



WHPA Work Product Summary

DATE: September 3, 2014

INITIATING BODY: Commercial Sector Strategy Committee

WORK PRODUCT NAME: WHPA Recommended HVAC Sector Strategy Problem Statements/Performance Gaps

TYPE OF ACTION REQUESTED: **VOTE** **GUIDANCE** **OTHER:** [Click here to enter text.](#)

APPROVAL HISTORY

WORKING GROUP: [Click here to enter text.](#)

BY CONSENSUS **BY VOTE**

TALLY: [Click here to enter text.](#)

DATE: [Click here to enter text.](#)

COMMITTEE: Commercial Sector Strategy Committee

BY CONSENSUS **BY VOTE**

TALLY: [Click here to enter text.](#)

DATE: 9/4/14

WORK PRODUCT OBJECTIVES: The IOUs requested that the WHPA Commercial Sector Strategy Committee develop 3-5 performance gaps/workforce problem statements that could form the basis of an HVAC Sector Strategy for 2014-2015 for consideration by the IOUs. For the development of each of the 3-5 performance gaps/problem statements, the IOUs requested that the Committee consider the following:

- Current CQM Sector Strategy areas of emphasis, removing Prop 39
- 2013-2014 Decision
- ED-Approved Definition of the Sector Strategy
- Don Vial Report
- WHPA WE&T Gap Reports
- Recent CPUC feedback



WHPA Work Product Summary

CA ENERGY EFFICIENCY PLAN STRATEGIC GOAL ALIGNMENT:

GOAL 1 GOAL 2 GOAL 3 GOAL 4 **Cross-Cutting**

CEESP HVAC GOAL STRATEGIES:

- HVAC Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents
- WE&T Strategy 1-2: Support the community college and adult education efforts to support students to develop their education based on visible career paths in energy efficiency and related fields
- WE&T Strategy 1-3: Incorporate energy efficiency and demand side energy management into traditional contractor and technician training, such as for plumbers and electricians, and expand training resources to produce target numbers of trained workers
- WE&T Strategy 1-4: Create or expand college and university programs with energy efficiency focus and foster green campus efforts to apply this knowledge in clear view of students and faculty

BENEFITS: The benefits of providing this feedback to the IOUs is to assist in aligning the HVAC Sector Strategy Performance Gaps/Workforce Problem Statements with industry/employer WE&T needs.

OUTSTANDING ISSUES / DEBATES / MINORITY VIEWS: None

POTENTIAL AUDIENCE: IOU Sector Strategy Team

MOTION: The “WHPA Recommended HVAC Sector Strategy Problem Statements/Performance Gaps” Work Product dated September 4, 2014, be adopted as an official WHPA Work Product.

VOTE TALLY: On September 8 and 9, 2014, via email vote, the EC voted to adopt the work product: WHPA Recommended HVAC Sector Strategy Problem Statements/Performance Gaps. The following nine EC member organizations voted “aye” to adopt the presented work product: SCE, ASHRAE, IHACI, ACCA, UA, JCEEP, CPUC, PG&E, AHRI. The CPUC and SDG&E abstained from the vote and SoCalGas and HARDI did not vote.

FURTHER ACTIONS REQUIRED: None

NEXT STEPS: The work product will be shared with the Statewide IOU Sector Strategy Team for consideration as the basis of the 2014-2015 HVAC Sector Strategy.



Western HVAC Performance Alliance Recommended Commercial HVAC Sector Strategy Problem Statements/ Performance Gaps

A WHPA Work Product dated September 9, 2014

Prepared on behalf of the Commercial Sector Strategy Committee
By Don Frenberg
HVACR Workforce Development Foundation Board

Commercial HVAC Sector Strategy Committee Problem Statements/Performance Gaps

Background:

The Western HVAC Performance Alliance (WHPA) is a collaboration of professionals representing the heating, ventilation and air conditioning (HVAC), energy efficiency, facility management, utility industries and government formed in the state of California to support the goals of the California Long-Term Energy Efficiency Strategic Plan (CLTEESP).

The CLTEESP sets four goals for the HVAC sector. They are:

- **Goal 1:** Consistent and effective compliance, enforcement, and verification of applicable building and appliance standards.
- **Goal 2:** Quality HVAC installation and maintenance becomes the norm. The marketplace understands and values the performance benefits of quality installation and maintenance.
- **Goal 3:** Building industry design and construction practices that fully integrate building performance to reduce cooling and heating loads.
- **Goal 4:** Develop new hot/dry climate HVAC technologies (equipment and controls, including system diagnostics) and greatly accelerate their marketplace penetration.

