



**Goal 2: Commercial Quality Installation Committee Meeting Minute  
Friday, August 18, 2017**

**WHPA Code of Conduct:** Please note that all participants of all Western HVAC Performance Alliance (WHPA) meetings, committees, working groups, and ad hoc groups shall adhere to the WHPA Code of Conduct: <http://www.performancealliance.org/Home/CodeofConduct/tabid/205/Default.aspx>.

**Call to Order**

The meeting was called to order at 10:06 a.m. PDT by Chair Rob Falke (NCI). There are eight voting members, and meeting quorum is five. Meetings are scheduled for 60 minutes.

AGENDA TOPICS	DISCUSSION LEADER
Roll Call & Approval of April and July 2017 Meeting Notes	Elsia Galawish
Review Agenda	Rob Falke
CQI Committee Contributions to ASHRAE 221 Standard	Rob Falke
Q&A with CPUC and IOU: Subjects discussed by our presenters may include insight on some of the following questions: <ul style="list-style-type: none"> <li>• What can the CQI Committee do to contribute to the success of the IOUs and the CPUC amid the changing landscape of HOPPs and emerging third-party programs?</li> <li>• Are we on target with our goals for 2017?               <ul style="list-style-type: none"> <li>○ Taking AB 802 into the Field Work Paper – This document details issues and solutions that AB 802 will face when operationalized in the field.</li> <li>○ Statewide HVAC System Performance Measurement – Gather data documenting the performance scores of HVAC system across the state. This will begin to establish typical performance levels of California HVAC systems.</li> <li>○ The next three goals will be accomplished through the Field Data Specification Working Group:                   <ul style="list-style-type: none"> <li>– Expand the Field Data Specification itemizing the data points needed to incorporate the measurement of installed HVAC system performance in the field.</li> <li>– Develop calculation methods and formulae required to quantify an HVAC system’s efficiency sufficiently to allow accurate projection of annual energy usage and savings.</li> <li>– Craft simplified test protocol supporting procedures forming an HVAC system performance assessment process that could be effectively utilized by HVAC and EM&amp;V professionals in the field to measure and score the performance of installed HVAC systems.</li> </ul> </li> </ul> </li> <li>• Lastly, are the key milestones, planned solicitations, and dates that the Committee should be aware to provide timely work products to support utility commercial installation efforts?</li> </ul>	Rob Falke – Introductions  Pete Jacobs  Cristalle Mauleon  Paul Thomas
ASHRAE SPC 221 Update	Falke
New Business	Falke
Closing Comments / Next Meeting / Adjournment	Galawish



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**Roll Call**

Organization	First Name	Last Name	WHPA Category	P=Present
<b>Voting Members</b>				
Air-Tro	Bob	Helbing	Contractor (Nonresidential)	P
All Pro Plumbing Heating and Air	Michael	Greany	Contractor (Nonresidential)	A
BMI (BuildingMetrics Inc.)	Pete	Jacobs	Energy Efficiency Program Consultant	P
Cumming Corporation	Brian	Mauleon	Energy Efficiency Program Consultant	P
Green Link Mechanical	Jerry	Hernandez	Contractor (Nonresidential)	P
NCI (National Comfort Institute)	Rob	Falke	Educator, Trainer	P
SCE (Southern California Edison)	Sean	Gouw	California IOU	P
Tre'Laine Associates	Pepper	Hunziker	Energy Efficiency Program Consultant	P
<b>Non-Voting Members</b>				
Lincus-Solaris	Cristalle	Mauleon	Energy Efficiency Program Consultant	P
NCI (National Comfort Institute)	Ben	Lipscomb	Educator, Trainer	P
<b>Staff</b>				
Galawish Consulting Associates (Staff Support)	Elsia	Galawish	Energy Efficiency Program Consultant	P

**Approval of April and July 2017 Meeting Notes**

Minutes were not presented for vote. Email vote will be sent to voting members by Bonnie Gustavson (Staff).  
(NOTE: April and July 2017 Meeting Notes were successfully approved by email vote.)

