California Technical Forum (Cal TF)
Technical Forum (TF) Meeting #3
Thursday, September 25th, 2014

I. Participants

John Proctor, TF Member
Srinivas Katipamula, TF Member
Mary Matteson Bryan, TF Member
Bryan Warren, TF Member
George Hernandez, TF Member
Bing Tso, TF Member
Sherry Hu, TF Member
Steven Long, TF Member
Pierre Landry, TF Member
Armen Saiyan, TF Member
Martin Vu, TF Member
David Springer, TF Member
Ron Ishii, TF Member
Dylan Sullivan, TF Member
Doug Mahone, TF Member
Jon McHugh, TF Member

Annette Beitel, Facilitator
Jenny Roecks, Cal TF Support
Alejandra Mejia, Cal TF Support

Chan Paek, Southern California Gas, Presenter
Brian Smith, Pacific Gas & Electric, Presenter
Rick Ridge, Ridge and Associates, Presenter
Teddy Kisch, Energy Solutions, Presenter
Tim Michel, Pacific Gas & Electric, Presenter
Anthony Hernandez, Southern California Edison, Presenter
Peter Miller, PAC Member, Observer
Jesse Martinez, Souther California Gas, Observer
Jonathan Livingston, Livingston Engineering, Observer
Grant Brohard, Pacific Gas & Electric, Observer

On the Phone
Andy Brooks, TF Member
Bruce Harley, TF Member
Christopher Rogers, TF Member

Brandon Tinianov, TF Member
George Roemer, TF Member
David Pruitt, TF Member

Todd Malinick, EMI Consulting, Presenter

Joe Prijyanonda, Applied Energy Group, Observer
Mark Hull-Jacquin, Embridge, Observer
Eli Caudill, Conservation Services Group, Observer
Dale Gustavson, Western HVAC Performance Alliance, Observer
AJ Howard, EMI Consulting, Observer
Tara L Becnel, Observer

II. Key Decisions and Action Items

Measure Complexity

- Cal TF staff will draft concise statement of the problem.
- Cal TF staff will identify key questions to be answered.
- Cal TF staff will perform research into how other jurisdictions have dealt with this issue.
- Cal TF staff will keep talking with CPUC, CEC, and CAISO about what the end goals of the ex ante values are.

Measure Selection

- Cal TF staff to propose concrete measure selection criteria and process.
    - Does there need to be a set of criteria, or also a threshold criterion like having a sponsor?
        - Other criteria discussed by the TF: Absolute savings potential, timing for fast moving markets, potential for inclusion into codes.
    - Do we need to re-group technical considerations aside from policy/political considerations?
    - How is this going to align with PA processes?
    - The final question is who is going to do this: staff alone or staff plus a select group of TF members.

Subcommittee Process

- Staff will send out a survey to create standing subcommittees

- Cal TF staff will create a template subcommittee policy for issues to be worked out in abstracts before full TF
    - The template policy will include abbreviated full TF review of subcommittee abstracts
- Subcommittees will occur after the measure selection stage gate process

SCG Unit Heaters Workpaper

- Workpaper approved with the following recommendations:
    - Statewide CEUS on condition of checking with Bob Ramirez
    - Use of connected load

PG&E Residential Plug Load Program

- The PG&E RPP team will return to the TF in October with proposals for Measure parameters that were still not developed. The TF will be asked to approve methodologies/data sources in October so the WP team can present a full WP to Cal TF in November. . The proposal will incorporate:
    - Abstract should be explicit about goal of creating new platform for deemed measures in fast-moving markets—clearly document transformative reasons.
    - Be clear about intention to re-set the baseline every year.

III. Opening and Introductions

Annette Beitel—Introductions and run down of agenda

IV. Discussion on Reducing Measure Complexity and Its Effects on Precision

Jenny Roecks and Doug Mahone—

Power Point Presentation

Discussion during presentation:

George Hernandez—In terms of dealing with bias, why don't you consider distribution of results?

Jenny Roecks—Does the group have ideas about how to do this?

Steven Long—The technical issues aside, you have to address the bottom line first.

Pierre Landry—The question is whom are the values going to be useful for.

