thomas: I hear you. We might be able to get rid of it but that will take time for programs to ramp up. The subcommittee feedback was supportive of this measure, but indicated the need for the current measure to stick around for a while to allow time for programs to roll out this new measure.

Davis noted that the average size in the 2011 RBSA was 13.5% and was confused by the 9% on [Slide 19]. He was also confused by the fourth bullet which talks about sizing to averages versus extremes.

- Bopp: It refers how the percentile design temperatures are created.
- Davis: Ok. Until recently no one has sized to 17°F unless they are assuming backup heat. Installers would size a furnace to 17°F but not a heat pump. It's important to think about how we present this to the outside world.

Christopher Dymond, NEEA, asked if Davis feared under or oversizing.

- Davis: There are a few installers that understand they can size a heat pump to 17°F. But others don't have the experience. Cold climate equipment is not yet widely understood and installers don't know if they will make the temperature cut offs.
- Dymond: So the availablity of data is the issue.
- Davis: Well there are output tables now but how good are they? I've had live experience where the published numbers didn't live up to performance.
- Bopp: Contractor engagement is critical.

Rivas agreed with Davis, noting that studies confirm that HVAC is a risk-adverse, convention-driven industry.

- Jerome: But we have some benefits. Sizing to 99 or 99.6%, we don't choose at that level. Contractors might oversize by 20% or more. The big challenge is that "No Electric Resistance" is more of a market problem then a reality problem. This is beginning to look more like a whole home HVAC approach and worth our attention.
- Davis: Good news. There's still hundreds of thousands of uninsulated walls in the NW.

Douglass asked why Zone 1 is 100% and Zone 2-3 is 120% [Slide 20].

- Bopp: It's substantially different because of the cold temperatures.
- Douglass: I'm curious about how they look graphically. If they are close we could use one temperature for everyone.
- Bopp: I don't think we could get there with single and dual speed at very low temperatures.

Douglass then asked if there was a sense of what a single speed unit looks like when sized down to that temperature.

- Bopp: I don't know.
- Jerome: I think short cycling is a potential problem. Single speed and dual speed equipment is pretty low in efficiency.

Jerome then asked about maximum electric resistance sizing, thinking that Dymond had a good take on the issue. He noted that humidity is also an issue.

- Bopp: Yes that is important for contractors. We could back all of them off. Dymond proposed scaling up minimum ER based on Zone. I would like to add the tonnage of the system to that. This work is trying to simplify that.
- Dymond: At the core of it a fixed ER threshold is not that relevent. If there is an electric resistance limit and it is locked out at 10°F you don't have to pay attention to sizing. I

worry that this method adds complexity and gets into the contractor's business. I propose an electric resistance limit and a lock out requirement leaving the contractor to size it.

Bopp said his simplification could be used as guidance as opposed to a requirement and asked for input.

- Manclark: If contractors take it seriously you could be putting a big heating system on a small duct system. That creates static and increases fan energy use.
- Dymond: I'm still in favor of doing some duct work.

Goss asked what the problem is with oversizing a variable speed heat pump considering that half of heat pumps are variable speed.

- Bopp: We're considering dual speed as a variation, knowing it's a small part of the market. We could scratch it off but didn't know if that would be responsible.
- Dymond: You don't even have to specify single, dual, or cold climate. You could just say no electric resistance.
- Bopp: You would still have to know what the weatherization should look like.
- Goss: I think there is a difference. You run into performance problems with those but not with variable speed if it's oversized.
- Bopp: Assuming they have good ramp down rates.
- Manclark: Actually, oversizing other variable speeds can be a problem because a COP above 3.5 happens at low speed. Variable speeds also increase duct loss.

Geraghty addressed cost effectiveness. He understood the zeal for getting rid of electric resistance but recalled that ductless heat pump single head systems were simple and cost effective. Geraghty realized that the RTF doesn't account for cost effectiveness but said if these products are wildly expensive they will not be installed. He asked if a no electric resistance system sized for the coldest load would ever be cost effective.

- Bopp: Yes. If we had a spec with thermostats rated to that spec we wouldn't have a problem. NEEA is working on that with manufacturers. But you're right. It's possible that none of these are cost effective and it may be better to ensure that new homes are heat pump ready so when the natural change comes they are ready for it.
- Thomas: Cost effectiveness is important but the RTF doesn't make decisions based on it. It varies from Plan to Plan and by utility.

Anthony asked if contractors using the No Electric Resistance option should plan for their clients to be unhappy .4% of the year.

- Bopp: People have lived like this in gas heated homes for a long time. But if the design curves are not reliable there will be a problem. It's also why weatherization is so vital.

White addressed cost effectiveness saying the value is in resource adequacy. He said his region experiences really cold temperatures and needs resources ready to run, which is very expensive.

- Davis: That's right. If we were giving this measure a demand reduction value this would be a different dicussion. Also Geraghty is right. You only get 5kW. That's the max but you might have to upgrade the electric panel and the costs are not trivial.

