



**California Technical Forum (Cal TF)  
Technical Forum (TF) Meeting #7  
February 26<sup>th</sup>, 2015  
Pacific Energy Center  
San Francisco**

**I. Participants**

Annette Beitel, Cal TF staff  
Jenny Roecks, Cal TF staff  
Alejandra Mejia, Cal TF staff

David Springer, TF Member  
Tom Eckhart, TF Member  
Ron Ishii, TF Member  
Pierre Landry, TF Member  
Dylan Sullivan, TF Member  
Christopher Rogers, TF Member  
John Proctor, TF Member  
Doug Mahone, TF Member  
Ahmad Ganji, TF Member  
Bing Tso, TF Member  
George Roemer, TF Member  
Sherry Hu, TF Member  
Andy Brooks, TF Member  
Steven Long, TF Member  
Martin Vu, TF Member  
Armen Saiyan, TF Member  
Spencer Lipp, TF Member

Jia Huang, Presenter, Pacific Gas & Electric (PG&E)  
Julie Colvin, Presenter, PG&E  
Oriana Tiell, Presenter, PG&E  
Rick Ridge, Presenter, Ridge & Associates  
Ben Chou, Presenter, Natural Resources Defense Council (NRDC)  
Pete Ford, San Diego Gas & Electric (SDG&E)  
Martha Garcia, Southern California Gas (SCG)  
Janisse Martinez, SDG&E  
Jennifer Holmes, Consultant  
Kathy Yi, Idaho Power  
Kurt Markhausen, Bits Limited



Arthur Zhang, CalPLUG  
Dominico Gelonese, Embertec  
Grant Brohard, PG&E  
Thad Carlson, Trickle Star

### **On the Phone**

Larry Kotewa, TF Member  
Bruce Harley, TF Member  
Bryan Warren, TF Member  
Jon McHugh, TF Member

Larry Tabizon, Southern California Edison (SCE)  
Yun Han, SCE  
Andres Fergadiotti, SCE  
Jason Wang, SCE  
Teddy Kish, Energy Solutions  
Andrea Salazar, EMI Consulting  
Todd Malinik, EMI Consulting  
Christine Hanhart, UCONS  
Eli Caudil, Conservation Services Group  
Jesse Martinez, SCG  
Jon Lanning

## **II. Key Decisions and Action Items**

### **Statewide New Workpaper List**

- ACT: Post list of California Program Administrators to [www.CalTF.org](http://www.CalTF.org).
- ACT: Publish new and existing workpaper lists by late March.

### **DEER Documentation/POU TRM Review Kick-Off**

- ACT: When choosing which measures to review, attempt to pick a set that balances between problematic and less problematic areas so the overall data set is not misrepresented
- ACT: Send out email soliciting subcommittee participation
  - Also looking for suggestions of most robust TRMs
- ACT: TF members encouraged to participate in first subcommittee call, even if only for measure selection process.

### **Interim Workpaper Policy**



- ACT: Remove three-month requirement from draft policy.

#### RPP Workpaper

- ACT: Ensure final workpaper adequately addresses calibration of Bass Diffusion model.
- ACT: Share program logic model.
- ACT: Change growth rate of sound bars and HTiB to .5%
- ACT: Get percentage of PG&E portfolio savings
- ACT: Tom Eckhart to share RTF clothes dryer workpaper
- ACT: Schedule conference call to discuss evaluation plan when ready.
- ACT: Schedule call to discuss EM&V plan.

#### Lunch Time Discussion

- ACT: Follow up discussion of John Proctor's comments on "What Matters" to ensure Cal TF has identified and has plan to address most impactful technical issues facing California.
  - John Proctor can lead lunch discussion at next (March) Cal TF meeting.

#### Advanced Power Strips Workpaper

- ACT: Explain how the weekly active use time changed.
- ACT: Confirm sample size of the SDG&E commercial field trial.
- ACT: Describe any behavioral bias that might affect the SDG&E commercial field study results.
- ACT: For follow up—is there an opportunity for using Cal Plug as a certifying organization?
- **Workpaper receives interim approval for one year**, pending the following modifications:
  - Reducing gross savings by including 28% removal through in service rate
  - Implement study to collect baseline and persistence data. TF to review and approve this study plan.