We've been struggling with this forever: Are the values for ratepayer protection purposes, for controlling the shareholder incentives, or for resource planning? All of those various uses have different tolerances for error bands.

Bryan Warren—Isn't the bias also in the CPUC's preference for DEER and their unwillingness to accept other data?

Annette Beitel—In our experience the CPUC ex ante team, Jaclyn and Katie, have been very willing to works with us. And, since this seems to already be a recurring issue for the measures we've reviewed, it is important for the group to settle on a policy definition of best available data, and begin dealing with the complexity problem.

Pierre Landry—When I look at this, I think we're looking for one answer where there really are several answers: What the CPUC needs in order to decide shareholder earnings, what a resource adequacy group needs for planning, etc.

Annette Beitel—Why are those all different?

Pierre Landry—With the traditional ratepayer protection approach to shareholder incentives, you want he numbers to be as exact as possible. The resources adequacy groups tend to work with softer numbers and with error bands. It comes down to who's going to use these numbers.

How high is high precision depends on what it will be used for. The first policy question that needs to be answered is what ex ante values will be used for.

Armen Saiyan—Has this come up in the NW RTF?

Tom Eckhart—It's a friendlier debate up there, but we have been discussing how to calibrate pre- and post-implementation values. When does the same model get reasonable results and when does it not?

I think you have far more rules here in California, and that limits the state's flexibility.

Bing Tso—One thing I've heard in the Northwest is that it is indeed a work in progress. There are standard protocols, and they are essentially unproved aspirational principles. There isn't that need to get it exactly right from the beginning. They are more open to making mid course corrections, etc.

Martin Vu—And we also need to have solid buy in from the regulators on whatever policy we create before we begin implementing. Because if they have room to change their minds after the fact, then that is where the risk is.

Annette Beitel—We have been working closely with staff on this, on getting early feedback on key parameters for each measure we review. But we would also like to get agreement on more standardized principles for the group to begin using moving forward.

Steven Long—One thing that comes to mind is how to quantify the impact of precision.

Pierre Landry—I'd also take Martin's comments one step further to the risk in the ex post review. What we would love to have the regulators' buy in on is that uncertainty, the error band on possible variations. I think the resource adequacy folks would be ok with a 30% error band.

Annette Beitel—That's what this group is tasked with doing. Maybe we want to propose an error band policy?

Martin Vu—I think it would be good for this group to find out what would happen if our recommendations get rejected. In that case all of our hard work would be thrown away and the measure review process would be even riskier.

Annette Beitel—That's a valid question, and we will keep discussing that with CPUC. But I would like us to get some guiding principles on paper.

Armen Saiyan—Do we have any data that we can use to run a variability analysis?

Annette Beitel—That is a good idea. I am not sure what the answer is.

Tom Eckhart—To go back to what others were saying, there was and might still be in the NW RTF a guideline that allows for a 30% error band. So the number proposed by Pierre is certainly palatable.

John Proctor—Let's keep in mind that you can't prove DEER with data, because it isn't real data, it's modeling results.

And I would also like to point out that we shouldn't confuse impact evaluation of one program that uses a measure with an evaluation of that actual measure. Program implementation varies and thus affects ex post evaluation results.

Martin Vu—In the case of the notebook computer measure example, we may scoff at the request of adding interactive effects for such a measure, but if the CPUC policy says to use DEER, then it only makes sense for the developer to stick to the interactive effects.

Jesse Martinez—I like the approach that we would start with an engineering equation instead of a building model. Use more of a common sense approach.

Annette Beitel—I like that approach, maybe if we can't come up with general principles, then maybe we can answer more specific questions. Like, when is an engineering equation appropriate?

Dylan Sullivan—Using experimental or quasi-experimental methods in evaluation is one way to get to the issue of how behavior affects measure implementation.

Grant Brohard—There's two types of behavior programs: the typical Opower style one that will be an elegant pilot and then the more traditional measures that are still affected by human behavior, like use of smart power strips.

Dylan Sullivan—And yes, that's where the question is: Where do we draw the line where the extra effort is justified?

Another approach would be to calibrate your model to better reflect reality.

