MEETING NOTES

California Technical Forum (Cal TF) Meeting
Thursday, March 28, 2023
10:00 a.m. – 4:00 p.m.
PG&E HQ (300 Lakeside Dr, Oakland, CA 94612)

Attendance

TF Members

- Alfredo Gutierrez
- Antonio Aliberti
- Arash Kialashaki
- Babak Yazdanpanah
- Charles Ehrlich
- Gary Fernstrom
- George Beeler
- Michael Green
- Nicholas Fette
- Sepideh Shahinfard
- Steven Long

TF Members (online)

- Briana Rogers
- Greg Barker
- Jay Bhakta
- King Lee
- Kristin Heinemeier
- Lake Casco
- Martin Vu
- Mike Casey
- Richard Ma
- Roger Baker
- Tim Olsen

TF Stakeholders (In-Person)

- Danielle Dragon
- Dave Ritchey (PAC Member)
- Ethan Clifford
- Henry Liu
- Jessie Wang
- Kim Mowery
- Paul Carlstroem
- Ethan Clifford

TF Stakeholders (Online)

- Ada Rodriguez
- Ajay Wadhera
- Andrew Gustafson
- Angela Crowley
- Antonio Huizar
- Beth Kelly
- Carlos Almodovar
- Casey Carnes
- Code Bruder
- Danny Ng
- Efren Villasenor
- Elizabeth Clark
- Felix Monterosso
- Fiela Vu

- Glen LaPalme
- James Hanna
- Jesse Farber-Eger
- Kevin Chan
- Kyle Dunn
- Magdalena Means
- Mike Myser
- Mohit Shah
- Nancy Barba
- Novi Leigh
- Paul Kuck
- Peter Davi
- Rahul Pusapati
- Rod Houdyshel
- Ryan Cho
- Shane Sugiyama
- Tim Xu
- Vivek Joshi
- Varuna Gopalan

Cal TF Staff

- Annette Beitel
- Arlis Reynolds
- Spencer Lipp
- Randy Kwok
- Chau Nguyen (online)

Summary of Cal TF Actions:

- Affirmed the ISP White Paper and ISP Research Memo, including incorporation of Slido polling results on Recommendation #5.
- Affirmed the Steam Boiler Plant Custom Measure Package with several adjustments.
- Affirmed the Pumping System Custom Measure Package with several adjustments.

Agenda Review and Quick Updates

Presenter: Arlis Reynolds

Material: Meeting Presentation

Key Cal TF Initiatives and Opportunities for TF Member/Stakeholder Engagement

Presenter: Annette Beitel

Material: Meeting Presentation

Discussion on Custom Initiative (Slide 8)