Commercial HVAC Sector Strategy Committee

Much of the significant and detailed work of the Performance Alliance is accomplished through its subject matter-focused Committees as well as functional Working Groups aligned with the CLTEESP. The Commercial HVAC Sector Strategy Committee is a committee that was created to act as a steering committee for the IOU's development of an HVAC Sector Strategy as mandated by the CPUC in D.12-05-015. Specifically, the problem statements/ workforce gaps developed for consideration by the IOUs partially addresses the following CLTEESP Strategies:

- HVAC Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents
- WE&T Strategy 1-2: Support the community college and adult education efforts to support students to develop their education based on visible career paths in energy efficiency and related fields
- WE&T Strategy 1-3: Incorporate energy efficiency and demand side energy management into traditional contractor and technician training, such as for plumbers and electricians, and expand training resources to produce target numbers of trained workers
- WE&T Strategy 1-4: Create or expand college and university programs with energy efficiency focus and foster green campus efforts to apply this knowledge in clear view of students and faculty

Committee Chair:

- Don Frenberg, HVACR Workforce Development Foundation

Commercial HVAC Sector Strategy Committee Problem Statements/Performance Gaps

Committee Members:

- Bob Baker, ASHRAE
- Mike Massey, PIPE Trust Fund
- Susie Evans, IHACI
- Clay Mitchell, CDE
- Jim Hussey, SMW #104 Bay Area Training Trust
- Pepper Hunziker, Tre' Laine Associates
- Jake Huttner, SCE
- Dale Gustavson, BBI
- Gary Johnson, SoCalGas
- Charles Segerstrom, SDG&E Commercial HVAC Consultant
- Jim Caldwell, CCCCCO
- Jeanne Duvall, PG&E
- Lisa Shell, PG&E
- Keith Forsman, PG&E
- Jeremy Reefe, SDG&E
- Bonnie Moreno, SDG&E

WHPA Staff:

- Mark Lowry, Pilgrim Consulting
- Ellen Steiner, EMI Consulting
- Bonnie Gustavson, BBI

Background:

The IOUs requested that the WHPA Commercial Sector Strategy Committee develop 3-5 performance gaps/workforce problem statements that could form the basis of an HVAC Sector Strategy for 2014-2015 for consideration by the IOUs. For the development of each of the 3-5 performance gaps/problem statements, the IOUs requested that the Committee consider the following:

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In summary, they also noted the following considerations as the Committee developed the requested performance gaps/problem statements:

- Commercial focus
- Inclusive of both union and non-union
- QI Focus
- Focus on contractor and workforce skill standards
- Greater alignment with, leveraging of, and influence over CA's main training and educational institutions
- Inclusive of disadvantaged workers.

Commercial HVAC Sector Strategy Committee Problem Statements/Performance Gaps

Recommended Problem Statements/ Performance Gaps for consideration by the IOUs as foundation for the development of the HVAC Sector Strategy

- 1. Contractor Sales Training Need** – Contractor Sales Training, especially related to selling energy-efficient measures and standards-based installation and maintenance is an area that contractors identify over and over again as a challenge. Most Current Sales Training does not currently focus on the contractor’s role as an energy efficiency consultant or on the development of the value proposition for energy efficiency improvements. In addition, there is a lack of awareness of existing energy efficiency tools in the marketplace and how to use these effectively in the customer dialogue. In order to begin to meet this workforce gap, three actions are recommended as first steps. These are:
 - Develop a sales training resource clearinghouse - This clearinghouse will list HVAC and Energy Efficiency sales trainers, HVAC and EE Sales Training classes and calendars, and Industry Conferences with sales and EE-related sessions in order to encourage CA contractors and salespeople to make use of these resources.
 - Host a teleconference with HVAC and EE Sales Trainers to solicit input into how to sell standards-based installation and maintenance and other EE measures and make the recording available to the HVAC stakeholder community.
 - Develop a statewide clearinghouse for new and existing cost-effective and reliable software tools, which enable contractors and end users to calculate and project HVAC energy and operational potential savings.
- 2. Need to Develop and Distribute Standard 180 User Guide** – The industry-standard for quality maintenance (ANSI/ASHRAE/ACCA Standard 180) is a task-based standard. The bulk of the standard consists of a set of tables listing inspection tasks that must be performed in order to identify and evaluate conditions that may impair the operation (including energy efficiency) of HVAC systems and their various components. Some of these tasks incorporate observations that require little if any training and only basic skills and experience. Other tasks are complex, require advanced skills and experience and thus, are not carried out consistently - if at all. The WHPA Commercial Quality Maintenance Committee working groups have come to consensus around the need for a user guide that details how to perform the tasks outlined in Standard 180. This will support workforce development and help close the gaps that exist in technician’s abilities to perform the diagnostic tasks included in Standard 180 in a way that maximizes energy efficiency.

