



Goal 2: Commercial Quality Maintenance Committee Tuesday April 18, 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.

Roll Call

Quorum for voting organizations = 7 of 11. 6 voting members, 7 non-voting members and 5 guests and 1 staff attended this meeting. A total of 19 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	P
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)	Jeanne	Duvall	California IOU	
SCE (Southern California Edison)	Scott	Higa	California IOU	
SDG&E (San Diego Gas and Electric Company)	Paul	Thomas	California IOU	
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	P
BuildingMetrics Inc. (BMI)	Pete	Jacobs	Energy Efficiency Program Consultant	
Clean Energy Horizons	Norm	Stone	Energy Efficiency Program Consultant	
CLEAResult (formerly PECEI)	Michael	Blazey	Energy Efficiency Program Consultant	
CLEAResult	Elizabeth (Liz)	DeSouza	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)	Mike	Withers	Energy Efficiency Program Consultant	
Marina Mechanical	Denny	Mann	Contractor (Nonresidential)	P
Honeywell Smart Grid Solutions (HSGS)	Steve	Varnum	Energy Efficiency Program Consultant	P
PG&E (Pacific Gas and Electric Company)	Christian	Weber	California IOU	
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	



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SMUD (Sacramento Municipal Utility District)	Bruce	Baccei	Publicly Owned Utility	
Transformative Wave	Joe	Schmutzler	Controls (Manufacturer or Distributor)	P
Transformative Wave	Justin	Sipe	Controls (Manufacturer or Distributor)	
Lupson and Associates	Warren	Lupson	Other Stakeholder	
XCSpec	Jeff	Aalfs	Controls (Manufacturer or Distributor)	
XCSpec	Janet	Peterson	Controls (Manufacturer or Distributor)	P
WHPA Goal 2: CQM Committee NON-VOTING Guests				Roll Call
Adrienne Thomle, Consulting **	Adrienne	Thomle +		
AHRI	Garrett	McGuire	HVAC Manufacturer Association	
Air Management Industries	April	Yungen	Contractor (nonresidential)	
AirTest Technologies	Mike	Schell	HVAC Manufacturer	
All Pro Plumbing, Heating & AC	Michael	Greany	Contractor (nonresidential)	P
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	Carmen	Best	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	P
HVACRedu.com	Chris	Compton	Educator / Trainer	P
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	
STAFF				
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

Topic	Discussion Leader	Desired Outcome
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	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
PG&E HVAC Optimization program participant User Manual	Shayne Holderby	Provide members/guests with an introduction to the new 2017 participant user manual developed for the PG&E commercial HVAC program
Review meeting Action Items, set next meeting date/time, adjourn	Don Langston	Set next meeting date and confirm time.

Approve Minutes of Previous Meeting

February 14 meeting draft notes were distributed February 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



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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.

February 14 ACTION: Don Langston would determine how much meeting resource would be provided to the User Guide WG and the Customer Communications WG before the March committee meeting. Completed.

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 – he would look into ways to inform participating contractors about the WHPA, this committee and its working groups and ways they could become involved. Ongoing.

Welcome New Members and Guests; Consider Pending Members

- Paul Thomas, SDG&E to replace Jeremy Reeve who moved from the HVAC group. Attended.
- David Catanese, CLEAResult – SDG&E commercial programs implementation team. Not in attendance.
- James Graening, B2B Sales Excellence – interested to support customer communications user guide WG effort. Invited to join and participate by Don Langston. Not in attendance.

New Business - Don Langston & IOU Representatives

None.

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

CA Energy Efficiency Coordinating Committee

Pepper Hunziker, Tre' Laine Associates – IOU finalized business plans had recently been posted and announced at the CA Energy Efficiency Coordinating Committee site. They included plans for PG&E, SCE, SCG and SDG&E.

