

# CALIFORNIA ENERGY EFFICIENCY COORDINATING COMMITTEE

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AD HOC MEETING ON  
BEHAVIOR FRAMEWORK

SEPTEMBER 28, 2017

# CAEECC AD HOC MEETING AGENDA

**Purpose:** Provide stakeholders with an overview of recent and past efforts to establish new guidance on behavioral programs in California with a focus on the recent work of the behavioral working group and the new guidelines emerging from the working group discussions. It is also an opportunity for CAEECC members to ask questions, voice concerns and share comments.

This meeting is NOT an effort to develop a work paper for behavior nor a venue to discuss outsourcing process or the viability of particular vendor initiatives.

**Objective:** Receive stakeholder feedback on progress to date and communicate next steps in the process.

## Meeting Agenda

1. The History and Purpose of the Behavior Framework Effort
2. The Purpose of the Energy Behavior Working Group
3. Summary of Working Group Recommendations
4. Next Steps and Opportunities for CAEECC Review
5. Discussion and Q&A

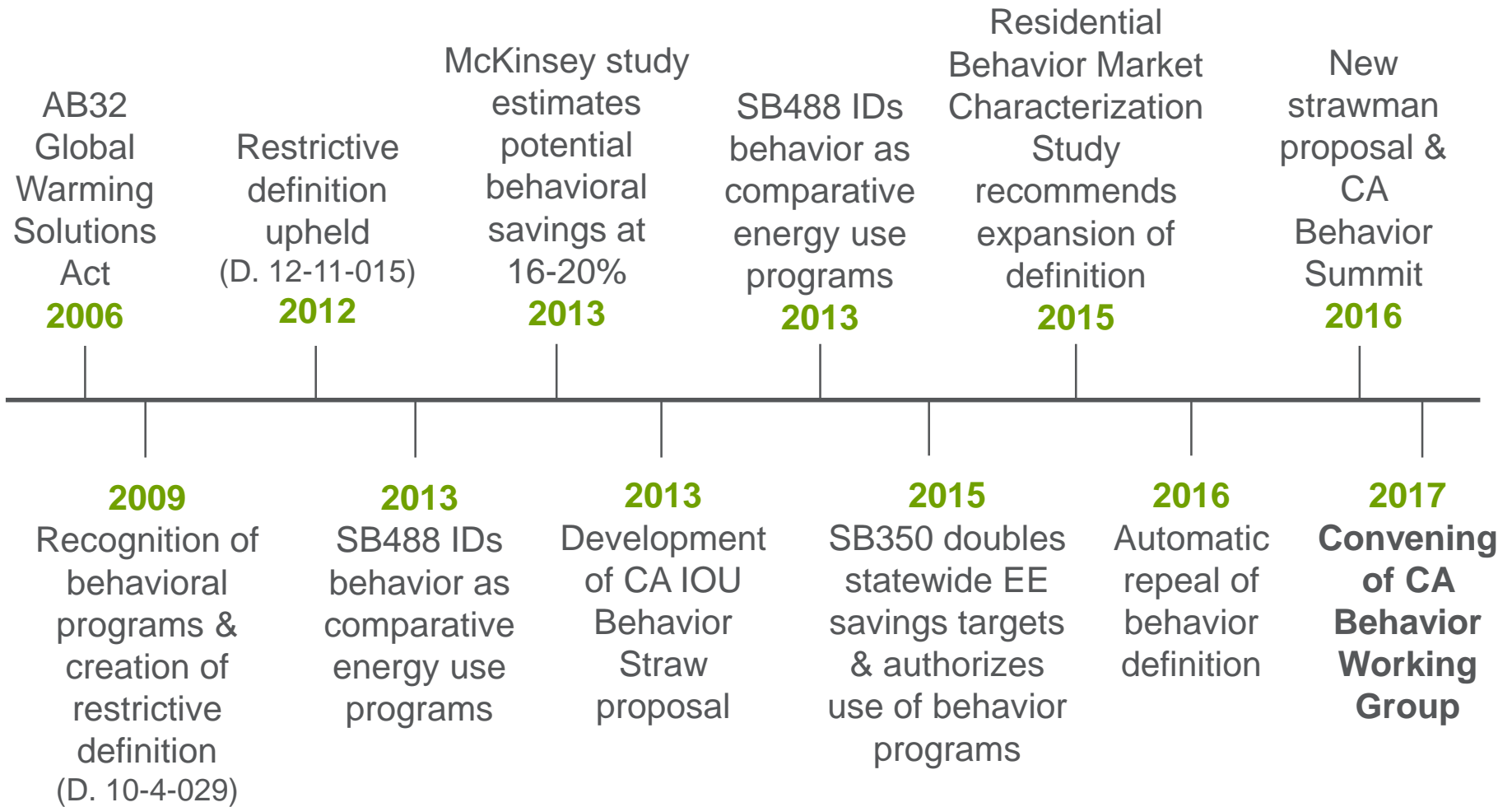
# HISTORY AND PURPOSE OF BEHAVIOR FRAMEWORK EFFORT

