



## WHPA Work Product Summary

**DATE:** July 8, 2015

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**INITIATING BODY:** WHPA Existing Buildings Energy Efficiency (EBEE) Action Plan Committee – Exploratory Working Group (EWG)

**WORK PRODUCT NAME:** EBEE-EWG Work Product #1: EBEE Action Plan Alignment Table (Gaps & Barriers)

**TYPE OF ACTION REQUESTED:**  **VOTE**     **GUIDANCE**     **OTHER:**

The initiating body requests that the WHPA Executive Committee adopt the referenced Work Product as a WHPA Work Product for escalation to the CEC (to meet the CEC's requested accelerated deliverable deadline of July 10, 2015), as well as to be posted and marketed in accordance with previously established WHPA policy.

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### APPROVAL HISTORY

**COMMITTEE:** WHPA Existing Buildings Action Plan Committee (Binding Vote)

**BY CONSENSUS**     **BY VOTE (BINDING ROLL CALL VOTE)**

**TALLY:** Per consensus agreement at the July 2, 2015 WHPA Existing Building Energy Efficiency (EBEE) Action Plan Committee's Exploratory Working Group (EWG) meeting, an email vote was conducted for acceptance of the EBEE-EWG Work Product #1: EBEE Action Plan Alignment Table (Gaps & Barriers) for escalation to the WHPA Executive Committee for their review and adoption as a WHPA Work Product prior to the CEC's requested deliverable date of July 10, 2015. The EWG is the 12 member voting body of the EBEE Committee. The binding email vote was conducted on July 7, 2015.

The **BINDING VOTES** were cast as follows:

**AYE** (x10 including 2 memberships pending July 8th EC approval) = 1. PG&E by Jeanne Duvall, 2. CalCERTS by Barbara Hernesman, 3. UC Davis EEC by Kristin Heinemier, 4. CSE by Susan Davison, 5. NCI by Mel Johnson, 6. IHACI (Bob Wiseman) 7. Villara Building Systems by Rick Wylie with comments listed under "Outstanding Debates/Issues/Minority Views", 8. County of Sonoma by Liz Yager whose membership was EC approved on July 8th, 9. Selby Energy (Brian Selby) whose membership was EC approved on July 8th. 10. Honeywell ECC (Daniel Jones rec'd 7/8/15)

**NAY** (x0), **ABSTAIN** (x0)

**PENDING VOTES** (x2) = 1. Marina Mechanical (Jim Hussey), 2. Tre'Laine Associates (Pepper Hunziker)

Based on unanimous approval of the quorum of votes (6 or more) received, the EBEE-EWG Work Product #1 was accepted for escalation to the WHPA Executive Committee. (WHPA Staff Note: Any pending votes received will be updated on the Work Product Summary upon receipt. Since there was a

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quorum without those votes, this Work Product Summary and Work Product were released to the EC on July 7, 2015 to provide the EC advanced review availability.)

**DATE:** Accepted for escalation July 7, 2015 with unanimous approval of the quorum votes received.

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**WORK PRODUCT OBJECTIVES:** The mission of the WHPA Existing Buildings Energy Efficiency Action Plan Committee (EBEE) and its voting body, the Exploratory Working Group (EWG), is to provide input into the California Energy Commission's (CEC) Existing Buildings Energy Efficiency Action Plan (EBEE AP) as desired and necessary throughout 2015 using a collaborative process with the CEC Existing Buildings Unit representatives, the accumulated subject matter expert market actors associated with key HVAC related Strategies in the CEC's Existing Buildings Energy Efficiency Action Plan (EBEE AP), and the Committee at large.

For Work Product #1, the CEC asked for the Committee to identify gaps in the drafted EBEE AP Strategy Tables in Chapter 3 of the EBEE AP to ensure appropriate subject matter expert feedback prior to Plan finalization. Work Product #1 was developed primarily through weekly teleconference meetings from March 20, 2015 through July 2, 2015. It began with the draft Alignment Table provided by CEC representative David Ismailyan with consultation from Martha Brook during planning meetings. It was further developed through a brief structure overview during the April 29, 2015 Industry Collaboration Teleconference Webinar focused on CEESP & EBEE Plans Collaboration, consultation with WHPA Plan Revision Working Group representatives, and both in-person and telephone communications between the Committee Chairs (Barbara Hernesman, CalCERTS and Jeanne Duvall, PG&E) and the CEC Existing Buildings Unit Representatives (David Ismailyan and Martha Brook) to further define the specific HVAC related Strategies to review. The resulting Alignment Table Work Product#1 identifies flaws – missing gaps and barriers to market - in the following Strategies listed in the Existing Buildings Energy Efficiency Action Plan:

- Strategy 1.3: Minimum Standards for Assessment Tools
- Strategy 1.5: Building Efficiency Standards Development and Compliance
  - Strategy 1.5.3: Training and Communication
  - Strategy 1.5.5: Understanding the Compliance Shortfall for Existing Building Energy Standards
  - Strategy 1.5.7: Compliance Plan
  - Strategy 1.5.8: HVAC Equipment Serial Number Tracking Database If Indicated as a Critical Resource for Compliance Improvement
- Strategy 1.7: Local Government Leadership
  - Strategy 1.7.2: Local Government (LG) Partnerships
  - Strategy 1.7.3: Leverage Other Efforts
- Strategy 1.9: Energy Efficiency Collaborative – Statewide Agency Leadership

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- Strategy 2.1: Data for Improved Decisions (Modern, Accessible Data Resources)
  - Strategy 2.1.1: Data Exchange Protocols
  - Strategy 2.1.2: Benchmarking Data Infrastructure and Strategy 2.1.9: Energy Consumption Baselines, which the Committee recommends combining into one Strategy
  - Strategy 2.1.3: Easy to Access Data and Analytics
  - Strategy 2.1.4: Data for Local Government Use
  - Strategy 2.1.5: Standardized Rates Information
  - Strategy 2.1.6: Public-Facing Energy Efficiency Program Information
  - Strategy 2.1.7: Integrated Database for Low-Income Programs
  - Strategy 2.1.8: Energy Data Center
  - Strategy 2.1.10: Local Area Load Forecasting Methodology
- Strategy 2.2: Consumer Focused Energy Efficiency
  - Strategy 2.2.1: Enhanced Program Design and ME&O – Transition to More Multi-Faceted, Incremental, and Performance Oriented Efficiency Programs
  - Strategy 2.2.3: Targeted Programs
  - Strategy 2.2.4: Building/Portfolio Cohorts
  - Strategy 2.2.5: Strategic Energy Planning
- Strategy 3.1: Streamlined and Profitable Industry
  - Strategy 3.1.2: Industry Partners Program
- Strategy 3.2: Performance-Driven Value
- Strategy 3.3: High Performance Workforce, Education and Training (WE&T)
- Strategy 4.2: Marketing, Education and Outreach (Targeted, data and research driven ME&O)
  - Strategy 4.2.1: Decision-Maker Focused Marketing and Outreach
  - Strategy 4.2.2: Energy Upgrade California
- Strategy 5.1: Foster Private Capital Market
- Strategy 5.2: Asset-Based Financing
  - Strategy 5.2.3: Split Incentives

### CA ENERGY EFFICIENCY PLAN STRATEGIC GOAL ALIGNMENT:

GOAL 1     GOAL 2     GOAL 3     GOAL 4

### CEESP HVAC GOAL STRATEGIES:

The Existing Buildings Energy Efficiency Action Plan Committee work focuses on subjects cut across all California Energy Efficiency Strategic Plan Goals (CEESP). As such, the Committee serves all four goals of the CEESP:

- Goal 1: Improve Code Compliance
- Goal 2: Quality HVAC Installation and Maintenance
- Goal 3: Whole-Building Design
- Goal 4: New HVAC Technologies and System Diagnostics

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**BENEFITS:** Work Product #1 helped develop a strong collaborative effort between WHPA stakeholders and the CEC. It is the first step in helping expand the CEC's HVAC related knowledge enabling better understanding of how key areas fit together so that the finalized Existing Buildings Energy Efficiency Action Plan (based on AB 758) can better address key gaps and barriers to market in its strategy implementation plan. In time, this is expected to lead to overall HVAC industry improvement which will ultimately yield energy efficiency savings in existing buildings. WHPA Stakeholders also benefit from having a voice earlier in the process when they have the potential to make more meaningful, impactful changes for the overall HVAC industry.

**OUTSTANDING ISSUES / DEBATES / MINORITY VIEWS:** The following comments received with the aye vote cast by Villara (Rick Wylie) refer to "initiative 1.5.8 (WHPA Serial Number Tracking White Paper - Pros / Cons (in process)). To clarify, the CEC's EBEE AP Strategy 1.5.8 states: "If indicated as a critical resource for compliance improvement, establish an HVAC equipment serial number tracking database." The citation of "(WHPA Serial Number Tracking White Paper – Pros / Cons (in process))" in Work Product #1 is a notation that the WHPA Compliance Committee is developing a work product related to the Serial Number Tracking discussion, but it is not the Strategy being analyzed in the Alignment Table. The referenced comments follow: "I still believe that initiative 1.5.8 (WHPA Serial Number Tracking White Paper - Pros / Cons (in process)) has been rail-roded by a few manufacturers and Distributor groups, and the group has buckled under this pressure. It is very reasonable to expect collection of Serial Numbers from the distribution network, so the CEC/CPUC can monitor building permit compliance rates. We just keep kicking this can down the road, claiming a lack of perfect information, while avoiding a significant source of information that can help us confirm compliance rates. We are having to spend a tremendous amount of effort in many of the other initiatives to educate the consumer, etc., in order to overcome this fear."

**POTENTIAL AUDIENCE:** CEC, CPUC, CSLB, Utilities, WHPA at large, Other Stakeholders

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**WHPA EXECUTIVE COMMITTEE ACTIVITY:** The reference document was presented by the WHPA Existing Buildings Energy Efficiency Action Committee Co-Chairs (Jeanne Duvall, PG&E and Barbara Hernesman, CalCERTS).

