

## Instructions and Guiding Questions

1. Focus on the highlighted content in the breakout group specific reference documents\* available at each breakout location.
2. Where applicable, prioritize the Sub-Strategies/Content in terms of importance to the HVAC industry?
3. Identify which Sub-Strategies/Content the WHPA can act on?
4. For the Sub-Strategies/Content identified as those WHPA can act on ...
  - a. Which Committees should work on these Sub-Strategies/Content?
  - b. What type of member categories should be represented when working on these Sub-Strategies/Content?
  - c. What does the WHPA need to be educated on to be able to address these Sub-Strategies/Content?
  - d. Are there any initial gaps and barriers related to these Sub-Strategies/Content?
  - e. What initial recommendations should be considered for these Sub-Strategies/Content?
5. From your stakeholder perspective, what type of questions would you like the EBEE Committee to address for these Sub-Strategies/Content?

## Historical Reference Documents (thru the HVAC Lens)

1. [EBEE Work Product I – EBEE Action Plan Alignment Table \(Gaps & Barriers\)](#)
2. [Interim Work Product – Final Draft EBEE Action Plan 2016 Update Recommendations](#)
3. [EBEE Work Product II Final Draft Recommendations Reported to CEC Staff](#)
4. [EBEE-AP Update Chapter 1 Policy Update thru Timeline Chart](#)
5. [EBEE Work Product II Final Pathways to Implementation Recommendations to CEC Staff](#) – Approved 12-16-16

## \*Group Specific Reference Documents (EBEE-AP Update Yellow Highlights)

1. [Group 1: EBEE-AP Update Strategy 1.2 – Breakout Resource](#)
2. [Group 2: EBEE-AP Update Strategy 1.8 – Breakout Resource](#)
3. [Group 3: EBEE-AP Update Strategy 1.9 – Group 3 Breakout Resource](#)
4. Group 4:
  - a. [EBEE-AP Update Strategy 1.9 – Group 4 Breakout Resource](#)
  - b. [EBEE Work Product I - Strategy 1.9 Gaps and Barriers](#)
5. [Group 5: EBEE-AP Update Strategy 3.3 Breakout Resource](#)

## Breakout Session Report Outs

**Group 1 – California's Existing Buildings Energy Efficiency Action Plan, 2016 Update Strategy 1.2 Non-Residential and Multifamily Benchmarking and Public Disclosure, Assembly Bill 802, Sections 1.2.4 and 1.2.5**

### **1.2.4 Implement Statewide Program:**

- Monitor and facilitate compliance with the benchmarking and disclosure regulations.
- Establish clear metrics to evaluate effectiveness.
- Encourage and support actions to improve building energy benchmarks over time.

### **1.2.5 Potential Mandatory Programs:**

- Review the benchmarking and disclosure programs to determine whether they motivate improvements and result in sufficient savings.
- Establish the criteria and performance metrics needed for mandatory upgrade programs based on AB 802 benchmarks.
- Determine whether the program should be extended to smaller buildings.



## Consolidated Existing Buildings Energy Efficiency Action Plan Breakout Session Report Out from WHPA In-Person Leadership Meeting, November 17, 2016 (based on CEC Staff's Suggested Potential 2017 Concentrations)

**Spokesperson:** Bob Wiseman (IHACI) – **Participants:** Dale Rossi (FDSI), Elsia Galawish (Staff), Rob Falke (NCI), Allison Paul (CHF-CIRB), Bob Sundberg (Staff), and others.

### Key Points/Discussion Items

- Is HVAC a right or a privilege? WHPA can't answer this, but it is critical to answer because that will set the foundation for AB 802 implementation. If it is a privilege, then there is more leverage to ensure efficient operation; much like a car undergoes safety and smog certification in certain states.
  - Use AMI data as a filter to find opportunities and as an EM&V tool to validate results.
- Performance Metrics and Criteria (Sub Strategy 1.2.5)
  - AMI data must be correlated with NOAA weather data to give any meaningful benchmark.
  - HVAC is temperature correlated so NOAA data is important.
  - A set of metrics needs to be developed to analyze data consistently: kWh/sq.ft., kW/sq.ft., other. There are lots of ways to do this.
  - Need ASHRAE standard benchmarking and reporting protocol including specific targets that define efficient operation of HVAC systems
  - Use data to filter and find opportunities.
  - After benchmarking, contractors need to go system-by-system then diagnose and fix the problems. Customer incentives need to be available on the backend for making the necessary improvements.
- Programmatic Efforts (Sub Strategy 1.2.4)
  - Incentivize the worst performers more to improve to minimum building performance.
  - Create a standard method to communicate pricing signals to alert building operators when performing poorly, such as EMS alerts; red, yellow, green lights; audible alarm, etc. Need real time feedback.
  - IOU incentives available through lower rates/different rate structures if they meet/exceed specific targets. Make price differential significant to drive desired action.
  - Discuss penalties if below a benchmark; incentives if above a benchmark, with different types of incentives possible and different agencies involved. Is there a role for government to take? Tax or other monetary penalties imposed by city if don't meet target benchmark. (Incentives better than penalties.)
- Reduce the 50,000-square foot threshold to address the vast majority of building stock, perhaps to 3,000-5,000 square feet.
- There is a provision for building owners to do annual reporting. Why can't this be done automatically from AMI data? The data exists and can be developed and reported as necessary, including to customers. Customers don't know how to interact with this data. Utilities and others can use the data to target programs, preferred rates, etc.
- Customer education: Consider having WHPA develop a guide/protocol about how to use benchmarking so customers can see some value in the process. This allows comparison of what others are doing that you are not.

