California Technical Forum (Cal TF)
Technical Forum (TF) Meeting #4
Thursday, October 23, 2014
Pacific Energy Center, San Francisco

I. Participants

Annette Beitel, Cal TF Staff
Alejandra Mejia, Cal TF Staff
Tom Eckhart, TF Member
David Springer, TF Member
Sherry Hu, TF Member
Mary Matteson Bryan, TF Member
Scott Fable, TF Member
Pierre Landry, TF Member
Armen Saiyan, TF Member
Yeshpal Gupta, TF Member
Steven Long, TF Member
Martin Vu, TF Member

Ben Chou, Natural Resources Defense Council (NRDC), Presenter
Brian Smith, Pacific Gas & Electric (PG&E), Presenter
Teddy Kish, Energy Solutions, Presenter
Rick Ridge, Ridge and Associates, Presenter
Julie Colvin, PG&E, Presenter
Jia Huang, Presenter

Jesse Martinez, Southern California Gas (SCG), Observer
Tim Michel, PG&E, Observer
AJ Howard, PG&E, Observer
Grant Brohard, PG&E, Observer
Pricilla Johnson, PG&E, Observer

On the Phone
George Roemer, TF Member
Bryan Warren, TF Member
Larry Kotewa, TF Member
Christopher Rogers, TF Member
Bing Tso, TF Member
Bruce Harley, TF Member

Steve Blanc, PG&E, Observer

Andrea Salazar, Observer
Christine Hanhart, UCONS, Observer
Kevin Messner, Association of Home Appliance Manufacturers, Observer

II. Key Decisions and Action Items

RPP

- ACT: Schedule follow-up call to discuss:
  - Further discussion/validation of using Bass diffusion curves to determine NTG ratios, including how slope/shape of curve determined for base case and treatment cost. Other questions to be addressed
    What products did they use as model for proposed curves?
  - Instead of "illustrative" graphs, provide graph of what you actually expect will happen, and discuss all assumptions/evidence that suggests that your forecast is reasonable.
    - Retailer specific purchasing information and evidence from current pilot to be discussed during follow-up call. Evidence of market lift rather than "noise".
    - Analysis of applicability CPUC IMC study – review and assess whether "web crawler" method in any way contravenes direction of CPUC IMC study.
    - Feasibility of increasing frequency of web crawls.
- ACT: UEC/UES methodology to be discussed at January meeting.
- Various recommendations from TF members:
  - Use CPUC-provided NTG values for initial workpaper and adjust based on program monitoring instead of NTG based on Bass Diffusion Curves

Clothes Washer Recycling

- ACT: Work with AHAM to better understand the public's use of a second washing machine.
- ACT: Modify WP to also cover multi-family uses.
- ACT: Look at DEER methodology and existing SCG energy efficient clothes washer workpaper for relevant information.
  - Determine if, and how, the CW recycling abstract measure savings should account for recycling of units that may have been rebated through an IOU program from a previous year.
  - Consider the role the new codes might play in savings estimates given the need for a preponderance of evidence and consideration

of the scenarios evaluated for ARP that may be relevant to CW recycling,

- ACT: Finalize gas savings, using IOU-specific data.
- ACT: Develop rough TRC, program administrator cost estimates.
- Various recommendations from TF members:
  - Recommendation: Account for actual age of recycled units.
  - Consider developing partnerships with water utilities.

Circulating Block Heaters

- ACT: Perform a multiple regression on results from BPA sites and update workpaper to strengthen the analysis.
- **Workpaper approved.**
  - Developer directed to update workpaper if savings change by more than 10% in either direction when SCE data becomes available.

Commercial VFD Pool Pumps

- ACT: Address override concerns in WP
- **WP approved**
  - Developer asked to return to TF if a significant issue with persistence is found.

2015 Work Plan

- ACT: TF Members asked to consider measures and/or policies they would like the group to review in 2015. These proposals will be discussed at the November 20th TF meeting.