**MOTION (July 8, 2015)** by Jeremy Reeve (SDG&E), seconded by Don Tanaka (UA), to approve this document as a draft, with the understanding that there may be changes later. Motion **CARRIED** unanimously.

**VOTE TALLY:** There was a unanimous aye vote of the ten WHPA Executive Committee voting members (or proxies) present during the vote at the July 8, 2015 meeting: ACCA, CPUC, HARDI, IHACI, JCEEP, NCI, PG&E by Proxy to SDG&E, SCE, SDG&E, and UA. CEC was also present on the call but not during the vote.

**FURTHER ACTIONS REQUIRED:** The WHPA Executive Committee to review further edits to the document as needed.



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**NEXT STEPS:** 1. Ellen Steiner with WHPA Staff will populate the WHPA HVAC Efforts columns of the referenced Work Product with WHPA Committee Implementation Plan elements as appropriate.

2. WHPA Staff will ensure the final version of the Work Product Summary and the referenced Work Product are appropriately posted the WHPA website and officially distributed to the CEC Existing Buildings Unit representatives by July 10, 2015.

2. The next phase of the WHPA Existing Buildings Energy Efficiency Action Plan Committee's efforts will be on the development of Work Product #2 which will focus on assessing pathways to implementation for the CEC's EBEE Action Plan HVAC related Implementation Strategies, starting with those slated for 2015 milestones.

## WHPA EBEE-EWG Committee Work Product #1-Alignment Table Gaps & Barriers (FINAL DRAFT)

WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
<b>1.3 Minimum Standards for Building Performance Assessment Tools</b>				
	<b>Strategy 1.3</b>	<b>Minimum Standards for Assessment Tools:</b> Modify HERS Whole House assessment protocols.	CEC/CPUC program implementers, HERS Providers/Raters	<ol style="list-style-type: none"> <li>1. Current HERS II regulations mandating a single rating system is barrier to broad market adoption. Confusion in the residential marketplace on performance assessments, home assessment ratings and home assessments calls out for a centralized definition and rating protocols.</li> <li>2. Lack of coordinated state, local and national standard: California standard (HERS II) and national standards (RESNET and DOE (Home Energy Score).</li> <li>3. Current HERS II is a complex endeavor, requiring energy modeling and diagnostic testing and more than 50+ software inputs to complete the assessment. This complexity limits the ability of raters to reduce their HERS II assessment cost within the California market; No guarantee that an open market for asset ratings will stimulate home energy upgrades. This complexity limits the ability of raters to reduce their HERS II assessment cost within the California market.</li> </ol>
<b>1.5 Building Efficiency Standards Development and Compliance</b>				
	<b>Strategy 1.5.3</b>	<b>Training and Communication:</b> Enhance communication, education, and interactions with Local Governments to facilitate compliance and enforcement with the Standards.	CEC, CPUC/Program Implementers	<ol style="list-style-type: none"> <li>1. Press to have all buildings rated "<u>as a whole</u>", which would include the equipment efficiencies, along with most other important EE measures.</li> <li>2. Gaps in training and development and inconsistency. Compliance has become more complex and out of balance.</li> <li>3. Permit applicants don't understand the process and specific areas or the need to train building department staff.</li> <li>4. Lack of digital signal processing, web-enabled application, autofill forms for Building Divisions and Services personnel is a barrier for Building Departments' permitting uptake. Lack of statewide messaging for local government to better understand "value-add" and benefits to permitting.</li> <li>5. Understanding the health &amp; safety benefits to permitting. Contractors listen to customers above all and CSLB, control point for contractors through CSLB, contractors will act according to demand by consumer.</li> <li>6. Lack of behavior modification programs. Lack of perception of sophistication in contractors. How does the contractor sell the extra cost of permits to the customer? What is the value?</li> </ol>
<a href="#">WHPA Work Products</a>	<b>Strategy 1.5.5</b>	<b>Understand the compliance shortfall for existing building energy standards:</b> Work with Local Governments (LG), manufacturers, and contractors to determine compliance gap and understand the role of permitting, and the needs of buildings departments.	CSE, CEC, CPUC/OPR, LG, CSLB	<ol style="list-style-type: none"> <li>1. Regarding permitting, cataloging a years worth of permits, review and gather important information regarding permitting compliance specific's to know what is really going on. Uncertain exact % of projects that actually get permitted.</li> <li>2. Lack of tools Gap: Lack of website with correct, relevant information to better assist applicants. More actionable information, more user friendly city webpages, etc. Lack of enforcement gaps need to be addressed. Not enough enforcement. Permit process too time-consuming due to lack of online tools. Building departments not using their online software to it's fullest extent. Building departments are limited in their ability to inform the public because they don't use the platforms that applicants use to find information. Website not accurate or up-to-date or doesn't have the right information. Don't know how to present the material so the applicants can easily understand and access. (IT specialist to user) Strip message down to bare bones message and make it actionable. Not barraging them with a wall of complex text.</li> <li>3. Hard to get non-compliant people to the table. Building Dept staff do not consider themselves as enforcers or often do not have resources to enforce. No enforcers.</li> <li>4. No big stick. Not sufficient value for owner or contractor. No consistent message that there is a value proposition.</li> <li>5. Value-add not a value for building department. They are about health and safety. No perception of the long term health and safety impact of not having energy efficient buildings.</li> <li>6. Not understanding contractor motivation. Contractors listen to customers only and CSLB. Looking to put food on the table so will do exactly what their customer tells him to do. No demand on the part of the consumer. No neighborhood spot checks.</li> <li>7. Lack of value. No demonstration of value to customer. No behavior modification programs.</li> </ol>