- G.Fernstrom asked whether the scope of Process Refrigeration includes Refrigerated Warehouses. S.Lipp confirmed that is the intent
- S.Lipp described that the list of potential/planned Custom Measure Packages (CMPs) is based on review of past claims data and consideration of what measure types or systems make sense to develop CMPs (e.g., similar calculation and M&V methods). The final list of planned measures is based on stakeholder input. Some CMPs listed may get broken up into multiple packages.
- S.Lipp described that the Member/Stakeholder Engagement Survey asks which CMP Working Groups stakeholders are interested in participating in and information on which programs may benefit from or use these CMPs; we want to get the CMPs used by actual projects and programs.
- E.Clifford asked what about whether/how we look at existing Deemed Measure Packages (DMPs) when starting a CMP.
    - o S.Lipp confirmed that looking at existing DMPs is a first step when starting a CMP. We look at boundaries, methods, assumptions, etc. and may deviate based on appropriate applications and engineering judgement. (e.g., Pumping System CMP deviates from some methods in the DMP on Pumps.)
    - o A.Reynolds added that the CMP template has a section for related DMPs.
- H.Liu – Are we looking at when a custom measure could go deemed; i.e., when measures look very similar.
    - o S.Lipp confirmed that we are thinking about that; CMPs could be "stepping stones" to that or may become streamlined enough that deemed is not needed or preferred for that measure.
- A.Reynolds added that, in addition to the monthly Custom Subcommittee meetings and CMP Working Group meetings, Cal TF will have some special meetings for stakeholders who want to participate in live reviews of certain work products.
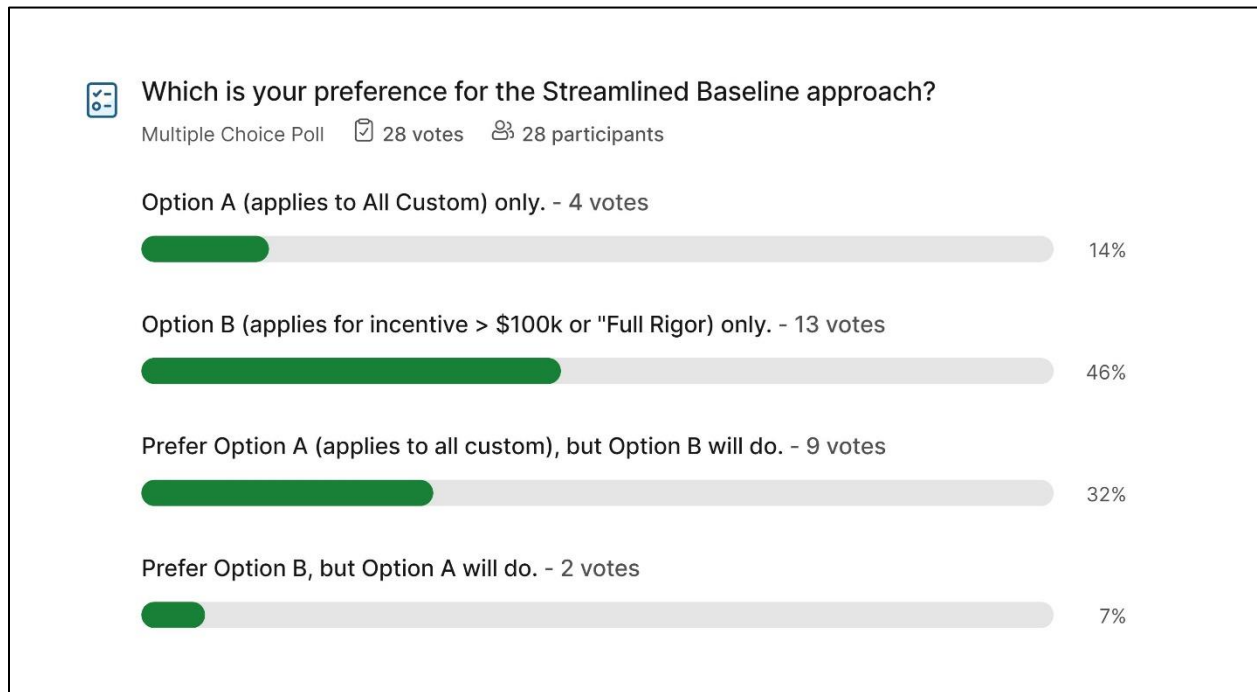
ACTION ITEM – Please complete the Member/Stakeholder Engagement Survey by April 19.

ISP White Paper Affirmation

Presenter: Arlis Reynolds

Material: Meeting Presentation

A.Reynolds presented a Slido.com Poll for TF members and stakeholders to indicate their preferences among the two options for Recommendation #5. 28 stakeholders participated, and final poll results are shown below.

Which is your preference for the Streamlined Baseline approach?

Multiple Choice Poll   ☑ 28 votes   👥 28 participants

Option A (applies to All Custom) only. - 4 votes

14%

Option B (applies for incentive > $100k or "Full Rigor) only. - 13 votes

46%

Prefer Option A (applies to all custom), but Option B will do. - 9 votes

32%

Prefer Option B, but Option A will do. - 2 votes

7%

Discussion:

- L.Casco – Prefers Option A but believes Option B is more likely to get CPUC buy-in.
- E.Clifford – For Option B, it makes sense that more diligence should be done for larger projects to ensure appropriate baseline is selected.
- A.Reynolds shared that the poll results do reflect previous discussions at subcommittee and TF meetings; most votes are with the original working group recommendations.
- M.Casey – Is there potential for gaming by keeping the threshold under $100k?
  - A.Reynolds described goals to standardize calculations, so gaming is not something to be concerned about. Also, the threshold is based on existing threshold used by the programs for Preponderance of Evidence (POE).
  - S.Lipp added that with TSB, you can't know TSB value without understanding baseline.
- A.Reynolds described that these poll results would be added to the ISP White Paper.
- M.Green – For calculating the $100k incentive, is the idea to use the 10 cents per gross kWh to normalize that?
  - S.Lipp confirmed the recommendation includes the kWh and therms values; there are ongoing conversations about what that translation should be, but this white paper uses the standard conversions ($0.10/kWh and $1/Therm) as a proxy.
  - A.Aliberti asked why these values are used as proxy. S.Lipp described that these are the common proxy values and policy has been based on incentive.
  - D.Ritchey described some challenges since some projects don't have a clear incentive to customer. There may also be challenges on how to treat fuel sub since those projects will have a negative kWh. We also need to determine which incentive we are talking about – there are incentives to implementer and often a fraction of that passed on to customer.
  - J.Wang – With third-part programs customers get paid from 3rd parties, so it is better to use the savings numbers.

- o A.Reynolds – We did include in the recommendation the dollar threshold and equivalent savings thresholds. One of our next steps would be discussing how to operationalize this. The strategy of this recommendation was to tie to the existing POE rigor threshold.
- S.Shahinfard – What is being proposed in Recommendation #5 (the part that says "use existing conditions") doesn't match E-4939. E-4939 does not allow you to use existing conditions if no code. The recommendation is to change the Resolution, not to follow it.
    - o A.Reynolds – Our review of policy language suggested that any conflicts are based are Staff guidance and not policy so there is flexibility to change.
    - o S.Shahinfard – This is not just proposing to change the ISP Guidance document; Staff has already once changed the threshold for when you need to an ISP Study, but some of the things being proposed here are to change the language in the resolution. The Resolution was based on T2WG discussions and then approved by CPUC; changing this would be more difficult.
    - o A.Reynolds – Cal TF Staff will review regulatory language.

Affirmation: Cal TF affirmed the ISP White Paper and ISP Research Memo, including incorporation of Slido polling results on Recommendation #5

- TF Member Objections: none
- TF Member Abstains: Sepi Shahinfard, Kristin Heinemeier

Custom Initiative – Approach, Success Metrics

Presenter: Arlis Reynolds

Material: [Meeting Presentation](#)

A.Reynolds shared views of an in-development Custom Rulebook Workbook.

Discussion on Custom Rulebook:

- G.Fernstrom asked how many rules we expect to end up with; is it possible to end up with two million rows?
    - o A.Reynolds clarified that we expect to land in the hundreds and will grouping like rules and eliminating redundant rules.
- C.Ehrlich suggested adding the original issue or problem that the rule was attempting to solve. Some rules have taken a life beyond what they were intended to address. Example: The rule that a measure must have at least 5 years of RUL came up recently; that rule originally intended to address measures that, unbeknownst to the utility company, that a customer removed sooner than five years after construction was complete – this is a problem because savings go away. Now that rule is being used to disqualify measures that have less than 5 years of RUL. If we could attach to each one of these rules what the original problem was, it might help us understand what they are doing.
    - o A.Reynolds – We will do that for rules that get flagged for needing clarity or needed discussion rather than doing for all measure. C.Ehrlich agreed.
- A.Reynolds – We also want to have rules that are clearly linked to policy, so we plan to link to specific policy language and not just the policy document.
- E.Clifford – What is the use of this document after it's done? What does this apply to? MAT, eligibility, influence. It would be great to add what the rule applies to so help with sorting.

