



**CEESP Goal 2: HVAC Energy Savings & DEER Committee
Teleconference Summary Notes
Tuesday, July 19, 2016 (Scheduled from 11:00am – 12:00pm PDT)**

Call to Order

The scheduled 60-minute meeting was called to order at 11:03 a.m. PDT by Rick Danks, Chair of the HVAC Energy Savings and DEER Committee and a representative of ASHRAE.

Roll Call

WHPA Staff announced those on the call and further confirmed attendance of the following 16 members and guests through participation reporting tools.

| | | | | |
|--|----------------|-----------|--------------------------------------|-----------------|
| P = Present at meeting A = Absent from meeting; if proxy has been assigned it will be noted below. This Committee acts by consensus. Those eligible for official consensus voting (WHPA registration received and approved, plus participation at a meeting prior to the vote meeting) are grouped together. Only one representative of a member organization may cast an official consensus vote. | | | | |
| Members (Voting ELIGIBLE) | | | | |
| ASHRAE | Richard (Rick) | Danks | Engineering Society | P (Chair) |
| CLEARresult | Phil | Jordan | Energy Efficiency Program Consultant | P |
| El Camino College | Tim | Muckey | Educator, Trainer | P |
| Galawish Consulting Associates | Elsia | Galawish | Energy Efficiency Program Consultant | P |
| Goodman Manufacturing | Aniruddh | Roy | HVAC Manufacturer | P |
| NCI (National Comfort Institute) | Scott | Johnson | Educator, Trainer | P |
| Members (Voting ELIGIBLE as of August 2nd Meeting) | | | | |
| AHRI (Air-Conditioning, Heating, and Refrigeration Institute) | Garrett | McGuire | HVAC Manufacturer Association | P |
| Big Ass Solutions | Don | Dodd | HVAC Manufacturer | P |
| Daikin U.S. Corporation | Charlie | McCrudden | HVAC Manufacturer | P |
| Energy Solutions | Jim | Hanna | Energy Efficiency Program Consultant | P |
| PG&E (Pacific Gas and Electric Company) | Swapna | Nigalye | California IOU | P |
| SCE (Southern California Edison) | Back | Tsan | California IOU | P |
| Williams Comfort | Ruth Ann | Davis | HVAC Manufacturer | P |
| Members (NOT Voting Eligible) | | | | |
| James J. Hirsch & Associates** | John | Hill+ | Energy Efficiency Program Consultant | P |
| WHPA Staff | | | | |
| BJGustavson Consulting | Bonnie | Gustavson | Other Stakeholder | P (Host) |
| BNB Consulting (for other Committee support alignment) | Bob | Sundberg | Energy Efficiency Program Consultant | P (last 45 min) |
| InfoPlast/WHPA Staff Support | Wendy | Worrell | Other Stakeholder | A (scribe) |

** Organization is Not a Member of the WHPA; + Individual is NOT Registered with the WHPA; ^(P) after last name = Member/Registrant is Pending Approval from the WHPA Executive Committee

Bob Sundberg with WHPA Staff clarified that his presence and meeting comments are as support for other WHPA Committees and Working Groups for the purpose of information gathering and reporting on their behalf.

AGENDA

The following Agenda was distributed prior to the meeting:

1. **Roll Call** – WHPA Staff (Bonnie Gustavson)
2. **Approval of Prior Meeting Minutes** – Chair (Rick Danks, ASHRAE)
3. **Status of Implementation Plan Vote at July 13th WHPA EC Meeting** – Chair (Rick Danks, ASHRAE)
4. **Feedback from Committee Members on EBEE Sub-Strategy 1.5.2** – Chair (Rick Danks, ASHRAE)
 - a. Thoughts on the characteristics of cost effectiveness including suggestions for the matrix
5. **Update on Ideas for Baseline Seminar** – Pete Jacobs (BuildingMetrics)
6. **Summary and Status of Pending Actions** – Chair (Rick Danks, ASHRAE)
7. **Next Meeting** – Chair (Rick Danks, ASHRAE)
8. **Adjournment** by 1:00pm PDT – Chair (Rick Danks, ASHRAE)

Approval of Prior Meeting Minutes

WHPA Staff email distributed the draft June 21, 2016 meeting notes to the roster prior to the meeting. No official vote for approval was conducted during the meeting as there was no quorum of voting eligible members.



