



Agenda and Meeting Notes

California Technical Forum (Cal TF) Meeting

November 17, 2022

Location: Teleconference Only

9:00 a.m. – 10:30 a.m.

10:45 a.m. – 12:30 p.m.

Please join my meeting from your computer, tablet or smartphone.

<https://meet.goto.com/474883869>

You can also dial in using your phone.

United States: +1 (571) 317-3122

Access Code: 474-883-869

Time	Agenda Item	Discussion Leader(s)
9:00 – 9:15	Introduction and Quick Updates <ul style="list-style-type: none"> • New staff introductions 	Ayad Al-Shaikh Annette Beitel
9:15 – 10:30	New Measure Process <ul style="list-style-type: none"> • All-Electric Homes, Residential, New Construction – <i>Bundled Measure</i> • Lifecycle Refrigerant Management, Residential – <i>GHG Reduction</i> ACT: <ul style="list-style-type: none"> • Feedback and Comments 	Ayad Al-Shaikh Lake Casco / TRC Robert Mowris / Verified

10:39 a.m. – 11:00 a.m.

Stretch Break



Time	Agenda Item	Discussion Leader(s)
10:45 – 11:15	Draft Cal TF 2023 Business Plan ACT: <ul style="list-style-type: none"> Feedback and Comments (due Wednesday, November 30, 2022) 	Arlis Reynolds Annette Beitel Ayad Al-Shaikh
11:15 – 12:15	eTRM Capabilities for Custom ACT: <ul style="list-style-type: none"> Feedback and Comments 	Arlis Reynolds
12:15 – 12:30	Closing <ul style="list-style-type: none"> eTRM Updates Measure Property Data Update Next meeting – Dec 15th in San Diego 	Ayad Al-Shaikh

Meeting Materials

- **Meeting Decks**
 - [1] PPT for Draft 2023 Business Plan (on Website)
 - [2] PPT for eTRM Capabilities for Custom (on Website)
 - [3] New Measure – Lifecycle Refrigerant Management (LRM) (on Website)
 - [4] New Measure – Residential Electrification Bundle (on Website)
 - [5] Introductions and Updates

Meeting Attendees

	<i>In-Person</i>	<i>Via Telephone</i>
<i>Cal TF Staff</i>	n/a	Arlis Reynolds Ayad Al-Shaikh Chau Nguyen Randy Kwok Spencer Sator Tomas Torres-Garcia
<i>Cal TF Members</i>	n/a	Adan Rosillo Andrew Parker Anders Danryd Alfredo Gutierrez Arash Kialashaki Armen Saiyan



	<i>In-Person</i>	<i>Via Telephone</i>
		Charles Ehrlich Denis Livchak Eduardo Reynoso George Beeler Jay Bhakta Kristin Heinemeier Lake Casco Martin Vu Mike Casey Myrna Dayan Roger Baker Sepideh Shahinfard Spencer Lipp Steven Long Tom Eckhart Yeshpal Gupta
<i>Non-Cal TF Members</i>	n/a	CPUC Amy Reardon / CPUC Peter Biermayer / CPUC IOU/POU Danny Ng / PG&E Jessie Wang / SDG&E Richard Oberg / SMUD Merry Sweeny / SDG&E Wayne Chi / SCG Wilfredo Garcia / SCG Anthony Zavala / SCG Implementer / 3P / Consultant / Other Cathy Chappell / TRC James Lau Jeff Romberger / SBW Mohammad Dabbagh / NORESKO Nic Dunfee / TRC Paul Kuck / Energy Solutions Ritesh Nayyar / TRC Robert Mowris / Verified



Meeting Notes

I. Introduction and Quick Updates

Presenter: Ayad Al-Shaikh & Annette Beitel

Materials: [5] Introductions and Updates

II. New Measure Process

Presenter: Ayad Al-Shaikh, Lake Casco (TRC), & Robert Mowris (Verified)

Materials:

- *[3] New Measure – Lifecycle Refrigerant Management (LRM)*
- *[4] New Measure – Residential Electrification Bundle*

All-Electric Homes, Residential, New Construction (Bundled Measure)

Anders Danryd (via chat): If HP is required by code, and the customer takes the performance pathway, what is the baseline you are selecting for space/water heating? From what I have heard, a gas WH/Furnace will not be able to comply with the performance pathway either, starting in 2023.