#### General Comments

- ACT: Add statistical parameters to workpaper checklist
- ACT: WP developers need to anticipate Cal TF comments/questions and address prior to coming to Cal TF. Add common issues that Cal TF members will likely raise to WP "checklist", including:



- For any studies cited, what was sample size, statistical significance of results.
  - Be prepared to address any potential health, safety, performance issues (such as LED tubes going into old ballasts).
- ACT: Discuss WP quality expectations/checklist at an upcoming Cal TF meeting.

### LED Tubes

- ACT: Assess light distribution of LED tubes in workpaper abstract
- ACT: Specify what happens when the tube is installed in the wrong ballast.
- ACT: George Roemer to provide evidence from the Midwest
- ACT: Martin to follow up with Michael Siminovitch at the California Lighting Technology Center (CLTC)
- ACT: Workpaper developer to summarize issues related to safety, performance and ballast compatibility at next TF meeting.
- ACT: Finish discussion on follow up conference call

### Clothes Washer Recycling

- ACT: Consider including dryer pick up, even if that is not incentivized, to increase uptake.
- ACT: Remove age restrictions on qualifying machines
- ACT: Get better characterization of secondary market
  - Size estimations
  - The flow of good to and from other states or countries.
  - Evidence that the program would actually shrink the secondary market such that the incentive for clothes washer recycling would actually reduce the number of old clothes washers being purchased by another user in service territory.
  - Research Energy Solutions study on clothes washer recycling characteristics.
  - Follow-Up: Check with Pierre Landry/John Proctor to assess what information they will consider adequate to demonstrate that program would reduce size of secondary market.

### Follow-Up Meetings to be Scheduled

- POU TRM/DEER Documentation kick-off and measure selection call
- Call to discuss RPP evaluation plan when it is ready



- Discussion of John Proctor’s “What Matters” concerns
- LED tubes guidance call
- Close out discussion for second hand clothes washer market
- Review and approve Advanced Power Strips baseline and persistence study plan

### **III. New Statewide Measure Tracking**

Jenny Roecks, Cal TF staff—

#### **Statewide New Workpaper List**

Ron Ishii—How are you planning on tracking the status of all of these workpaper?

Jenny Roecks—I am going to be hosting a monthly call with designated technical staff from IOU and POU technical staff to update the list.

Ahmad Ganji—Can an independent company sponsor a workpaper for their ideas?

Jenny Roecks—Such an idea would be captured in this list, even though a measure would need to have the interest of a Program Administrator to be adopted into a portfolio.

Andy Brooks—What I’m hearing is that measures eventually will need buy in from an IOU.

Annette Beitel—Program Administrators are not just the IOUs.

Ron Ishii—So, who are all the Program Administrators (PAs)?

Annette Beitel—Basically it is the IOUs, POUs, RENs, and CCAs. We can post this list on our website.

- ACT: Post list of California Program Administrators to [www.CalTF.org](http://www.CalTF.org).

Pierre Landry—Since that the NRDC workpaper is our first example of a non-IOU measure, could you tell us a little about how that has progressed?

Jenny Roecks—There has been ongoing communication and collaboration between the NRDC workpaper developer and several of the IOUs throughout the



entire process. None of the IOUs have committed to adopting it into their portfolios, but they are definitely interested in the measure.

Pierre Landry—Wasn't there a point early on in our process flow chart that involved a securing a definite yes or no from the PAs?

Annette Beitel—We have discussed whether such firm endorsement should be required, but the consensus was that it was very hard for PAs to make those decisions before seeing somewhat fleshed out savings estimates, cost-effectiveness estimates and initial expected market potential.

David Springer—At your prompting over the last few months I have suggested several measure ideas. Will those be reflected in that list?

Jenny Roecks—Yes.

