Agenda

California Technical Forum (Cal TF) Meeting

June 25, 2020
Location: Teleconference Only
10:00 a.m. – 11:30 a.m.
1:00 p.m. – 3:00 p.m.

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Time	Agenda Item	Discussion Leader(s)
10:00 - 10:15	**Opening**	Annette Beitel
10:15 - 10:45	**Update New Measure Proposal Process** • Website Launch and Demo • Schedule and Cal TF Link **ACT:** • Informational only	Ayad Al-Shaikh
10:45 - 11:30	**Modeled Savings Methodology Template Review** **ACT:** • Feedback requested before or during the meeting. • Finalize the guidance document.	Ayad Al-Shaikh

11:30am – 1:00pm Break

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TECHNICAL FORUM

Time	Agenda Item	Discussion Leader(s)
13:00 - 13:10	**Savings and Cost Guidance Documents Strategy / Timing to Operationalize**	Ayad Al-Shaikh
13:10 - 14:00	***Draft*: Cost Methodology Guidance** **ACT:** • Feedback requested • Join the subcommittee to provide more input	Jennifer Holmes
14:00 - 14:50	***Draft*: Savings Methodology Guidance** **ACT:** • Feedback requested • Join the subcommittee to provide more input	Ayad Al-Shaikh
14:50 - 15:00	**Closing**	Annette Beitel

Meeting Materials

- **Meeting Decks**
  - New Measure Proposal Process (*new*)
  - Draft Savings Methodology Guidance (*new*)
  - Draft Cost Methodology Guidance (*new*)
  - Modeled Savings Methodology (*presentation will be developed to guide conversation*)

- **For Information**
  - SW Modeled Measure Savings Methodology Template Draft 4 (sent 6/4/2020)

Meeting Attendees

	In-Person	***Via Telephone***
Cal TF Staff		Annette Beitel Ayad Al-Shaikh Cameron Assadian Chau Nguyen Jennifer Holmes Roger Baker Tomas Torres - Garcia
Cal TF Members		Abhijeet Pande Akhilesh Reddy Endurthy Alfredo Gutierrez Armen Saiyan Charles Ehrlich Dave Hanna Eric Noller Gary Fernstrom George Beeler Jay Madden Jeff Seto Lacey Tan Lisa Gartland Marc Costa Martin Vu Mike Casey Mudit Saxena Chan Paek Randy Kwok Richard Ma Sepi Shahinfard Spencer Lipp Steven Long Tom Eckhart Vrushali Mendon Christopher Rogers
Non-Cal TF Members		CPUC Amy Reardon / CPUC Peter Biermayer / CPUC CPUC Consultant Bing Tso / SBW Bob Ramirez / DNVGL Rachel Murray / DNVGL

	In-Person	***Via Telephone***
		IOU Adan Rosillo / PG&E Henry Liu / PG&E Can Truong / SDG&E Cassie Cuaresma / SCE Anders Danryd / SCG Gary Barsley / SCE Soe Hla / PG&E Tai Voong / PG&E Andres Fergadiotti / SCE Implementer / 3P / Consultant Bryan Boyce / Energy Solutions James Hanna / Energy Solutions Jay Luboff / Jay Luboff Consulting Keith Valenzuela

Meeting Notes

I. Opening

Presenter: Annette Beitel

II. Update New Measure Proposal Process

Presenter: Ayad Al-Shaikh
Materials: CalTF - New Measure Process 06-2020 v1.pdf

Emerging Measures
Steven Long: At what point will pending measures submitted through this process be listed as "pending"?

- Ayad Al-Shaikh: We track every submitted measure. Not sure if we would make the status visible through the Cal TF website – possibly in the future. We will improve the process as we get more measures.

Jeff Seto: How long is this process to vet new measures expected to take?

- Ayad Al-Shaikh: (Flow Chart from TPP 11). Measure can be submitted at any time. If it gets submitted at end of month, it will get into the next month's screening committee meeting (1st Thursday of every month). Approximately 2 months between submittal and Cal TF review. For the rest of the process, the timeline depends on the measure.