Annette Beitel—One thought I had based on the discussion in the room, is that Cal TF staff needs to gather the group's feedback and create a succinct definition of the problem.

Sherry Hu—On the 'how good is good enough' issue: What types of studies are valid—DOE studies, ASHRAE, what else? This is an issue I have run into recently, with CPUC Staff not allowing us to use EnergyPlus software, which is supported by DOE.

George Hernandez—I would caution against limiting ourselves to defining the correct tools, because you can get whatever answer you want if you don't use the software right.

Bing Tso—I am struck by the chicken and egg nature of this problem. How are we going to circle back to previous measures as we refine our process?

Tom Eckhart—I agree with Bing that circling back is important. We need to be mindful of our limited time, but we do need to set some precedents on how to evaluate our own work.

Doug Mahone—We also need to be able to provide a credible defense in the case our review comes up with a value that is not the same as the modeling results.

Pierre Landry—Along those lines, maybe we need to talk to the Commission to figure out what it is about their current methods that they like so much. If it is consistency, then we can propose solutions that will also give the consistency that they need.

Annette Beitel—From this discussion, I have identified four actions items:

- Cal TF staff will draft concise statement of the problem.
- Cal TF staff will identify key questions to be answered.
- Cal TF staff will perform research into how other jurisdictions have dealt with this issue.
- Cal TF staff will keep talking with CPUC, CEC, and CAISO about what the end goals of the ex ante values are.

This work will be presented at the next meeting, then the group can comment and make further decisions at that time.

Doug Mahone—It would also be helpful to know if the Commission has an existing policy on these questions.

Steve Long—I would just suggest that there might be more than one problem statement.

Jesse Martinez—In that case, it would make sense to tackle only one or two at a time.

Annette Beitel—That is completely true. Then the group can decide which items to tackle first.

Great, this is very exciting. We will put this as the first item on the October agenda.

V. Discussion on Cal TF Measure Screening

Anthony Hernandez and Jenny Roecks—

Power Point Presentation

Doug Mahone—I can see how this would approach to widgets, but do you have a way to apply it to less concrete measures like design standards?

Anthony Hernandez—We use it for more that just products, but you do have to put some thought on what kind of measures you will be using it for. It is an iterative process; so the more we use it the more we can fine-tune it and the better we are at leveraging it. And it all starts with clearly defined strategies.

Annette Beitel—So, the idea behind this presentation was to propose to the group that a modification of this approach would be appropriate for the TF to use. Jenny will now talk to how we picture this working, and while you evaluate her proposal, keep in mind the Cal TF's vision, mission, and guiding principles, up on the website, that have been vetted by pretty much any stakeholder imaginable in the state.

Mary Matteson Bryan—Who is intended to perform this whole process?

Annette Beitel—That decision is up for you all to decide, but we're thinking that it wouldn't be efficient for the entire group to do it.

Jenny Roecks—SCE uses an established score sheet to make these decisions, right?

Anthony Hernandez—Yes.

Pierre Landry—What if we leave Gate 0 to the utilities?

Annette Beitel—The problem with that is that we want to be able to review measures from other stakeholders.

Pierre Landry—So let me revise my earlier statement and suggest that we leave Gate 0 to broadly defined program implementers: RENs, IOUs, etc. There doesn't have to be a firm commitment from an implementer to sponsor a measure, but we should at least make sure that there is an excited party behind it.

John Proctor—Lets remember that the Commission requires that a certain amount of the money go directly to third parties.

Dylan Sullivan—We can have a sponsor as one of several weighting criteria in a simple prioritization algorithm (with a 0 or 1 score for each). Very high savings potential could be a criterion used to bypass the sponsorship requirement.

Jesse Martinez—It would be valuable to try to not duplicate PA work.

Doug Mahone—I think this is implicit in the proposal, but to make it explicit: There are a bunch of technical criteria, but we should also factor in some policy considerations.

Pierre Landry—So what would happen if a manufacturer had their product reviewed by the TF? It would then have to go through the PA processes anyways.

We don't want to stifle innovation, but we need to keep in mind that PAs are essential for bringing measures to fruition.

