



## Goal 2: Commercial Quality Maintenance Committee Tuesday August 8, 2017 Meeting Notes

### Call to Order

The meeting was called to order at 10:03 am PDT by Don Langston, Chair and President of Aire Rite AC and Refrigeration. Meetings are normally scheduled for 60 minutes. This meeting was scheduled for 90 minutes because of the longer agenda.

### Roll Call

Quorum for voting organizations = 7 of 11. 7 voting members, 7 non-voting members and 3 guest and 1 staff attended this meeting. A total of 18 members, guests and staff attended.

P = present at meeting

A = absent voting member; if proxy has been assigned it will be noted below.

WHPA Goal 2: CQM Committee VOTING Members				Roll Call
ACCA (Air Conditioning Contractors of America)	Donald	Prather	Contractor Association	
Aire Rite AC & Refrigeration	Don	Langston	Contractor (Nonresidential)	P
CLEAResult	Gretchen	Egging	Energy Efficiency Program Consultant	
FDSI (Field Diagnostic Services Inc.)	Dale	Rossi	Third Party Quality Assurance Providers	P
Honeywell E&ES (Energy & Environmental Solutions)	Mike	Lawing	Controls (Manufacturer or Distributor)	P
HSE (Honeywell Smart Energy)	Shayne	Holderby	Energy Efficiency Program Consultant	P
PG&E (Pacific Gas and Electric Company)	Christian	Weber	California IOU	
SCE (Southern California Edison)	Scott	Higa	California IOU	P
SDG&E (San Diego Gas and Electric Company)	Paul	Thomas	California IOU	P
Tre' Laine Associates	Pepper	Hunziker	Energy Efficiency Program Consultant	P
Western Allied Corporation	Mike	Gallagher	Contractor (Nonresidential)	
WHPA Goal 2: CQM Committee NON-VOTING Members				Roll Call
ASHRAE			Engineering Society	
BELIMO Aircontrols, Inc	Darryl	DeAngelis	Controls (Manufacturer or Distributor)	
Brownson Technical School	Bill	Brown	Educator, Trainer	
BuildingMetrics Inc. (BMI)	Pete	Jacobs	Energy Efficiency Program Consultant	
Clean Energy Horizons	Norm	Stone	Energy Efficiency Program Consultant	P
CLEAResult (formerly PECEI)	Michael	Blazey	Energy Efficiency Program Consultant	
CLEAResult (formerly PECEI)	Phil	Jordan	Energy Efficiency Program Consultant	
CLEAResult (formerly PECEI)	Paul	Kyllo	Energy Efficiency Program Consultant	
CLEAResult (formerly PECEI)	Todd	Van Osdol	Energy Efficiency Program Consultant	P
CLEAResult (formerly PECEI)	Mike	Withers	Energy Efficiency Program Consultant	
Marina Mechanical	Denny	Mann	Contractor (Nonresidential)	
HSE (Honeywell Smart Energy)	Steve	Varnum	Energy Efficiency Program Consultant	P
Lupson and Associates	Warren	Lupson	Other Stakeholder	
Richard Danks Consulting	Richard	Danks	Other Stakeholder	P
SCE (Southern California Edison)	Steve	Clinton	California IOU	P
SDG&E (San Diego Gas and Electric Company)	Robert	Nacke	California IOU	
Transformative Wave	Joe	Schmutzler	Controls (Manufacturer or Distributor)	P
Transformative Wave	Justin	Sipe	Controls (Manufacturer or Distributor)	
Western Allied Corporation	Mike	Gallagher	Contractor (Nonresidential)	
XCSpec	Jeff	Aalfs	Controls (Manufacturer or Distributor)	