**QUESTION** by Barbara Hernesman (SynergyNexGen) – Does the WHPA need to be educated on this? **A one-page brief on this would be valuable.**

**ACTION** suggested by Don Langston (ACCA) – Develop a survey to be sent from the WHPA to building owners: "Do you know that you are spending X many KWs per year? Do you want to learn how to reduce it?"

**Group 2** California's Existing Buildings Energy Efficiency Action Plan, 2016 Update Strategy 1.8 Energy Efficiency as a Clean Distributed Energy Resource; 1.8.2 & Potential EE Bidder Challenges #3 and #4

**1.8.2 Market Transformation Program Portfolios:** Evolve the energy efficiency program portfolios to focus more explicitly on market transformation activities in the upgrade marketplace.

- Understand the phenomenon of code shortfall in existing buildings and mobilize projects to close any gaps.
- Revisit administration of market transformation efforts.

**Potential EE Bidder Challenges #3 and #4:**

3. The willingness of EE bidders to accept performance assurance requirements, nonperformance penalties, and other risk considerations.
4. The ability to compensate EE providers for the full value of energy efficiency, including the avoided generation and transmission resources, if business models require an “all-in” compensation structure.

**Spokesperson:** Charles Segerstrom (EE Consultant) – **Participants:** Shea Dibble (Staff), Don Langston (ACCA), Louis Fuentes (ACCA), Carmen Best (CPUC), Adam Scheer (PG&E), Jeanne Duvall (PG&E), Swapna Nigalye (PG&E), Lori Atwater (SCE), Scott Higa (SCE), Jack Shih (SCE), Jeremy Reeve (SDG&E)

**Key Points/Discussion Items**

- Who should be at the table for procurement?
  - Contactors and implementers are already in WHPA. With the analysis of big data becoming so important, WHPA needs more people in data analytics and more people on the “internet side of things”.
  - The voice of the customer is needed on this input team.
  - This only works if a sale is made.
- “We are talking about the most major paradigms when you talk about the meter instead of projected.”
- When SCE or PG&E have closed their power plants, how do you procure energy efficiency in a way that is rigorous and measurable?
- Procurement Discussion – Resource acquisition by monitored metered data. The Existing Buildings Energy Efficiency Action Plan discusses meter-based procurement. Procurement is “ripe and ready to roll”.

**ACTION** for WHPA to consider establishing a new WHPA Committee on metrics, monitoring, CQI, CQM, code compliance, etc. It is going to be sweeping. This should get its own organization.

- Market Transformation Discussion – Devices are needed that collect data that has not been collected before.
  - Reference was made to the Emerson presentation to the WHPA last year (2015?).
  - The cost of a device to monitor data on a compressor is very low, and then one can remotely monitor how well the compressor is working.
  - A reality check is needed by knowing what the consumer is thinking. What if the payment doesn't happen until a year later? Ideally, the customers will become the voice of the program once they are engaged in the program.

**ACTION** for WHPA to consider educating the WHPA on these new paradigms—on the rules of the road, as they are not very simple.

- Carmen Best (CPUC) reminded that until the conclusions of the CPUC are on the street, it is too soon for the WHPA to engage.
- **GAP** – What does market transformation need as support as we focus on today's programs and devices?
- Because of the nature of this paradigm shift, there are many elements to this conversation.

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**Group 3** – California's Existing Buildings Energy Efficiency Action Plan, 2016 Update Strategy 1.9 State Policy Leadership, CAEECC (Bullets 5, 6, and 7) and CalTF (Bullets 3 and 4)

**CAEECC Bullets 5, 6, and 7**

5. Provide greater opportunities to leverage industry expertise.

- 6. Increase transparency and enable a deeper understanding of offerings and long-term strategic vision.
- 7. Provide meaningful and useful input during early stages of design and during augmentation of efficiency business plans.

