



Goal 2: Commercial Quality Maintenance Committee Tuesday September 13, 2016 Meeting Notes

Call to Order

The meeting was called to order at 10:04 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 12. 5 voting members, 8 non-voting members and 5 guest 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	P
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	
Honeywell ECC (Commercial Buildings, Trade Sales)	Mike	Lawing	Controls (Manufacturer or Distributor)	P
HSGS (Honeywell Smart Grid Solutions)	Shayne	Holderby	Energy Efficiency Program Consultant	
Marina Mechanical	Denny	Mann	Contractor (Nonresidential)	
PG&E (Pacific Gas and Electric Company)	Jeanne	Duvall	California IOU	
SCE (Southern California Edison)	Scott	Higa	California IOU	P
SDG&E (San Diego Gas and Electric Company)	Jeremy	Reefe	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	P
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	P
CLEAResult (formerly PECEI)	Paul	Kyllo	Energy Efficiency Program Consultant	P
CLEAResult (formerly PECEI)	Mike	Withers	Energy Efficiency Program Consultant	P
Honeywell Smart Grid Solutions (HSGS)	Steve	Varnum	Energy Efficiency Program Consultant	P
Richard Danks Consulting	Richard	Danks	Other Stakeholder	P
SDG&E (San Diego Gas and Electric Company)	Robert	Nacke	California IOU	
SMUD (Sacramento Municipal Utility District)	Bruce	Baccei	Publicly Owned Utility	
SCE (Southern California Edison)	Andres	Fergadiotti	California IOU	
Transformative Wave	Joe	Schmutzler	Controls (Manufacturer of Distributor)	
Transformative Wave	Justin	Sipe	Controls (Manufacturer of Distributor)	
Lupson and Associates	Warren	Lupson	Other Stakeholder	



**Goal 2: Commercial Quality Maintenance Committee
Tuesday September 13, 2016 Meeting Notes**

XCSpec	Jeff	Aalfs	Controls (Manufacturer of Distributor)	
XCSpec	Janet	Peterson	Controls (Manufacturer of Distributor)	P
WHPA Goal 2: CQM Committee Invited Guests and Staff				Roll Call
Adrienne Thomle, Consulting **	Adrienne	Thomle +		
AHRI	Garrett	McGuire	HVAC Manufacturer Association	
AirTest Technologies	Mike	Schell	HVAC Manufacturer	P
American Commissioning Group	Craig	Hofferber	Third Party Quality Assurance Provider	
AMS (American Mechanical Services)	Marc	Pickett	Contractor (Nonresidential)	P
California Public Utilities Commission (CPUC) - Energy Division	Carmen	Best	California PUC	
California Public Utilities Commission (CPUC) - Energy Division	Pete	Skala+	California PUC	
CLEARresult	Richard	Waite	Energy Efficiency Program Consultant	
Galawish & Associates	Elsia	Galawish	Energy Efficiency Program Consultant	
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	P
NCI (National Comfort Institute)	Rob	Falke	Educator / Trainer	
Pax-Sun Engineering, Inc.	Tom	Paxson	Other Stakeholder	
PG&E (Pacific Gas and Electric Company)	Robert	Davis	California IOU	P
PG&E (Pacific Gas and Electric Company)	Christian	Weber +	California IOU	P
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



**Goal 2: Commercial Quality Maintenance Committee
Tuesday September 13, 2016 Meeting Notes**

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	HVAC3 Net-to-Gross evaluation report. Keep members informed of recent announcements and important events
CQM Program Updates SCE/PG&E/SDG&E	Gretchen Egging, Shayne Holderby, Jeremy Reeve	Gain a current understanding of IOU CQM program status, progress, developments and issues.
CQM STD 180 User Guide WG Update	Dale Rossi	Members updated on WG status and progress of draft work product and Value Proposition Matrix
2016 Goal #2 Working Session	Don Langston	Share goals and milestones submitted to Executive Committee for approval
Review meeting Action Items, set next meeting date/time, adjourn	Don Langston	Set next meeting date and confirm time.

Approve Minutes of Previous Meeting

The August 9 meeting draft notes were distributed August 14. Approved meeting notes would be finalized and posted to the CQM Committee site.