**Problem:** Past definitions of behavior-based energy programs in California limited the savings that could be achieved by restricting programs to those that employed:

- 1 Comparative Energy Usage
- 2 Randomized Control Trials
- 3 Ex Post Measurement

While this old definition has expired, it has resulted in a lack of clarity concerning what qualifies as a *behavioral program*.

# TIMELINE



# STAKEHOLDER FEEDBACK ON THE EXPIRED DEFINITION

- **It limits the types of programs that utilities, service providers, and program evaluators can develop, implement, or evaluate.**
- **The approach should be broadened to allow for a greater range of program strategies and evaluation techniques.**
- **The adoption of a new, broader framework for behavior program is likely to result in more behavioral program offerings in their company.**

*Source: Stakeholder interviews and surveys prior to the 2016 Behavior Summit.*

# WHY NEW GUIDANCE IS NEEDED

	Goal	Strategy/Tactics
1	Reduce utility uncertainty and increase confidence in utilities' ability to gain CPUC approval to pursue alternative types of programs (i.e. behavioral programs)	Specification of guiding principles that characterize the types of programs that are likely to be approved with particular clarity around the types of behaviors that do or do not qualify and the types of evaluation strategies and methods that will be accepted by evaluators.
2	Increase the development of innovative programs and associated benefits (including energy savings)	Create a broader and more flexible behavior framework that encourages the use of a wider range of potential social science strategies (including, but not limited to, social norms).
3	Reduce the EM&V barriers to innovation and evaluation by expanding the range of accepted evaluation strategies and methods to include more than just Randomized Control Trials.	Recognize a broader set of accepted industry strategies and methods for the design and evaluation of non-traditional programs that includes experimental and quasi-experimental approaches.
4	Limit the amount of effort expended pursuing approaches that are unlikely to prove fruitful or impactful.	Require the use of peer-reviewed social science insights or tested strategies from other fields as the basis for designing behavioral intervention strategies and allow for rapid test/learn approaches to provide fast, directionally correct feedback before implementing at scale.
5	Enhance utilities' confidence and ability to claim savings associated with non-traditional or "mixed" programs (if/when savings are found)	Create a set of guiding principles for program design and evaluation and determine the circumstances under which they should be applied
6	Enhance utilities confidence and use of standard or flexible approaches for attributing program-related savings.	Create a set of guiding principles for savings attribution.

# PURPOSE OF BEHAVIOR FRAMEWORK EFFORT

California IOUs and other stakeholders have been working to broaden the prior approach to:

- gain clarity
- reduce risk
- encourage innovation, and
- enhance behavioral program offerings

# PURPOSE OF THE BEHAVIOR WORKING GROUP

*To build on the 2016 Behavior Summit discussion and “California Behavioral Definition: Review and Recommendations” white paper to propose a new or updated set of guidelines for behavior-based energy programs in the state of California.*

- To provide recommendations not new legislation
- To find solutions that encourage rather than restrict innovation
- To provide some delineation around what is a behavior program and what isn't



# MEMBER OF THE CALIFORNIA BEHAVIOR WORKING GROUP

Caroline Chen (Rep. SDG&E)  
Kimberly Conley (PG&E)  
Michelle Cook (SoCalGas)  
Karen Ehrhardt-Martinez (Navigant)  
Hazlyn Fortune (CPUC)  
Peter Franzese (CPUC)  
Beth Karlin (SeeChange)  
Karen Kniel (PG&E)  
Jill McGhee (SDG&E)  
Chad Ihrig (SDG&E)  
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Ashley Sauer (SCE)  
Corrine Sierzant (SoCalGas)  
Brian A. Smith (PG&E)  
Larry Tabizon (SCE)  
Piotr Urbanski (SCE)

These individuals were selected to participate in the California Behavior Working Group and participated in one or more of the working group sessions or provided comments or feedback outside of the working group meetings.

# STRAWMAN PROPOSAL COMPONENTS

The proposed framework identified three core components of programs.