Annette Beitel—It is important to remember that third parties submitting ideas for development must actually invest their own resources in developing the actual workpaper if it is selected by the Cal TF for review and a Program Administrator has not yet adopted the measure. This is what NRDC did with their clothes washer recycling measure.

Pete Ford—Just to clarify, the IOUs are always interested in new measures. To Ahmad's original question, we would expect the technology to be generic enough that we could offer it through various manufacturers.

John Proctor—I would challenge the idea that technologies should be non-proprietary because that would rule out a lot of excellent measures.

Pete Ford—Yes, that's of course not enough to reject a technology. We would not refuse to offer a measure just because it is only manufactured by one company. We would just encourage a more open approach in the cases that more than one manufacturer/implementer can offer the measure.

Dylan Sullivan—The key point is that the method itself should be manufacturer-neutral.

- ACT: Publish new and existing workpaper list by late March.

#### **IV. DEER Documentation/POU TRM Review Subcommittee Kickoff**

Jenny Roecks, Cal TF staff—



## Power Point Presentation

Martha Garcia—So, what will be the overall outcome of this project?

Jenny Roecks—For the POU project, the goal is to review the methodologies; for the DEER work, we will only be documenting the methods. The two are complimentary because the POU TRM does pull heavily from DEER, so documenting those methods will be a first step for the POU TRM review exercise.

Bing Tso—Do you have a sense of the timing for this effort?

Annette Beitel—We are hoping to document 8-10 DEER measures and review the same number of POU measures by the end of the year. If this is not possible, then it would make sense to have a discussion about the complexity of the current databases.

Dylan Sullivan—I'm wondering if there is some circularity there, since a lot of the TRMs point to DEER?

Annette Beitel—Yes, that was initially true, but a lot of the TRM developers have begun to document their own methods, since they have had the same difficulties with DEER.

Tom Eckhart—One way the RTF prioritizes HVAC measures is by differentiating between Small and Big Savers.

Doug Mahone—Are you looking for problem measures?

Annette Beitel—Yes, that makes sense—to pick measures that need review, while at the same time being truly representative of the TRM. That means that not all measures we review will be problematic.

Bruce Harley—One suggestion for measure selection is to consider which measures are significantly under- or over-reporting savings.

- ACT: When choosing which measures to review, attempt to pick a set that balances between problematic and less problematic areas so the overall data set is not misrepresented
- ACT: Send out email soliciting subcommittee participation
  - Also looking for suggestions of most robust TRMs



- ACT: TF members encouraged to participate in first subcommittee call, even if only for measure selection process.

## **V. Interim Workpaper Policy**

Jenny Roecks, Cal TF staff—

Martha Garcia—Does the interim approval time take into account the Cal TF review and approval timeline?

Jenny Roecks—The interim approval would only be granted at the end of the current process. The only difference with this policy is that the interim workpaper would be required to return for refinement after some time of implementation.

Pierre Landry—This is a curious piece. A curious but necessary piece, because we have uncertainty about all of our ex ante estimates, there are just some we feel more uncertain about than others. This should probably be acknowledged somewhere. I would also suggest you make sure all time periods are consistent in the written document.

- ACT: Remove three-month requirement from draft policy.

## **VI. RPP Workpaper**

Julie Colvin, Oriana Tiell, and Jia Huang, PG&E—

### **Power Point Presentation**

Pierre Landry—Will UES (unit energy savings) be done with web crawlers?

Julie Colvin—No, only the incremental measure costs will be done via web crawlers.

Annette Beitel—I would like to remind the team that there has been a lot of discussion about clearly documenting the initial calibration of the bass diffusion model.

- ACT: Ensure final workpaper adequately addresses calibration of Bass Diffusion model.

Doug Mahone—You're calling this a portfolio rather than a program. Could you explain a little bit about how this will be different in implementation?





Julie Colvin—The reason why we’re calling it a portfolio or platform is that we want to create a framework for a comprehensive residential program in the future. The intent really is to build a common data interface for as many participants as possible so we can scale up the basic midstream program for market transformation.