<https://www.caeec.org/business-plans-1>

Follow this link to visit the site home page and get signed up to directly receive CAEECC email notifications. The tab for BP and IP refers to business plans and implementation plans:

<https://www.caeec.org/>

New Title 24 Requirements for Non-Residential Installations

Bill Brown, Brownson Technical School – informed attendees about new non-residential installation Title 24 mechanical acceptance testing requirements. These requirements will become absolutely mandatory for all non-residential HVAC installations as of January 1, 2018. Every one of 17 required tests for installation acceptance would need to have separate forms completed. Only “certified” people would be allowed to complete these forms. To date, only union “certifiers” have completed the required training to date. The training would eventually be open to non-union as well as union. His school is involved in delivering the training required for certification. This will be required to obtain an occupancy clearance with every installation permit pulled. It would complicate any emergency, Sunday morning at 2 AM, equipment replacements.



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IOU CQM Program Updates

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

Gretchen Egging, CLEAResult:

- Only 22 new customer applications received in 2017, 67 new buildings, slow start to the year. Incentives reduced. Might be too early to assume a trend. She'll provide updates in future meetings.
- 81% of units had economizer systems, higher than previous average

SCE CQM HVAC – March

	Mar-17	2017 YTD
New contractors	0	0
New customers - application received	2	22
New buildings – check cut	67	67
% of units w/ economizers	81%	81%
New tonnage – check cut	3,883	3,883
Units w/ CSA – check cut	553	553
Units w/ DCV/VFD – check cut	47	56
Units w/ ADEC w/ CSA – check cut*	228	228
kWh – check cut	976,068	1,077,178
kW – check cut	331.14	363.32

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

Gretchen offered to work with and help orient David Cantanese for the SDG&E program summary reporting since they both worked for CLEAResult and she was familiar with the reporting approach. Our thanks to Gretchen for the help.

PG&E CQM Program Summary (Jeanne Duvall of PG&E & Shayne Holderby of HSGS)

Shayne Holderby, Honeywell Smart Energy – it had been a challenging start to the year.

- New portal introduced
- Many program changes
- Development of a program participant user manual
- Metrics in the following table do not differentiate between 2016 carryover and 2017 new participation
- 4 new active contractors
- Huge increase in the % of new units with economizer systems, like SCE – 90% (401 of 447 new units)
- 145 of 447 new units submitted had DCV upgrades completed on them



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- 401 of 447 new units had economizer systems
- Demand control ventilation (DCV) removed from 2017 program
- Still below 2M kWh goal per quarter (reached 1.6M)

PG&E CQM HVAC

	2017 YTD PAID
New/Active Contractors	4
New customers – app submitted	62
New buildings – app submitted	-
% of units w/ economizers	90%
New tonnage – app submitted	3765
Units w/ CSA - app submitted	447
Units w/ DCV/VFD - app submitted	145
Units w/ ADEC w/ CSA - app submitted	401
kWh - app submitted	1600000
kW - app submitted	-

Denny Mann, Marina Mechanical – his firm had participated in the PG&E program since inception and for about 1 ½ years. But, they’d finally opted out mainly because of the burden of required data entry. He understood that the contractor back office entry burden had been reduced and considered re-visiting the program.

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

Unable to attend. No report provided.

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

Some considered this a continuation of the more technical aspects of implementing the standard – developing a maintenance program (inventory & plan), defining performance objectives & their metrics, condition indicators, evaluation and reporting, progress assessments, producing templates and examples etc.



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Don Langston, Chair – this WG was stepping back to provide all members with a better understanding of the history, evolution and intent behind the development of Standard 180 so they all had a common foundation. Rick Danks, one of the original Standard 180 members and a past Standard 180 Committee chair, helped provide an overview for members.

Rick Danks, Richard Danks Consulting – tried to provide a little history and reasons why he believed the standard was written the way it was. He helped inform members of the sort of rigor required to become an ANSI approved standard.

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

Don Langston – WG not yet formed but in development and initial efforts again being led by Jan Peterson, XCSpec. Jan was meeting with several committee members to help plan the WG 2017 effort.

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

Don Langston – not yet formed. To refined 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.

Pepper Hunziker, Tre' Laine Associates – asked that high level goals and objectives be developed and written down for each of the three working groups. This would help members understand what sort of high level outcomes were expected from each WG. She offered to help any of the WGs.