III. Opening and Introductions

Annette Beitel—Last month we had discussions on subcommittees, measure complexity, measure selection. Cal TF staff is still working on developing proposal based on your feedback and we will bring them back to the group in November.

We are also looking for input from this group on what measures (new or outdated) can be reviewed next year. Realistically we will not be to review more than 30, but we can use the new measure selection process to prioritize the initial list we generate.

We are also looking for ideas for creating policy language. Some of the most popular ideas that we are already working on are baseline flexibility and measure complexity. One big new one is the idea of reviewing the POU TRM, and as related the DEER measures that the TRM uses.

Yeshpal Gupta—Is the POU TRM a public document, and is it different than the Guideline Comment.

Annette Beitel—It is public and it is different than the Guideline Document you mention.

Yeshpal Gupta—Another issue we can discuss is how to approach incremental cost.

Annette Beitel—Interesting idea. The concept is not to reinvent the wheel, but to target gaps in the existing policy language.

IV. Continuation of RPP Abstract

Brian Smith, PG&E; Julie Colvin, PG&E; Jia Huang, PG&E; Rick Ridge, Ridge & Associates—

Power Point Presentation

NTG Discussion

Annette Beitel—We had talked about two other options for NTG: Looking at other sources, like NYSERDA, and picking a number as an educated guess and looking at a control group. Could you tell us why you prefer the diffusion model to those?

Rick Ridge—The resulting NTG from the NYSERDA study was .10. The reason why it was so low is that they promoted anything that was Energy Star rated, regardless of the efficiency. That is unlike our program and so we don't think it would be appropriate to use it.

In terms of the other approach you mentioned, picking a number and wait a year to see: I think you would have to wait a little longer than you think. My opinion is that the diffusion model gives you a much broader picture of the whole program. I also think that once you set up the model it wouldn't take much work to re-run it often.

We should keep in mind that all of these parameters are predictions that will stand in place until some ex post evaluator validates or negates them. In the meantime it will be crucial to monitor effects closely to avoid a catastrophic surprise five years out.

Annette Beitel—So what's going to happen is that there will be ex post evaluations that will then apply NTG ratios retroactively?

Rick Ridge—Yes. With any market transformation program, initial TRCs are very low and it will take several years for them to rise up sufficiently. So that is why you have to closely monitor on an ongoing basis so you can make midterm corrections and avoid a horribly low NTG five years out.

I would caution the audience against making any judgments based on first or even second year NTGs, the hope is that the gap between a control and test group would widen over time.

Annette Beitel—Ok, that's helpful. I think it would also be helpful for the group if you could talk more about the Bass diffusion model and what the inputs are.

Rick Ridge—While the slope of the graph on slide 8 is interesting, what will determine the NTG is the difference between the green and red lines.

Tom Eckhart—Everything you're saying makes sense, but those of us who have tried to look at both ex ante and ex post have seen a reluctance to track change indicators over long periods of time and delay judgment. Who do you propose should do this monitoring?

Rick Ridge—This could be done as part of a process evaluation by utilities, since it will also help them to make mid term corrections.

Jesse Martinez—How are you deriving the coefficients of innovation? And are they more appropriate for technology than retail markets?

Rick Ridge—There are actually several really powerful examples of this being used to predict, say, adoption of Direct TV. The larger sample numbers in available in marketing make for more powerful statistical models.

Pierre Landry—My first reaction is that you should have more modest initial predictions. Why don't both lines start at the same spot and why aren't they both S-curves?

Rick Ridge—This is just a streamlined graph I created for illustrative purposes.

Pierre Landry—Ok, well, if you are trying to convince us that PG&E knows what is going to happen, that graph is misleading.

Annette Beitel—Based on Jesse and Pierre's questions, I will propose that we take this to a teleconference where we look at the actual curves for the different products and market indicators you will be looking at for the group to make a more informed judgment.

- ACT: Schedule follow-up call to discuss actual Bass diffusion curves and market indicators to be tracked.