A Standard Revision Project Committee is being formed by ASHRAE that can manage the development of such a guide. However, funding to retain a contractor that would actually write the User Guide with the supervision of the Project Committee is needed. Utilization of a contractor is the only way that the guide can be written and published in a time frame consistent with the needs of the California programs.

Commercial HVAC Sector Strategy Committee Problem Statements/Performance Gaps

3. **HVACR Career Lattice Need** - The existing career lattice for the HVACR industry needs to be improved and expanded upon, identifying milestones via competency based professional certification and criteria for maintaining those credentials. This career “lattice” needs to include multiple entry points, opportunities for continuous career development, and a range of career targets that can be reached by a combination of vertical and horizontal pathways through the lattice.

As a first step in the development of this HVACR lattice, minimum core competencies for the various tiers of the lattice for the Progressive Levels of Certification or stackable credentials need to be developed. The objective is to build consensus across the industry and include one member from each of the following organizations: NATE, HVAC Excellence, RSES, UA, ASHRAE, AABC, AEE, NEBB, TABB, BPI, Green Mechanical Council, AHRI, IFMA, NCI, representatives from distributor and contractor communities and key community colleges on a panel to develop this competency model.

This will enable HVAC employees throughout the HVAC value Chain to the ability identify their knowledge and skill level at each stage of their career, and understand the next step necessary for career level advancement. The panel will also identify minimum exam requirements (e.g., written exams, field practical exams, virtual reality exams) and minimum certification maintenance and recertification requirements (e.g. continuing education, recertification time frame, re-examination requirements) commonly required and considered sufficient. This lattice also provides the framework for understanding where curriculum gaps exist and where other market stakeholders, such as IOUs can develop programming and strategies that do not compete with the industry but instead enhance the industry.

4. **HPBOP Need** - Building Operators are essential to quality HVAC performance as proactive managers of building performance, energy savings, and cost reduction. In this role, they manage strategic functions at all levels of the process:
- Providing quality assurance over maintenance and repair work
 - Balancing tenant satisfaction with energy savings and cost reduction goals
 - Understand and implement the following ANSI-accredited ASHRAE Standards:
 - Standard 180-2012, "Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems"
 - Standard 100-2013, "Energy Efficiency In Existing Buildings"
 - Standard 62.1-2013, "Ventilation for Acceptable Indoor Air Quality"
 - Standard 90.1-2013, "Energy Standard for Buildings Except Low-Rise Residential Buildings"
 - Designing and implementing energy efficiency strategies through a “whole building integration” approach
 - Communicating the value of HVAC performance investments to building owners and managers

Commercial HVAC Sector Strategy Committee Problem Statements/Performance Gaps

While component-level measures are extremely important, they are effective only if building owners value investment in these measures, and if they actually sustain energy savings and cost reduction over time. This is the primary gap to be bridged by Building Operators, a highly strategic position in the HVAC energy efficiency value chain. The HPBOP project team will develop curriculum and a certification strategy that proposes a career lattice from entry level to the HPBOP position and possibly others.

5. **CQM and CQI Technician Training Development** – As evidenced by IOU supported research, WHPA WE&T Commercial QI/QM Working Group Gaps Report, recent program evaluations, etc., HVACR technicians have skill gaps related to performing standards-based Commercial Quality Installation and Maintenance. To remedy this gap, it is proposed to 1) align IOU Commercial Quality Maintenance Program training to create consistency and continuity with targeted metrics, KSA assessments, and tracking mechanisms, 2) to grow the credentialed workforce through expanded outreach and collaboration with industry training organizations (such as IHACI, itsaboutq, NCI, JJATCs) and 3) for the Industry and relevant programs to collectively develop and support WE&T scaffolds such as stackable credentials, mentoring, on the job training and coaching