**California Technical Forum Bullets 3 and 4**

- 3. Adopt open source modeling software to increase transparency and reduce costs of model-based savings estimates.
- 4. Provide clear, easily applied guidelines to measure development.

**Spokesperson:** Mel Johnson (DEO) - **Participants:** Ron Jarnagin (ASHRAE), Pete Jacobs (BMI), Christian Weber (PG&E), Michelle Costello (SDG&E), Brandi Turner (SDG&E), Sean Gouw (SCE), Elsia Galawish (Staff), Barbara Hernesman (SynergyNexGen)

**Key Points/Discussion Items**

- Per Michelle Costello (SDG&E), Goals 5, 6, and 7 are centered on industry to have more transparency in input during the early stage of design. This is an unprecedented opportunity to have input before anything is filed. The IOUs recognize that while they had some industry participation, it is difficult to track all the hundreds of pages of Business Plans currently out there.

**ACTION** for Utilities to consider sponsoring a webinar for WHPA members to educate them on the IOU Business Plans as the Business Plans are high level and provide strategic direction; they are not what the WHPA is used to seeing for IOU programs. The IOUs are now looking for the market to help design programs. *(Michelle Costello and Jeremy Reefer offered to help organize this.)*

- Get industry engaged in the Implementation Plan (IP) process through the CAEECC process. Now is the time to engage in how this IP process will work. **Identify people within the WHPA who can engage and report out. There are some great opportunities coming.**
  - Per Mel Johnson (DEO), it's a good process to go through because once you hear about what people are doing to make things happen, it helps to set the stage for the industry. The HVAC industry needs to be at the table to have that conversation.
- Regarding CalTF Bullet #3, "Adopt open source modeling software to increase transparency and reduce costs of model-based savings estimates," there is an ex ante review process for programs. HVAC is a variable, it's very complex, not only for customers, but for system-wide approaches. How do you model that?
  - **Problem:** There is no open source modeling software; monopoly on system that does not model all HVAC systems. EQuest is currently the CPUC's recommended tool of choice.
  - **Solution:** Provide more than 1 modeling approach with an independent third-party performing the work. Open source should come from the industry.
  - This is a call for (1) WHPA to come in and (2) industry to come to the table and say that there are ways that this can be done. CalTF is ushering these things in.

**ACTION** for the WHPA to form an Exploratory Working Group to investigate open source modeling software (besides DEER), first to understand and then to provide input for clear/applied guidelines for measure development.

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**Group 4** – California's Existing Buildings Energy Efficiency Action Plan, 2016 Update Strategy 1.9 State Policy Leadership, Section 1.9.6.

**1.9.6 Energy Efficiency Collaborative** – Statewide Agency Leadership – Form the Existing Buildings Efficiency Collaborative (EBEC) to lead and coordinate progress toward energy efficiency across the energy agencies.



## Consolidated Existing Buildings Energy Efficiency Action Plan Breakout Session Report Out from WHPA In-Person Leadership Meeting, November 17, 2016 (based on CEC Staff's Suggested Potential 2017 Concentrations)

**Spokesperson:** Pepper Hunziker (Tre'Laine Associates) – **Participants:** Garrett McGuire (AHRI), Talbot Gee (HARDI), Bob Wiseman (IHACI), Derek Okada (SCE), Bob Sundberg (Staff)

### Key Points/Discussion Items

- The CEC is creating an Existing Buildings Collaborative state agency. It is challenging to figure out how the WHPA could contribute to this agency. Creating an agency to coordinate other agencies could be complicated.
- There is the need for participation beyond the WHPA and beyond HVAC.
- EBEE Committee was the only internal WHPA committee the group thought might play a role.
- The team discovered that there were more than 20 additional state, regional and local agencies which might be expected to participate in such a collaborative. Who would be a contributor and who would be adversely impacted?
- IF the WHPA or any of its committees or teams was to play a role, it would need to be operating as a neutral party limited to facilitating the agencies the CEC wanted included.
- Within the WHPA, if existing committees found that the goals of two or more known agencies appeared to have conflicting goals or plans, that issue could be elevated up to this new collaborative group, much as the California Technical Forum currently functions for technical issues and evaluations like national refrigerant issues where an EPC restriction could conflict with DOE refrigerant migration strategies.
  - Talbot Gee (HARDI) commented that the whole point is cross agency and cross cutting. This is very relevant to AHRI, HARDI, and ACCA at a national level. For example, DOE policy conflicts with other federal agency policy and regulations. In California, ARB conflicts with the CEC and CPUC. Additionally, AHRI is taking the lead with ASHRAE on the next generation of refrigeration, many of which will be mildly flammable. They figured out that no safety or building codes account for a flammable substance, and it could take 20 years to update the code, so it's possible that the EPA requires certain refrigerants which code will not allow. Also, how do we deal with de-listed refrigerants?
- If this was intended to operate outside of the WHPA, a collaborative group might be formed, much like the current CAEECC directed by the CPUC related to coordinating development of and dissemination of IOU business plan meetings and documents. This group didn't know what role the WHPA might then play.
- Consider having the WHPA EBEE Committee play a role with this new state agency.