## WHPA EBEE-EWG Committee Work Product #1-Alignment Table Gaps & Barriers (FINAL DRAFT)

WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
<a href="#"><u>WHPA Smart Goal #6 - Develop approved web-based permitting process for mechanical change-outs</u></a>	<b>Strategy 1.5.7</b>	<b>Compliance Plan:</b> Based on research findings and pilot experience, develop a compliance strategic plan with Best Practices for EE permitting.	CEC, OPR, LG, CSLB, WHPA	<ol style="list-style-type: none"> <li>1. Lack of alignment between CEC and CPUC on energy savings verification in energy efficiency programs.</li> <li>2. Energy Efficiency calculated at above code when many existing buildings operate far below code.</li> </ol>
<i>WHPA Serial Number Tracking White Paper - Pros / Cons (in process)</i>	<b>Strategy 1.5.8</b>	<b>If indicated as a critical resource for compliance improvement, establish an HVAC equipment serial number tracking database.</b>	CEC, WHPA Compliance Committee	<p>Some identified gaps and barriers related to Serial Number Tracking have arisen during the arguments for and against serial number tracking that are currently being vetted and finalized through the WHPA Compliance Committee. The primary areas being compared in that Summary of Arguments on Key SNT issues include:</p> <ol style="list-style-type: none"> <li>1. Potential Impact on Compliance</li> <li>2. Enforcement</li> <li>3. Cost</li> <li>4. Data Concerns</li> <li>5. Increased Out-of-State and Internet Sales</li> <li>6. Fairness</li> <li>7. Energy Savings</li> <li>8. Manufacturer/Distributor</li> <li>9. Customer</li> <li>10. Existing Serial Number Collection Processes</li> <li>11. HVAC Contractor</li> <li>12. Public Tax Fund</li> <li>13. IOU / State &amp; Local Government</li> </ol>
<b>1.7 Local Government Leadership</b>				
	<b>Strategy 1.7.2</b>	<b>Local Government (LG) Partnerships:</b> Coordinate utility LG Partnerships with the Action Plan goals and strategies to minimize duplication; actively share data to facilitate LG jurisdictional activities to maximize energy savings opportunities.	CPUC, POUs / program implementers	<ol style="list-style-type: none"> <li>1. All LGPs not the same, some cover a city, some multiple rural counties.</li> <li>2. No access to data and strategic resources for LGPs long term successful impact.</li> <li>3. Reducing emissions and stabilizing the grid will not be without cost, so TRC and cost effectiveness models may need to integrate long term cost of carbon.</li> <li>4. Expecting low cost and high ROI for EE goals versus profit goals. An actual vision for the 10 year portfolio model has not been shared with the local government partners, causing a disruption in planning.</li> </ol>
	<b>Strategy 1.7.3</b>	<b>Leverage Other Efforts:</b> Leverage local climate action, general plan/land use, water conservation and other relevant planning mechanisms as a means to improve energy efficiency and reduce GHG (consistent with AB 32, CARB Scoping Plan Update).	<p>Coordination with existing planning mechanisms (AB 33, Cap and Trade) and state-side efforts to achieve highest possible energy savings potentials.</p> <p>Coordination with other agencies (CARB, LGSEC) to reduce GHG, Air Districts.</p>	<ol style="list-style-type: none"> <li>1. Most municipalities are lacking local gov resources with responsibility, authority, and sustainable funding for climate action and energy management oversight and implementation.</li> <li>2. Current local government duties are not funded for the addition of a climate action and energy management role.</li> </ol>
<b>1.9 Energy Efficiency Collaborative - Statewide Agency Leadership</b>				

