



Goal 3: Field Detection & Diagnostics (FDD) Committee
Monday, July 17, 2017, Meeting Notes

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

Co-Chair Sean Gouw (SCE) called the July 17, 2017, meeting of the FDD Committee to order at 10:03 a.m. PDT.

TOPIC	FACILITATOR
Roll Call Approval of May 15, 2017, Meeting Minutes Schedule of Meetings and Review of Goals	Bonnie Gustavson Elsia Galawish Sean Gouw
Discuss FDD Roadmap	Joe Schmutzler
Discuss FDD-CQM Activities	Sean Gouw
Next Steps and Adjourn	Joe Schmutzler Sean Gouw

Roll Call

Organization	First Name	Last Name	WHPA Category	P=Present
Voting Members				
ACCA (Air Conditioning Contractors of America)	Glenn	Hourahan	Contractor Association	
Bes-Tech Inc.	Jeff	Gamble	Controls (Manufacturer or Distributor)	P
Carrier Corporation	Dick	Lord	HVAC Manufacturer	
Daikin Applied	Skip	Ernst	HVAC Manufacturer	P
Energy Solutions	Jim	Hanna	Energy Efficiency Program Consultant	P
Ezenics, Inc.	Benjamin	Kelderman	Other Stakeholder	P
FDSI (Field Diagnostic Services, Inc.)	Dale	Rossi	Third Party Quality Assurance Providers	
Goodman Manufacturing	Aniruddh	Roy	HVAC Manufacturer	P
JCI (Johnson Controls, Inc.) (YORK)	Wayne	Guelfo	HVAC Manufacturer	P
NBI (New Buildings Institute)	Alexi	Miller	Energy Efficiency Organization	
Proctor Engineering	Abram	Conant	Other Stakeholder	P
SCE (Southern California Edison)	Sean	Gouw (Co-Chair)	California IOU	P
Trane-Ingersoll Rand, Inc.	Caleb	Joiner	HVAC Manufacturer	
Transformative Wave	Joe	Schmutzler (Co-Chair)	Controls (Manufacturer or Distributor)	P
TRC, Inc.	Farhad	Farahmand	Other Stakeholder	



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Organization	First Name	Last Name	WHPA Category	P=Present
Verified, Inc.	Robert	Mowris	Third Party Quality Assurance Providers	
XCSpec	Janet Jeff	Peterson Aalfs	Controls (Manufacturer or Distributor)	
Guests				
PG&E (Pacific Gas and Electric Company)	Christian	Weber	California IOU	P
SDG&E (San Diego Gas & Electric Company).	Paul	Thomas	California IOU	P
Staff				
BJGustavson Consulting (WebEx)	Bonnie	Gustavson	Other Stakeholder	P
Galawish Consulting Associates (Staff Support)	Elsia	Galawish	Energy Efficiency Program Consultant	P

Approval of May 15, 2017, Meeting Minutes

Sean Gouw (SCE) motioned to have the May 15, 2017, FDD Committee Meeting Minutes approved; Jim Hanna (Energy Solutions) seconded the motion; there was no further discussion; all voting members present voted aye; there were no nay votes; there were no abstentions; the motion passed.

Schedule of Meetings and Review of Goals

Sean Gouw (SCE) discussed the number of meetings needed to accomplish the Committee’s goals and reviewed the status of the Committee’s 2017 goals. The FDD Committee agreed to have two more meetings (September 18 and November 20) to accomplish their 2017 goals. Meetings already scheduled for August 28 and October 16 will be cancelled.

Sean Gouw (SCE) reviewed the Goals:

- FDD Roadmap Revisit: There were lots of discussions on the Roadmap, and the final updated draft will be distributed for review later today in order to incorporate updates by year end.
- CQM-FDD Activities: Review and update CA CQM Considerations & Recommendations Document by year end, including the recent round of T24 codes and standards enhancements activities relating to FDD, and continue to discuss the best role for the FDD Committee in statewide CQM programs.

Sean Gouw (SCE) – We were successful in bringing in folks involved with California 2019 T24 Codes & Standards enhancement activities related to FDD for both the Residential and Nonresidential sectors (presentations/discussions) and in providing Committee feedback. This goal has been completed.

Discuss FDD Roadmap

Joe Schmutzler (Transformative Wave) – I have incorporated the latest set of feedback from Committee members. Today’s discussion is focused on removal of parts of the Roadmap that have been completed, final determination of restated goals, and final determination of those areas that still need to be tracked or worked on.

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- ❖ *CLTEESP HVAC Goal 4: New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated market penetration.*

Joe Schmutzler (Transformative Wave) – This goal is not particularly relevant given that FDD is not California-specific and will not be included in the new Roadmap.