- Lake Casco: We will discuss the baselines that we are selecting a little later, I had not heard that before but we will discuss later.
- Ritesh Nayyar: People can take different upgrades for not taking a heat pump, which is why there is a prescriptive requirement. We will talk about what baselines we are using in later slides. We are doing more analysis on this that we can discuss later.

Sepi Shahinfard: Does TRC program cover major renovation (classified as NC) projects? There are MF retrofit programs that may encounter these types of projects. Should these projects be referred to the TRC program? These often have gas connections.

- Nic Dunfee: Either way we have a program for this unless they are removing the gas connection.

ACT: Looking for Cal TF input on how to direct selection baseline (MFm unit quantity? System storage capacity?)

Andrew Parker (via chat): It would surprise me if the ductless baseline could meet code using the performance pathway unless you had an extremely tight envelope, high thermal performance, and an ERV. The assumption that the peak load occurs during the cooling season may not be accurate for all climate zones, may shift to the heating season. The assumption might be challenged by people who are looking at load profiles.



- Lake Casco: We will investigate the ductless baseline as suggested. As of right now we are sticking with the DEER peak definition, but it is valuable information since it is possible that they will shift.

ACT: Cal TF input, any other measures ideas for future offerings? Are there any additional bundled measure issues that should be considered?

Lifecycle Refrigerant Management, Residential (GHG Reduction)

Steven Long: This looks like the same tool as calculating the TSB or one component for the TSB?

- Ayad Al-Shaikh: Refrigerant Cost/Benefit is an input to some fuel sub measures in the CET, but it is not the same as the calculation for TSB.
- Steven Long: Is this double counting? Or is this measure just documenting that part?
- Ayad Al-Shaikh: It is not double counting; we will show you an example at the end.

Adan Rosillo: This measure only applies to residential air conditioning? We are not talking about emissions for commercial facilities, right?

- Ayad Al-Shaikh: Correct, only residential. There is opportunity for commercial also, but this measure package does not cover commercial.
- Adan Rosillo: So, does the leakage take into account only residential systems?
- Ayad Al-Shaikh: Yes, these come straight from the CPUC evaluation results; leakage is specific to a type of system. From the evaluation report, larger commercial system have smaller (but non-zero) end-of-life leakage; while smaller residential system have very high values.
- Robert Mowris: We can develop a measure for smaller commercial units, but we can also look at larger systems. We are spending a billion in CA to reduce 2 degrees and we are spending nothing to reduce 0.5 degrees.
- Adan Rosillo: The 0.4 degrees consider all systems not just the residential systems?
- Robert Mowris: Yes, that is a good comment, and we can expand.

Steven Long: If you use the tool, and use the numbers that come from the tool, do you use the assumptions that already come from the tool?

- Robert Mowris: The unit that is not recovered is not being accounted for. We are capturing the recovered refrigerant. The goal is to have the system in the database so that technicians know to not start tapping into the systems. We need to get the non-evasive system into the market.
- Steven Long: This is more of the avoided cost tool question, are you able to change the numbers in the tool?
- Robert Mowris: You can in fact use the tool to get these numbers and you are not double counting.



- Ayad Al-Shaikh: Note that some numbers are intended to be change; some numbers are not. The use-case that we have here is not standard, so we will work with the CPUC to document an acceptable approach during the submittal of this measure package.
- Steven Long: Does the policy allow you to not claim any savings on the two offerings that do not have savings?
- Robert Mowris: Every year since 2004 there have been tune-up programs, the measure is being sunset because people were getting paid more to do very little refrigerant charges. With this measure we can move from that, this is a more cost effective method.
- Peter Biermayer: This is a policy question that might have to be resolved.
- Robert Mowris: There are proven savings from condenser coil cleaning, we just did not take those savings into accounts. We have lab savings to help get this measure across.
- Steven Long: It would be great to get clarification on the savings question policy.
 - **ACT**: Cal TF staff to follow-up with the CPUC on this savings policy question. (After connecting with the CPUC, additional research will be needed to identify where the policy language is.)

Lake Casco: So would the idea be that this offering 4 would piggyback on NR/AR HVAC measure offerings? Like it would need to be done in tandem? Could this methodology be added to the HVAC replacement measures and have the EOL capture be a requirement for eligibility? It seems like the RUL of the equipment is super critical for this measure since the leakage savings are for the RUL. The 1/3 assumption may need to be revisited since the RUL is so impactful for this.