Kevin Messner—Have you taken into account the fact that there is already a strong market incentive for retailers to stock increasingly stringent Energy Star requirements.

Rick Ridge—That's hard to know. However, my guess is that both test and baseline curves will be affected by that market incentive.

Kevin—That depends on the timing of the baseline you are capturing. That may not be the case if the baseline is determined right after a new Energy Star standard is set.

Sherry Hu—Workpaper developers must follow a table from ED that determines the NTG to be used for new programs. I think you still need to make the best decisions on these issues for program design purposes, but you should use the values required by ED for the initial WP.

Rick Ridge—The PA would have to convince ED that those values are appropriate for non-resource acquisition programs.

Tim Michel—What would the group recommend we do when there isn't a comparison group available? This is likely to happen since we're trying to influence nationwide retailer purchasing.

Annette Beitel—Why wouldn't you be able to use non-participating retailers as a comparison?

Tim Michel—Because they have completely different business models. Fry's merchants are given different marching orders than Best Buys.

Pierre Landry—How are you dealing with this question in your current pilot in SMUD territory?

Tim Michel—Right now Kmart is giving us a control group because they knew we needed that comparison going in. However, once we move from pilot to a full-scale program, we want to change as much behavior as possible.

Pierre Landry—Do you know for a fact that you couldn't get Kmart to limit their purchasing to just the Western region and then use, say, Texas as a comparison?

Tim Michel—I'm sure we could, but the question is, why would we? Isn't the goal to create as much efficiency as possible? There is huge potential here and we don't want to miss out on the economies of scale opportunities.

Pierre Landry—Good point. Do targeted retailers do purchasing nationwide or is it for North America? Could we compare with Canada?

Tim Michel—This depends on the retailer.

Annette Beitel—Could you find that out before the follow-up teleconference?

Tim Michel—Yes, we'd be happy to.

- Retailer specific purchasing information and evidence from current pilot to be discussed during follow-up call.

Annette Beitel—In the interest of time, let's table these questions for a follow up teleconference and move on to the remaining parameters.

Martin Vu—I would recommend that at least to get the program off the ground, you use the Energy Division values and then adjust as you monitor.

Steven Long—I would agree with that recommendation, at least for compliance purposes.

    - To be discussed at F-U teleconference: Recommendation to use CPUC-provided NTG values for initial workpaper and adjust based on program monitoring.

IMC Discussion

Annette Beitel—Why aren't you just looking at differences in per unit price?

Teddy Kish—Because that may not be the key reason why a retailer isn't stocking a good. Retailers have many motivations.

Rick Ridge—You don't want just the delta in the price, you need the delta in the price due to increased efficiencies.

Teddy Kish—You are trying to tease out the effect of only efficiency from other product characteristics.

Armen Saiyan—What about traditional in-store shelf surveys?

Teddy Kish—We think an initial survey would be informative, but on-going ones wouldn't be helpful or cost-effective.

Steven Long—The CPUC recently released an IMC study that includes methodologies. Have you looked at those?

Rick Ridge—We have looked at them but they don't include web crawlers. Measure cost studies as the CPUC continues to recommend them are far in between and very expensive.

Annette Beitel—It would still be helpful to know if that study precludes web crawlers. This would tie into Yeshpal's recommendation from earlier.

Pierre Landry—I would say this is a much more theoretically applicable methodology.

Annette Beitel—How often are you recommending that the web crawls be done?

Rick Ridge—The original plan was to update key parameters (UECs, UESs, IMCs) on an annual basis.

Pierre Landry—We might have to do it on real time or at least on a continuous basis.

- Also to be discussed at follow-up teleconference:
  - Applicability of CPUC IMC study
  - If web crawlers used, how often should price differential be updated?

EUL Discussion

Pierre Landry—Your only real option is the third one, because you will have to give the literature to the Delphi panel anyways.

