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HEA Comments on 6/7/18 Workshop

Additional submitted attachment is included below.

Comments from Home Energy Analytics on 6/7/18 Doubling of Energy Efficiency Workshop

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The doubling of energy efficiency will require creativity and innovation. It will also require wise investment of resources. As the IOUs indicated in their presentation at the 6/7/18 Doubling Energy Efficiency workshop, pay for performance based on utilizing NMEC analysis is the enabling technology for the State's ambitious energy efficiency goals. The NMEC verification system should be designed to provide timely information to maximize the cost effectiveness of energy reduction programs; however it is a new approach with unique challenges and opportunities. HEA sees the greatest need and opportunity in the following areas:

1. Charter an independent, statewide (potentially nationwide) organization to develop and maintain an NMEC verification tool to measure energy changes at the project level.
2. Create an open process for improving NMEC techniques at the project level utilizing interval data.
3. Define a standard process for submitting projects for savings verification in a timely manner.

Background

Home Energy Analytics (HEA) has been employing NMEC technology to measure energy savings for PG&E residential customers as part of several different energy reduction programs since 2009. We are now program managers of [HomeIntel](#), a pay-for-performance residential energy reduction program available to PG&E, SCE and SoCalGas customers. We have more real-world experience with hourly NMEC analysis than any other organization. The following comments apply strictly to our area of expertise: measuring and reducing residential energy use one home at a time.

Enable an efficient energy reduction market

The primary challenge is to deploy NMEC in such a way that the technology enables program administrators to achieve greater energy savings. An NMEC-based energy savings verification system shouldn't augment the ex post energy savings calculations paradigm, it should replace it. Rather than viewing NMEC as only a method to determine energy savings, we should view the NMEC-based system as a financial clearinghouse for releasing payments to energy reduction providers. A financial clearinghouse model implies that payments to providers can be fast and predictable, absolutely critical to support the innovation and creativity that's needed. Why? Innovation is encouraged because payments are based on success in reducing energy consumption, and they're paid quickly. Providers then have the information to change strategies quickly. Did approaching customers with high pool pump use lead to quick savings? If yes, keep it up. If no, stop. Providers don't continue delivering the same services if they don't make economic sense. Regulators can tell much more quickly if energy reduction programs are performing.

Need for a streamlined system

An NMEC-based verification system compares energy use between an established baseline and post intervention to determine the delta in energy use for individual projects. Providers submit projects to the NMEC clearinghouse, the verification system confirms the energy changes and the IOU releases the associated payment to the provider. The verification system should be uniform across all IOUs, ideally across the US, similar to uniform accounting standards. Management of the verification system shouldn't be performed by an organization with financial interests in the value of the energy reduction payments.

Building level accuracy is possible and essential

NMEC-based verification should be an accurate accounting of energy savings. Payments must reflect actual energy changes to drive providers to deliver the most cost-effective savings. Both

underpaying and overpaying will affect the viability of P4P: systemic underpaying reduces the incentives for companies to develop and deliver P4P programs because it may become financially untenable, while overpaying wastes ratepayer money. This is why it is imperative to set up a process that drives NMEC methods to become increasingly accurate.

Energy reduction calculations should be driven to be as accurate as possible for individual projects. There's been considerable discussion on whether accuracy is needed at the level of individual projects. There absolutely is a need. The current view of P4P energy reduction programs is based on the theory that NMEC verification needs to be accurate only for a portfolio of projects. This doesn't reflect the way energy reduction needs to work. Each project is unique and to achieve the most cost-effective savings requires providing the combination of services that work for that specific project, with a specific energy profile. Under the theory of portfolio level savings there will never be the information needed to fine-tune P4P programs because the savings for individual projects won't necessarily be accurate. The current reluctance to pursue greater accuracy could be due to the fact that techniques for achieving accuracy are not publicly available. Lack of a specific technical solution is not a good reason to shelve the effort. Public methods for analyzing residential smart meter data and validating the results have just scratched the surface of what is possible. An example of this would be the AMI Testbed project funded by the CEC in 2016.

Time to rethink ex post

Ex post analysis serves two purposes: to calculate savings and guarantee prudent use of ratepayer money. As discussed above, NMEC will be far more accurate and timely in measuring savings. And the business structure inherent in P4P greatly reduces the risk to ratepayers since payment happens only AFTER savings have occurred and are measured. The greatest risk of overpayment will be due to inaccurate measurement of those savings, so increasing the accuracy of the measurement of the savings on individual projects is where we should focus in order to protect ratepayers.

A second motivation for ex post is to guard against free ridership. We're not aware of any research on free ridership in the context of P4P but the lack of rebates will clearly diminish free ridership rates. As currently evaluated, the transactional friction caused by trying to estimate free ridership will constrain energy reduction programs because a provider won't look only at the costs and benefits of a specific project – where the decision to move forward should be made – they would also need to consider the overall realization rate of their portfolio. Aligning the economic incentives of all parties – ratepayers, clients and providers – will be far more cost effective in support of delivering energy reductions than attempting to correct for a non-material amount of bad behavior after the fact.