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XCSpec	Janet	Peterson	Controls (Manufacturer or Distributor)	X
<b>WHPA Goal 2: CQM Committee NON-VOTING Guests</b>				<b>Roll Call</b>
Adrienne Thomle, Consulting **	Adrienne	Thomle +		
AHRI	Garrett	McGuire	HVAC Manufacturer Association	
Air Management Industries	April	Yungen	Contractor (nonresidential)	P
AirTest Technologies	Mike	Schell	HVAC Manufacturer	
All Pro Plumbing, Heating & AC	Michael	Greany	Contractor (nonresidential)	
American Commissioning Group	Craig	Hofferber	Third Party Quality Assurance Provider	
AMS (American Mechanical Services)	Marc	Pickett	Contractor (Nonresidential)	P
B2B Sales Excellence**	James	Graening+		
California Public Utilities Commission (CPUC) - Energy Division			California PUC	
California Public Utilities Commission (CPUC) - Energy Division	Pete	Skala+	California PUC	
CLEARresult	David	Cantanese+	Energy Efficiency Program Consultant	
CLEARresult	Richard	Waite	Energy Efficiency Program Consultant	
Fieldpiece Instruments	Russ	Harju	HVAC Manufacturer	
Fieldpiece Instruments	Kennedy	Kong+	HVAC Manufacturer	
Galawish & Associates	Elsia	Galawish	Energy Efficiency Program Consultant	
HVACRedu.com	Chris	Compton	Educator / Trainer	
ICF (ICF International)	James	Jackson	Energy Efficiency Program Consultant	
Mark Cherniack Emeritus	Mark	Cherniack	Emeritus	
NADCA (National Air Duct Cleaners Association)	Dan	Stradford	Contractor Association	
NCI (National Comfort Institute)	Rob	Falke	Educator / Trainer	
Pax-Sun Engineering, Inc.	Tom	Paxson	Other Stakeholder	P
PG&E (Pacific Gas and Electric Company)	Robert	Davis	California IOU	
SCE (Southern California Edison)	Andres	Fergadiotti+	California IOU	
SCE (Southern California Edison)	Sean	Gouw	California IOU	
ServTEC Air Conditioning	George	Rodriguez	Contractor (Nonresidential)	
UC Davis Energy Efficiency Center	Kristin	Heinemeier	Research Organization	
<b>STAFF</b>				
BBI (Better Buildings Inc.)	Mark	Lowry	WHPA Executive Advisor/BBI COO	
BNB Consulting/WHPA Staff, host, admin. support & scribe	Bob	Sundberg	WHPA Staff	P
CLEARresult	Paul	Kyllo+	WHPA Senior Advisor	
Empowered LLC	Shea	Dibble	WHPA Co-Director	

\*\* 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



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**AGENDA**

<b>Topic</b>	<b>Discussion Leader</b>	<b>Desired Outcome</b>
Welcome, roll call, review agenda, approve past meeting minutes and ACTION items	Don Langston and Bob Sundberg/staff	Record meeting attendees, finalize past meeting minutes, review status of meeting action items.
Welcome new members & guests, review new candidates	Don Langston and Bob Sundberg/staff	New members and invited guests welcomed. Decision made on suggested revisions to candidate options and the review process.
NEWS – Regulatory and Legislative Updates – Standard 180 Committee June Meeting Update	Don Langston, CPUC/ED, CEC & IOU Representatives	Members and guests are kept informed about new regulatory and legislative actions, events and announcements.
CQM Program Updates SCE/PG&E/SDG&E	Gretchen Egging, Shayne Holderby, Paul Thomas	Gain a current understanding of IOU CQM program status, progress, developments and issues.
CQM STD 180 User Guide WG	Don Langston and attendees	Update members on WG progress.
CQM Committee Planning & Committee Goals	Don Langston	Overview of planning and leadership for CQM Committee
CQM WG Planning: 1) STD 180 User Guide; 2) CM SF Data Spec.; 3) STD 180 Customer Communications for User Guide	Don Langston	Update members/guests on WG status
IOU Billing Analysis Study update	Christian Weber (PG&E) and Scott Higa (SCE)	Energy billing data analysis method and any preliminary results on savings from CQM programs
Review meeting Action Items, set next meeting date/time, adjourn	Don Langston	Set next meeting date and confirm time.

**Approve Minutes of Previous Meeting**

June 13 meeting draft notes were distributed June 20. Approved meeting notes would be finalized and posted to the CQM Committee site.