- o A.Reynolds showed the planned categorization.
- o E.Clifford – Would be great to have these "linkable" so you can quickly move between related rules; linkable so you can follow how rules are tied together. Example, PG&Es Rulebook allows you to link to related rules.
- A.Reynolds clarified that the Workbook is to house, organize, facilitate discussion for the content that would be in the Rulebook. The Workbook is not intended, right now, to be the final product. (Please let us know if you do like that idea.) Our intention is to develop the Rulebook based on the content developed in the Workbook. Do stakeholders have input on form? Are there examples from other jurisdictions?
  - o S.Long – My question is first, how do you deal with rules that aren't so black and white. Specific Resolution language is a little cleaner. Second question, some rules are in a table. Is the plan to include a table or break everything into rows.
  - o A.Reynolds – We are going to flag things that we think are not black and white; we will be asking stakeholders to review and flag items that are not black and white. If through your experience, there is a rule that you disagree with or think is not based in policy, we will ask you to flag that. That discussion will help us identify what needs further discussion.
    - ▪ S.Lipp – that second list might be really long.
  - o A.Reynolds – regarding table vs. list, we would like feedback on form. We assume table may be easier than list.
    - ▪ S.Lipp – the baseline table is not perfect, but is visually easier to understand.
  - o A.Reynolds described timeline again – working internally through April and will invite stakeholders to review in May and June to help flag what is not clear and needs some discussion. At the same time, we will discuss form. By the end of June, we want to have 80% document done (full set of consolidated rules) with flagged rules. As we have discussions about other content for Rulebook and look at other forms, our goal is to have a more complete vision of final form by end of July. We do expect to have a list of rules that still need discussion with CPUC Staff through Q3. We will need a lot of your attention in May and June. We plan to create some "study session" type meetings to review these rules by category.
- Arash (chat) – Considering the language in the NMEC Draft Rulebook that states all Custom rules apply to NMEC, I would like to encourage Meter-based Programs' stakeholders to review these rules with that in mind. Perhaps we can add a column about the applicability of each individual rule to NMEC projects.
  - o A.Reynolds – This is a great idea. Also want to clarify that we have been focused on Calculated Custom Measures. We want to keep our solutions focused on Custom Calculated. But this recommendation is a good potential future use of the Workbook to indicate where rules are or aren't relevant to other tracks.
- A.Reynolds – Please share any additional thoughts or examples of potential models that we may want to review as we develop the Rulebook. We do have a challenge for a 20-page Rulebook – we are trying to shoot for that.
- E.Clifford – Recommended quarterly update. Monthly is too frequent; twice a year is not enough.
  - o A.Reynolds – Can you describe why twice a year is not frequent enough?
  - o E.Clifford – Rules come out throughout the year that affect other projects; it would be great to have a digest or summary of those new or changed rules. If

only twice a month, someone could go 4 months into a project without knowing a rule changed.

- o C.Ehrlich – If Decisions/Resolutions that affect Custom Rulebook only go into effect when they are added to the Custom Rulebook, that would be a dramatic change (improvement) for Custom Projects. I.e., When a new Decision comes out, it goes through a process to incorporate into the Rulebook to become effective. This would be consistent with T24. Effective Date could be stated but does not become effective sooner than incorporated in Rulebook.
- o J.Wang – we could also set a regular update; but also have some ad hoc updates. You can't plan all updates.
- S.Long – Has there been discussion about who maintains this long term?
  - o A.Beitel – We briefed the PAC yesterday; PAC generally likes the idea that Cal TF updates the rulebook if Cal TF creates it. First we have to develop the Rulebook, get it approved – it is essential that we get Commission approval of the Rulebook. Any update that we would make, we would want to get Staff review and approval of as opposed to Cal TF being the final interpreter of any new Staff or Commission rule. The idea would be to get the Rulebook created, approved after lots of vetting, and then subsequent changes at regular interval or regular schedule – we as Cal TF Staff could excerpt the relevant information but we would want Staff review and approval that we captured it correctly.
- L.Casco – another thought on timing: Even if something has to wait until it gets adopted into the Rulebook, would there be some delay before it has to be implemented? I'm not sure how much clarity developers would have to something being published in the Rulebook and then having to be immediately implemented and then having to go back on anything they are currently working on to adopt it. Measure Packages have at least a 90-day delay after approval and before a change is adopted. That should be considered here.
  - o A.Reynolds – We are looking at other areas that have this delay and we are also looking at best practices in other jurisdictions.
  - o A.Beitel – This was also a topic at the PAC about the essential importance of when rules come out, having adoption at a defined time and with plenty of lead time recognizing that many rules and rule changes have downstream effects. It's important to 1) communicate when there is a prospective rule change and 2) important to have a process around when something becomes effective. It is difficult for people who promulgate rules to understand the downstream effects. Also, in the Data Charettes last year, we also heard that it is important to have regular times when new rules become effective; important to establish when rule changes happen (e.g., every six months or once a year). Downstream effects can be very costly and complicated.
  - o R.Cho (chat) – Another policy we need to review: D 15-10-028 Section 3.2.3.4, "…we will allow any similar projects with a signed project agreement or project application that occurs within 60 days of the staff disposition that modifies the ex ante value, to utilize the prior ex ante savings estimate for those qualifying projects. In other words, projects with signed project agreement or project application that occur within 60 days will be "grandfathered" and allowed to utilize prior ex ante savings estimates. Note that the customer agreement or application must be a project specific document that includes the project specific savings estimate that has been approved and agreed upon by the PA and accepted by the customer and signed by both party's on or before the 60-day limit. A participation agreement does not qualify."