Grant Brohard—You don't actually need a PA sponsor, because even if the IOUs reject your program, you can do it as a custom project.

Ron Ishii—So, the question is, is Cal TF feeding into the PA's process or vice versa?

Annette Beitel—So, to summarize open items:

- Does there need to be a set of criteria, or also a threshold criterion like having a sponsor?
- Do we need to re-group technical considerations aside from policy/political considerations?
- How is this going to align with PA processes?
- The final question is who is going to do this: staff alone or staff plus a select group of TF members.

Martin Vu—Maybe we can use the existing criteria to preemptively avoid replicating work?

Pierre Landry—Maybe the sponsor question will be settled by who participates in the subcommittee. If we have PA representatives on the subcommittee, then any measures approved for TF review will have a de-facto sponsor.

Dylan Sullivan—First come first serve is always an option.

Sherry Hu—Let's keep in mind that we aren't going to have all possible measures in front of us at the same time, we will have to make these decisions dynamically.

Annette Beitel—I will propose that Cal TF staff try to draft a short proposal that incorporates your feedback, sticks closely to the existing processes, and bring it back to this group for you all to respond to a concrete proposal.

This comment occurred later on in the day but applies to this section
Jon McHugh—I think the possibility of inclusion into codes and standards should also be used as a selection criterion. As an EE measure a given measure might impact 5% of the market (the program participants) but as a code measure the measure or technology might impact 80%+ of the market (all new buildings for T-24 or all products purchased for T-20)

Group—Agreement.

- Cal TF staff to propose concrete measure selection criteria and process.

Annette Beitel—Please reach out to us if you would like to participate

VI. Discussion on Cal T Subcommittee Process

Jenny Roecks—

Power Point Presentation

Tom Eckhart—In terms of delegating decision-making authority to subcommittees, I don't think there is any precedent for that in the NW RTF.

Annette Beitel—The group wouldn't actually be delegating final measure approval to the subcommittees. The question is, is the TF comfortable skipping full TF review of the abstract and just focus on full WP review.

Bryan Warren—It seems like the full TF has had valuable input on market potential and other more global measure parameters.

Steven Long—Maybe this decision can be made by the group doing the screening we were discussing earlier.

Ron Ishii—I think it would be much better to have the full TF look at something that is better developed.

Pierre Landry—Do we need to present it briefly to the full TF for initial subcommittee decisions?

Ron Ishii—I was thinking that is more of an admin function that could be done via email.

David Springer—I think it will be easier to get volunteers for some measures than for others. Maybe we post and abstract of an abstract on the website and see if we get quorum for a subcommittee.

Annette Beitel—And if we don't, then maybe that's a sign that there is no interest in reviewing that measure at all?

Doug Mahone—In thinking of how a subcommittee structure would look, it may make sense to have several subject matter-specific standing subcommittees.

Sherry Hu—ASHRAE subcommittee products always go back through the full committee, but most of the time the subcommittee work is approved without many changes. .

Steven Long—To Doug's point, it would be valuable to have standing subcommittees.

Annette Beitel—Maybe Cal TF staff can send out a standing subcommittee survey to then allow us to better recruit for work on individual measures.

The final question is, does this group want to see abstracts, assuming they have been fully vetted by subcommittees, or do you want to limit yourself to full WP review?

Doug Mahone—One possible solution is to use a consent calendar format for subcommittee abstracts.

Annette Beitel—So essentially, the de-facto process would be that abstracts go straight to subcommittee unless the TF requests to see them.

Ron Ishii—I think some discussion of each abstract, however abbreviated, is fruitful.

Annette—So, in summary, the action items from this conversation:

- Staff will send out a survey to create standing subcommittees
- Cal TF staff will create a template subcommittee policy for issues to be worked out in abstracts before full TF
    - The template policy will include abbreviated full TF review of subcommittee abstracts
- Subcommittees will occur after the measure selection stage gate process

Group—Agreement

Annette—Lastly, a quick update on our work formalizing the process of receiving feedback from CPUC staff: They will now limit their review of abstracts to ensuring all applicable DEER requirements are being followed and identifying any previous work done on each measure submitted to them. This process will make the most value out of staff's limited resources, and they have agreed to it.