Review Status of Action Items from Previous Meeting

PAST ACTION ITEMS:

September 2015 ACTION: Scott Higa, SCE, would report progress on the testimonials and access to and analysis of customer energy data at the next monthly meeting. Ongoing.

Welcome New Members and Guests; Consider Pending Members

None.

New Business - Don Langston & IOU Representatives

None.

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

- HVAC3 2013 & 2014 Commercial Quality Maintenance Programs Net-to-Gross Evaluation report and request for public comments (party to the proceedings – organizations). Link distributed by staff and eBlast email notice sent out to all WHPA members by staff.

Jan Peterson, XCSpec, said that the study had come up for discussion the previous day at the FDD Committee meeting. She'd reviewed the study and from its conclusions, it would be hard to consider the commercial maintenance related programs cost-effective with the low return on investments the evaluation had calculated. The study was evaluating the 2013-2014 timeframe for commercial maintenance programs. FDD Committee members had concluded that



Goal 2: Commercial Quality Maintenance Committee Tuesday September 13, 2016 Meeting Notes

equipment upgrades and repairs seemed to provide a better ROI than CQM program maintenance, according to the study. They'd discussed whether there was a way to respond back to the CPUC about what they believed to be greater results from quality maintenance.

Norm Stone, Clean Energy Horizons, clarified that the purpose of the net-to-gross study was attempting to determine what would have been the case in the absence of any program compared to those who participated in the program who would not otherwise had done so. The study tried to weed out "free riders" or those who would have done this practice anyway in the absence of any program. He added that he'd believed, personally, that there were major flaws in how this study was conducted. The study did not look at what he termed "a true group of non-participants" for a valid comparison. The reason given for not comparing study participants to non-participants was that it was too expensive to locate a valid control group outside the program to see what regular maintenance practices were.

Don Langston, Aire Rite AC and Refrigeration, added that another shortcoming was that evaluation was only scoring a small number of energy efficiency measures from the program, not the impact of all of the practices and requirements. Just the items identified in the program claimed savings work paper. He thought that it was a kind of self-fulfilling prophecy for what results would be.

Jan Peterson asked what could be done. Could the committee provide public comments?

Bob Sundberg, WHPA staff, clarified that the WHPA, its committees and working groups were not eligible to comment since the WHPA was itself supported as a program by the IOUs. But, any individual member organizations as well as those not registered with the WHPA were eligible to become parties to the proceedings and formally comment on the study.

Norm Stone added that the study was also flawed in the way it designed survey questions. The questions were very subjective in nature and there was no way to validate the answers given from the softball questions asked. Contractors were asked to comment on their previous maintenance delivery practices compared to those required under the program. Of course most contractors would say they'd always maintained equipment that way. Otherwise, their responses would have been self-incriminating. It would have been like asking contractors a leading question whether they always pulled permits for new equipment installation. They'd answer, yes. These were his personal opinions. He encouraged others to read the study, look at the points he'd addressed regarding the subjective nature of the survey questions and the comparison not including non-participants and provide the CPUC with their comments.

Don Langston encouraged anyone who could do so to provide their company or organization's comments. Unfortunately, under the current method for scoring savings, very little of the impact from better maintenance was getting credit for savings which was being delivered by improved maintenance practices and as a result of system corrections uncovered during maintenance inspections. The CPUC needed to hear that their current scoring system was flawed. That was why Don was an advocate for using the building smart meters as a new basis for determining energy use and savings. The impact of a whole series of maintenance practices and energy efficiency measures.

IOU CQM Program Updates

SCE CQM program summary (Gretchen Egging of CLEAResult):

Gretchen Egging, CLEAResult, was unable to attend. Paul Kylo provided the monthly update.

Paul indicated that the program had shown good, steady progress. As their update showed in the bottom two lines, the kWh and kW savings had tracked very well against goals, actually ahead. More and more people were choosing to join which indicated healthy participation.