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(WHPA Staff Note: The June 21, 2016 minutes will be posted to the WHPA ES&DEER Committee webpage reflective of any edits received.)

Status of Implementation Plan Vote at July 13th WHPA EC Meeting

The Chair reported that the WHPA Executive Committee approved the WHPA [HVAC Energy Savings and DEER Committee's Implementation Plan](#) on July 13, 2016 without issue.

The Chair commented that he will be working with WHPA Staff “to get the Implementation Plan into better prose” and out for review in the short term. He confirmed that there is work to do on AB802 to help those subject to that legislation including a white paper due by the end of the year.

Feedback from Committee Members on EBEE Sub-Strategy 1.5.2

The following ES&DEER Committee Implementation Plan goals were discussed in detail in relation to the Committee's work in support of CEC's *Existing Buildings Energy Efficiency (EBEE) Action Plan Sub-Strategy 1.5.2: Review BEES for Cost-Effectiveness*: (NOTE: BEES = Building Energy Efficiency Standards).

- **GOAL #2:** By December 31, 2016, develop a cost effectiveness definition matrix detailing the meanings to each market actor and the factors affecting understanding of cost effectiveness. The overarching goal is to ensure a foundational understanding of cost effectiveness throughout the WHPA.
- **GOAL #3:** The HVAC Energy Savings & DEER Committee will provide input into the pathways to implementation for EBEE's roadmap for Sub-Strategy 1.5.2 – Review BEES for Cost-Effectiveness: Confirm that BEES requirements are cost-effective when applied to existing buildings using careful review, industry engagement, and BES modifications where needed – by October 21, 2016.”

The Chair facilitated an open discussion on how the Committee might define cost-effectiveness.

- The Chair commented that background information (*see links in “Summary and Status of Pending Actions” #2 below*) suggests that the notion of cost effectiveness might be different for different constituencies within the WHPA community. He requested feedback on if this can be a “one size fits all” situation or if it needs differences in defining what that might be?
- John Hill with James J Hirsch and Associates commented that “from a nuts and bolts” standpoint there should be a difference in cost effectiveness depending on if the customer is a taxable entity (such as private customers) or a non-taxable entity (such as many colleges and universities). He elaborated that the tax rate should be a factor if it is a taxable entity. For example, private companies could use after tax dollars to fund investment but be receiving benefits in pretax dollars so the difference could be fairly significant. He also noted that overall he was unclear what the ES&DEER Committee thinks of in terms of cost effectiveness. He understands what would be done if approaching a customer.
- The Chair confirmed that he does not have an agenda, but rather is also trying to determine “what will work”.
- John Hill (James J Hirsch) commented that communication might be made with individuals from the ASHRAE Standard 98.1 Committee or those involved with doing cost effectiveness analysis in connection with Title 24 as documentation related to those areas indicate that a cost effectiveness analysis is supposed to be done on a codes and standards' level. That could be used as a starting point for how one should evaluate cost effectiveness.