## WHPA EBEE-EWG Committee Work Product #1-Alignment Table Gaps & Barriers (FINAL DRAFT)

WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
	<b>Strategy 1.9</b>	<b>Create the Existing Building Efficiency Collaborative (EBEC) to lead and coordinate progress toward energy efficiency across the energy agencies.</b>	Consultation with WHPA	<ol style="list-style-type: none"> <li>1. Lack of strong sponsorship from appointing managers.</li> <li>2. Failure to leverage existing official and organic networks and collaborative forums already in place and established; such as the State Energy Efficiency Best Practices Coordinator; the Local Government Sustainable Energy Collaborative (LGSEC); Creation of "one-more" committee.</li> <li>3. Risk in implementing statewide programs versus providing a statewide framework for local implementation focused on local values and priorities. Access to data needed to yield information for decision making.</li> </ol>
<b>2.1 Data for Improved Decisions (Modern, Accessible Data Resources)</b>				
	<b>Strategy 2.1.1</b>	<b>Data Exchange Protocols:</b> Adopt common data exchange protocols to ensure streamlined collection, effective management, and security. Engage closely with DOE-sponsored Building Energy Data Exchange Specification (BEDES). Encourage or require widespread implementation of Green Button and Green Button Connect smart meter data exchange protocols.	Green Button Alliance	<ol style="list-style-type: none"> <li>1. Selecting a protocol will create winners and losers, and it could stifle innovation. What is our evaluation process? Can a <u>performance</u> spec be defined, to allow third party developers to develop innovative solutions. Who will manage this? (the CEC? IOUs? Third party?)</li> </ol>
	<b>Strategy 2.1.2</b> <b>Strategy 2.1.9</b> <b>(Recommendation to combine these Strategies)</b>	<b>Benchmarking Data Infrastructure:</b> Map meters to physical buildings and upload whole-building consumption data to Portfolio Manager as needed.  <b>Energy Consumption Baselines:</b> Establish energy use baselines at appropriately granular geographic, building type and buliding vintage levels to track plan and other policy impacts.	Green Button Alliance	<ol style="list-style-type: none"> <li>1. How to leverage Portfolio Manager. Portfolio Manager not currently capturing residential energy efficiency activity occuring statewide.</li> <li>2. Must have clear criteria and objective with tools and software being used or considered. How do we define, review applicable software tools?</li> <li>3. Lack of standard data provided by manufacturers. This is key and important for industry to be able to better understand and use Green Button.</li> <li>4. This is often not a simple task: just figuring out what meters are associated with what address and what account and what customer...Has anyone evaluated the user interface of Portfolio Manager? If it will be a portal for customers, it has to be very very well designed with this specific use in mind.</li> <li>5. Meaningful baselines are difficult to develop and to interpret.</li> </ol>
	<b>Strategy 2.1.3</b>	<b>Easy to Access Data and Analytics:</b> Provide very simple, standardized access to customers and their chosen service providers so that they can easily understand their energy use and assess their needs. Develop solutions for multi-family, particularly low income.		<ol style="list-style-type: none"> <li>1. Who owns the data, how is access to the data granted, and how do we use the data? Customers don't know they need the data. There is no clear objective for the use of data and what the tools need to do.</li> <li>2. There is no centralized, nationwide database. We are not using currently available resources. QUESTIONS to consider: How is California going to influence national standards or bridge to bring national standards into alignment with California?</li> <li>3. There are no standards for "easy-to-use" or for "simple standardized access". Most such tools are either too simple or too complex. The purpose for providing the data should be carefully considered: What actions are you hoping to motivate? What are the real barriers to this action? How can the data help? (Are you assuming that the state will provide a user interface, or third parties, responding to a performance standard for usability?)</li> </ol>



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WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
	<b>Strategy 2.1.4</b>	<b>Data for Local Government Use:</b> Develop a standardized process for LG access to energy-related data as needed for local policy development and implementation.		1. Confidentiality and security issues have been a barrier. 2. Definitions of appropriate use should be developed (eg, can a LG provide these data to a private company prospecting for PV installations?). Some level of access should be guaranteed for LG's...they are the only ones who will be able to leverage this data (too sparse for a prospector, too dense for the govt).
	<b>Strategy 2.1.5</b>	<b>Standardized Rates Information:</b> Maintain all applicable utility tariffs (rates) in a standardized, machine-readable format on a public web site.		1. Lack of digital signal processing, web-based, user-friendly availability.
	<b>Strategy 2.1.6</b>	<b>Public-Facing Energy Efficiency Program information:</b> Publish project-level, locale-specific, anonymized information for ratepayer-funded efficiency program participants within a statewide public database (e.g. CSI database).		1. Acknowledge the limitation of data alone and that there is a need to blend data, behavior, motivations and user simplicity.
	<b>Strategy 2.1.7</b>	<b>Integrated Database for Low-Income Programs:</b> Integrate the WAP and Utility LIEE databases as a step toward alignment and streamlined delivery of energy efficiency services to low-income Californians.		1. Acknowledge the limitation of data alone and the need to blend data, behavioral motivations and user simplicity. 2. Market barriers include messaging to socioeconomic communities, signifying the combination or interaction of social and economic factors.
	<b>Strategy 2.1.8</b>	<b>Energy Data Center:</b> Create independent data center(s) where consumption data is collected from all utilities, protected securely, and made available to policy makers and researchers; institute secure transfer protocols to/from the energy agencies.		1. Lack of centralized digital signal processing.
	<b>Strategy 2.1.10</b>	<b>Local Area Load Forecasting Methodology:</b> Develop forecasting methods and data collection protocols needed for local area load forecasting of efficiency within the California Demand Forecast.	CEC/CPUC, ISO, POU's	1. Lack of strategic planning sessions, business planning sessions and program protocols that lead to effective holistic forecasting opportunity and program outcome & evaluation.