**Goal 2: Commercial Quality Maintenance Committee
Tuesday September 13, 2016 Meeting Notes**

Don Langston commented on the update line regarding economizers. He'd recently started working with a new client and noticed that two newly installed units did not have economizers at all even though they were required under Title 24. This made him think of the CPUC/ED energy efficiency measure assumption, he believed was false, that every installation was "to code." Every commercial HVAC equipment installation met the requirement that it must have an economizer installed. The reality was that not every installation was "to code" because only a small fraction of installations even had permits pulled for the required inspections. The SCE report indicated that 59% of units in the program had economizers. You'd have thought that if the CPUC/ED assumption was even close to being valid, that % would be much higher, nearer 100%,

Paul Kylo offered to check with the implementation team to see what sort of correlation there might be with units with economizers and the age of the units or of the building itself.

SCE CQM HVAC – August

	Aug-16	2016 YTD
New contractors	1	5
New customers - application received	9	53
New buildings – check cut	9	139
% of units w/ economizers	55%	59%
New tonnage – check cut	2,438	14,777
Units w/ CSA – check cut	529	1947
Units w/ DCV/VFD – check cut	93	783
Units w/ ADEC w/ CSA – check cut*	227	1051
kWh – check cut	1,424,433	9,364,724
kW – check cut	582	3,606

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

Don thought that that information might be very telling. The evaluators who had just completed the HVAC3 CQM related programs Net-to-Gross study had used some of these "assumptions" rather than reality in their program effectiveness calculations. And, he believed a lot of those foundational assumptions were wrong, indicated by the SCE report itself for more progressive clients who'd chosen to participate in the CQM program. From his experience, the 59% ratio sounded about right. But, those newly installed commercial units he'd just seen didn't have economizers installed which would have been a code requirement, if permitted and inspected. The installing contractor, obviously, had not followed code requirements.

Paul Kylo commented that there was a lot of data that could be compiled from the SCE, PG&E and SDG&E programs for client units entering the programs. H was unsure that the CPUC program evaluators even considered that information to determine a typical profile for their baseline calculations.



Goal 2: Commercial Quality Maintenance Committee Tuesday September 13, 2016 Meeting Notes

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

Shayne Holderby was unable to attend but would provide the update after the August meeting to be included in the meeting draft notes. Steve Varnum, HSGS commented that participation seemed to be steadily increasing except during this summer “emergency AC season” which always was slower for program growth. Christian Weber attended for Jeanne Duvall but didn’t have any of the program numbers prepared.

SDG&E CQM Program Update

No report.

Paul Kylo, CLEAResult, knew that the SDG&E program, which his firm implemented, was slow in launching for 2016 and just got started in May so there was probably little to report yet. Paul intended to talk with Jeremy Reefer to see how he wanted program reporting to be handled in 2016.

CQM STD 180 User Guide Working Group Update – Dale Rossi

Dale Rossi, FDSI and WG Chair, was unable to attend. Bob Sundberg, staff support for the WG, updated the committee on WG progress.

The group had elected to research five topics and decided to focus on #4 in 2016 and #5 as time permitted:

1. Understanding performance objectives and condition indicators
2. Making a maintenance plan
3. Investigating unacceptable conditions and performance
- 4. Communicating the value proposition**
- 5. Customer facing reporting**

Bob Sundberg, WHPA staff support for this WG, indicated that the group had now completed a brief examination of four of the five elected topics related to Standard 180, especially the program implementation Section #4. They’d focused most of their efforts on topic #4, communicating the value proposition. The results had been collected in a Value Proposition Matrix which had been shared at the August meeting. The final two WG meetings would be used to revise, refine and finalize their work product. It hadn’t been determined yet whether that work product would be a finalized matrix with an introductory document or whether the information in the matrix would be provided in a text document with several tables. The next meeting was scheduled for September 22. The final meeting date hadn’t yet been determined.



Goal 2: Commercial Quality Maintenance Committee Tuesday September 13, 2016 Meeting Notes