Don Langston – he agreed that each WG needed to have a stated purpose and written objectives. The overall high-level goal for both user guide WGs was to provide a document to help stakeholders understand how they could implement Standard 180. It was also intended to help those proposing or providing maintenance services answer a question – you'd want to use our services because to their prospective clients or managers, if services were delivered by facility staff. He didn't have specific goals for the two WGs not yet formed. Dale Rossi and others had been involved with this for several years. After that long dealing with building blocks and details, they could easily see the trees but kind of loose site of the forest. He was also very imbedded in his own contractor perspective. It was a very good idea to try and make sure they were taking into account all stakeholder perspectives. He asked attendees to volunteer to help flesh out more definitive WG goals.

Jan Peterson, XCSpec – for the User Guide Customer Communications WG effort, she really wanted to establish objectives for each of the meetings they'd been allocated to establish a clear pathway toward their goal. Since all of them were volunteers, she really wanted to meetings to make meaningful progress toward their established goal. She accepted Pepper's offer to help develop that WG's goal.

Bob Sundberg, WHPA staff – the 2016 Standard 180 Interview Process WG had developed some very well thought out flow charts which organized the questions and topics which they believed needed to be discussed by owners/facility managers and their service providers to establish solid maintenance program goals and metrics for determining status and progress. He thought that the 2017 effort could expand on that good work to provide a



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narrative for those questions to help both parties better understand how they could hold those goal development discussions.

Pepper Hunziker – she thought it would be helpful for that WG to reference the work products which brought them to where they were if it was relevant and applicable for the new work product. That would provide a historical context for new members of the WG.

PG&E HVAC Optimization program participant user manual – Shayne Holderby

Shayne Holderby, Honeywell Smart Energy

- Program participant user manual development began in 2011
- Introduced the program both to the customer and their service contractor
- Guide broken into two parts
 - Customer section covering Standard 180
 - Basic description of required maintenance tasks which would be performed which also provided an overview of packaged equipment components and their operation and potential benefits
 - Customer program requirements including time limitations and their response time which would impact contractor delivery
 - Contractor/technician section, program process, responsibilities and requirements
 - Some technical detail and requirements, though most is managed in separate training and documents
- Maintenance plan, as found equipment condition and updates all handled through Portal data entry that provides a new capability for an annual review with customer on program status and progress
- Portal prepared next year maintenance plan based on revisions which occurred during the current year

Don Langston, Chair – asked Shayne to elaborate on the prompting for goal planning.

Shayne Holderby – goal setting was covered in the original intro portion of the guide. The contractor enters goals established with their customer into the program Portal. Since so many goals were customer/site specific, they didn't try to provide drop down menus which would have limited choices. Most of the suggested goals were related to technical aspects of the maintenance plan for equipment service.

Don Langston, Chair – suggested Shayne provide a working example of how that process worked at a future meeting to help members understand it better. He thought that development of a program guide was a great step.

Shayne Holderby – he planned to provide some examples of new participant goals, of course with the customer specific information removed.

Bob Sundberg, WHPA staff – he asked how program participants were encouraged to establish goals which could provide evidence that their Standard 180 based practices were of sufficient value to continue the practice after program incentives expired. How did the program encourage market transformation to the new level of maintenance? Were there suggested goals in the user guide that would suggest gathering that sort of evidence?

Shayne Holderby – the previous Portal didn't reference any customer/contractor interaction. The new Portal was designed to encourage extensive customer interaction.



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- Customers received inspection reports following service along with any proposed repairs from each inspections. As maintenance is delivered, they should expect to see fewer repairs being required. That information is all tracked in the portal. At the end of the year, Portal records will be summarized into customer reports for all repairs required for all equipment at that site. The expectation is that after three years of program participation, they should see far fewer repairs.
- PG&E currently only collects deemed (averaged savings reduced by CPUC discounts) savings. The Portal was developed to have the capability to interact with Portfolio Manager for tracking other savings options. Implementation would depend on decisions made by PG&E management. Portfolio Manager could provide reporting of actual, real time energy use and reductions/savings over time.
- The current program expectation is that contractors and customers would be reviewing the previous year energy bills against past usage to track any changes. That review would result in either not getting the sort of energy savings expected or, hopefully, getting great savings and what more could they do to increase those savings.