**ACTION:** Talbot Gee (HARDI) and Derek Okada (SCE) to further share their ideas on how the HVAC industry could help on a policy level.

**ACTION** suggested by Talbot Gee (HARDI) that rather than establishing a new WHPA Committee, each WHPA Committee and Working Group should evaluate if their work triggers engagement beyond a single agency.

**Group 5** – California's Existing Buildings Energy Efficiency Action Plan, 2016 Update – Strategy 3.3 Energy Efficiency Workforce Alignment, concentrating on Strategy 3.3.7 (SB 350)

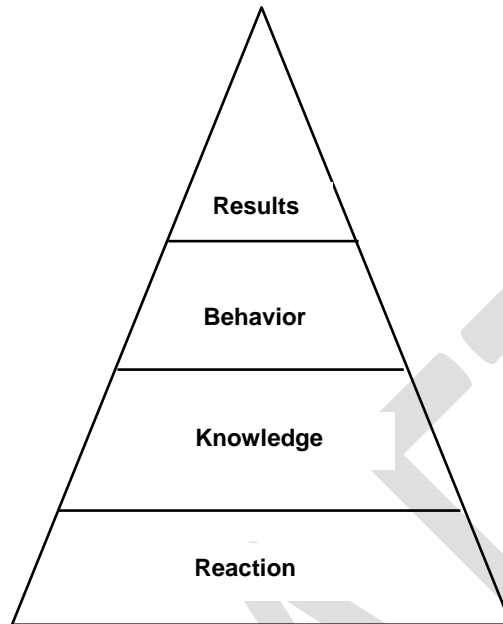
**Strategy 3.3.7 – Identify workforce competencies that must be developed to meet a doubling of energy efficiency by 2030** – Use the state's primary workforce education and training institutions to engage the building industry, map industry priorities for efficiency to major occupations that will provide services, identify workforce competency gaps, and quantify the work needed to build a workforce to implement high quality efficiency projects at scale.

**Spokesperson** Jim Caldwell (CCCCO) – **Participants:** Ellen Steiner (Staff), Dominick Guarino (NCI), Mike Lawing (Honeywell), Eugene Silberstein (HVAC Excellence), Brandi Turner (SDG&E), and others

### Key Points/Discussion Items



- Who is responsible for getting the workforce ready to be a fully engaged, prepared workforce by 2020? The group consensus is that there is no ownership as “nobody can own it.” It must be an organization of like-minded individuals.
- There is lack of consistency across training organization/professors about outputs/outcomes:



- Data is missing to prioritize training initiatives. Do we have the data to identify HVAC gaps?
- **QUESTIONS:**
  - What is in it for me? For the contractor? For the owner?
  - What level of skills do you need to realize energy savings?
  - What skills are needed to meet the SB 350 goals?
    - The WHPA WE&T Committee has the right players, but more industry players might be useful.
  - How do you change the culture (1) in the contracting business and (2) in terms of parents' lack of desire for their children to pursue HVAC as a career – the “going to college” expectations?
    - Create “standard” ladders to identify gaps and close them.
    - Map “electives” to providers as a framework.
    - Recruit new entering potential employees.
- Per Dominick Guarino (NCI), “You have to make your workforce a differentiator.”
  - We need to complete an inventory of training “entities”.
  - It needs to be a good business decision to have a qualified workforce.
  - We need a lifelong learning capability.
  - We need a standardized HVAC competency model by role (career lattice).
  - We need certifications for people so they have some standard measure of how people perform those jobs. It needs to be verifiable and not anecdotal.

**ACTION ITEMS:**

1. The WHPA WE&T Committee to consider adding Subject Matter Experts (SMEs) in the data collection and analysis function to support WE&T in making data-driven decisions. The revelation is the urgency of dealing with this because “we have three years”.
2. The WE&T Committee needs to launch a plan to deal with this by mid-year 2017 per IOU input on the timeframe need.



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- **QUESTION** by Carmen Best (CPUC) – Do you have the right people at the table?
- **RESPONSE** by Jim Caldwell (CCCCO) – We think so, but we will look again to see if there are more people who should be added. Creating this data analysis function is sorely needed in the WE&T function.

DRAFT