## Three Core Framework Components:

In order to qualify as behavioral, a program must ...

**Focus on  
behavior**



1) Be able to specify the type(s) of behavior(s) that it seeks to change -- (Behavior Targeting Component)

**Use social  
science  
levers**



2) Use one or more approaches to program intervention that are rooted in applied social science - (Social Science Strategy Component) and

**Be evaluable +  
attributable**



...without double  
counting!

3) Measure savings via a research design that uses accepted industry methods and allows for comparisons across programs to infer causality of programs and/or program components - (Evaluability Component)

# STRAWMAN PROPOSAL: COMPONENT 1

## Focus on behavior



In order to qualify as behavioral, a program must ...

- 1) Be able to specify the type(s) of behavior(s) that it seeks to change -- (Behavior Targeting Component)

# WORKING GROUP RECOMMENDATIONS: SPECIFICATION OF TARGET BEHAVIORS

**Do Specific Target Behaviors Need to be Identified/Specified?** Behavior programs should specify *at least* one target behavior but can specify more than one target behavior. (i.e. Opower/Oracle's Home Energy Report Program.)

- It may be *preferable* to specify a limited number of behaviors for tracking, measurement and reporting purposes.
- It may be preferable to focus on those behaviors that offer the most savings potential.
- But decisions concerning which behaviors to target and how many are up to the discretion of the IOUs.

# WORKING GROUP RECOMMENDATIONS: TECHNOLOGY ADOPTION AND LIFT

## **Can Behavior Targets include the Adoption of EE Technologies?**

Behavior programs can target an increase in technology adoption and participation in traditional utility programs (often technology rebate programs) if the purchase of the technology is among several different target behaviors and the other targets include a focus on the *use* of existing technologies.

- The savings from the programmatic lift provided by the behavior program may be attributed to the behavior program but would require that the added savings be measurable and take into account the validity and reliability of the attribution measures.
- The decision on attribution of savings should be left up to utility staff.

# WORKING GROUP RECOMMENDATIONS: TECHNOLOGY INSTALLATION AND “OTHER” TECHNOLOGIES

## Can Behavior Targets Include Installation Behaviors and Non-Deemed Technologies?

Target behaviors may focus on increasing the installation of no-cost and low-cost technologies when installation of those products is of particular salience to the success of an existing program and installation has been shown to be otherwise problematic (i.e. LEDs or low-flow shower heads).

Similarly, behavior programs may target (and claim savings for) customers' purchase or acquisition of no-cost and low-cost, energy-efficient technologies when those products are not part of an existing utility program.

- Behavior programs that seek to target and claim savings from these types of behaviors should also target “technology use” behaviors and should not be strictly focused on technology acquisition.

# WORKING GROUP RECOMMENDATIONS: FOCUS ON ENABLING TECHNOLOGIES

## Can Behavior Targets include Enabling Technologies?

**Rebated Enabling Technologies:** If the enabling technology is rebated, then the savings should not be counted as behavioral but there could be an add-on program that is focused on the **use** of those technologies with the goal of deepening or prolonging savings. Savings from those efforts would count as behavioral.

**Non-Rebated Enabling Technologies:** If the enabling technology is not rebated, then the savings should be counted as behavioral *if behavior plays a major role in achieving the savings (as with lighting) and the focus of the program is on how people use the technology.*

# WORKING GROUP RECOMMENDATIONS: FOCUS ON DEMAND RESPONSE BEHAVIORS

## Can Behavior Targets include Demand Response Behaviors?

**Behavior and Demand Response:** Demand response behaviors should be considered eligible within the behavior framework, however it may be difficult given the silos that exist between energy efficiency and demand response.

- In order to include DR-related savings, proposals may need to be able to distinguish DR-related savings from the associated EE savings for EM&V purposes.



# WORKING GROUP RECOMMENDATIONS: MAINTENANCE BEHAVIORS

## Can Behavior Targets include Technology Maintenance Behaviors?

**Maintenance Behaviors:** Equipment maintenance that results in energy savings is a valid target behavior as long as the program design involves more than a one-time marketing effort.

Programs can focus on encouraging the purchase of services or DIY maintenance efforts such as flushing hot water heaters as long as they are “programmatic” in nature.

# WORKING GROUP RECOMMENDATIONS: COMMUNITY-WIDE CHALLENGES AND COMPETITIONS

## Can Behavior Targets include Community-wide Challenges and Competitions?

**Challenges and Competitions:** Challenges and competitions like PG&E's "Step Up and Power Down" initiative are an acceptable approach assuming that the effort meets the other framework criteria, particularly the EM&V criteria.