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- Tim Muckey with El Camino College clarified that they normally view costs effectiveness in two ways: (1) in economic terms for tangible benefits for cost return on investment, and (2) intangibles, such as ease of operation, convenience, etc.
- The Chair agreed that simple payback would be for economic terms. He noted that Mercedes' facilities in this USA will not engage in any capital projects that yield payback in more than 2 years.
- John Hill (James J Hirsch) confirmed that simple payback analysis is pretty standard with most commercial customers, but that there is a lot bundled into those calculations. Factors affecting cost effectiveness calculations would be typical discount rates, tax rates, and whether or not the entity is taxable. It can suffice for a lot of people depending on the capital expenditure.
- Tim Muckey with El Camino College confirmed that most of the projects in which he has been involved have been measured in the cost of the project with return on investment included in reduced energy usage or reduced service required for that particular equipment. It was also financial in nature.
- The Chair commented that looking at money invested versus money returned, sometimes called cost avoided. He expressed his preference to avoid a lot of calculations to determine whether or not something is cost effective if possible.
- John Hill (James J Hirsch) reported that DOE-eQuest program does have internal cost effective models. He believes DEER does that but is not sure of the assumptions or rules they use for discount rate, whether or not it is taxable or nontaxable commercial, etc. It may not require a lot of extra effort but it does depend on how the problem is viewed.
- The Chair reminded that the Committee has been asked to develop a cost effectiveness matrix and suggested that some of the differences about taxable or nontaxable may play into that matrix.
- John Hill (James J Hirsch) clarified that discount rates do need to be known. He suggested starting with understanding of what CEC does and what assumptions are made as well as delve into what is done for DEER and 98.1.
- The Chair clarified that the ES&DEER Committee is trying to achieve the goals laid out for it and that much of what was discussed above can be used to help fill in some of the factors affecting stakeholders in the cost effectiveness matrix deliverable. He acknowledged that it is challenging since there are several variables at play for how different stakeholders will define what cost effective is to them. He is hoping for the simplicity of an x, y matrix. He questioned if an 80% effort is sufficient or if it needs to be inclusive of all outlier extremes.
- There was a reminder to of Goal #2's milestones to define the landscape in terms of the market actor sectors to include in the cost effectiveness definition matrix before answering other questions about it.
- The Chair clarified that the end user of the cost effectiveness definition matrix is all of the stakeholder categories. The user categories would be on one axis with a notion of what cost effectiveness means to each player on the other. Some may overlap or be in their own silos. The end result would be that the matrix would help translate the meaning of cost effectiveness among the players so they can all "get on the same page".

There was discussion about how cost effectiveness relates to DEER.



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- John Hill (James J Hirsch) questioned how it all relates to DEER. He pointed out that DEER applies to IOU sponsored measures so there may be a specific set of requirements to obtain funding through IOUs that may govern “what we do” for where cost effectiveness is melded into the overall process for the deliverable.
- The Chair indicated his belief that the goals are expecting the Committee to help clarify that.
- John Hill (James J Hirsch) suggested that because DEER is based off baselines it does not really look at cost effectiveness. DEER provides an estimate of typical savings. Any cost effectiveness in DEER would be bundled into code compliance.
- The Chair questioned if some of the Committee’s work product is to relate cost effectiveness to the notion of resulting energy savings.
- Bob Sundberg (WHPA Staff in support of other aligned WHPA Committees) asked if the discussion of cost effectiveness is from the perspective of the end user or responsible party for the building segment, or rather a disposition that the CPUC might have for an IOU Program energy savings claim. He noted that IOU work papers have been provided to the CPUC with reiteration back and forth that there have been some cost effectiveness issues. He gave the example of a commercial coil clean that upon initial request for approval on claimed savings was received as specific disposition from CPUC Staff or consultants who did not believe it was cost effective because it was seen as “What kind of savings could you get?” versus the assumptions based on the costs per ton of coil capacity. Bob suggested that perhaps the notion of cost effectiveness was involved in that type of negotiation. All the variables the go in for an end user for cost effectiveness are not the same as an IOU work paper for claimed savings.
- John Hill (James J Hirsch) confirmed the accuracy of Bob Sundberg’s comments. John was personally not knowledgeable in how it all “works its way through” but surmised that the Commission tries to see if the entire portfolio is cost effective. He has seen IOU incentives that were not cost effective, but acknowledged that their focus was more to get something moving for a particular measure type to get the attention of and motivate customers. John was unaware of the detail of what the requirements would be. He agreed that they try to get measured costs and do a comparison of measured benefit and cost benefit analysis as part of work papers, but he had not heard of it as being a mechanism for denying work papers. John indicated that Kevin Madison would have the needed answers.

ACTION: The Chair to contact Kevin Madison to gain DEER related cost effectiveness information and report back to the ES&DEER Committee.