**Review of Agenda and Welcome**

- Rob Falke (NCI) reviewed the agenda. Presenters for the Q&A agenda item were changed:
- Rob Falke (NCI) will read Christian Weber's (PG&E) responses to the Committee's questions, and
  - Cristalle Mauleon (Lincus-Solaris) will represent Scott Higa (SCE).
  - Paul Thomas (SDG&E) could not make the meeting.

**CQI Committee Contributions to ASHRAE 221 Standard**

Rob Falke (NCI) – Provided an update on the CQI Committee's contribution to the ASHRAE 221 Standard, "Test Method to Field-Measure and Score the Performance of an Installed Unitary HVAC System." This presentation will be uploaded to the WHPA website and is embedded here for your convenience.



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CQI Comm Meeting  
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**Q&A with CPUC Consultants and IOUs**

Rob Falke (NCI) – The Committee sent a series of questions to the IOUs regarding upcoming changes in energy efficiency (EE) activities in California. (See list of questions in Agenda on page 1.) The Q&A session focused on the overarching question, “*What can the CQI Committee do to contribute to the success of the IOUs and the CPUC amid the changing landscape of HOPPs and emerging Third-Party programs?*”

**Pete Jacobs (BMI, Consultant to the CPUC)** – Committee work as it relates to installation procedures/data specs:

1. Instruments and Instrumentation Techniques: The Working Group will be looking at what the best instruments are for gathering data and what field techniques are feasible in the field. I see these two efforts as extremely valuable for the next phase of HVAC programs.
2. Specific Program Activities – Forward Looking: The CPUC approved SCE’s application (Advice Letter) for the Comprehensive Value Chain HOPPS (CVC) program. As the CVC program planning moves forward, process and procedures manuals will be developed to guide the conduct of EE programs, and this is where our work products will be useful. It is up to the discretion of the Program Administration to incorporate the CQI Committee’s work products in their program development.
3. SCE’s HOPPs Program, Third-Party Programs, SW HVAC Lead

Jerry Hernandez (Green Link Mechanical) –Is the CVC HOPPS Program similar to a RCx program?

Pete Jacobs (BMI) – The CVC HVAC Program is similar to the HVAC Renovation Pilot Program but with a different incentive pay out – downstream incentive-based performance.

Cristalle Mauleon (Lincus-Solaris) – SCE will have oversight for the CVC HOPPs Program.

Pete Jacobs (BMI) – Next Steps:

- The IOUs will distribute RFPs (competitive bid), and program details will be provided once the implementer has been selected. Program Administrators will then have to submit an implementation plan which will contain the program details.
- The IOUs will transition 60% of HVAC program implementation to third parties by 2020. This 60% will be achieved over a three-year period.
- SDG&E is the lead on HVAC programs: (a) upstream, (b) midstream, (c) downstream, CQM, and RQI.
- CQM Draft Data Spec – Received comments from Andres Fergadiotti (SCE) and Scott Higa (SCE). After discussions with SCE, these comments will be incorporated into the draft data specs.

**Cristalle Mauleon (Lincus-Solaris for SCE)** on Priorities for CQI – SCE recommends that the CQI Committee focus on the following activities and that the future phase of HVAC programs currently being worked on and the work products from this Committee will play a critical role in the development.

1. Develop Test protocols and standardized calculation methods for HVAC systems—CQI WG’s 2017 Goals #3 & #4. Pete Jacobs (BMI) noted that (i) he is working with the ASHRAE 221 Standard Committee on these goals and (ii) these two goals are on track to be completed by the end of 2017.

Goal #3: Develop formulae and calculations required to quantify a system’s efficiency sufficiently to allow accurate projection of annual energy usage.

Goal #4: Develop simple test protocols and procedures to support an HVAC system performance assessment process that could be effectively utilized by HVAC and EM&V professionals in the field to measure and score the performance of installed HVAC systems.

Ben Lipscomb (NCI) informed Cristalle Mauleon (Lincus-Solaris) that both Sean Gouw (SCE) and Steve Clinton (SCE) are both on the ASHRAE Committee and have been providing input throughout the development process. Cristalle Mauleon (Lincus-Solaris) asked for a copy of the draft ASHRAE Standard but will have to wait until it is released from ASHRAE for public review.