Shayne Holderby – he thought that the automated reporting and encouraged to review tracked service, repairs and other costs over the three years would provide encouragement to continue Standard 180 based maintenance after the three-year participation expired. They'd also introduced a new "silver tier" level one year agreement to allow hesitant customers a way to explore and be introduced to the program and practices without the full three-year commitment. It also allowed them to "upgrade" to the "gold tier" three-year full program. The one year option had 1/3rd of the full three-year program incentives available. The goal was to convert customers to the three-year option.

Don Langston, Chair – he shared a real-world example of dealing with customers who were still very "low price" focused. He thought the improvements and options to get savings from Portfolio Manager into the Portal reporting were critical. He had a customer with 42 locations spread over SCE and SDG&E territories just complete their three-year program participation. He didn't have the internal resources to gather up the energy, repair costs, number of service/repair calls and work order information and progress toward reducing their service calls and repair expenses, quantifiable justification for continuing, which Shayne had just described through a Portal system. Without that evidence, proof of value, they'd gone from full program maintenance and just announced that all they needed going forward was just a filter service. Don concluded that his effort, without that evidence of value, had failed to transform the market for this account.

Shayne Holderby – he'd seen a lot of that. Communications regarding reduced work orders and repairs didn't seem to reach the contract decision-makers. Their program no longer required collecting condition data if the existing conditions met the requirements of the standard. That was a key time-savings for contractors, about 90% of contractor data entry time. If operations did not meet the standard, contractors then identified why not.

Denny Mann, Marina Mechanical – agreed with Don's assertions. They'd experienced difficulty collecting customer energy data, as well. With data from the Catalyst product while participating in the PG&E program, property managers had agreed that they could go to their CEO with that evidence. The energy spend for a 24 hour or one week period. Then, they compared energy use to when Catalyst was not being used. A facility manager was able to use that evidence to justify using those energy savings to pay for more robust maintenance. Any evidence you could supply would help that facility manager push back on demands to cut back on maintenance expenses.



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Tom Paxson, Pax-Sun Engineering and ASHRAE Standard 180 Committee Chair – he added that the Standard 180 Committee was trying to make the standard more self-evident on how to set up a maintenance plan. His goal was to be able to have owners make a copy of the standard to hand to a technician as a starting point from which they could modify or customize the program to that facility. What his committee needed from this working group was how to simplify Section 4 and 5 of the standard. This would be a really good time for this WG and the committee to provide their input. Tom emphasized that Standard 180 was positioned to be a minimum standard to get people started. It had to be generic to accommodate the large range of potential users. The more that was included in the standard that was not generic, the less of their goal they would be achieving.

Bob Sundberg, WHPA staff – offered to send Tom the CQM Committee working group work products produced during the last couple of years. All committee and WG work products could be accessed and downloaded from: <http://www.performancealliance.org/WHPAWorkProducts/tabid/440/Default.aspx>

ACTION: Bob Sundberg, WHPA staff, would send Tom Paxson several recent CQM Committee work products and a link to all WHPA work products.

Closing Comments/Adjournment

Don Langston decided that the next full committee meeting would be held Tuesday June 13. That meeting would be scheduled for 1.5 hours to accommodate all the agenda items but would only be held as long as needed.

He thanked everyone for attending and contributing to the epiphany they'd focused on near the meeting end. He also reminded everyone that the ASHRAE Summer Session was being held in Long Beach, CA June 24 through 28. The Standard 180 Committee would meet on a Friday. He invited everyone to attend, if possible, as guests if they were not already ASHRAE members and participate in that meeting.

The meeting was formally adjourned at 11:11 am PDT.

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Summary of NEW Action Items and Key Decisions

April 18 **ACTION:** Bob Sundberg, WHPA staff, would send Tom Paxson several recent CQM Committee work products and a link to all WHPA work products. Completed.

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.

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