Subcommittee Summary

Subcommittee	***Cross-Cutting Technical Issues Standing Subcommittee: Measure Complexity and Best Available Information***
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Final Deliverable(s)	The subcommittee will create a proposal to inform ex ante savings development, including • Definition and process for determining "best available information" • Methods for evaluating when methods and data analysis may lead to false precision • Criteria for determining when engineering equations or modeling software should be used • Criteria for determining the level of appropriate measure granularity • Acceptable error bands for estimates • Determine how to prevent systematic bias towards optimism or conservatism
Commencement Date	February 2015
Conclusion Date	July 2015

I. Subcommittee Objective

The objectives of the subcommittee will be to

- Create a definition of "best available information."
    - Develop examples and sources of "best available information."
    - Develop criteria for evaluating whether information can be considered "best available information" (e.g. date of information, who conducted/reviewed information gathering or produced information, statistical significance of the sample size if relevant).
    - Determine when it is reasonable from a cost/time perspective to collect additional information to meet the "best available data" standard.
    - Provide guidelines for assessing when out-of-state data can be used in California.
    - Develop criteria for when "best available data" is insufficient to minimize ex post risk.

- Identify methods for evaluating when methods and analysis may not increase accuracy and/or lead to false precision.
- Develop criteria for determining when engineering equations or modeling software should be used for developing ex ante estimates.
- Develop criteria for determining the level of appropriate measure granularity (number of building combinations, climate zones, etc.).
- Determine how and when to consider factors that may introduce further variability (human behavior, etc.).
- Establish an acceptable error band for ex ante savings estimates, considering the merits and limitations of relying on point values versus savings ranges.
- Determine how to prevent systematic bias towards optimism or conservatism.

The final deliverable will be a proposal document detailing the recommendations and supporting reasoning resulting from subcommittee discussion and consensus to meet the above objectives.

II. Description of Issues

- In recent years the trend in California's ex ante system has been to attempt to increase the precision of savings estimates by relying on a substantial number of measure combinations and the use of complex building energy modeling software. While the employment of multiple measure combinations and energy modeling, favored by the current DEER, can arguably be said to contain very precise savings estimates, in many cases there is little evidence to show how truly accurate the ex ante estimates are, and whether the use of many measure combinations supported by energy modeling contributes to increased accuracy over simpler approaches.
- The level of accuracy, precision, and complexity of measures is determined by the information used to support measure development. In lieu of an official definition of 'best available information,' both Commission Staff and the IOUs are left to interpret the meaning of 'best available' at their own discretion, leading to differing opinions and inconsistencies in many cases. The Cal TF needs a consistent definition of 'best available information' to properly determine if proposed energy efficiency savings estimates are developed in accordance with CPUC standards.
- While the Cal TF's transparent peer review of energy efficiency estimates strives to improve the balance of false precision and accuracy in savings estimates, some worry that systematic bias will influence the forum's decisions. This concern is valid for both optimism and conservatism bias by any reviewing entity in which recommendations are skewed to the high or low end of a range of possible ex ante estimates. Therefore, the subcommittee's recommendation must propose best practices for preventing such systematic biases.

III. Background information

"Measure complexity" in this context generally refers to a) how many different "measure combinations" should be developed for a measure to account for differences in how a measure is deployed, where it will be installed, and how it will be used, and b) the engineering approach used to generate savings estimates, either through building energy computer simulations or through simpler

engineering calculations, and c) the application of additional factors such as HVAC "interactive effects" to more accurately estimate energy savings.

Currently, the CPUC's Database for Energy Efficient Resources (DEER) sets a precedent for measure complexity for both IOU workpapers, as well as the POU Technical Reference Manual (TRM) that leverages DEER values and IOU workpapers for many of its ex ante estimates: DEER contains 16 CEC climate zones, 23 commercial building types, 5 residential building types, 7 building vintages, and multiple HVAC options. It is important to note that not all DEER measures utilize all of these parameters, and not all IOU and POU measures account for all of these parameters depending on the measure delivery strategy (i.e., upstream, downstream, etc.) and program-targeted sector. Managing multiple measure combinations developed from complex energy simulations introduces a very real risk for human error.

Measure development, including the number of combinations, must be supported by data and information. The directive to use "best available information" in developing ex ante savings estimates is a recurring mandate in CPUC decisions.[1] Commission Staff are tasked with using "best available Information" for DEER ex ante updates, and similarly the IOUs are expected to use "best available information" when developing non-DEER ex ante estimates. However, CPUC decision language does not specifically define "best available information." Thus it is not always clear what "best available information" means, and how to consider the accessibility, applicability, credibility, and cost of various potential data/information sources in determining whether the "best available data" standard has been met. This ambiguity may lead to suboptimal use of ratepayer dollars to fund superfluous research when existing data may provide a reasonable level of ex ante accuracy.

IV. Schedule

Date	Agenda	Next Steps
	• Overview of abstract • Agreement on Issues • Agreement on Objectives • Agreement on number of meeting to hold • Discussion	Subcommittee members to consider issues discussed, prepare comments for next meeting.
	• Settle on Cal TF definition of 'best available information' • Develop 'best available information' criteria • List examples of 'best available information' and sources	Cal TF staff to compile subcommittee conclusions into working proposal draft.
	• Create guidelines for use of out of state data • Determine instances where	Cal TF staff to draft final proposal.

[1] D. 12-05-015 at 320; Ordering Paragraph 26 of D. 09-09-047 at 356, D. 11-07-030

	further data collection should be allowed • Finalize proposal	

V. Attachments

Cal TF Cross-Cutting Position on Measure Complexity_ver 1
TF Cross-Cutting Position on Best Available Information_ver 4