- Jim Hanna with Energy Solutions reported his knowledge of cost effectiveness. Energy Solutions supports utilities in the development of work papers and cost effectiveness. The savings come out of DEER. Cost effectiveness comes out of the [E3 Calculator](#), which gives costs effectiveness numbers for proposed programs or from redoing work papers based on DEER updates. They then rerun the E3 Calculator which provides Total Resource Cost (TRC), etcetera. The Utilities rank their 400+ programs by TRC. In tight budgets they do cutoffs based on TRC so they want to put the most funding toward TRC projects. “E3 is the bible for cost effectiveness” used by IOUs. From a reverse engineering perspective, the assumptions that go into the eQuest models for run hours and other factors provide information for evaluating cost effectiveness.
- The following two CPUC documents/manuals were referenced as resource documents that have extensive coverage of the factors that go into TRC and all the other cost benefit calculations.
 - Energy Efficiency Policy Manual Version 4.0
 - Standard Practice Manual



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Update on Ideas for Baseline Seminar

As Pete Jacobs (Building Metrics) was unable to attend the meeting call, no update on the baseline webinar status was presented, although general conversation related to baseline was discussed.

It was noted that the IOUs inform the DEER team how much of the residential energy goes to HVAC, lighting, internal loads, etc. It has to be embedded within the DEER baselines.

In terms of baseline, Bob Sundberg (WHPA Staff in support of other aligned WHPA Committees) reported that, to his knowledge, for some IOU Programs, such as the HVAC Optimization Program (commonly known as Commercial Quality Maintenance) in SCE territory, a comparable program in PG&E territory, and a tiered program in SDG&E territory, there currently are no assumptions in DEER related to the impact of maintenance. That is partially a result of lack of research and whether or not it would have been accepted if it had been presented. Without those assumptions in DEER, the Programs would have had to look for other technology improvements on top of basic maintenance to provide valid claims for savings to the program. TRC based on actual savings from quality maintenance is lacking which is a gap. Another gap is instances where if the baseline assumes that all installations have met code, then only practices that can be validated above code level can be claimed. The assumptions or lack of values in DEER has raised questions in some of the WHPA committees Bob supports.

- John Hill (James J Hirsch) countered that the referenced Programs are covered by work papers. The work papers all assume a mix of measures. “Even though the individual measures may or may not be in DEER, while they are working to get them in DEER, the work paper has gone through a process whereby average impacts are claimed and there is an associated cost of service associated with those impacts so there should be a TRC value associated with anything in a work paper”, or enough information for one to do it for anything associated in a work paper.
- Bob Sundberg (WHPA Staff in support of other aligned WHPA Committees) clarified that SCE used an aggregate collection of measures in one case.

With regard to dual baselines, John Hill (James J Hirsch) noted that there is always an issue within the CPUC in trying to claim existing conditions as the baseline. It is doable and there are programs being evaluated that do that regularly or that have that as their only savings, but there is also a fairly high bar that must be presented by the utilities to show they induced their customers to accept the process of doing something early that they otherwise would not have done. John did not believe the existing quality installation baseline is a dual baseline but he was not sure.

- Bob Sundberg (WHPA Staff in support of other aligned WHPA Committees) agreed with John Hill’s comment about existing quality installation baseline not being a dual baseline.

Summary and Status of Pending Actions

WHPA Staff email distributed the following outstanding Action Items to the roster prior to the meeting. No updates were provided during the meeting.

1. **ACTION:** WHPA Staff to distribute AB802 reference information to the Committee roster for knowledge base. *(The following information is also available on the WHPA website’s Regulatory Policy page:*

| <u>Legislative Bill</u> | <u>Bill Synopsis</u> | <u>Posted on Webpage</u> |
|---|---|--|
| Assembly Bill 802 | This bill addresses energy uses benchmarking and methods of claimed savings. <ul style="list-style-type: none"> ▪ WHPA email - CPUC Seeks Party Comments On SW and 3P Programs - sent May 2016 ▪ WHPA Summary of AB-802 - updated May 2016 ▪ CPUC ruling on Baseline White Paper calling for public comment on issue questions and complete White Paper - comment deadline May 17, 2016 ▪ Baseline Policy Framework - Workshop on Energy Efficiency Baselines | Updated May 2016 October 2015 |



