Incremental Measure Costs in New Construction Programs

White Paper on Best Practices and Regulatory Issues
a project jointly funded by SCE, PG&E, SDG&E, SoCalGas and SMUD
January, 2009

CALMAC Study ID: PGE0273.01

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1. INCREMENTAL MEASURE COST (IMC) OVERVIEW

Incremental Measure Cost (IMC) is a key concept in the economics of energy efficiency. Simply put, it is the difference in the cost of a base case energy efficiency measure compared to the cost of a higher efficiency alternative. It represents the incremental cost that the customer must pay in order to gain the energy savings benefits from the higher efficiency measure. The IMC, then, is important in determining the cost effectiveness of the measure. For example, if the IMC is twice the annual energy cost savings, the measure has a two year simple payback. IMC plays a similar role in calculating the lifecycle cost savings, the net present value, the internal rate of return, the total resource cost, and other economic metrics developed for energy efficiency measures and programs.

IMC is also important in determining how much of an incentive or rebate to pay for the measure. Program theory generally posits that IMC is the primary barrier to preventing a given measure from being installed; incentives are paid to reduce this barrier by offsetting part of the IMC. The incentive is usually limited to an amount no greater than the IMC. If there are barriers other than IMC, however, incentives limited on the basis of IMC may not prove adequate to encourage measure installations.¹

Incremental Measure Cost (IMC) presents a problem in the new construction energy efficiency arena, because the CPUC’s cost effectiveness metrics are built around assumptions appropriate to simple retrofit measures, such as CFL change-outs. For new construction projects, the paradigm breaks down. First, the “measure” for a new construction project is often the whole building, rather than a collection of individual measures. In many such cases, the whole building IMC can be very small (or even negative), because of cooling equipment downsizing, fewer light fixtures, reduced installation labor costs, or other design changes that result in economies for the whole building. Second, it is impossible, in many cases, to document whole building IMCs, either because the base case building design was never developed or specified, or because the general contractor is unable or unwilling to break out his/her materials costs (which are embedded in a whole building bid package). Third, when there is a small or negative IMC, the CPUC cost effectiveness paradigm can produce puzzling results: payment of incentives becomes questionable, total resource cost (TRC) can come out better than the program administrator cost (PAC), and program funding may become hard to defend. This is a perverse outcome, given the many benefits of energy efficiency captured at the new construction phase.²

There are possible solutions to this dilemma. One could be to recognize that the cost effectiveness calculation results will be different for new construction projects than for many retrofit measures. Another could be to recognize “soft costs,” such as extra design effort or new product risk, as part of IMCs. A third solution might be to develop deemed

¹ Note: paying incentives greater than incremental measure cost does not necessarily mean the measure is not cost-effective, because the cost effectiveness of energy efficiency measures depends on the avoided cost, which is often far above the measure incremental cost.

² This may be an extreme outcome, but it is possible. There are other costs that are incurred that are not measure costs, but such costs as commissioning, design assistance, or siting that create incremental TRC costs. This will be discussed in detail in this White Paper.
ICMs for new construction projects, based on survey research, similar to the approach that has been used for years in utility program filings.

This White Paper lays out the details of these problems, discusses the precedents and CPUC decisions that apply, and proposes solutions. These recommendations are offered in the spirit of finding rational, realistic and fair solutions to the IMC problem for new construction programs, in ways that are compatible with the current CPUC’s policies and cost effectiveness practices.

1.1 Executive Summary

Incremental Measure Cost (IMC) presents a problem in the new construction energy efficiency arena, because the CPUC’s cost effectiveness metrics are built around assumptions appropriate to simple retrofit measures, such as CFL change-outs. For new construction projects, the paradigm breaks down. First, the “measure” for a new construction project is often the whole building, rather than a collection of individual measures. In many such cases, the whole building IMC can be very small (or even negative), because of cooling equipment downsizing, fewer light fixtures, reduced installation labor costs, or other design changes that result in economies for the whole building. Second, it is impossible, in many cases, to document whole building IMCs, either because the base case building design was never developed or specified, or because the general contractor is unable or unwilling to break out his/her materials costs (which are embedded in a whole building bid package). Third, when there is a small or negative IMC, the CPUC cost effectiveness paradigm can produce puzzling results: payment of incentives becomes questionable, total resource cost (TRC) can come out better than the program administrator cost (PAC), and program funding may become hard to defend. This is a perverse outcome, given the many benefits of energy efficiency captured at the new construction phase. There are possible solutions to this dilemma. These are discussed in this report, and recommendations are presented for better treating IMC in the context of new construction programs.

1.2 Acknowledgements

This White Paper was initiated and supported by the program managers of the Savings By Design nonresidential new construction program. The Joint Utilities included Pacific Gas & Electric, Southern California Edison, Southern California Gas, San Diego Gas & Electric, and the Sacramento Municipal Utility District. The Heschong Mahone Group, Inc., Douglas Mahone, Principal, was retained to prepare this report. Valuable suggestions, comments and contributions were made by the program sponsors. Additional input was provided by Shahana Samiulah, SCE, and by Ken Keating of the CPUC’s Master Evaluation Contractor Team. However, any errors or omissions are solely the fault of the author.