

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting rulemaking to Examine the commission's Post-2008 Energy Efficiency Policies, Programs, Evaluation, Measurement, and Verification, and Related Issues	Rulemaking 09-11-014 (Filed November 20, 2009)
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**COMMENTS OF EFFICIENCY 2.0, LLC ON THE PROPOSED DECISION ON
EVALUATION, MEASUREMENT, AND VERIFICATION OF CALIFORNIA
UTILITY ENERGY EFFICIENCY PROGRAMS**

October 18, 2010

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In accordance with the Proposed Decision of Commissioner Grueneich on September 28, 2010 ("Proposed Decision") and the California Public Utility Commission's ("CPUC") Rules of Practice and Procedures, Efficiency 2.0, LLC ("E2.0") submits these Comments. Efficiency 2.0 supports the Proposed Decision, particularly with regards to Section 4.4.2: Explore, Test, and Assess the Scalability of Experimental Design, and suggests some additional considerations be reflected in the Final Decision or through Energy Division Implementation. Specifically, E2.0 recommends the Final Decision and/or Energy Division Implementation reflect the following considerations:

1. Acknowledge the need to account for opt-in programs in the development of Experimental Design protocols
2. Identify key protocol considerations for Experimental Design
3. Authorize and encourage the Investor-Owned Utilities ("IOUs) to pursue additional behavior-based programs that utilize Experimental Design prior to 2013
4. Approve program-specific Experimental Design protocols in the context of behavior-based programs

1. Acknowledge the need to account for opt-in programs in the development of Experimental Design protocols

E2.0 recommends that the Energy Division, as part of the EM&V workshop series, explore and develop protocols for application of Experimental Design in the context of opt-in programs, also commonly referred to as Quasi-Experimental Design. Quasi-Experimental Design uses the same protocols as random-assignment Experimental Design with the exception that program participants choose to join the program instead of being randomly selected into the program, necessitating extra care in the development of control group parameters.

Quasi-Experimental Design is necessary because most energy efficiency programs require opt-in participation, including California's Whole House Retrofit Program cited in the Draft Decision and other programs that involve direct, measure-level incentives. The Energy Division, through the EM&V workshop series and other efforts, should therefore develop appropriate protocols for programs that aim at deeper savings through customer opt-in participation.

2. Identify Key Protocol Considerations for Experimental Design

The Draft Decision identifies the challenges of utilizing Experimental Design. E2.0 recommends that the Final Decision direct the Energy Division explicitly to explore the standardization of the following statistical assumptions in order to mitigate significantly the costs and barriers of implementing Experimental Design:

- Mean Bias Error
- Coefficient of Variation of Mean Standard Error
- Propensity Score
- Coefficient of Determination
- Confidence Level
- Power

By acknowledging the need for standard statistical assumptions, the evaluation protocols developed by the Energy Division will reduce the cost of implementing Experimental

Design. With standard statistical assumptions, programs will not have to perform custom analysis or develop custom assumptions.

3. Authorize and encourage the Investor-Owned Utilities (“IOUs”) to pursue additional behavior-based programs that utilize Experimental Design

In order to obtain more practical knowledge of the potential and applicability of Experimental and Quasi-Experimental Design, E2.0 recommends that the Final Decision authorize and encourage IOUs to implement additional behavior-based pilots and programs prior to 2013. As the CPUC has acknowledged, behavior-based programs, particularly those that utilize Experimental Design, offer the potential for cost-effective energy savings at scale.

Moreover, additional behavior-based programs offer the potential for significant innovation at scale. As noted by a California Institute for Energy and Environment (“CIEE”) white paper, “the need for improvement in the effectiveness of energy efficiency programs through the development of more effective behavior interventions has to be recognized by the policy community¹”. According to the CIEE white paper, “our inability to impact important consumer behaviors stems not from a lack of interesting theories about how to alter consumer behavior, but from a lack of practical experience in applying these theories to changing consumer choice behavior related to energy efficiency.”