- o A.Reynolds – this is also information we would include in the Rulebook: When are rules applied, when do they become effective, and how do they affect projects in process – based on practical considerations.

A.Reynolds shared views of an in-development Custom Templates Workbook.

Discussion on Custom Templates:

- S.Long – I like the idea of alignment. It would be nice to have a citation with hyperlink so you know not only what is wrong but know where the reference is to what's support to be done the correct way. (Comment is in context of Technical Review.)
- A.Aliberti – Not all of these documents (e.g. Free-Ridership Form) are still active.
  - o A.Reynolds clarified that we have listed all documents that have been referenced in existing guidance and noted that we have flagged this one as "Eliminate."
- L.Casco – A thought about repeated data for Post-Install Report: Is it there so that the document can stand alone rather than having to refer back to pre-install documentation. If we do through eTRM and you can quickly tie back to PFS, that would help, but there could be challenges if one Word doc has information removed.
  - o A.Reynolds – We want input on whether people want standalone documents; is the effort to copy over information worth the value?
  - o A.Beitel – The idea is that we will be building into the eTRM Custom Project Development and Review. One of the tasks is to identify all the data fields (which could be text, calculation, reference materials) and as the project moves through the review cycle, all the data is in one place and doesn't need to be entered more than one time. That's the advantage of moving this information into a database versus flat file templates.
- J.Wang – If it's a combined workbook, a lot of common fields can be automatically filled. For IR or OR report, SDG&E has a standalone single-page report. There is a check you can click if the project has no change. That's a specific situation.
- C.Ehrlich – If you do like a Word document, the concern about the length of the document is counterproductive if you have to have information in one place. For example, you should have an "Ex Post Section" that just describes what's changed.
  - o A.Reynolds – Asked whether the suggestion is that each stage of project is appended to the single project document and whether anyone does this.
  - o S.Long – PFS template sort of does this now.
  - o D.Ritchey – Tech Review doc does compare what was submitted vs what was revised.
- A.Beitel – Another question is whether we want to "tier" custom project documentation. If a project is small, would we want to talk about some information not needed for smaller projects. Hopefully we can consider streamlining based on the size of the project among other things.
- G.LaPalme – Re: Dictionary for projects speaks to the extremes that we are at. We are sacrificing a lot of flexibility to respond to customer needs. Having a mega-document or dictionary suggests these are requirements and not guidelines. What are people's thoughts on flexibility and focusing on the 80% of issues that we deal with.
  - o A.Reynolds – Are you asking about data requirements that shouldn't be required or level of detail in responding to that requirement.
  - o G.LaPalme – Just looking that whether required information was provided does not tell whether that information provided was sufficient. You have to have a certain level of knowledge in reviews so you are not troubling self on things that

are less important that others. Many policy issues are reactions to one or a few projects; now we apply all the rules to all projects. Developing policies to defend against the 1% that might game the system results in giant bureaucracy. We should expect a certain level of waste. Defending too much against it can become a bureaucratic nightmare. We need to go back to "What is reasonable."