2. Expand Field Data Specs – How to track:

- HVAC schedules of buildings pre- and post- intervention
- Temperature set points between pre- and post- intervention

Pete Jacobs (BMI) noted that the CI version of the data specs has been approved and the intention is to make revisions in the future. However, there are no immediate plans to make revisions. The RQI specs have been approved by the RQI Committee and, as noted earlier, the QM specs will be soon distributed after incorporation of SCE's comments. He added that for the calculation protocols, revisions were made to the calculation, and a meeting will be scheduled to present to the Committee.

Cristalle Mauleon (Lincus-Solaris) highly recommends adding items to the CQI specs, like figuring out when there are changes in the post-intervention period.

Pete Jacobs (BMI) will send a draft copy of the draft QM data specs for Cristalle Mauleon's (Lincus-Solaris) review.

3. "AB 802 in the Field" work paper (CQI Goal #2) – A work product aimed at operationalizing AB 802 on the street. It will describe (i) a transaction between consumer and contractor and (ii) the essential elements that must exist in order for an AB 802 compliant job to be offered by a contractor and purchased by a consumer. The Committee believes this necessary perspective has failed to be considered by regulators and lawmakers.

Rob Falke (NCI) – With program changes pending and shifts in the industry, what are worthwhile goals for this Committee to consider that will be beneficial to regulators, IOUs, and customers?

Cristalle Mauleon (Lincus-Solaris) – Given that there will be pre/post billing analyses conducted to determine energy savings and it is a possibility that some of the data collected can be considered non-routine, SCE will need the SW HVAC system performance score that considers how to account for non-routine when normalizing data. How will SCE use the pre/post variables in the Billing Analysis model that will calculate energy savings?

Rob Falke (NC) – Does AB 802 provide for "non-routine" data collection events?

Pete Jacobs (BMI) – According to AB 802, the program should be evaluated using Normalized Metered Energy Consumption (NMEC) data. Normalization takes various forms depending on the program and within the NMEC, and there are things that are classified as "non-routine events." For example, routine is normalizing for weather – typical normalization for HVAC measures. Changes in occupancy and load not related to a measure are considered non-routine events. There is some evidence on how to handle the non-routine events in a white paper by LBNL (Jessica Anderson). It is located on the CPUC data site: [www.energydataweb.com](http://www.energydataweb.com), in the public docs' area, under commercial whole building. The author did a good job of outlining how to conduct globalized energy consumption and how to deal with non-routine events. This is a good place to start. Pete Jacobs (BMI) will send white paper to Cristalle Mauleon (Lincus-Solaris).

Ben Lipscomb (NCI) – Please note that the improvement in the building can change how the building is operated and should be considered.

Cristalle (Lincus-Solaris): This, along with the issues above, are some of SCE's major concerns and would like to have a working group look into this issue. For example, what additional data do we need to track to get to a place where we are relatively sure of the energy savings.



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Jerry Hernandez (Green Link Mechanical) – Even when you do improvements to a unit, maintenance will be needed due to regular deterioration, and he recommends installing permanent data loggers for the three-year maintenance period.

Cristalle Mauleon (Lincus-Solaris) – Metering is being considered but it can be expensive and SCE has to look at cost effectiveness.

**Rob Falke (NCI) for Christian Weber (PG&E)** – In-field measurements:

- Remote monitoring possibilities – data collection: measurement to in-field improvements using cost effective HVAC controls and monitoring—similar to what Jerry Hernandez (Green Mechanical) mentioned earlier—are critical.

### New Business

No new business

### Closing Comments / Next Meeting /Adjournment

Next Meeting: Friday, September 15, 2017, at 10 a.m. PDT.

The meeting adjourned at 11:05 a.m. PDT.

### ACTION ITEMS:

1. **Bonnie Gustavson (Staff)** to send email vote request to the CQI Committee voting members for approval of April and July 2017 CQI Committee Meeting minutes. (*NOTE: April and July 2017 Meeting Notes were successfully approved by email vote.*)
2. **Pete Jacobs (BMI)** to send a white paper by LBNL (Jessica Anderson) dealing with how to incorporate non-routine variables into billing analyses.
3. **Rob Falke (NCI)** will distribute the draft version of ASHRAE 221 Standard upon ASHRAE’s release for public review.

Submitted by *Elsia Galawish, WHPA Staff*  
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