Cassie Cuaresma: If there is any potential conflict of interest with a screening committee member, can you please share the process to excuse the member from the decision-making process?

- Ayad Al-Shaikh: If there is any potential conflict of interest then members will not be allowed to participate in the voting, they can participate in the discussion but not in the voting. There are multiple members in each group as back-ups.

Amy Reardon: How closely does the prescreening application follow ED guidelines, especially in terms of the type of data required? Also: please remember that this new measure process was not developed by the Energy Division. The prescreening process has been part of CalTF's mandate, but the final review is an Energy Division process. It should be clear to users that this is referring to the prescreening process and not final CPUC review.

- Ayad Al-Shaikh: It follows the guidelines very closely. The eTRM has clear data spec and characterization templates. The inputs for this process are like those needed to create the measure or to establish the CET. We have upfront clarity on the data requirements. The feedback from early stage does not guarantee approval. We have disclaimer in all our documentation and in the proposal sheet

Abhijeet Pande: How will this process handle confidential or business sensitive data for new measures?

- Ayad Al-Shaikh: The process is meant to be public at the end, when the measure is approved, it will be made a deemed measure that is part of the eTRM. Some of the data can be kept private, if required.

III. Modeled Savings Methodology Template Review

Spencer Lipp: Wasn't there an effort to convert all the DEER building models to EnergyPlus?

- Ayad Al-Shaikh: Yes, Andrew and Larry worked on the conversion and it happened before the summer 2019, right before a lot of the models changed. They are not ready now, but I believe that they are close to completion.
- Marc Costa: DEER prototypes are in the building component library, so anyone can inspect them or monitor the status. There are also support tables and documents. I would reach out to Andrew for more information.

Abhijeet Pande: Is there also a specification of the version of weather files used? If this is same as CEC's weather files for Title 24, they change every three years.

- Ayad Al-Shaikh: Yes, we addressed this in the Inputs and Assumptions section.

Steven Long: How is refrigeration modeling addressed?

- Ayad Al-Shaikh: Commercial Refrigeration (CR) systems get modeled through DOE2.2R using the Gro prototype, which was recently updated as part of the statewide measure effort. The modeled results then are applied to other building types.
- Steven Long: Are there tables required to document DOE 2.2R for Gro / WRf? These tables in the document are more HVAC centric and not CR.
- Ayad Al-Shaikh: We have documented all CR measures in the eTRM and a lot of the information we have here is still very valuable. We would follow the same template, if you notice any issues, please let us know.
- Steven Long: I am thinking specifically refrigerated warehouses and the HVAC tables, whether that would have any differences.
- Akhilesh Endurthy: Some of this information might not be required for the refrigeration measures, but everything needed is covered in the document right now.

Akhilesh Endurthy: Users would be more interested in what building types, vintages, and climate zones this measure is applicable for, what was modeled can be placed in an appendix or a reference.

- Ayad Al-Shaikh: The eTRM will facilitate the ability to move through the document so that the information is there for different levels of users. If people are not interested in the information, then they can skip this section. It can be something that we can consider, if people want to make the change and move this information into a reference or appendix, please let us know.
- Bob Ramirez: It would be more like a reference library filled with details, the CEC would like to look at these in detail, maybe think of including it as a reference.

- Armen Saiyan: This is a comment regarding the format, making it more digestible. Some of this information would provide more of a description so that someone can understand what the fields mean. I agree that this can be condensed into a single table.
- Andres Fergadiotti: I would suggest including this as an appendix. Really good information to include.
- ***Ayad Al-Shaikh: We will follow up on this.***

Akhilesh Endurthy: We need to capture pre-existing case.

- Ayad Al-Shaikh: If the measure uses the pre-existing baseline the information is available in the baseline section.
- Armen Saiyan: Might need to define if the baseline is code baseline, existing baseline, or something else.
- Ayad Al-Shaikh: The measure developer would indicate which baselines where modeled in the Case Option table.
- Armen Saiyan: The table shows what is modeled, but there is not a distinction in the baseline modification table, whether the stated inputs are existing or code.
- Ayad Al-Shaikh: We can potentially add this in the baseline section.
- Akhilesh Endurthy: Having the base case information, standard, existing, or code, in one table might be better since sometimes they are the same. Can this be done?
- Armen Saiyan: Combine them and add another field to describe the measure case.
- Ayad Al-Shaikh: I think it might depend on the measure and the situation, need to be able to communicate the right information to the reader. We will look at this in the future.