- o A.Reynolds – we plan to go through a process examine which items in Data Dictionary must be provided and where there are data/documentation requirements that do post challenges, are less clear, or don't provide the value worth the cost, etc.

CMP: Steam Boiler Plant

Presenter: Spencer Lipp

Material: [Boiler Plant Add-On CMP](#)

Discussion:

- **TF Input –** Combustion controls as an AOE MAT.
  - o No comments or concerns
- R.Baker – MEASUR tool adapted the Steam System Measure Tool. The code is essentially the same.
- **TF Input -** Balance of small versus large M&V
  - o E.Clifford – I don't trust that systems work as intended. Yes, they installed a VFD but is it actually fluctuating. So, trend data might be valuable even on small projects.
  - o S.Lipp – We are trying to strike a balance between the cost of M&V and the value. If a project saves 10,000 therms, is it worth it for an engineer to go out and install data loggers, return and then analyze the data. That might be a $10-15k effort.
- **TF Input** – Add On Equipment (AOE) measures limited by Remaining Useful Life (RUL) of host equipment does not apply.
  - o L.Casco – Please explain where these are installed.
  - o S.Lipp – Economizers are to the stack either inside the building if there is room. Otherwise outside the roof. Blowdown piping is in the boiler room but outside of the boiler. Combustion controls are on the blower that provides air within the combustion process. Water treatment are make up water systems in the boiler room or out in the process.
  - o L.Casco – It does seem like there is a host proxy for some of them, but it seems like most of these are building components that would not be replaced with the boiler. Stack would be a host proxy.
  - o A.Aliberti – The red box should be on the last row with AOE not typically replaced with replaced host proxy.
  - o L.Casco – I agree.
  - o S.Shainfard – You need to assume that if you replace the boiler with the same size boiler. If you can't prove that a larger boiler installed 10 years later then maybe the economizer or another measure will not be compatible as far as efficiency or capacity. Thus, you can't assume the EUL of the measure. These then become case by case.
  - o L.Casco – With all of these measures unless we have compelling evidence otherwise, we should be assuming the steady state.

- o S.Long – I recall we talked about this in the working group. Seems that the AOE isn't that tied to the boiler. I could see the flue, but the economizer is a separate piece of equipment. All other (non economizer) are not likely to be touched. For example, if you double the boiler capacity that may no longer apply.
- o S.Lipp – If you double the boiler capacity, the HX is still the same size and would still recover the same amount of heat.
- o S.Long – Agree and is that likely to happen. And all those other measures are not likely to be touched because they are physically different.
- o S.Lipp - returning to Sepi's comment. Does the potential change in the boiler size in the future cause any concern about these measures?
- o L.Casco – Any of these things could be undone if there is a big enough change but is that going to happen often enough to address it.
- o C.Ehrlich – Evaluation rule. Evaluate as found. We do not try to forecast. So, no. We do not address it by virtue of the rules.
- o A.Reynolds – This is a perfect example of how rules get discussed within projects and sometimes we get two different answers and this is why we want to address these upfront so these discussions do not happen in project review.
- o C.Ehrlich – Should a measure package suggest data be collected that help the implementer address code pitfalls? For example, San Juaquin has strict requirements.
- o S.Lipp – We are not as explicit as your example. We had a lot of discussion and generally we want to try to provide those details but, in this case, with 35 AQMDs, we can't list all the requirements and monitor any changes over time.
- A.Aliberti – Most of the measures are AOE but you have burners. Did you discuss the AQMD requirements for burner retrofit?
  - o Spencer – Yes, it is addressed in terms of options to meet the requirements.
- M.Green - Any considerations for AOE measures in code at the time of Code?
  - o S.Lipp – Don't think we have that in the CMP and we can add that as an action.
    - **ACT** – Add eligibility based on triggered Code at the time of installation