**Review Status of Action Items from Previous Meeting**

February 14 ACTION: Christian Weber, PG&E and Scott Higa, SCE, would report on the IOU billing analysis study at the March 2017 meeting. Ongoing.

Background: A study was being conducted, led by PG&E, regarding billing analysis for HVAC which would include CQM, CQR and Upstream program participants. The goal of the study was to produce a quantitative model capable of predicting energy usage of a customer’s building before and after a program intervention. It was not, for example, assessing the impact of CQM program participation on a customer’s metered energy usage.

February 14 ACTION – Don Langston wanted the committee to develop achievable goals around working more closely with related WHPA committees like CQI and FDD. Ongoing.



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February 14 ACTION: Christian Weber, PG&E would reach out to PG&E CQM program contractors to get feedback about their possible participation on this committee and its working groups. Ongoing.

February 14 ACTION: Scott Higa, SCE – consider ways to inform participating contractors about the WHPA, this committee and its working groups and ways they could become involved. Ongoing.

June 13 ACTION: Scott Higa and Gretchen Egging would follow-up to provide Bob Sundberg details about why their program had extended incentives to customers to upgrade to the integrated VFD/ADEC option (Catalyst) beyond the program three-year limit when those same customers had earlier chosen the ADEC alone option.

### **Welcome New Members and Guests; Consider Pending Members**

None.

### **New Business - Don Langston & IOU Representatives**

None.

### **NEWS Updates -Industry, Regulatory and Legislative - Don Langston, CPUC/ED, CEC & IOU Representatives**

ASHRAE/ACCA Standard 180 Committee met Friday June 23 in Long Beach, CA. Don Langston, CQM Committee Chair, indicated that several committee members also attended this meeting. He wanted to make a couple of opening comments and then invited other attendees to share their thoughts.

Don commented on the importance of “wordsmithing” in development and revisions to standards because of their code-compliance nature. They needed to pay attention to the nuances in word selection and how the selected words and terms might be interpreted, what meaning those choices conveyed.

Tom Paxson, Pax-Sun Engineering – the committee reached agreement in principle on the Purpose and Definitions sections and a lot of agreement on Section 4 Implementation. He was pleased with the agreement in the Section 5 maintenance task tables to distinguish between inspection tasks and maintenance tasks and to identify tasks as such with separate columns. Donald Prather, ACCA, had reformatted the maintenance task columns. A draft had been posted to the committee document site, “basecamp,” for members to review. The committee had been granted a budget to produce a user guide. However, since they’d made so much progress trying to make the standard self-explanatory, capable of being understood without explanations, those moneys didn’t need to be spent.

Dale Rossi, FDSI – he participated remotely and complimented the committee on making that option possible. He was skeptical that the standard could be written in a way to be self-explanatory. He thought that some sort of handbook or manual or examples would still be needed. The authors and members pretty much understood what they meant by the wording. For them, it was pretty self-evident. But, he wasn’t certain that would be the case for a broader audience of potential users and implementers.

Don Langston – he agreed with Dale’s comment. He thought that including several explicit examples to describe different scenarios was definitely needed.



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Tom Paxson – he referred to the national electrical code which included in Section 9 how to go about proper wiring in different buildings and applications. Nothing precluded them from including examples in the annex or in appendices at the end of the standard. He knew that Rick Danks had been working on that.

Rick Danks, Rick Danks Consulting – he was but thought that the others had provided the most important comments already and nothing to add.

Pepper Hunziker, Tre' Laine Associates – she asked what that meant, going forward, for the CQM Committee user guide working groups with the comments about the standard possibly having examples included. How would those pieces come together?

Don Langston – now that the Standard 180 Committee had made substantial progress on revisions to the standard, the committee would be interested in CQM Committee working group user guide input designed around “best practices” rather than around use in utility programs. He thought of it as a complimentary and collaborative joint effort. No timeline or deadlines established but he thought both could provide input to the other in their parallel efforts.