Armen Saiyan: Improving this will be an ongoing process?

- Ayad Al-Shaikh: Ideally, we will put comments in for future considerations.

Modeled Savings Methodology Template – Affirmed.

IV. Savings and Cost Guidance Documents Strategy / Timing to Operationalize

Presenter: Ayad Al-Shaikh
Materials:

V. Draft: Cost Methodology Guidance

Presenter: Jennifer Holmes
Materials: Cal TF Measure Cost Estimation 06-2020 v2.pdf

Importance of Measure Costs
Armen Saiyan: What is the source for this chart?

- Jennifer Holmes: The 4 IOUs worked on this and presented it in January; I can send you the link if you would like.

Amy Reardon: That's the reference on Calmac for the WO017 Measure Cost study. I am glad you brought this up!

- http://www.calmac.org/publications/2010-2012_WO017_Ex_Ante_Measure_Cost_Study_-_Final_Report.pdf

Current Practices: Material Costs

Akhilesh Endurthy: Are you proposing any potential markups since the customer will not be paying the distributor/manufacturer/retailers cost? The costs should reflect what the user is paying.

- Jennifer Holmes: This is a great point that can be addressed in the subcommittees, we did not do an analysis to see if the costs include the markups, anecdotally speaking some would document the information in regards to the markups and some would not.

Steven Long: Did you quantify source of adjustment factors used for CZ, food service, etc.?

- Jennifer Holmes: There are no location adjustment factors for costs to my knowledge, the only time this would be needed would be when applying costs developed outside of CA to a CA statewide average. FSTC has the adjustment factors for food service measures

Bob Ramirez: Did you find a directive or a resolution regarding the adjustment of the WO017 or any other source for inflation?

- Jennifer Holmes: No, we did not. Has anyone found something?
- Akhilesh Endurthy: US EIA has June 2018 document for "Updated Buildings Sector Appliance and Equipment Costs and Efficiencies". This document projects costs into 2020 and future.

Current Practices: Analytical Methods

Spencer Lipp: Probably a side bar as this is not directly related to this presentation - costs become so important in the measure being included in a program because of the imbalance in applying costs and benefits in the TRC. We do not count all the benefits but count all of the costs in the TRC ratio.

Martin Vu: How about web data?

- Jennifer Homes: It is categorized in the appropriate category, ex. If it comes from distributors websites via web scraping, then it goes in the distributor column.

Proposed Guidelines: Measure Developers

Steven Long: Also need to look at volume pricing impacts for large volume measure applications and/or establish rules for consistency from measure to measure.

Bob Ramirez: The focus is on ex ante cost estimate but should consider cost true-ups using implementation invoice-cost data. Could be part of EM&V or process evaluation, maybe even consider cost uncertainty included in the Uncertain Measure List effort? Fuel substitution measures may drive the collection of implementation costs even more.

- Jay Luboff: Bob's point is most important. Truing up ex ante cost estimates as part of EM&V should perhaps become part of the way we do EM&V business, with perhaps guidance coming from the CPUC on this.
- Jennifer Holmes: I think it is out the purview of measure development specially, but we can exploit that further for recommendation.

Discussion
Tom Eckhart: Cost are an important/difficult to document for the TRC, is there anything to address measure life so we have something to use for TRC evaluation.

- Jennifer Holmes: The scope of this is just about costs and not TRC, we do have a whitepaper on cost effectiveness coming up.

VI. Draft: Savings Methodology Guidance

Presenter: Ayad Al-Shaikh
Materials: CalTF - Measure Savings Methodology 06-2020 v1.pdf

Current Methods: Permutation Analysis
Spencer Lipp: Has there been any analysis on the savings variation between different permutations?