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- [AB-802 Energy Efficiency - General Information](#) - click tabs to view text, bullets, history, bill analysis, etc.
- [View AB-802](#)
- [09/10/15 - Senate Floor Bill Analysis](#)

2. **ACTION:** WHPA Staff to distribute EBEE Sub-Strategy 1.5.2 reference information to the Committee roster for knowledge base. *(The following information is also available on the WHPA EBEE Committee page:*
[WHPA EBEE Committee Sub-Strategy 1.5.2 Worksheet](#)
[WHPA Existing Buildings Energy Efficiency \(EBEE\) Action Plan Committee Webpage](#)
[CEC's Existing Buildings Energy Efficiency Action Plan - Full Document](#)
[CEC's EBEE Action Plan Chapter 3 - Strategies](#)
3. **ACTION:** The Chair accepted Pete Jacobs' (BuildingMetrics) offer to be involved in the baseline webinar goal.
4. **ACTION:** Committee members to notify WHPA Staff (wendy@performancealliance.org) of any Implementation Plan SMART Goals they wish to focus on directly.

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| Committee Next Steps |
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The Chair clarified the ES&DEER Committee's next step recommendations as:

1. Collecting cost effectiveness definitions by market actor segment.
2. Vetting the collected data.

ACTION: The Chair to work on a template for developing the cost effectiveness definition matrix and the list of market actors to approach for data gathering.

Jim Hanna with Energy Solutions reminded that the 23-page Draft DEER 2017/18 Resolution has been released. It includes tables and updates, DEER for Code updates, DEER for Methodology updates, etc. There are proposed changes in energy savings estimates including assumptions and methods that, per Jim, could dramatically effect IOU program cost effectiveness and longevity. Comments are due by August 8th. *(NOTE: Complete documentation and supporting material on the updated assumptions and methods as well as all of the updated values are available at DEEResources.com on the DEER2017/DEER2018 page under DEER Versions on the website Main Menu.)*

ACTION: Members who are so inclined are reminded to submit their stakeholder comments on the Draft DEER 2017/18 Resolution by August 8, 2016.

Prior to the meeting, WHPA Staff conducted an email vote for approval of the following pro-forma meeting schedule (as of 7-11-16). The schedule was approved by general consensus agreement.

Budget: 10 WHPA Staff Supported Meetings

| No. | Day | Date | Time | Comments |
|-----|---------|--------------------|-----------------------|-------------------------------|
| 1. | Tuesday | June 21, 2016 | 12:00pm – 1:00pm PDT | Held, Notes Drafted |
| 2. | Tuesday | July 19, 2016 | 11:00am – 12:00pm PDT | Proposed (BG Host, WW Scribe) |
| 3. | Tuesday | August 2, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 4. | Tuesday | August 23, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 5. | Tuesday | September 6, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 6. | Tuesday | September 20, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 7. | Tuesday | October 4, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 8. | Tuesday | October 18, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 9. | Tuesday | November 1, 2016 | 11:00am – 12:00pm PDT | Proposed (WW Host/Scribe) |
| 10. | TBD | TBD | 60 minutes | Scheduled as Needed |

The Chair reported that the next ES&DEER Committee meeting is Tuesday, August 2, 2016 from 11:00am – 12:00pm PDT.

The Chair adjourned the meeting at 11:58 a.m. PDT.



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Outstanding Action Items and Key Decisions (from ABOVE and Prior Meetings)

- **ACTION:** The Chair to contact Kevin Madison to gain DEER related cost effectiveness information and report back to the ES&DEER Committee.
- **ACTION:** The Chair to work on a template for developing the cost effectiveness definition matrix and the list of market actors to approach for data gathering.
- **ACTION:** Members who are so inclined are reminded to submit their stakeholder comments on the Draft DEER 2017/18 Resolution by August 8, 2016.

CONTINUED FROM PRIOR MEETINGS

- **ACTION:** Committee members to notify WHPA Staff (wendy@performancealliance.org) of any Implementation Plan SMART Goals they wish to focus on directly.
- **ACTION:** The Chair accepted Pete Jacobs' (BuildingMetrics) offer to be involved in the baseline webinar goal.