VII. Workpaper 1: Unit Heaters, SCG

Chan Paek—

Power Point Presentation

Pierre Landry—Did you contact Bob Ramirez at Itron for an explanation about the SCE CEUS data?

Steven Long—What do you know about how CEUS defines connected loads?

Chan Paek—It's a survey of nameplate load on selected test sites. For peak load they did some monitoring, but only on about 25 sites.

Steven Long—So, in essence, your calculations are based on total connected load?

Chan Paek—Yes.

George Hernandez—But you would still get the same answer regardless of input if you're reverse integrating.

Chan Paek—I don't believe they measured the total connected load.

Steven Long—So, what did the DEER team do differently that gave them the lower savings factor?

Chan Paek—They modified the ventilation factor and the air infiltration.

David Springer—There's something that bothers me about using connected load. If your use is for more hours with a lower connected load, or vice versa, your answer should be the same.

Chan Paek—Yes, but it turns out that most customers way over sized their equipment.

David Springer—If you look at the fully metered systems versus yours, how do those compare?

Chan Paek—We didn't actually have the raw CEUS data.

Pierre Landry—You can download the raw data, ask Bob Ramirez.

Sherry Hu—For the existing buildings, the savings should be based on the oversized equipment, so your savings should actually be three times higher.

David Springer—Again, it goes back to my earlier argument, if you are right sizing, then you just have more operating hours.

Jesse Martinez—And then there is also a lifetime consideration when you right size.

Sherry Hu—And your costs will be lower.

Chan Paek—Well, actually, cost per kBtuh increase as the size of the equipment decreases.

Jon McHugh—Does your Work Paper calibrate to billing data?

Chan Paek—Supposedly, according to the CEUS survey, yes.

David Springer—Maybe the reason why the SCE load is higher is because PG&E area customers close their doors more often because they have to guard against the cold.

And also let me make the point again, that down sizing will not save any less energy.

Mary Matteson Bryan—I think they're saying it will reduce the factor.

Ron Ishii—But you're going to multiply it by a larger number of hours.

Jon McHugh—In order to increase your cost effectiveness, is it possible to bundle this program, say with strip doors?

Chan Paek—I understand there is some ongoing work from the programs teams on this.

Tim Michel—The problem is that is not a natural offering for the market place. Unless the seller has both offerings, then they aren't going to care about the additional product. Most actors in this space do not have both offerings.

Annette Beitel—Does anybody object to Chan using the statewide average CEUS data?

Pierre Landry—As long as he checks with Bob Ramirez, and there is a valid reason for the high SCE numbers, then yes.

Sherry Hu—There's a study slowly making its way out with new data on this.

Chan Paek—Ok, maybe we can revisit the workpaper after that data comes out.

Grant Brohard—Does the Cal TF think we need to estimate the additional electric load?

Mary Matteson Bryan—I think we need to keep in mind that this is a very low impact measure.

Tom Eckhart—Like in the NW RTF, we could do a provisional workpaper or approve it for a limited period of time.

Annette, group—Yes, we could approve it for say one year, until new data comes out.

Group—Approved use of statewide CEUS data on condition of checking with Bob Ramirez.

Annette—Ok, should the workpaper use peak or connected load?

Bryan Warren—Aren't you forced to use connected load since it's a deemed measure and you need a nameplate capacity?

Group—Approves use of connected load.

- Workpaper approved with the following recommendations:
  - Statewide CEUS on condition of checking with Bob Ramirez
  - Use of connected load

John Proctor—I would like to just point out what happened here: We gave him the most conservative on EUS, hours of use, and EUL. If you do that with all your measures, then you're going to have a lot less measures.

Steven Long—There was a rationale for being conservative in each of those.

John Proctor—But still worth noting.

Related discussion:

George Hernandez—We need to use absolute savings potential as one of our selection criteria.

Bing Tso—Let's also note that we need to keep timing in mind, since some measures only have a brief window of opportunity.

Lastly, I would like to see us implement the idea of provisional approval *and* approval with a sunset clause.