Doug Mahone—How is this different from for example CEE’s model?

Julie Colvin—CEE is not necessarily interested in being a facilitator for retailers, like the EPA is in the case of RPP.

Armen Saiyan—I do not see the program logic model in the workpaper.

- ACT: Share program logic model.

Steven Long—Can you explain where the savings are coming from for the clothes dryers?

Oriana Tiell—For all the measures, baseline will be conventional models (i.e. non-ENERGY STAR) and the measure cases will meet or exceed ENERGY STAR specifications. We believe that our ability to track sales and shipment data will allow us to optimize when to sunset the various appliances.

Jia Huang—In particular for clothes dryers, the base case would be minimum Federal standards.

Dylan Sullivan—There are now efficient dries, heat pump hybrids for instance.

Julie Colvin—Just to be clear, hybrid heat pump dryers will not be included in this program. The IMC is high enough in that case that it makes sense to have a customer-facing downstream program.

Pete Ford—How will you be submitting this workpaper to the decision makers?

Grant Brohard—This will be submitted as a workpaper to the CPUC’s ex ante team.

Julie Colvin—And along with that we will be filling an addendum to this pilot’s Program Implementation Plan.



Pierre Landry—Why are your growth rates for sound bars and HTiBs so much higher than the others?

Rick Ridge—Those are actually placeholders, because we don't actually have that data yet. Those goods are significantly less expensive than the other items. We expect to replace it as soon as we can with upcoming RASS data.

Pierre Landry—I'm just saying that you're going to get the same question from Energy Division, and I'm wondering about the sensitivity of those values. I would recommend that you change that to 0.5% if you are hoping for fast approval, especially if it doesn't really affect the cost effectiveness.

- ACT: Change growth rate of sound bars and HTiB to 0.5%

Ron Ishii—Especially since they are growth rates that are intrinsically linked to TV purchases.

Annette Beitel—Does anyone have a sense of what percentage of the PG&E portfolio savings this would be?

- ACT: Get percentage of PG&E portfolio savings

Rick Ridge—The last target I saw for PG&E savings was around 70,000 GWh.

Ron Ishii, Pierre Landry—It seems like you need a differential saturation value.

Dylan Sullivan—Is  $S_T$  incremental saturation?

Rick Ridge—No, because each year you have a different saturation value. You have a different value in any given year.

Oriana Tiell—The values  $S_T$  accounts for saturation plus growth.

Doug Mahone—Are you going to change the specifications of the hedonic model, or just the values?

Rick Ridge—That is a hard question. My guess is there are potential new variables that can be picked up, but I believe the current model has incorporated 80-90% of the variables already.

Ahmad Ganji—Are you using retail or wholesale cost?



Rick Ridge—The initial cost will be the retail costs as reflected in websites, but we will have to adjust to brick and mortar costs via yearly shelf surveys.

Doug Mahone—With electronics, the actual EUL is related to when items go out of fashion and can be upgraded to a new model.

Rick Ridge—I would argue that EUL studies count replacement for any reason and if equipment is being turned over more often, then those EULs are faulty.

Steven Long—For UECs, will you be getting diversity factors from other goods?

Jia Huang—Yes, from TVs.

Annette Beitel—So, given the additional data needs on this last slide, the question for the TF is if you are comfortable with the current approach for them to proceed along these lines for a final workpaper in April. Are there any remaining questions?

Pierre Landry—In general I would give this a green light. But I would like to know what kind of data will be collected for EUL.

Rick Ridge—Secondary data.

Pierre Landry—That's good.

Tom Eckhart—The RTF just rejected a clothes dryer measure because there were question about UESs. I would like to see more specifics about the assumptions for that measure.

- ACT: Tom Eckhart to share RTF clothes dryer workpaper

Armen Saiyan—In general I'm happy with the approach. I'm concerned about the complexity of the evaluations. Any thoughts on that?

Rick Ridge—Right now we are prepared to share the evaluation plan for 2015. The important thing to keep in mind is that evaluation will be ongoing for many years, but there will be shorter-term impact reports in the meantime.