Smit assured the RTF that they talk about and calculate cost effectiveness but do not base decisions on it. He said the primary focus is getting the savings and cost right. Smit said

capacity value is also calculated and it is 1/3 to ½ of the value of efficiency right now. Smit said if the RTF is unhappy with that they could look for better data.

- Davis: It should be higher.
- Thomas: The CAT is trying to improve presentation consistency and will report the capacity piece with every measure.

Dymond said you can get a single speed heat pump with 5kW to work in heating zone 1 if they are sized correctly.

Dymond called [Slide 21] a placeholder to represent the conversation around controllers, saying it asks about defining a reasonable recovery rate.

- Bopp: So my question is do we keep it as a place holder and put in a recommendation? What's the RTF feedback?

Anthony asked what limits the setback. He also wondered if there was data to support the rates.

- Bopp: I think there is data to evaluate the rates but I don't think it was done.
- Dymond: The set back is not a hardware requirement. It's an operator option and that makes it hard. Nest has a fast rate of recovery 1°F every 10 minutes but the Mitsubishi is 1°F every 27 minutes.
- White: I'm hopeful because NY, which had a very cold winter, has been sucessful with no resistance heat.
- Davis: Is the droop interstage differential or something else?
- Bopp: Yes.
- Davis: That one to 15 minute span is reasonable.

Douglass thought the electric resistance lockout should be at less than 10°F.

- Bopp: Sorry. That means the resistance cannot come on above 10°F.
- Dymond: That's a sizing requirment. In Zone 1 it should never be used except for defrost.

Anthony asked about the droop setting wondering if it would override the setback setting for electric resistance recovery. He said a 5°F delta is when that droop is exceeded even if locked out.

- Dymond: Right if the room gets cold it's drooping below the setpoint. And it would happen during recovery time too.
- Bopp: That's where intelligent set back recovery would kick in. But if it isn't intelligent enough it could be an issue.
- Dymond: Each manufacturer is a little different and is choosing different, proprietary strategies. This actually might be useful.

Davis suggested not installing electric resistance or installing it and turning off the breaker, saying this eliminates the problems. Davis admitted this will only work in Zone 1.

- Bopp: That's right. That's the No ER option.

Rushton asked if the choices on the slide are "ands" or "ors" meaning should you do them all or can you pick and choose.

- Bopp: Ideally it would be and, and, and. Setbacks and recovery rate is more like an "or" or preferred. But droop, intelligent setback recovery, and a lockout should be available on everything.
- Anthony: What do other manufacturers call droop?

- Davis: It used to be called interstage differential.

Grant asked about next steps [Slide 23].

- Thomas: There's two subcommittees coming up. One about cold climate definitions and another about REEDR.
- Grant: Is REEDR able to handle this type of granularity?
- Thomas: I don't know yet. We haven't seen the results yet.
- Bopp: Theoretically it can do this but we have to figure out how many pieces to input versus roll together.
- Dymond: We did this modeling and the control stuff is hard to simulate. I can bring in experts.
- Grant: The modeling can determine the sizing. If that data is available and reliable then we don't need backup. This might ease our discomfort. It won't solve the contractor problem though.
- Thomas: This feels like a big leap but cold weather states are doing this. We have to implement this thoughtfully.

Tripamer addressed modeling referencing a graphic from Aaron James, NEEA, which shows the percentage of time heat pumps in the region are in electric resistance mode. Tripamer said it shows resistance being used in fairly moderate temperatures. He then asked if REEDR is calibrated to HEMS-level data as REEDR tends to smooth things out.

- Douglass: We've done a lot of this work and made choices in REEDR set up. The way most people use EnergyPlus is far to rosy colored, but we've tuned our model to HEMS.
- Thomas: We also had our own analysis and takeaways and that's why we landed here.
- Tripamer: How does this relate to upgrades? Those savings are quite low [Slide 15].
- Bopp: We don't have a good upgrade number right now. We have 500 kWh on the books and that is from one unit in 2012. We're waiting for REEDR results and BPA work.

Goss asked about a load profile for these measures.

- Bopp: No. I've asked BPA for their numbers.

Smit said there will be a CRAC meeting to discuss heat pump work coming up and encouraged members to attend. He ended the meeting at 3:45.

Voting Record: March 17, 2026

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 February 18, 2026 RTF Meeting. (Douglass/O'Neil)	22	0	0	Yes	76%	100%	22

Motion: Approve the agenda for the March 17, 2026 RTF Meeting. (Miller/Grant)	22	0	0	Yes	76%	100%	22
Motion: Extend the sunset date of the Ductless Heat Pump for Forced Air Furnace SF and MH UES and Ductless Heat Pump for Zonal Heat MH and SF UES to December 31, 2026. (Jerome/Chase)	22	0	0	Yes	76%	100%	22
Motion: Extend the sunset date of the Irrigation Hardware Maintenance UES to May 31, 2026. (Mabee/O'Neil)	22	0	0	Yes	76%	100%	22

March 17, 2026, Meeting Attendance

* Designates Voting Member

Name	Affiliation
Jamie Anthony*	BPA
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