- Ayad Al-Shaikh: Only at a very high level, one of the guidelines will get to that later. It is not that difficult to look at these statistics, we will do this in the future.

Guideline 1: Recommended Methodology by End Use
Steven Long: Under study, should those things determined from RCT be considered as well (e.g. HVAC, weatherization). Cost vs savings should also be considered for these.

- Ayad Al-Shaikh: Some have, for smart thermostats HVAC measure, the specific study is there.
- Steven Long: Smart thermostat and some low-income measures must be done on building analysis. You can classify anything as study, some of this may be driven by the value of it – the effort vs benefit of each of the methodologies.
- Ayad Al-Shaikh: When we look at categorization, we look at upfront and maintenance cost. It is a balance act. It would be great if we discuss the tradeoffs in this document. When it is appropriate to use one methodology over the other.

Guideline 2: Document Base and Measure Case Values
Akhilesh Endurthy: Base and Measure Case values are not available for DEER measures.

Guideline 3: Document Sensitive Variables for Each Measure
Steven Long: You would identify the parameters and their effects individually, but have you considered combination of these parameters? (ex. lowest process temperature with highest pipe diameter).

- Ayad Al-Shaikh: There are relationships, we leverage it in measure design rather than having thousands of permutations. For example, industrial pipes have higher hours and temperatures. Those relationships are designed to make the measure easier to implement. Spencer brought up a point in a previous meeting where a measure is designed for water/steam, but you could add on fuel type to open that measure up. If that is a smaller driver, it may be appropriate to not restrict the measure. There are other ways to use this concept to validate additional measure types.
- Spencer Lipp: That water/steam component is a function within the PGE rule for eligibility within this measure. When we see opportunity in something like an asphalt plant with oil systems that continually heat, for example. This is not eligible under deemed so we went custom. That is the kind of thing I think of in the hybrid discussion.

Akhilesh Endurthy: Are we taking this beyond savings? Costs, EUL, etc.

- Ayad Al-Shaikh: As of right now, it is more from the savings perspective. Should we broaden this?
- Akhilesh Endurthy: I think we should, but we do not do CET analysis in the workpaper package, when we do in the future it would be valuable. In terms of the sensitivity here, length and operation hours should have a linear relationship with savings. If you change these parameters by 10%, it should have similar impact on the savings.
- Ayad Al-Shaikh: The distinction is some variables have the linear relationship, but they may not vary that much. That is what we are trying to show.

Guideline 4: Apply Interactive Effects Consistently
Steven Long: Traditionally interactive effects have been extrapolated to other plug loads. There are also instances in refrigeration where it is not consistent throughout the facility. We are thinking CR outside of Gro and WRf.

- Ayad Al-Shaikh: Are you asking if IE varies by area type or having different IE for different end uses?
- Steven Long: I am thinking if refrigeration is significant enough to have interactive effects, just some thoughts other than grocery stores and refrigerated warehouses. Ideally it would be good to simplify, in warehouses IE are sometimes only applicable in 5% of the area.
- Ayad Al-Shaikh: Very good thought, great topic for a subcommittee. Maybe it should not be end use specific, but we should look at additional information.

Mike Casey: Process loads can have IE if they are in temperature-controlled areas. Not too common though.

Guideline 5: Use Average Interactive Effects
Steven Long: The deviation might not matter, but the impact is quite different than HVAC. If we apply the factor to CR vs the factor to HVAC, we may see a big difference.

- Ayad Al-Shaikh: We should discuss this so that I can understand better.

Steven Long: Did you look at the kW/kWh and CDF vs CZ as well?

- Ayad Al-Shaikh: kW and kWh do not vary as much as therms, there are some outliers, this was long ago. We have not looked at CDF.

- Mike Casey: The kW/kW effect will not depend as much on operating hours.
- Steven Long: CZ01 tends to be an outlier.
- Ayad Al-Shaikh: There are a lot of potential options to derive the values. For CR if the impact is small there may be a way to simplify.
- Steven Long: A few factors rather than a lot would be great.