

Summary

Identification of five industry/employer Workforce Education and Training issues to form the basis of a HVAC Sector Strategy by CA investor-owned utilities.

Finalized: September 9, 2014

Use of this Document

This document provides WE&T issues in developing an HVAC Sector Strategy.

It is based on an official [WHPA Work Product](#) of September 9, 2014, titled, “Recommended HVAC Sector Strategy Problem Statements Performance Gaps.” This Work Product was developed by the WHPA Commercial HVAC Sector Strategy Committee.

This document, and also the WHPA Work Product, may be used in part or whole at no charge. Attribution to the Western HVAC Performance Alliance is requested.

We would also ask that you inform the WHPA through info@performancealliance.org if you have made use of either document, so that we can inform and encourage the hundreds of volunteers who donate their time to providing expert HVAC advice in order to support energy efficiency objectives.

WE&T Issues in Developing an HVAC Sector Strategy

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Background

The California Investor Owned Utilities (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. 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.

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:
 - 1) 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.
 - 2) 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.
 - 3) Develop a statewide clearinghouse for new and existing cost-effective and reliable software tools which will 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's 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.

- 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.

- 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.
 - Understanding and implementing 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. 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:
- Align IOU Commercial Quality Maintenance Program training to create consistency and continuity with targeted metrics, KSA assessments, and tracking mechanisms,
 - Grow the credentialed workforce through expanded outreach and collaboration with industry training organizations (such as IHACI, itsaboutq, NCI, JJATCs) and
 - For the Industry and relevant programs, collectively develop and support WE&T scaffolds such as stackable credentials, mentoring, on-the-job training, and coaching.