- Such efforts should provide specific suggestions concerning what actions people should take in order to reduce their energy consumption.

# SUMMARY: TARGET BEHAVIORS

Programs should specify *at least* one but potentially more than one target behavior.

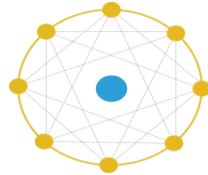
Technology Acquisition	Technology Use
Technologies that are part of other utility programs if the behavior program also focuses on technology <u>use</u> . Would need to estimate “lift” associated with behavior and determine attribution.	<u>Installation</u> of no/low-cost technologies when installation of those products is of particular salience to the success of an existing program and installation has been shown to be otherwise problematic
Adoption of no and low-cost measures that are not part of an existing utility program if the behavior program also focuses on technology use.	<u>Demand response</u> behaviors that result in energy savings. <u>Challenges and competitions</u> if impacts are evaluable.
<i>Enabling technologies that are not rebated if behavior plays a major role in achieving the savings (as with lighting) and the focus of the program is also on technology use.</i>	<u>Equipment maintenance</u> that results in energy savings is a valid target behavior as long as the program design involves more than a one-time marketing effort.
Should NOT include rebated enabling technologies.	Efforts focused on the <u>use of rebated enabling technologies</u> .

# THOUGHTS, QUESTIONS AND CONCERNS ABOUT BEHAVIORAL TARGETS???

PAUSE, CONSIDER, WRITE  
(PLACE POST-ITS ON FLIP CHART)

# STRAWMAN PROPOSAL: COMPONENT 2

## Use of Social Science Levers



In order to qualify as behavioral, a program must ...

- 2) Use one or more approaches to program intervention that are rooted in applied social science and empirical evidence concerning the effectiveness of the proposed approach. - (Social Science Strategy Component)

# WORKING GROUP RECOMMENDATIONS: USE OF SOCIAL SCIENCE THEORIES OF CHANGE

1. Proposals should include some form of literature review to document the theory and rationale for the study and ensure a basic level of rigor without being overly burdensome.
2. The literature review should strive to include a theory of change and empirical evidence when possible. Use of logic models is encouraged.
3. Theories of change may come from either social science or industry -specific expertise.
4. Empirical evidence may or may not be available for pilot efforts but should be available for program proposals.
5. Utilities are encouraged to consult with social science experts when developing program proposals or program designs that employ social science insights.

# WORKING GROUP RECOMMENDATIONS: USE OF SOCIAL SCIENCE THEORIES OF CHANGE

## Classification of Alternative Sources of Theory and Evidence

		<i>Theory of Change</i>	
		<b>Social Science</b> (ToC based in published, academic theory)	<b>Industry</b> (ToC based in non-academic, industry-specific expertise)
<i>Empirical Evidence</i>	<b>Energy Behavior</b>	Gold	Silver
	<b>Non-energy Behavior</b>	Silver	Bronze

- There is a tension between encouraging innovation and ensuring rigor in the development of proposals.
- The most rigorous proposals will include both a theory of change and evidence.
- The source of theory and evidence is associated with the proposal's level of rigor as shown above.
- The Framework should include a list of useful resources for those lacking familiarity with relevant theories of change.

# SUMMARY: SOCIAL SCIENCE, THEORIES, & EVIDENCE

- A discussion of theory and rationale should always be provided but they may not be rooted in social science.
- A rigorous and unbiased literature review is highly desirable for both pilots and programs
- The desired approach for pilot proposals =  
theory of change + logic model
- The desired approach for program proposals =  
theory of change + evidence + logic model
- Consultation with social science and/or industry experts during the proposal development and/or program design is recommended.



# BREAK AND DISCUSSION

THOUGHTS, QUESTIONS AND CONCERNS  
ABOUT THE USE OF SOCIAL SCIENCE, OTHER THEORIES  
OF CHANGE AND EMPIRICAL EVIDENCE ???

PAUSE, CONSIDER, WRITE  
(PLACE POST-ITS ON FLIP CHART)

# STRAWMAN PROPOSAL: COMPONENT 3

## Be Evaluable and Attributable



In order to qualify as behavioral, a program must ...