CQM Committee Goal #2 Defining Performance Objectives – Don Langston

Committee/Working Group: CQM Committee

page 3 of 5

Goal #2: Define Key Performance Objectives for Commercial Maintenance Incorporating AB 802 Elements and Translate into Customer Value Propositions. This would be captured in a matrix posted to the WHPA website by December 31, 2016.				
Milestone	Owner	Deliverable	Due Date	Dependencies
1. Define Key Performance Objectives for Commercial Maintenance	Chair and Committee Members	Key Performance Objectives	June 30, 2016	<ul style="list-style-type: none"> • Availability of Chairs and Committee Members
2. Define Customer Value Proposition(s) for Each Identified Performance Objective	Chair and Committee Members	Customer Value Propositions	August 31, 2016	<ul style="list-style-type: none"> • Availability of Chairs and Committee Members
3. Finalize Draft of Matrix	Chair, Committee Members, and WHPA Staff	Draft of Matrix	October 31, 2016	<ul style="list-style-type: none"> • Availability of Chairs, Committee Members, and WHPA Staff
4. Committee Approves Matrix	Chair and Committee Members	Committee-Approved Matrix	October 31, 2016	<ul style="list-style-type: none"> • Availability of Chairs and Committee Members
5. EC Approves Matrix	EC, Chair and WHPA Staff	EC-Approved Matrix	November 30, 2016	<ul style="list-style-type: none"> • Availability of Chairs and Committee Members • Time on Nov EC Meeting Agenda
6. Matrix Posted to WHPA Website	WHPA Staff	Document posted to WHPA Website	December 31, 2016	<ul style="list-style-type: none"> • WHPA Staff Availability

- The primary task and work product output of this committee would be a table/matrix which included definitions for key Standard 180 based maintenance performance objectives and
- the translation of these objectives into customer value propositions.

Bob Sundberg, WHPA staff, had compiled customer interview questions from the July and August full committee meetings. The customer meeting questions were intended to uncover customer points of pain regarding the facility and HVAC system operation as well as their current maintenance program objectives and evaluation criteria. Questions which could get a dialogue started about comfort conditions, system reliability, current maintenance program practices, goals and evaluation as well as energy and operations costs. Bob shared the list online for attendees.

Don Langston referred back to comments made by Norm Stone earlier about the need for program evaluation to have a “control group” for comparison. The control group being made up of facilities not participating in a QM program to determine the kinds of maintenance programs and practices which were the marketplace baseline.

Don indicated that many of the questions in the initial list were ones he’d used with new clients to find out about what they’d budgeted for maintenance, what the approach addressed, to touch on energy and other operational and capital costs and to see if they could look at the bigger picture beyond just a bid price. He solicited additional questions which would go beyond openers about how comfortable the occupied space was and energy costs.

Bob Sundberg, WHPA staff, suggested they consider organizing the random list of questions into groups roughly organized by some overriding general performance or maintenance program objective like energy use/savings, HVAC operational costs, staff efficiency or occupant/space comfort. He wondered whether that would help in organizing the final work product matrix with performance objectives grouped in rows and adding columns to identify a value proposition statement for each.



Goal 2: Commercial Quality Maintenance Committee Tuesday September 13, 2016 Meeting Notes

Don Langston agreed that the questions could be clustered around common themes or energy/energy efficiency related, operating efficiency related, reliability related and comfort for a start. Then for each to list a deliverable or outcome for the customer that would be the individual value proposition statement. Most customers he'd met thought they had an adequate maintenance program from their perspective but didn't really understand how well or poorly systems were running or some benefits that a more comprehensive approach could provide. Most were really more focused on a final cost and not what that expense did or didn't provide them.

Don offered that he had a new client and a scheduled meeting to discuss their maintenance program with them later that day. He offered to re-organize the list of questions and conduct that meeting as sort of a "voice of the customer" interview. He'd try to see how this customer would rank the issues or goals and get a copy of the grouped questions to Bob Sundberg to distribute to all committee members

ACTION: Don Langston would re-organize the existing list of interview questions to use in a client maintenance program discussion later that day. He'd provide that grouped list to Bob Sundberg for distribution to the committee.

Richard Danks, Richard Danks Consulting, commented that, to address Don's dilemma, he'd had some suggest using human health car and regular car and race car analogies. He also suggested they "tweak the "lens" through which the questions were being offered to include defining what the customer considered a failure was, they could create a foundation for the discussion. He considered a failure for an HVAC asset to be when the asset didn't meet its original intent. That intent could be performance, reliability, thermal comfort etc. Find out how the customer currently considers failure as a starting place. That foundation discussion would help establish the overall intent of the maintenance program being to minimize or avoid those kinds of failures. Systems and their interactions as well as the myriad of maintenance tasks could become very complex and confusing. He thought it was very important to keep the pitch and discussion grounded on a couple of very simple, basic points.