- ACT: Schedule conference call to discuss evaluation plan when ready.

Group—Approval until final workpaper presented in April.



### **Lunch Time Discussion**

John Proctor—I've noticed a few things that need to be corrected in our industry. Among those is a lack of due process, rules of thumb that are set in stone, evaluations of programs taken as evaluation of measures, and statistical values used as single point values. I think this group is in an excellent position to rectify at least some of these problems.

I've asked the group a couple of times why particular values were selected, and every time I've been told it's because that's what decision makers will approve. I don't think that's right. I think it is our responsibility to get decision makers the real numbers, not what we think they will find acceptable.

- ACT: Schedule follow-up discussion on these topics.

### **VII. Advanced Power Strips Workpaper**

Martin Vu, RMS Consulting—

#### **Power Point Presentation**

(Cal Plug slides presented by Arthur Zhang)

Pierre Landry—I see the weekly active use time has changed by about 50% from the last version.

- ACT: Explain how the weekly active use time changed.

Ahmad Ganji—For the computer lab data set, was this in the same lab or several?

Martin Vu—I believe various labs.

David Springer—What was the sample size for the SDG&E field trial?

Armen Saiyan—Do you think there will be a behavioral component on these results, where perhaps people turn off equipment more diligently because they know they are being monitored

Martin Vu—I imagine there might be.

- ACT: Confirm sample size of the SDG&E commercial field trial.
- ACT: Describe any behavioral bias that might affect the study results.



Pierre Landry—Have you talked to the utilities about how they will be collecting persistence and baseline data?

Oriana Tiell—Yes, there are two key questions we want to answer: How often are these devices being unplugged, and are there any other customer satisfaction concerns. We expect to have data on persistence within the first few weeks. We have not built baseline into the current scoping plan.

Armen Saiyan—If the baseline data collection is done on implementation, it becomes more of an ex post EM&V approach.

Martin Vu—So, would you survey it at the point of installation?

Armen Saiyan—Yes, basically early or ongoing EM&V with either extra logging capabilities or actual built in monitoring.

Pierre Landry—I'm thinking a sample of about 150, cut them a deal on the product and log the first two weeks. You're not worrying about climate zones on this one.

Oriana Tiell—The primary implementation model PG&E is considering for this measure is direct install for low- and middle-income households, because we believe that's where the most inefficient electronics will be installed.

Domenico Gelonese—We've found that rebating them at retail stores does not work. Direct install with education is necessary for market transformation.

Pierre Landry—In that case, you go in, tell them, not take the other away, and come back to measure again in two weeks.

Spencer Lipp—My guess is that a sample of 150 will be enough, but you do have to keep an eye out on the statistical power of your test.

Thad Carlson—The Australian study recently published new data, where they found that 28% of the goods were unplugged within the first year. Persistence is very important, and it has to go beyond on or off to how the system/timer were set up.

Steven Long—Now that we have the data from Australia, maybe we should just shave off the 28%.



Martin Vu—If we're using local data for the other parameters, shouldn't we do demographic-specific surveys?

Spencer Lipp—Back to what Pierre and John were saying, I think it is incumbent on us to explain the statistical power to our decision makers rather than recommend more and more studies.

Ahmad Ganji—These statistical questions need to be considered before the workpaper comes to us.

- ACT: Add statistical parameters to workpaper checklist

Bing Tso—Back to the persistence question, it makes me wonder how much of that 28% had to do with the measure and how much with program implementation, lifestyles, etc.

Steven Long—A better version of my recommendation would then be to account for that 28% through an in-service rate.

Martin Vu—What worries me is that we are taking the Australian conservative persistence value, but refusing to take their larger savings estimates, so we are picking and choosing the most conservative parameters. This would be systematic bias towards consistency.

Thad Carlson—Silicon Valley Power recently published a persistence survey with a smaller value.

Peter Ford—I see that the savings may almost be ten times the magnitude of Tier One products, so I wouldn't be surprised if that triggered ED review.