Scott Higa, SCE – he picked up on Pepper’s question and thought the committee as well as working group members would benefit from having a better understanding of the process. How work product from WHPA committee working groups would inform the Standard 180 Committee for its efforts to revise the standard and consider development of examples and even their own user manual or guide, especially in light of the working group current focus on Section 4 Implementation. It sounded to him like there hadn’t been a process developed yet.

Tom Paxson – he thought the committee and working groups could really help by looking through the Standard 180 maintenance task tables. The Standard 180 Committee had been chastised by ASHRAE over concern about leaking direct information from the committee which had not yet been approved, such as meeting draft minutes. He thought this was the ideal time to look at the economizer and rooftop unit tables in Section 5 of the standard, for example, to provide input over the next couple of months between the semi-annual Standard 180 Committee meetings. To review the proposed table revisions at “basecamp” prior to their next meeting in Chicago January 2018.

Don Langston – he reminded Tom that the maintenance task working group, led by Dale Rossi, had spent considerable effort over the last three to four years reviewing both of those tables and providing detailed suggestions for revision to the Standard 180 Committee. Where he thought the committee needed the help and resources was in shepherding those working group work products through the various Standard 180 sub-committees, like Section 4, so that the considerable effort to provide input was thoroughly considered.

Dale Rossi, FDSI – CQM Committee Maintenance Task Working Groups met, literally year-round for several years, and composed detailed recommendations to be considered by the Standard 180 Committee for revisions to the standard. Updating the economizer for digital controls and a comprehensive examination of the Rooftop Table 5-22 were completed some time ago. Mike Gallagher and a WG worked on a first review of Section 4 Implementation. All of these were delivered and loaded into “basecamp” before the June 2017 meeting.

Rick Danks – when suggestions are submitted to the Standard 180 Committee, they have a different level of rigor and evaluation before they are accepted for incorporation into a revision of the standard. ASHRAE has



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established “due process” for considering suggested revisions as outlined by the American National Standards Institute (ANSI) as well as by its own procedures and those of ACCA. The suggestions which were deemed appropriate had been incorporated into a revision draft. He believed they’d had a vote by the committee to accept proposed revisions to Section 4 of the standard, to answer part of Scott Higa’s questions about the incorporation process on ASHRAE committee standards. He related that ASHRAE was delighted with the feedback provided by WHPA committees and working groups to the Standard 180 Committee on efforts to implement the standard within and outside of CA utility programs. He reminded the group that the standard was developed and needed to apply to a broad spectrum of industry and market players and potential implementers. That did include contractors but also procurement and supply management personnel and systems and those responsible for more local regulations.

Scott Higa – he thought it would be helpful for members to understand where the work products were going, in addition to the CA IOUs.

Don Langston – he’d come to better appreciate the national and international scope of ASHRAE committee efforts during the last couple of years and especially since becoming a vice-chair for the Standard 180 Committee. The WHPA committees and working groups and their work products could not, by de facto, speak for or interpret the standard for the ASHRAE committee but could certainly provide their interpretation and suggested revisions to that committee as well as to key CA stakeholders interested in coming to a better understanding on how it might be implemented.

**IOU CQM Program Updates**

**SCE CQM program summary (Scott Higa of SCE & Gretchen Egging of CLEAResult):**

Gretchen Egging, CLEAResult, was unable to attend – Todd Van Osdol provided an update on her behalf.

## SCE CQM HVAC – July

	Jul-17	2017 YTD
New contractors	0	0
New customers - application received	2	40
New buildings – check cut	22	301
% of units w/ economizers	72%	80%
New tonnage – check cut	1,454	20,938
Units w/ CSA – check cut	433	2655
Units w/ DCV/VFD – check cut	70	176
Units w/ ADEC w/ CSA – check cut*	256	1368
kWh – check cut	1,030,089	4,655,691
kW – check cut	441.63	1,971.17

\*does not count units with ADEC pre-existing at CSA or units where ADEC is installed at DCV



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Todd Van Osdol:

- The SCE program trend was on track to meet 2017 energy savings goals
- Contractor engagement and participation remained strong
- The CLEAResult implementation team had been addressing common and chronic data entry errors usually made by technicians.
  - Certain EE measures were commonly mislabeled – the number of fan speeds which would impact their eligibility for VFD upgrades
  - The team continued to reach out to technicians to provide coaching and refresher training
- They’d been providing program sales training to many participating contractor firms, not just to new firms entering the program

Pepper Hunziker – she asked if the program sales training included any material developed by the WHPA, by the CQM Committee or its working groups?