- ❖ *CLTEESP HVAC Strategy 4-5: Develop nationwide standards and/or guidelines for onboard diagnostic functionality and specification for designated sensor mount locations.*

Joe Schmutzler (Transformative Wave) – From comments received to date:

- **New Goal** – The Committee will continue to work with national groups focused on FDD and CA utility programs.

- ❖ *CLTEESP Strategy 4-6: Prioritize in-field diagnostic and maintenance approaches based on the anticipated size of savings, cost of repairs, and the frequency of faults occurring.*
 - **Short-Term Milestones:**
 - a. *Benchmark existing diagnostic, repairs, and maintenance protocols and develop appropriate products.*
 - **Mid-Term Milestones:**
 - a. *Commercialize Onboard Diagnostic systems.*
 - **Long-Term Milestones:**
 - a. *Incorporate mandatory Onboard Diagnostic Systems in California Building Codes.*

Joe Schmutzler (Transformative Wave) – After this goal was established, codes relating to thermostats have been passed. This strategy will be reset to benchmark new technologies showing fault at thermostat.

Sean Gouw (SCE) – It is not only a good idea to update the Roadmap content but also to acknowledge what the FDD Committee has accomplished so far. Also noted, there are current T24 codes that support the short-term, mid-term, and long-term goals mentioned above.

- ❖ *Lack of Standards: Currently, there is no established method to prove that an FDD tool works properly and will not generate excessive false alarms.*

Joe Schmutzler (Transformative Wave) – Standards for testing FDD tools were implemented in CA codes, but how do customers compare like-to-like systems?

- **New Goal** – Continue to develop clearinghouse to publish research on FDD tools and post reviews. In 2018, develop an industry clearinghouse to compare FDD technologies and work with other groups to develop a list of technologies and functionalities.

Sean Gouw (SCE) – This deliverable will be the basis for further update to the existing list of technologies and to showcase FDD technologies. There should be ongoing discussions on new FDD technologies. There are ASHRAE SPC 221 Standard development activities in establishing a method to test and score the performance of HVAC technologies. However, it is a slow-moving process, and there needs to be more targeted review and demonstrations before approval. The Committee will keep on top of this ongoing work.



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❖ *Lack of Customer Pull: Design and launch IOU FDD Program*

Joe Schmutzler (Transformative Wave):

- **New Statement** – Continue to provide information to IOU Quality Maintenance programs to update their use of FDD technologies.

Christian Weber (PG&E) – PG&E is investigating launching a pilot to evaluate FDD. PG&E is also looking beyond FDD and assessing technologies that allow remote access data collection to aid in trend analyses.

Discuss FDD-CQM Activities

Sean Gouw (SCE) – Should FDD play an active or passive role in CQM programs? At this time, FDD should play a passive role in CA statewide CQM program. The Committee can provide information that can help enhance savings realization rates of CQM measures and reduce burden of activities that cannot directly impact claimed savings (support maintenance agreement and assist with ongoing inspections approaches). FDD has a future role assisting savings calculations via Normalized Metered Energy Consumption (NMEC) methods for High Opportunity Programs & Projects (HOPPs).

Christian Weber (PG&E) – Is AMI data sufficient? Can one detect savings at the meter directly or is sub-metering needed? The NMEC approach requires pre/post installation data (at least 12 months pre and 12 months post). This is a long period of time for determining savings. Because of how long it takes before actual savings can be determined, an alternative approach is to take in-field EER measurement as a snapshot but this also has its drawbacks.

Sean Gouw (SCE) – Is there a role for onboard data to supplement the NMEC approach?

Christian Weber (PG&E): Issues:

- Accuracy – continuous monitoring would help with accuracy but it is expensive.
- Trend analysis versus strict fault diagnostics – PG&E is exploring these issues with its pilot programs.

Paul Thomas (SDG&E) – He is very interested in the Committee's activities.

Next Steps and Adjourn

By the end of 2017:

1. Finalize FDD Roadmap – solicit Committee feedback.
2. Finalize updates to Considerations & Recommendations document for CQM-FDD – solicit Committee feedback.

The meeting adjourned at 11:37 a.m. PDT.

ACTION ITEMS

1. Joe Schmutzler (Transformative Wave) – Draft list of items that have changed in the updated Roadmap.
2. Joe Schmutzler (Transformative Wave) – Update Roadmap and Bonnie Gustavson will distribute to members for review and further comments.
3. Sean Gouw (SCE) will update the Considerations & Recommendations document and distribute for review.

Next scheduled Meeting is Monday, September 18, 2017, 10:00-11:00 a.m. PDT.

Submitted by Elsia Galawish, WHPA Staff, www.performancealliance.org
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