Annette Beitel—In light of the time constraints, let me summarize the current outstanding issues: First, there is the question of how to measure baseline, second is how to estimate persistence, and lastly the question of how to broaden the measure definition.

So, what does the group think about Steven's recommendation about using the Australian value of 28% removal rate as an in service rate?

Armen Saiyan—If 28% is the best available data, then make that the starting point and adjust when more local studies are completed.



Pierre Landry—But we’ve heard that the Australian data is old in a fast moving market.

Spencer Lipp—Does the Australian study highlight the reasons why the persistence is what it is?

Domenico Gelonese—No.

Doug Mahone—I am hesitant to pile conservatism on conservatism; however, given that this is a measure that is highly dependent on various behavioral question, and given the already high TRC estimates, I would be in favor of moving forward with the conservative 28% in service rate, along with a study that gets at both persistence and baseline.

Martin Vu—The last question is about measure definition: should we use the terms in the current workpaper, or broaden it to Cal Plug’s definition?

John Proctor—Making it so that everybody can play does not ensure that the other manufacturers save the energy.

Dylan Sullivan—My concern is that the 28% number we already decided on is dependent on a particular feature set that dictates particular customer satisfaction.

Armen Saiyan—I would say that any new sensing approach would have to go through the same rigorous testing.

Ron Ishii—I agree that opening it up to generic sensing capabilities is problematic.

Pierre Landry—So we’re talking about qualifying technologies before they can participate in the program.

Martin Vu—So, to Dylan’s concern about broadening definitions, I believe that Cal Plug’s field testing portion of the road map would serve as a safety valve.

Armen Saiyan—I would approve on the technologies that have already been tested and open up for participation by new products *after* testing.

Sherry Hu—I agree with that, and will just mention that in the future we can use different UEC/UESs for different products. Borrow from the RPP platform.



Doug Mahone—The Cal Plug definition as an entry-level definition is fine, as long as there is field testing.

John Proctor—To me, that is not a good enough definition. I think we really need a definition that is solid. The problem with driving to the lowest level is that we really do drive to the lowest level.

Ron Ishii—I agree with John, the definition should stay as is, we can revisit and modify when other data becomes available. Interim approval seems appropriate right now. We would need to look at data before modifying the definition.

Dylan Sullivan—If we're talking about field testing on a model-specific basis, it makes sense to include the removal rate for specific equipment.

Steven Long—I support moving forward with what we have right now. But I would warn us against using model specific estimates: think about ASHRAE HVAC specifications, we don't want to go down that road. If savings differ significantly, we want to have different workpapers.

- ACT: For follow up—is there an opportunity for using Cal Plug as a certifying organization?

Annette—So, in conclusion, does the TF approve the current workpaper, with the measure definition as is, and the stipulation that the developer come back to the TF with early M&V on baseline and persistence?

- **Workpaper receives interim approval for one year**, pending the following modifications:
  - Reducing gross savings by including 28% removal through in service rate
  - Implement study to collect baseline and persistence data. TF to review and approve this study plan.

### **VIII. LED Tubes Abstract**

Martin Vu, RMS Consulting—

#### **Power Point Presentation**

Martin Vu—We're seeking input on the basic approach.





Dylan Sullivan—I'm wondering if there are requirements for lumen outputs and/or maintenance.

Martin Vu—The proposal on the table right now is using the Commercial Lighting Consortium's higher end product specs.

David Spring—Is there any compromise in efficiency when you put in the integrated ballast?

Martin Vu—Yes, that technology is an option right now, but changing out the ballast triggers code. This proposal is intended to broaden the suite of options available to the customers.

John Proctor—So, when you say a label, are we going to ask the manufacturers to all slap labels on their packaging?

Yun Han—A lot of the manufacturers already have the labels, not all of them. The label doesn't have to be on the tube, it just has to be written somewhere clearly, in a spec or somewhere else.

Pierre Landry—You could have that requirement as an appendix to the application.

Doug Mahone—Another factor is light distribution of the LED tubes versus fluorescent tubes.