Affirmation: Cal TF affirmed with no opposition and no abstain the Steam Boiler Plant Custom Measure Package with the following adjustments:

- *Clarify that there is a host proxy (no impact on EUL)*
- *Add eligibility based on code at the time of the boiler install.*

CMP: Pumping Systems

Presenter: Spencer Lipp

Material: [Pump Systems CMP](#)

Discussion:

- G.Fernstrom identified a gap in the measure for commercial pool pump VFDs which are larger than the Federal regulation and the deemed Measure Package which is for pumps >3HP
- L.Casco confirmed that these pumps are often oversized which would lead to opportunities even with Code requirements of 6-hour turnover during occupied periods.
- G.Fernstrom – Agreed. Additionally, these pumps are designed for 60 feet head which is more head than in most situations. Many operators use a throttling valve to add head to the system.

- o **ACT** – Add Commercial pool pumps to the CMP
- **TF Input Requested:** AOE measure for piping reconfiguration
  - o No comments or concerns
- **TF Input Requested:** Standard Practice Considerations using Department of Energy (DOE) shipping data
  - o G.Fernstrom – This is a general comment. There are tolerances associated with the test procedure, meaning that the pumps may not perform as expected in the field. This means that we are underestimating savings. It would take a lot of work to convince regulators more savings should be allowed.
  - o F. Vu – Varying operating conditions from testing causes the difference in tested efficiency and operating efficiency. Since we cannot put in a Standard Practice pump and test it, we don't know what the operating efficiency is. This produces an underestimation of savings. Previously, we had SP at 64% compared to 72% and now we are looking at 70% to 72%.
  - o G.Fernstrom – Due to test procedure, the efficiency is overstated.
  - o F.Vu – We need to find a rating that is lower than the SP with enough savings to justify the project effort.
  - o G.Fernstrom – This is the best we can.
  - o C.Ehrlich – I think it is fine.
  - o A.Wadhera – Thought PG&E was doing some sort of study to update the Pump Efficiency Index (PEI) values; PG&E staff were not familiar with study.
- **TF Input Requested:** Vertical turbine non-submersible SP represented by vertical turbine submersible.
  - o G.Fernstrom – That is the best you can do.
- **TF Input Requested:** Clean water to no clean water SP equivalent.
  - o G.Fernstrom – Was the IOU representative for the DOE regulation. Hydraulic Institute argued that non-clean water was less efficient because the clearances are larger. This was why DOE limited the regulation to clean water.
  - o F.Vu – Agree efficiencies will be lower but non-clean water pumps get the same testing and published.
  - o G.Fersntrom – I was not aware of that and that would change my opinion because we do have good data for non-clean water pumps.
- **TF Input Requested:** Balance of small versus large M&V
  - o No comments or concerns.
- **TF Input Requested:** AOE EUL for piping system reconfiguration the EUL of the AOE measure.
  - o No comments or questions.
- **TF Input Requested:** Standard practice cost uses an inflation rate multiplier from the DOE 2014 cost data.
  - o L.Casco – Could you use a similar methodology as the MP?
  - o S.Lipp – The MP uses different PEIs based on HP bins which doesn't seem to align with pump types.
  - o G.Fernstrom – Agree.
  - o No other comments or concerns.

Affirmation: Cal TF affirmed with no opposition and no abstain the Pumping System Custom Measure Package with the following adjustments:

1. *Add Commercial pool pumps*
2. *Add clarification on non-clean water pump test procedure being the same as the clean water pumps.*

Closing and Next Steps

- Next Cal TF Meeting: Thursday, April 25 (LACI, Los Angeles)

Action Items

- TF Members and Stakeholders
    - Complete [TF Member Engagement Survey](#) **by April 19**
- Cal TF Staff
    - Post TF-Affirmed ISP White Paper and Research Memo
    - Post TF-Affirmed CMP for Steam Boiler Plant Add-On Equipment
    - Post TF-Affirmed CMP for Pumping Systems