Todd Van Osdol – he committed to check that detail out with his team. He was aware of the sales training being provided which supported VFD upgrades. They’d been targeting those upgrades, as mentioned at the previous CQM Committee meeting, with end users who had graduated from the three year program.

**ACTION:** Todd Van Osdol, CLEAResult, would check with their implementation team lead to see whether any of the new sales training materials had incorporated materials or content developed by CQM Committee or its working groups.

**PG&E CQM Program Summary (PG&E staff to be designated & Shayne Holderby of HSE)**

Shayne Holderby, Honeywell Smart Energy Solutions.

## PG&E CQM HVAC

	2017 YTD PAID
New/Active Contractors	0/51
New customers – app submitted	97
New buildings – app submitted	282
% of units w/ economizers	41%
New tonnage – app submitted	12308
Units w/ CSA - app submitted	2005
Units w/ DCV/VFD - app submitted	145*
Units w/ ADEC w/ CSA - app submitted	850
kWh - app submitted	4501521
kW - app submitted	606



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Shayne Holderby:

- Currently, 51 active contractor firms
- A lot more activity with larger customers, more national chains choosing to participate
- Units with economizer systems maintained the five year trend at about 40%
- 2005 total units submitted for program participation
- On track or slightly ahead to meet 2017 energy savings goals
- He noted that the DCV number hadn't changed (note \*). DCV had been removed from the PG&E HVAC Optimization program. There was a TRC issue (total resource cost). The CPUC hadn't approved the claimed savings for CO2 sensor based demand control ventilation changeover.
- About 850 of 2005 total units had now had advanced digital economiser control systems installed
- Reported kW savings was extremely low – they continued with efforts to deliver greater kW energy savings. He didn't think that number would increase significantly if they retained the same energy efficiency measures in the program.
- Contractors were focused on response to emergency service during the summer. They considered those to be a pool of potential future program participants.

Don Langston – he asked Shayne what seemed to be building participation. Was it continued educational efforts or some other factors? Was there any indication that better maintenance was of value? The incentives helped push people to become informed but what else was helping draw more people into their program?

Shayne Holderby –

- There'd been a lot more engagement by PG&E personnel who drive potential participants to the HVAC Optimization program information which, again, drove them to talk with contractors about possible benefits and participation.
- Like at SCE, there was much less data collection for data sake. Much greater emphasis around collecting data around specific energy efficiency measures and validating program performance. Their intention was to collect what was being utilized. That helped reduce the operational overhead for participating contractors.
- Their online portal was customer accessible so they could see what was going on for their organization. Who was out at their facilities and when and what was being performed, which contractors oftentimes didn't communicate very well.

### **SDG&E CQM Program Summary (Paul Thomas, SDG&E, David Cantanese, CLEAResult)**

David Cantanese, CLEAResult – was unable to attend.

Paul Thomas, SDG&E – stated that he was not very close to the operation of their commercial HVAC programs and would defer to their implementer to provide future updates at the next call.

1. He wanted to understand the process, what would be valuable to provide this committee. He didn't know that the sorts of comments the other IOUs had just made would be helpful. They seemed to address what regulators might want.
2. He also wanted to address how to inform the group about a QM effort that was imbedded in a larger, multi-step program like their Premium Efficiency program offered in the SDG&E territory. He didn't think their QM efforts were nearly as robust as those being made in the rest of the state. It would be important for him to better understand those other efforts since SDG&E would be providing a state-wide lead going forward.





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3. He was also interested to receive some free-style comments on what members understood that SDG&E had done in the past.

Don Langston, Chair – he asked Paul to provide an overview of his background and current role at SDG&E. Also, what his role was leading this state-wide effort.