Martin Vu—I understand this is still somewhat of a challenge in the industry and it should be a consideration.

- ACT: Assess light distribution of LED tubes in workpaper abstract

Spencer Lipp—It's kind of important to see what happen when the tube is put in the wrong ballast. Early failure would affect persistence while an explosion or immediate damage is more of an installation problem.

Martin Vu—My understanding of the industry is that industry standard practice is to install a sample before signing a contract.

- ACT: Specify what happens when the tube is installed in the wrong ballast.



Martin Vu—What other restrictions in terms of fixtures should be considered to make ED more comfortable with the product?

Armen Saiyan—One thing we did at LADWP was to up the criteria from the DLC.

Ron Ishii—Are there any characteristics that the DLC doesn't capture?

Martin Vu—I guess anything that measures consumer acceptance directly.

Yun Han—The DLC has spacing criteria, which should cover beam angle.

Spencer Lipp—Doesn't that have to do with the fixture?

John Proctor—My answer to the consumer acceptance question would be to require the lighting contractor to install the lamp for a week before a contract is signed.

George Roemer—These are prescriptive measures in many Midwestern states, and I have not heard of any customer acceptance issues.

- ACT: George Roemer to provide evidence from the Midwest
- ACT: Martin to follow up with Michael Siminovitch at the California Lighting Technology Center (CLTC)
- ACT: Workpaper developer to summarize issues related to safety, performance and ballast compatibility at next TF meeting.
- ACT: Finish discussion on follow up conference call

## **IX. Clothes Washer Recycling Workpaper**

Ben Chou, NRDC—

### **Power Point Presentation**

John Proctor—Why is diversion from the secondary market considered early retirement?

Steven Long—It doesn't really fit the general categories very well, but early retirement from the secondary market is how appliance recycling is being done right now.

Pierre Landry—Isn't it a negative measure cost, since the customers can get money from selling to the secondary market?



Steven Long—That’s an interesting thought, but I don’t believe that’s been done before.

Jenny Roecks—The measure cost is modeled after the way the appliance recycling cost is currently done.

Ron Ishii—Doesn’t removing the unit from the secondary market create a cost in the secondary market?

Ben Chou—I believe that is not accounted for in the ARP.

Steven Long—This is probably dictated by the E3 calculator.

Armen Saiyan—Do you have an estimate for the water savings?

Ben Chou—Yes, we have calculated it and it is in the workpaper appendix.

Armen Saiyan and John Proctor—It seems to me that the only place where savings would occur is when somebody is driven out of the secondary market.

Ben Chou—Yes, that’s exactly the goal of the measure.

Sherry Hu—Aren’t you concerned that you’re limiting impact by excluding front-loading washers and dryers?

Pierre Landry—So you would want to include dryer pick up in implementation design, even if you are just scrapping the dryer.

- ACT: Consider including dryer pick up, even if that is not incentivized, to increase uptake.

Steven Long—Would you have interactive effects since clothes washers are usually in basements?

Grant Brohard—Well, in California they are often in conditioned spaces.

Group—Age restrictions are not necessary. People don’t easily get rid of these items.

- ACT: Remove age restrictions on qualifying machines



John Proctor—I'm concerned about the size of the secondary market and whether we can shrink it or not. I'd love to see some data to that effect.

Pierre Landry—But how do you find that out?

John Proctor—One way or another we need to understand the dynamics of this market better.

Steven Long—So the thought is that this secondary market is significantly different than the refrigerator one?

Pierre Landry—Yes. What if there is a significant influx of new supply from other states, or to other countries?

- ACT: Get better characterization of secondary market
  - Size estimations
  - The flow of good to and from other states or countries.
  - Evidence that the program would actually shrink the secondary market such that the incentive for clothes washer recycling would actually reduce the number of old clothes washers being purchased by another user in service territory.
  - Research Energy Solutions study on clothes washer recycling characteristics.
  - Follow-Up: Check with Pierre Landry/John Proctor to assess what information they will consider adequate to demonstrate that program would reduce size of secondary market.