- Ayad Al-Shaikh: It could be coupled with other measure packages. Yes, especially if for measure packages where end of life refrigerant that is not being reclaimed is very significant.
- Lake Casco: If this is true, then this should be done for HVAC measures, especially for downstream.
- Robert Mowris: We categorized this as a hardware measure because of the locking caps.
- Lake Casco: You might want to consider varying that, because you can reduce leakage in a newer unit.
- Robert Mowris: The measure package does have offerings that cover this.

III. Draft Cal TF 2023 Business Plan

Presenter: Arlis Reynolds

Materials: [1] Cal TF Meeting_November 2022_draft 2023 business plan.pdf



ACT: Provide any questions/comments on the draft business plan by Wednesday, November 30, 2022 to arlis.reynolds@futee.biz.

IV. eTRM Capabilities for Custom

Presenter: Arlis Reynolds

Materials: [2] Cal TF Meeting_November 2022_eTRM for Custom.pdf

Steven Long: Could we integrate the project dispositions database into this process? Link them directly.

- Arlis Reynolds: We have not explored this deeper other than the initial conversations about improving the disposition database. There were questions like, how useful is that information [in the database]? But it is in the list of actions that we want to do in 2023, to explore how we can improve the disposition database. There is also the business plan goal on improving regulatory guidance, within Goal 5.
- Steven Long: Ok, I thought that was going to be more at a higher level, but I was thinking more of a project level.
- Arlis Reynolds: All the content can be housed in the eTRM in a clearer transparent way, but we should continue this conversation.
- Spencer Lipp: Looking at the dispositions and deciding on what is the current policy. For the development process for standard practice, I think the eTRM can help a lot of different levels of the development process and review process if we were able to somehow house standard practice determination. In the process now, implementors have to survey vendors and then those surveys are subject to review. I think understanding what has been accepted by the CPUC is one step, but the other step is the informal vendor questionnaires, other vendor specific information and sharing this information so that efforts are not duplicated.
- Arlis Reynolds: We realized that before we try to move things into the eTRM there has to be some standardization of the information so that it can be integrated and useable in the eTRM.

Roger Baker: When we went through the boiler measure as an example, there are a lot of similar measures that can fall in this category, but these have different things that vary. Have we looked at the use case for custom measures to address text sharing between measures or trying to align all the different measures in one category? Do we need to revisit this as the outcome of the charrette? We probably should visit or revisit the use cases to see how the eTRM will serve.

- Arlis Reynolds: My understanding is that you're asking about how we minimize redundancy and effort to keep information in the eTRM up to date. Some of the different



capabilities that we are exploring in the eTRM is to have modules in the eTRM that multiple different measures can reference. Developing proposed eTRM enhancements for custom measures has been an iterative process, and we have updated the proposed enhancements based on experiences from the subcommittees. We have looked at existing deemed characterizations to see what we want to change, what we want to hide, and have explored ideas with software developer, but we want to see what lessons are learned from the subcommittees to see how we can modify that moving forward. We will discuss these features with the custom team to see what changes we would like to make to the eTRM.

- Steven Long: I wonder if maybe linking interrelated measures would be good, not just custom but also for deemed.
- Arlis Reynolds: We selected some measures that are close to deemed, so yes that might be applicable for both deemed and custom. We will discuss options with the software developers.

Charles Ehrlich: The biz plan presentation did not address four topics that came up during prior meetings: 1. Cost information on measures and baselines, 2. Incentive amounts paid for measures across IOUs, 3. Tracking of status of Early Opinions (EO). A new Custom measure takes the form of an Early Opinion, but EOs can also be used for other needs like a method for calculating custom EULs/RULs. 4. Industry Standard Practice Assessments. I'm looking for confirmation that these are not in the business plan (and why) or if they fit into the plan in ways that are less obvious to me.

- Arlis Reynolds: A lot of these fall with 5/5a. We have collected a long list of potential activities, but before we tackle specific activities, we want to go through a prioritization process to see what we want to tackle in 2023 and going forward. These all fall within the initial discussion for 2023.
- Spencer Lipp: Some of these things could be made easier by going back and tracking the similar custom projects and the sharing of information between the different PAs. Having that data and information would be very valuable.
- Charles Ehrlich: If we use the shared data tables in custom, it would be nice to be able to link to these to capture changes. DEER building types and EULs are good examples.

V. Closing

Presenter: Ayad Al-Shaikh

Materials: [5] Cal TF November - Intro and Closing.pdf

Steven Long: Will that SCE building type descriptions deliverable be posted?



- Ayad Al-Shaikh: I do not have a timeline, but I can share the information with you as it is available.
- Steven Long: This is one of the most common questions I get so this effort would be great.