## WHPA EBEE-EWG Committee Work Product #1-Alignment Table Gaps & Barriers (FINAL DRAFT)

WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
<b>2.2 Consumer Focused Energy Efficiency (Identify and support activities and programs that address the needs of occupants and owners utilizing operational and performance data.</b>				
	<p><b>Strategy 2.2.1</b></p>	<p><b>Enhanced Program Design and ME&amp;O- Transition to more multi-faceted, incremental, and performance oriented efficiency programs.</b></p> <ul style="list-style-type: none"> <li>· Incorporate all end-use energy sources including water, plug loads, pools, irrigation, and exterior uses into programs.</li> <li>· Incorporate trigger points to help reach consumers at key transaction points.</li> <li>· Establish behavior and operations as central elements impacting building energy consumption by incorporating them into programs, tracking and evaluating.</li> <li>· Use ME&amp;O to create a consumer path that can connect consumers across programs and bundle actions based on their needs.</li> <li>· Measure program performance by percentage of eligible participating customers.</li> </ul>	<p>Determine QM results and consumer awareness of QM programs for HVAC systems. QM program led to operational energy savings due to properly operating system. Increase market demand for energy efficiency.</p>	<ol style="list-style-type: none"> <li>1. The market is not currently driven for performance as there are no performance metrics in place. No alignment with Title 20 and 24 for what performance means. Lack of consumer education on this topic as well.</li> <li>2. Lack of messages for all of the audiences of building occupants (residential, commercial, building owners, multi-family, etc.)</li> <li>3. Gap in Engagement: ME&amp;O not tied to "daily living" priorities of consumers: health, children, family, financial stability, profit - too low on an overwhelming list of stimuli. MEO not tied to today's 'shiny penny' in the attention of elected officials. How is the EBEE AP a valuable part of addressing communities issues and priority needs. Define the terms "solution" and "accountability"...these must be in place to achieve this goal. The value of the program or actions must be made evident in a compelling way. Again, this is not so much marketing as it is community-building.</li> </ol>
	<p><b>Strategy 2.2.2</b></p>	<p><b>Expand Behavior Programs-</b> Leverage current and expected innovations made possible with access to AMI data, plan and implement behavior programs with expanded scope and market reach</p>		<ol style="list-style-type: none"> <li>1. Lack of community based communications, behavior motivation discussion and community strategic planning is a significant barrier as is empowerment of local government.</li> </ol>
	<p><b>Strategy 2.2.3</b></p>	<p><b>Targeted Programs:</b> Support a range of targeted approaches to energy and water efficiency for property owners and occupants based on data-driven market segmentation and filtering.</p> <ul style="list-style-type: none"> <li>· Use data to develop and leverage consumer profiles and use those profiles to meet consumers where they are and motivate them to take the next action.</li> </ul>		<ol style="list-style-type: none"> <li>1. The Split incentive issue is a continued gap.</li> <li>2. Part of the gap is the timeframes for the retrofits not always aligning with the timing for the different market actors. This affects multiple layers.</li> </ol>

## WHPA EBEE-EWG Committee Work Product #1-Alignment Table Gaps & Barriers (FINAL DRAFT)

WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
	<b>Strategy 2.2.4</b>	<p><b>Building/Portfolio Cohorts:</b> Build on existing IOU pilots for SMB commercial buildings that utilize a property owner cohort model to encourage engagement, awareness, value, and implementation of improvements to buildings including capital, operational, and behavior; consider designing cohorts based on building types, end use, and/or project types.</p> <ul style="list-style-type: none"> <li>· Evaluate effectiveness of working with corporations to address energy use for a portfolio of buildings.</li> <li>· Develop Asset Based classes for investor-ready projects.</li> </ul>	Determine QI results and consumer awareness of QI programs for HVAC systems. QI program to achieve operational energy savings due to extra measures for installed system.	<ol style="list-style-type: none"> <li>1. Lack of case study resource(s)-pre, post installation and actual savings 12 months. (Programmatic piece gap.)</li> <li>2. Lack of community engagement events to communicate outcomes and overall evaluation.</li> </ol>
	<b>Strategy 2.2.5</b>	<p><b>Strategic Energy Planning:</b> Develop multi-year, sector-specific Energy Plans to implement energy and water efficiency improvements for property owners <b>(Align with Strategy 1.7)</b></p> <ul style="list-style-type: none"> <li>· Establish and build on sector specific owner advocates/ agents and technical support centers (virtual or physical) in target regions or areas to facilitate development of plans.</li> <li>· Provide directories of certified, or program qualified, contractors and existing building professionals to help building owners complete projects.</li> <li>· Owners' agents provide ongoing technical assistance, including identifying and aggregating financing and tax credit opportunities, building improvement programs, energy management, and peer-to-peer elements.</li> </ul>	Cool Davis	<ol style="list-style-type: none"> <li>1. Lack of strategic planning sessions, business planning and program protocols that lead to effective community based forecasting opportunity, program outcome, effectiveness and evaluation.</li> </ol>