- NASCAR model – pit crews performed their maintenance in the absolute minimal amount of time to get their car back into the race as near the front as possible. The driver was analogous to the building owner or operator who had very specific, higher level goals which depended upon what the pit crew performed. HVAC maintenance would be positioned to support that owner's higher goals. You needed to find out what those really are and work back to building maintenance.
- Human health care – again, HVAC maintenance was necessary for effective delivery of all those health care services.

Don Langston thanked Richard for the suggested framework which he'd try to include in his client discussion later that day. All of the discussed questions were really focused on whether that client had any skin in the game.

Don suggested a series of groupings for the questions for the first matrix column. In rows to cover:

- Customer pain points – that was where he thought the discussions needed to start.
- What did the client have currently for maintenance program or HVAC goals?
- How could they move forward?
- How they could measure and track each of those goals
- What they were spending on repair and maintenance costs?
- Finance related questions
 - What was being spent and budgeted for HVAC capital expenditures?
 - What were they spending on building energy? They then need assistance to determine the HVAC portion of that total energy spend and what priority could be put on it as a result.

For each of the goals, what could be recommended to address that pain, issue or concern in the additional columns.



**Goal 2: Commercial Quality Maintenance Committee
Tuesday September 13, 2016 Meeting Notes**

Don asked Jan Peterson, XCSpec, what kinds of things she could recommend concerning economizer systems, mostly unseen and unknown to building owners, that would make the “unseen” now “seen.” What talking points could she recommend that could be added to the matrix?

Jan Peterson, XCSpec, responded that it seemed that just about all of the larger goals came down to the financial pain or gain. She suggested asking customers, what was the cost of doing nothing or nearly nothing? That broken RTU damper operation was really costing them in energy as well as, probably, occupant comfort and satisfaction. She suggested getting the focus down to financial terms, not just energy or another goal statement. She also offered to help Don work on the committee’s work product, help revise and edit it going forward.

Norm Stone also suggested a practice he’d done earlier in his career. They’d conducted energy load balance analysis when just tackling a building project. Determining just where all of the building energy use occurred and what part of it was attributable to HVAC. Owners would normally be surprised at how much of it was HVAC related. And, what the improvements in efficiency and operations could do to that large portion of the energy spend, HVAC often being around 40 %. For supermarkets and restaurants that could mean a dollar more of profit for every dollar in energy cost saved – 100% of the investment delivered to the bottom line. You needed to first of all get their attention before addressing any specific energy efficiency measures or major changes in approach to maintenance. For businesses, you really did have to make that financial connection as had been said before. Businesses were in the business of making money, after all.

IOU Business Development Planning Process & recent CPUC/ED Guidance – IOU Representatives

No discussion.

California Legislative Assembly Bill 802 & Senate Bill 350

No discussion.

Closing Comments/Adjournment

Don Langston suggested the next meeting be held Tuesday October 11 and asked Bob Sundberg to send out a meeting notice.

Don Langston suggested he meet with Jan Peterson and Bob Sundberg after his client meeting to help Jan get started building a Performance Objectives to Client Value Propositions matrix.

Next meeting tentative agenda items:

- ADMIN
 - New business
 - Industry/IOU/Regulator News
 - Check on SCE report of program customer energy usage and analysis and
 - IOU business plan development – committee/individual involvement and committee input update
- IOU program monthly updates
- CQM User Guide Working Group update – Value Proposition Matrix
- Working Session
- Confirm next meeting date/time, ACTION items, agenda, adjourn

The meeting was formally adjourned at 11:03 am PDT.

* * * * *



Goal 2: Commercial Quality Maintenance Committee Tuesday September 13, 2016 Meeting Notes

Summary of NEW Action Items and Key Decisions

September 2016 ACTION: Don Langston would re-organize the existing list of interview questions to use in a client maintenance program discussion later that day. He'd provide that grouped list to Bob Sundberg for distribution to the committee.

PAST ACTION ITEMS:

September 2015 ACTION: Scott Higa, SCE, would report progress on the testimonials and access to and analysis of customer energy data at the next monthly meeting. Ongoing.