VIII. Abstract 1: Residential Plug Load Program, PG&E

Brian Smith, Rick Ridge, Tim Michel, Teddy Kush, Todd Malinick—

Power Point Presentation

Jon McHugh—Similar to what you're doing about the sales weighted UEC, the other side of the coin is the incremental cost of the measures, and the effect of the program on that.

Rick Ridge—Yes, one of the things we're trying to capture is, incentives aside, the price for which the goods are sold at the point of sale. However, that does not capture the energy efficiency premium. One other approach we've developed is using web crawlers to then do hedonic price modeling. That is really new and exciting. Alternatively, we can do hedonic price modeling based on the traditional shelf surveys.

Annette Beitel—Can you explain a little more about the preponderance of evidence concept?

Rick Ridge—This would be the first time we ask CPUC staff to think about what, for these kinds of programs, they are willing to count as evidence.

Dylan Sullivan—On products not subject to an ENERGY STAR spec, have you noticed a consumption trend?

Teddy Kish—That is an interesting question, but we are not including non-Energy Star products. This is an ENERGY STAR platform.

Martin Vu—If I were sitting in the regulator's shoes, I would ask why aren't just using the DEER number if it is so close to the one you're generating?

Rick Ridge—I think it's because we're trying to create a retailer-specific value, and also expect a lot more products not in DEER going forward.

Sherry Hu—Speaking on behalf of the PG&E engineer on this project, part of the point of this effort is to create an innovative platform that breaks free of those traditional molds.

Annette Beitel—That point should be made clearly up front in the abstract to pre-empt the kind of knee jerk reaction Martin is trying to anticipate.

- Abstract should be explicit about goal of creating new approach to determining savings for measures that rapidly change in fast-moving markets.

Pierre Landry—But it would still be good to document that and be clear about it.

- Clearly document need for new approach – market is transforming rapidly, and a fixed savings estimate will quickly be out-of-date
- Be clear about the intention to re-set the baseline every year

Martin Vu—Historically, the preponderance of evidence approach has not been seen in deemed programs, though this may be changing for custom projects. Are you planning on capturing that preponderance at the point of sale? We're facing the same sort of questions for set top boxes, etc.

Rick Ridge—We're planning to capture information from a lot of data sources but we're not planning on-site verifications of installations. An ex post evaluator can of course do that, and they probably will. The trick is being able to integrate all of our sources into a coherent story.

Brian Smith—The ask that we have for you is really more on the front end of the project. Per what you see on the slide, we are looking for some concrete feedback from the group.

Annette Beitel—Absent of a source from this list, what is your proposal for developing EULs?

Rick Ridge—Delphi panels. That is how the first set of EULs was developed decades ago and they were surprisingly accurate.

Annette Beitel—Would you want this panel to be that Delphi panel? If so, what is the level of granularity you are interested in?

Pierre Landry—The problem with the DVDs for instance is that the EULs won't matter if a new technology, like BlueRays, pushes the devices out of the market before the end of their useful life. Use patterns are more important in these cases.

Bing Tso—Isn't there a tremendous amount of research done by consumer-protection organizations on that sort of information?

Pierre Landry—Isn't the reason why we need this new approach because the products turn over more quickly than even the regulatory process moves?

Steven Long, Tim Michel—Another question is, why is IMC even a component of this particular equation? We're trying to change more than cost; we're trying to transform markets.

Landry—Yes, you're right, it's just that the old model is the only way we have to think about it.

Brian Smith—Is there a trend towards decreasing IMC over the decades?

Martin—This is driven by measure type in the E3 calculator—ROB, etc—and that is where you are pigeonholed.

Annette—Unfortunately we are out of time, but what I propose is that the team come back to the TF soon and make another presentation, skip the background information, and instead propose solutions for each of the open measure parameters and questions they are asking to get TF feedback. We will schedule the team to come back in October with additional information, and will discuss with the team having a WP in time for the November meeting.

Group—Agreement.

- The PG&E RPP team will return to the TF with succinct proposals for the group to vote either up or down on. The proposal will incorporate:
  - Abstract should be explicit about goal of creating new platform for deemed measures in fast-moving markets—clearly document transformative reasons.
  - Be clear about intention to re-set the baseline every year.