### 3.1 Streamlined and Profitable Industry

## WHPA EBEE-EWG Committee Work Product #1-Alignment Table Gaps & Barriers (FINAL DRAFT)

WHPA HVAC Efforts	Draft EBEE-AP Strategies	Draft EBEE-AP Comments	Coordination Activities	Gap Analyses & Barriers to the Market
<p>April 29th WHPA Industry Collaboration Webinar</p> <p>WHPA SMART Goal #2: Continue Commercial HVAC Sector Strategy Engagement Process (<a href="http://performancealliance.org/2015SMARTGoals/tabid/2464/Default.aspx">http://performancealliance.org/2015SMARTGoals/tabid/2464/Default.aspx</a>)</p>	<b>Strategy 3.1.2</b>	<p><b>Industry Partners Programs:</b> Expand industry partner programs to address key market barriers and encourage innovation.</p>	<p>Collaboration with WHPA, particularly the EBEE Action Plan Committee, Plan Revision Working Group, WHPA Commercial Sector Strategy Committee</p>	<ol style="list-style-type: none"> <li>1. Lack of strategic planning sessions, business planning sessions, and program protocols that lead to effective community based forecasting, opportunity, program outcome, effectiveness and evaluation.</li> <li>2. Lack of Sales Training (for Value Proposition of EE).</li> <li>3. Case studies, best practices business aides that create real-life application &amp; consistency in IOUs compatible/complimentary ways to combine various WE&amp;T programs.</li> </ol>
<b>3.2 Performance-Driven Value</b>				
	<b>Strategy 3.2</b>	<p><b>Performance-Driven Value:</b> Provide new tools and compensation arrangements to allow building professionals to expand their services and pursue additional work.</p>		<ol style="list-style-type: none"> <li>1. Lack of programmatic consistency, ANSI accredited (ANSI/ACCA 5 RQI/CQI, ANSI/ACCA 4 RQM, ANSI/ACCA/ASHRAE 180 CQM) industry standards used for existing HVAC programs, relevance and application of ANSI accredited standards programmatic alignment.</li> <li>2. Lack of programmatic standards &amp; specifications, clarity, verification and performance savings criteria.</li> </ol>
<b>3.3 High Performance Workforce and Education</b>				
	<b>Strategy 3.3</b>	<p><b>High Performance Workforce, Education, and Training (WE&amp;T):</b> Implement WE&amp;T strategies that integrate KSAs with WE&amp;T curriculum; update training to include best practice building science and code requirements.</p>		<ol style="list-style-type: none"> <li>1. Lack of career technical education program development and alignment with industry recognized credentialing processes, ANSI accredited (ANSI/ACCA 5 RQI/CQI, ANSI/ACCA 4 RQM, ANSI/ACCA/ASHRAE 180 CQM) and other industry-valued standards specific to existing HVAC programs. Ensure relevance and application of ANSI accredited standards for future programmatic alignment.</li> <li>2. Lack of standardized competencies, curricula and workforce performance and alignment to EE-savings criteria.</li> <li>3. Lack of assessment and evaluation processes for WE&amp;T program specification, verifications, and performance criteria.</li> </ol>
<b>4.2 Marketing, Education and Outreach (Targeted, data and research driven ME&amp;O)</b>				
	<b>Strategy 4.2.1</b>	<p><b>Decision-Maker Focused Marketing and Outreach</b></p>	<p>EMI, CPUC, POUs, LGs, EUC</p>	<ol style="list-style-type: none"> <li>1. No clarification of the value proposition for each market actor. Not achievable to have one "value proposition".</li> <li>2. No current plan to address value propositions for code compliance versus energy efficiency. Most consumers perceive permitting as a contractor driven requirement with little to no knowledge of any benefit but more as additional cost and conformance with local codes.</li> <li>3. Contractor/Customer business model discourages permitting as additional triggers threaten to increase cost beyond current scope of work and cross over into other trade/work.</li> <li>4. Permitting is not synonymous with energy efficiency as its goal is compliance with codes versus achievement of specified system performance. There are existing presuppositions to the connection of EE to permitting that must be addressed prior to launching this strategy.</li> <li>5. Permitting for best consumer project experience: Most consumers perceive permitting as a contractor driven requirement with little to no knowledge of any benefit but more as additional cost and conformance with local codes.</li> </ol>