Martin Vu—My recommendation would be to go with the DEER EULs and continue to do this in parallel to calibrate the models and workpaper.

Tom Eckhart—It seems to me that EULs have a very big impact on your E3 calculations, and with consumer electronics that is likely to not apply given actual use and usefulness and quick turn over, etc.

- ACT: UEC/UES methodology to be discussed at January TF meeting.

V. Abstract 1: Clothes Washer Recycling

Ben Chou, NRDC—

Power Point Presentation

Pierre Landry—Do we know what the retailers are doing with the appliances they take back?

Ben Chou—There is some data about that, we think most of the times the retailer sells it for about ten to fifteen dollars.

Pierre Landry—I have a question about the percentage of people who kept the second washer. I don't think anyone here knows anyone who has and uses two clothes washers. What do those people do with the old machine?

Ben Chou—Yes, that is a strange phenomenon and we are looking to understand that. Maybe Kevin from AHAM can help us with that.

- ACT: Work with AHAM to better understand the public's use of a second washing machine.

Scott Fable—Is this data for single-family residences only?

Steven Long—There is actually large potential for savings in multi-family settings.

Annette Beitel—Would you be able to modify the WP to also apply for multi-family uses?

Ben Chou—Yes, I think that could be feasible.

- ACT: Modify WP to also cover multi-family uses.

Tim Michel—From my experience, there is only one retailer in the country (Sears) who can logistically pick up the old appliance.

Annette Beitel—Why is that?

Tim Michel—It adds a storage question, time per delivery, and the largest issue is administrative: they have to segregate which appliances were for the one-touch program, which were undeliverable, etc. We have tried very hard to move the retailers to this model, but they are very resistant.

I would suggest that you partner with local water agencies to make the transaction smoother. That being said, that needs to make sense from the energy savings point of view.

Pierre Landry—Is there anybody currently recycling washing machines?

Ben Chou—Yes, JACO and ARCA, just without incentives.

Steven Long—Appliance recycling is one of our most controversial calculations. Did you look at the way that DEER does the analysis for refrigerators and freezers?

Ben Chou—That is a valid point and something we can definitely look into.

- ACT: Review DEER methodologies for refrigerator recycling and see how it could be adapted for clothes washer recycling.

Steven Long—I would guess that the regulators would want us to use those methodologies, minus the interactive effects since washers are usually in unconditioned spaces.

Jason Wang—The current methodology uses an ‘04-‘05 survey and an ‘06-‘08 ex post impact evaluation, weights them, and inputs it into DEER.

Mary Matteson Bryan—I would say that washers are very different animals than fridges, since it would be much harder to ‘un-plug and move to the garage.’

Steven Long—Some of the thought behind that is that the washers are either given away or donated and thus they still stay on the grid.

Martin Vu—I understand that Chan Paek has a workpaper for SCG that details the codes aspects of this.

- ACT: Look at DEER methodology and existing SCG non-recycling workpaper for codes information

Pierre Landry—You have an average age of 11 years, but I'm guessing those getting replaced would be much older, so you're going to have to account for that.

  - Recommendation: Account for actual age of recycled units.

Steven Long—In terms of IMC, from customer's point of view there would be no cost, but what is the administrative cost? Does the $95 estimate include pick up and recycling?

Ben Chou—Yes. The de-manufacturing cost is borrowed from PG&E's data and we talked to JACO about an estimate for their part.

Steven Long—Does the UES already have the embedded energy?

Ben Chou—Yes.

Steven Long—Because I looked up the number currently being used and this is an order of magnitude higher.

Group—52% gas dryers seems very high for CA.

Steven Long—I have heard the figure for electric water heating in SCE territory is close to 5%.

Jesse Martinez—You will need to figure out if some of the units being recycled were part of an IOU energy efficient clothes washer rebate program in a prior program year, and how recycling those units may affect the savings originally declared by the program for those units to prevent double dipping.