Paul Thomas – SDG&E representative

### Background

- He'd been at SDG&E, now, for about 6 months, hired in January
- He had little HVAC background but had worked in the energy efficiency arena for about 20 years
- He'd worked for SoCal Gas, SCE and been in consulting

### Energy Efficiency (EE) Program Environment and Future

- Major IOUs were stepping back from the EE program design business
- There was a state-wide mandate that 60% of their IOU budget include EE programs, at a minimum, which were designed, proposed and delivered by third parties
- Drastic shift in how programs were administered
  - Previously, programs were administered by IOU staff for their service territory, then implemented by third parties like CLEAResult
  - Going forward, there would be one (1) program administrator, state-wide, for a handful of programs – upstream, midstream and downstream

### Current Role

- If the SDG&E business plan is approved by the CPUC, SDG&E's administrator would be administering, for example residential upstream and midstream, programs in SCE and PG&E territories as well as theirs in their own territory – this was a new approach for the state
- Their 10 year business plan was proposed in January, was currently going through the regulatory review process, they hoped to receive approval by the end of 2017
- If so, they would launch the request for proposals (RFP) process early in 2018
- Their plan had projected program launches early in 2019 for all energy efficiency efforts, including HVAC

### **CQM Committee 2017 Working Groups – Don Langston**

Three different working groups were planned for 2017 to make greater progress outside of the full committee meetings.

### **Standard 180 User Guide – technical implementation**

Marc Pickett, AMS – Anderson AC, agreed to chair this WG going forward. Rick Danks agreed to support the WG as vice-chair. Marc indicated he wanted to review the 2016 work product plan for 2017 and intended to reconvene the WG by the end of August. Don Langston thanked Dale Rossi for all of his past leadership and contributions.



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**Standard 180 User Guide – customer communications** (interview process to establish program goals, metrics and defining the value proposition)

Jan Peterson, XCSpec – their WG was busy working to incorporate some of the 2016 User Guide WG information into their 2017 work product. They would continue to meet every few weeks to review progress and gather additional input.

**Commercial maintenance data specification** (measurements required to calculate performance evaluation/scoring)

Don Langston – this WG had not yet been formed. The intent was to refine, revise and finalize a data specification initially developed for commercial installations by the CQI Committee. The data spec. would be adapted to a commercial maintenance application and used as the basis for developing a means to evaluate unit/system performance to score and track the impact of more comprehensive maintenance practices.

### **IOU Billing Analysis Study – Christian Weber (PG&E) and Scott Higa (SCE)**

Scott Higa, SCE – PG&E was leading this study and Christian was unavailable to attend this meeting. Scott shared what he knew of the study.

- AMI Billing Analysis Study – phase 1 was for residential HVAC. Phase 2, which was in process, was focused on commercial HVAC programs. Billing data was drawn from the SCE HVAC Optimization (QM) program as well as data which would be provided within a few weeks from the SCE commercial installation/renovation project. The CI data was primarily from NCI's study database. Billing analysis would be performed by Evergreen Consulting, PG&E's contractor. Evergreen was developing a random coefficients model to disaggregate energy use at the building meter to more specific loads, like all HVAC use. Their goal was to look at the actual change in HVAC energy use before vs. after a program intervention.
- Don Langston, Chair, asked when results might be expected. Scott Higa indicated that preliminary results were expected by the end of 2017.
- The SCE QI project collected data from 9 locations and from about 50 monitored packaged units. This submetered HVAC energy use was not readily available from other commercial HVAC/QM programs. That level of data collection had been out of scope for most energy efficiency programs. That was the detailed energy use at the HVAC unit data which SCE was providing the PG&E consultant for comparison with the disaggregated energy use modeling.

### **Closing Comments/Adjournment**

Don Langston adjourned the meeting at 11:08 am PDT.

\* \* \* \* \*

### **Summary of NEW Action Items and Key Decisions**

August 8, 2017 ACTION: Todd Van Osdol, CLEAResult, would check with their implementation team lead to see whether any of the new sales training materials had incorporated materials or content developed by CQM Committee or its working groups.