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	<p><b>Strategy 4.2.2</b></p>	<p><b>Energy Upgrade California:</b> Align energy efficiency elements of Energy Upgrade California ME&amp;O with EBEE Action Plan and determine relationship to programs.</p>	<p>EUC/CPUC, POUs, CEC, EUC partners</p>	<ol style="list-style-type: none"> <li>1. There is confusion in the marketplace with too many competing brands and messages from market actors.</li> <li>2. Lack of unified and mandatory statewide brand vision. Current IOU programs not using EUC brand, which adds to market noise and consumer confusion.</li> <li>3. Lack of adequate budget, for brand awareness, at mass media impact level (for example, the statewide anti-smoking campaign budget is set \$50mil just to make an impact).</li> <li>4. Consumer messaging is a long term haul. Brand, as a trusted resource, takes a focused and long term action plan.</li> <li>5. The original intention was for the State to provide framework for local Programs but it turned out to be a State program instead, which conflicted with and created confusion with the local marketplace because of the impression that they are separate and parallel systems. We need to support the local values and goals of communities for speed and scale of change needed. EUC was supposed to be a framework and set of tools to support local action NOT be a "thing" another state program. EUC adds another point of consumer confusion. It did not blend and lift local efforts everywhere to create a local unified set of tools for action. It is one more thing.</li> <li>6. Strategies 4.2 and 2.2 are linked. Aadditional efforts must be undertaken to ensure the objectives and messages are aligned through coordinated efforts.</li> <li>7. Currently regulatory framework may prohibit utilities, advisors and stakeholders to create campaign materials collaboratively due to proprietary reach methods.</li> <li>8. There are multiple channels and customer end-uses requiring translative terms to be relative and applicable in order to incite actionable decision making. In addition, most customers do not have demand side energy action/management plans that engage the trades required to sustain it. There is a disconnect between the field workforce and sustainability efforts that is currently being occupied by cloud based approaches.</li> </ol>
<p><b>5.1 Foster Private Capital Market</b></p>				

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	<b>Strategy 5.1</b>	<b>Foster Private Capital Market:</b> Establish a robust financing market infrastructure that will attract large private capital.	Infrastructure Bank, public and private market actors	<ol style="list-style-type: none"> <li>1. Contractor lack of understanding of financial products and how to sell to the end user;</li> <li>2. Issue with definition of "value proposition" that is overarching - as in the value proposition of financing (too broad of a definition or use of word);</li> <li>3. Difference in how non-res and res asset classes view, access and utilize financing;</li> <li>4. Current CPUC Financial Pilots do not align with how consumers access the energy efficiency market;</li> <li>5. (mis)Alignment of programs with how the non-residential market schedules capital improvements;</li> <li>6. State Finance Council lacking a full slate of market actors at the table (this may not be accurate, so take with grain of salt) - The right players are needed to be noticed.</li> <li>7. Clarification of privacy issues and data access (current regulations restrict any type of effective use of data by market actors);</li> <li>8. Contractor business models are aligning with private financial products, which do not necessary align with Statewide goals or plans.</li> <li>9. Financing pilots approved in 2012 align with IOU Programs and not the market so there is a barrier to the market in not being able to offer what the financial institutions and residential consumers want. The Programs are currently misaligned with market needs.</li> <li>10. Current structure of commercial PACE market is one at a time which prevents application on a larger scale focus.</li> <li>11. Fannie Mae, Freddie Mac, FHA etc not shedding a favorable light on PACE like and energy efficiency lending in general.</li> <li>12. IOUS have lots of regulatory barriers they encounter for Programs. There is a major misalignment with the contractor business model as well as with customers in the way transactions take place industry wide, which varies greatly with regulatory compliance. Money won't help fix problems if you can't reach through the process to make it happen.</li> <li>13. There is a possible need for statewide guidelines/regulation/oversight of local government PACE may benefit rating for bond market. PACE is a unique local government financing program, not yet 'regulated'. Misrepresentations by for profit parties in the market may damage PACE as a statewide and national tool.</li> </ol>
<b>5.2 Asset-Based Financing</b>				
	<b>Strategy 5.2</b>	<b>Asset-Based Financing:</b> Foster the development of easy-to-access financing mechanisms tied to building asset.	Public and private market actors	<ol style="list-style-type: none"> <li>1. "Split incentive" issue and solution is different for various asset classes (split incentive of multifamily tenants may not necessarily be a solution for a retail tenant in a strip mall)                         <ol style="list-style-type: none"> <li>a. Silos of water, gas, electric, propane payment structures challenge success of programs like Pay-As-You-Save on bill programs for water and energy efficient retrofits.</li> </ol> </li> <li>2. FHFA issue creates a barrier to PACE transferability in the residential market.</li> <li>3. Selling point of PACE being off balance sheet for business is a missed opportunity.</li> <li>4. Lenders not understanding property tax assessment impact in a default as only tax in arrears not entire assessment is an education opportunity.</li> <li>4. Difficulty in streamlining Commercial PACE to scale to market.</li> <li>5. Length of time to complete Commercial PACE funding.</li> <li>6. Regulatory &amp; legislative constraints (such as how to pass through EE savings to a tenant whose rent includes utility costs).</li> </ol>
	<b>Strategy 5.2.3</b>	<b>Split Incentives:</b> Assess and encourage new cost recovery mechanisms such as surcharge on tenant meters or "Green Leases" to surmount "split incentive" dilemma.	IOUs CSE	<ol style="list-style-type: none"> <li>1. There are a number of different leasing types resulting in gap and barrier issues with how the building owner captures costs and capital investments in their buildings.</li> <li>2. Different asset classes have different barriers. This goes back to the value proposition discussion.</li> </ol>