Annette Beitel—So it seems like the abstracts isn't quite ready for full workpaper development. Ben will take the group's feedback to further develop the measure and let's plan on revisiting the progress he makes early next year.

- ACT: Finalizing gas savings, using IOU-specific data.
- ACT: Develop rough TRC, program administrator cost estimates.

    - Recommendation: Consider developing partnerships with water utilities to co-fund the measure.

VI. Workpaper 1: Circulating Block Heaters

Alfredo Gutierrez, SCE—

Power Point Presentation

Pierre Landry—Just to be clear, the 300 installations you have down on the slide isn't the true market potential—it is what you are confident you will get in the first year, right? Also, have you thought about this as an upstream program at all?

Alfredo Gutierrez—No, we haven't but that is a good idea for a future workpaper.

Pierre Landry—In terms of the ET NTG, do you think ED will allow you to use the .85?

Steven Long—That is a number determined by policy.

Martin Vu—But to Pierre's point, we have received feedback from ED that for some emerging LED applications they do not believe .85 is fair regardless even if they did go through the ET programs.

Pierre Landry—I think it's also an important market decision, because I think you will get a high NTG even without the ET classification. People do not want to change these out. They depend on the technology they already know works.

You may also want to do a multiple regression analysis for the 17 existing BPA sites, climate zone, and generation size. That may be a better way to tease out causality and give you a more precise estimate.

- ACT: Perform a multiple regression on results from BPA sites and update workpaper to strengthen the analysis.

Jesse Martinez—What's the traditional mode for these?

Alfredo Gutierrez—They are usually on standby. The generators are tested once a month.

David Springer—What was the issue with thermostatic controls?

Alfredo Gutierrez—I think there was a question as to if that would affect UES. However, I have more confidence in the data we will be getting back from our own study, so I am waiting to answer that question with the SCE data.

Pierre—How do you plan on proving against free ridership for new construction?

Alfredo—There is only one manufacturer that offers this technology if the customer pays a premium so it would be very hard to come across free ridership.

- Workpaper approved. Developer asked to update workpaper if savings change by more than 10% in either direction when SCE data becomes available.

VII. Workpaper 2: Commercial VFD Pool Pumps

Jason Wang, SCE—

Power Point Presentation

Pierre Landry—In terms of your target market, I think you're going to have the same problems with uptake that you did with getting data from the Assembly sites. You may want to think about focusing on or only targeting lodgings sites.

Martin Vu—I know there is no Title 20 code on this, but are the turnover requirements by the health code considered in your workpaper?

Jason Wang—Yes, it doesn't affect the baseline but it does affect savings.

Pierre Landry—Any chance that you are ruling out oversized pumps for applicable facilities by ruling out pumps over 3 HP?

Jason Wang—Not really. The few over sized pumps we saw were about 7HP.

David Springer—I think I submitted some field data that showed that the relationship between flow rates and power is more linear. Are you taking that into account to de-rate savings at all?

Steven Long—I think the minimum Pool Closed – Required Flow Rate is getting at that.

Pierre Landry—Are you monitoring that at all?

Jesse Martinez—That would be useful feedback for you because you may see your savings actually increase.

Pierre Landry—One of the problems with other similar programs in the past is the persistence issue, because the actual operators will fiddle with even the best-installed pumps settings. I think you may want to pre-empt that.

David Springer—These are pretty sophisticated electronic controls that have time-outs for these overrides. Gary Fernstrom would be a great resource on these questions.

Pierre Landry—Penn Air or ASWD may also have data on this sort of persistence.

David Springer—And then there is always remote monitoring.

- ACT: Address override concerns in WP.
- WP approved, unless developer finds a significant issue with persistence.

VIII. Closing

Annette Beitel—Thank you all for coming in person or calling in. It seems like the sound quality is much improved in this room. We are meeting at NRDC in November, but will try to schedule the meetings here starting in January.

We will see you all in November. Please remember to send us your ideas for measures to be reviewed and policies to be analyzed next year to discuss for the draft 2015 Business Plan.