E2.0 supports this position wholeheartedly and encourages the CPUC to authorize and encourage additional behavior-based pilots. In order to properly estimate the potential for savings from behavior-based programs, additional experience is needed to assess various approaches. Since behavior-based programs do not necessarily rely on particular technologies, a wide variety of strategies can be employed to generate energy savings. Additional behavior-based programs would not only increase the knowledge of effective strategies, but would also test the efficacy and practicality of Experimental Design.

¹ http://www.calmac.org/publications/Experimental_Design_White_Paper.pdf

In particular, pilots that integrate multiple experimental tests should be encouraged. Program designs that utilize Experimental Design have the advantage of testing a variety of behavior change theories in a relatively low-cost manner. For example, E2.0 is currently testing the efficacy of various messages, incentives, communication channels and data presentation in the context of pilot behavior-based programs.

E2.0 also encourages the CPUC to acknowledge the unique advantages of behavior-based programs utilizing Experimental Design. Behavior-based pilots can lead to claimed energy savings through rigorous impact evaluations as well as significant research outcomes that go beyond traditional process evaluations. Given the twin benefits afforded by behavior-based programs, E2.0 suggests that the CPUC allow IOUs to recover a certain amount of costs related to executing behavior-based pilots in recognition of research benefits apart from any claimed energy savings. As the CIEE white paper notes, “a fundamental barrier to innovation in the development of energy efficiency programs offered by utilities is that there isn’t an institutional framework within which program improvements can be operationally tested and implemented.” E2.0 encourages the CPUC to begin development of that institutional framework in the context of encouraging behavior-based programs that utilize Experimental Design.

4. Approve program-specific Experimental Design protocols in the context of behavior-based programs

E2.0 recommends the Energy Division approve specific Experimental Design protocols on a per-program basis, providing near-term regulatory certainty for behavior-based programs. Per D.10 -04-029, all behavior-based programs utilizing Experimental Design can only be claimed on an ex-post basis. E2.0 recommends that savings be claimed by IOU program administrators for behavior-based programs based on per-program protocols approved by the Energy Division that conform to existing standards outlined in the California Evaluation Framework and California Evaluation Protocols . The results and protocols for any behavior-based programs can then be utilized by the Energy Division in the development of universal Experimental Design evaluation protocols.

Programs developed before 2013 can generate IOU claimed savings, although any protocols adopted post-2012 will be applied to these programs going forward.

It is also important that program-specific protocols be approved prior to program execution. Program administrators are traditionally able to calculate evaluation parameters for programs that utilize deemed savings methodologies. Any uncertainty on evaluation parameters for behavior-based programs prior to program execution would therefore unnecessarily disadvantage programs utilizing Experimental Design. As the Draft Decision clearly prioritizes the development of protocols for Experimental Design, IOUs that decide to run behavior-based programs should not have to bear substantial uncertainty prior to the development of universal protocols.

Conclusion

E2.0 strongly believes that these considerations will enhance the ability of the Energy Division to develop robust evaluation protocols for Experimental Design. As a company currently executing programs utilizing Experimental Design in California and other states across the country, it is clear that the lack of defined evaluation protocols is a significant challenge to regulators, utility program administrators and third-party providers alike. By enabling the Energy Division to approve Experimental Design protocols on a program-by-program basis, program administrators will have the ability to pilot new behavior-based approaches that inform future protocols and planning processes.

Dated: October 18, 2010

Respectfully submitted,

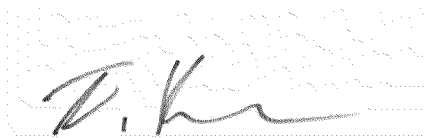
A handwritten signature in black ink, appearing to read 'A. Frank'.

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the **COMMENTS OF EFFICIENCY 2.0, LLC ON THE PROPOSED DECISION ON EVALUATION, MEASUREMENT, AND VERIFICATION OF CALIFORNIA UTILITY ENERGY EFFICIENCY PROGRAMS” in the matter of R. 09-11-014** to all known parties of record in this proceeding by delivering a copy via email or US mail.

Executed on October 18, 2010 at New York, NY.

A handwritten signature in black ink, appearing to read "T. Kramer", is written over a series of horizontal dotted lines. The signature is cursive and somewhat stylized.

Ted Kramer

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