- 3) Measure savings via a research design that uses accepted industry methods and allows for comparisons across programs to infer causality of programs and/or program components - (Evaluability Component)

# WORKING GROUP RECOMMENDATIONS: EM&V COMPONENT OBJECTIVES

**Purpose of this Component of the Framework:** to communicate the parameters of evaluability, not to develop a “how-to guide” for program managers and implementers who are not knowledgeable.

- The focus should be on parameters for evaluability and perhaps some resources for determining what is evaluable.

The goal is to help ensure that the PUC, IOU staff, and vendors/implementers have a common set of expectations concerning the types of methods that are acceptable and to build confidence concerning when a proposal is likely to be considered *evaluable*.

It is largely about streamlining the program design and approval process, ensuring evaluability, and enhancing the confidence of vendors and IOU staff that investing in an innovative idea will result in a viable proposal.

*From WG Meeting #8*

# WORKING GROUP RECOMMENDATIONS: SPECIFYING EVALUABILITY

## Regarding the inclusion of evaluability as a component of the Behavior Framework

- Members agreed that the EM&V component should remain in the Framework.
- Members agreed that the Framework should include a statement that the proposed program/pilot needs to be *evaluable*.

*From WG Meeting #9*

# WORKING GROUP RECOMMENDATIONS: WHAT IS MEANT BY EVALUABILITY?

Regarding guidance on evaluability, members agreed that the EM&V component of the Behavior Framework:

- Should recommend that program/pilot proposals include a discussion of the program/pilot's evaluability – ideally written by an experienced evaluator.
- Could recommend the use of a particular process to help ensure evaluability.
- Could include some guidance on what are considered “industry accepted methods” for measurement and evaluation but must indicate that the list is not exhaustive and that evaluation expertise is very important for determining when specific methods are more or less likely to be appropriate.

*From WG Meeting #9*

# WORKING GROUP RECOMMENDATIONS: WHAT IS MEANT BY EVALUABILITY?

Regarding guidance on evaluability, members agreed that the EM&V component of the Behavior Framework:

- Should recommend that an experience evaluator contribute to the development of the program/pilot design and evaluation plan and suggest that the evaluator be familiar with the California context, policies and practices but not be restricted to people who have done evaluation work in CA. (This last point is focused on the desire to “push the boundaries” of evaluation and not limit evaluation approaches to historically accepted practices in California.)
- Should emphasize that ultimate decision authority concerning evaluability lies with the Commission.
- Might want to characterize the approval process as a multi-stage process that is initiated by the vendor followed by an IOU review and a review by the CPUC.

*From WG Meeting #9*

# WORKING GROUP RECOMMENDATIONS: ADDITIONAL RESOURCES

Regarding the identification of additional resources, members agreed that the EM&V component of the Behavior Framework:

- Could include a list of reference documents on design and evaluation methods (including a statement that these are not endorsed by the PUC and program designs are not limited to the approaches discussed in the referenced documents). These documents might include a copy of the Todd et al. report, E4818, and others TBD.
- Should not provide guidance on when to opt for experimental versus quasi-experimental designs.
- Should include a statement that RCTs, quasi-experimental designs and other methods are recognized as credible approaches. But should emphasize that the ultimate decision authority lies with the Commission

*From WG Meeting #9*

# SUMMARY: EM&V COMPONENT

- Behavioral programs must be evaluable.
- Proposals should include a detailed discussion of evaluability.
- An experience evaluator should contribute to the development of the program/pilot design and evaluation plan
- The range of acceptable methods includes the potential use of RCTs, quasi-experimental designs and other methods as credible approaches. However the ultimate decision authority for any given proposal lies with the Commission.
- Some reference documents and resources may be specified in the Framework.



# EM&V BREAK AND DISCUSSION

THOUGHTS, QUESTIONS AND CONCERNS  
ABOUT EM&V RECOMMENDATIONS???

PAUSE, CONSIDER, WRITE  
(PLACE POST-ITS ON FLIP CHART)

# DISCUSSION

THOUGHTS, QUESTIONS AND CONCERNS  
ABOUT THE FRAMEWORK'S CONTENT, ADEQUACY OF THE  
GUIDANCE, ETC. ???

(PLACE POST-ITS ON FLIP CHART)

## C. BEHAVIOR FRAMEWORK NEXT STEPS

1. CAEECC Meeting to review recommendations (Sept 28<sup>th</sup> 2017)
2. Preliminary Draft of Framework Report
3. Working Group review and revisions
4. Review / comment period (by CAEECC members),
5. Working Group review and revisions
6. Final Draft of Framework Report
7. Submit to Energy Division /Publish Report (Dec 2017)

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