

Cal TF 2023 Technical Research Topics – Brainstorm

Updated based on survey responses collected through 11pm on 12/14/2022

Description:

Cal TF is collecting input to identify and prioritize key topics for future White Papers and Technical Position Papers for 2023 and beyond. This survey lists potential topics and asks for your input on the importance/relevance of each topic as well as ideas for other topics that are important to you and other stakeholders.

Complete the survey by selecting, for each proposed topic, the level of importance/relevance to the California EE industry with additional comments/suggestions. Please also provide other topics that you would like Cal TF to consider for 2023 or future years.

We will use this survey feedback to guide the December TF discussion and future PAC discussions and prioritization for TPPs and White Papers.

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TOPIC 1: Industry Standard Practice (ISP) Process for Custom Measures/Projects

The existing Industry Standard Practice (ISP) guidance requires project developers, on a project-by-project basis, to conduct vendor surveys to establish the ISP baseline. This requirement is time consuming, and the appropriate ISP is often different to assess based on survey responses. Also, the project-specific ISP results are not shared among implementers serving the same customer sectors, so there may be redundant efforts or conflicting outcomes. This paper will develop and propose an improved process for establishing and sharing ISP baseline information, including the potential of using the eTRM to host ISP results and CPUC determinations.

Additional stakeholder comments:

- This is the ultimate "Square Peg in a Round Hold" issue - Taking a measure or project that, by design, is tailored to a unique and specific application and customer's requirements, and requiring a population-level study of standard practices (with a range of responses that must be used to somehow arrive at a "typical" or "standard" result) to be used as a counterfactual scenario.
- If we're doing ISP studies, we should be including information to transition custom measures to deemed/hybrid calculation.
- The above description about the requirements of performing ISP research on a project by project basis are not accurate. Not sure what is the issue that is being addressed under this item.
- Establish a logical pathway that does not require so much upfront research to determine a standard practice.
- I have heard complaints from contractor / applicants that projects aren't handled similarly
- Yes, and suggest focusing on important CPUC energy division initiatives such as low GWP, electrification/ de-carbonization/ fuel substitution etc.
- This paper should also review a process for CalTF to recommend/adopt the findings of ISP studies - currently CPUC staff or consultants accept or reject study findings after soliciting input from stakeholders (in some cases)

TOPIC 2: Analysis Controller to Integrate Energy Plus Prototypes with the eTRM

The addition of an analysis controller for use in the eTRM could initially connect prototypes to deemed energy impacts. This connection offers transparency in model inputs with a streamlined link to modelled measure results. With the CPUC's transition away from creating DEER energy impacts starting in PY2025, this feature could fill that gap. This paper will develop and propose an improved process for creating these impacts and will explore additional uses for this feature that could include increased access to prototype models for custom, NMEC, or existing conditions deemed measures.

Proposed alternate description:

Directly Integrate EnergyPlus Prototypes with the eTRM

Build a connection that allows eTRM users to modify inputs to the DEER prototypes directly in the eTRM to generate savings estimates, either for deemed measures or custom measures. This connection offers transparency in a measure's parametric inputs with a streamlined link to model results. With the CPUC's transition away from creating DEER energy impacts after the current 2-year cycle and towards creating tools to create energy impacts, this feature could fill that gap. This White Paper will develop and propose a process for creating these impacts and will explore additional uses for this feature that could include: increased access to prototype models for custom and NMEC measures, shared/centralized maintenance of the prototype modeling infrastructure after CPUC transitions, and potentially use in existing conditions projects.

Additional stakeholder comments:

- This one could be better served by first ensuring that only those measures that really merit building modeling are included (legacy DEER measures that used a zillion building simulations to estimate savings from refrigerators comes to mind here). Depending on the implementation approach, it could also be a bandwidth hog for the eTRM.
- A gap when this transitions to the IOUs is in the ability for stakeholders to review the inputs and prototypes during the development process. Willdan submitted comments on this subject in the E-5221 comment period. This paper should look to identify a process to allow transparency in the development of the prototypes.
- Yes and consider this a high priority
- This seems more like a phase 2 activity once we decide what is "semi-deemed" which is to say that tackling semi-deemed before Custom will be more valuable because it creates a new measure savings pathway. Automating full custom amounts to just a repackaging of existing documentation requirements where there is little room for innovation.
- The cost to implement this "controller" should also be estimated in the paper

TOPIC 3: Load Shape Development and Use

DEER savings load shapes are being developed by the CPUC for DEER measures. This paper will explore if any supplemental data will be required (i.e., from non-DEER measures), if any supplemental tools will be useful (i.e., for visualization or comparison - some of which are already available), if any integration with the eTRM or other systems will be required, and how this data can be best utilized with other 8760 data sets (i.e., PNNL end use load shapes, cost avoidance data, CO2 tables, etc.). Identifying and prioritizing next steps will be the primary goals of the paper.

Additional stakeholder comments:

- This should consider a mechanism to validate the load shapes against actual data. With data analysis and disaggregation software available, it seems that we should have more load shapes available to appropriately select the best load shape for the measure. Perhaps this paper could explore a process to which we could improve the accuracy of the load shapes by instituting more granularity into this.
- NREL is also working on this. Specifically savings load profiles.
- Load shapes are critical in valuing energy savings, demand response, and renewables
- Yes, another high priority
- This is useful for Custom insofar as users can see the load shape assignments for similar deemed measures and use an existing load shape instead of creating an entirely new one.

TOPIC 4: Integrated Data Flow for Energy Efficiency

Data for deemed EE measures flow in a feedback loop to continuously refine the measures that are available for implementation. The loop generally follows the path of: Measure Package Development --> Implementation --> Claims/Reporting --> EM&V. In this way, EM&V results can be fed back into Measure Package Development to refine the process or even recommend new or focused paths. This paper proposes to review the flow of data through this process, including some of the important offshoots such as cost-effectiveness and program filings, to optimize efficiency and transparency when communicating this data.

Additional stakeholder comments:

- This could be hard with some of the database limitations I've previously seen at IOUs, but very important!
- Some other jurisdictions have EM&V being involved in the ex-ante process. This informs at the right stage in the process to impact the NTGR in real time which helps to improve claims before they actually become claims. There still needs to be a divider between ex ante and ex post. I've seen success with this in TVA, Pepco, and Ameren Missouri (pretty sure).
- This process seems to always be behind for promising new measures as current ones age
- This is a good idea to have and suggest modifying the topic so its inclusive of measure lifecycle and not just limited to EM&V and includes ISP studies, dispositions, and CPUC guidance, and end-of life sunset.
- This white is only very important IF it will also include a review of how EE policies, such as POE, data collection requirements, error corrections, aligning Ex Post expectations with Ex Ante directions, etc are impact this feedback loop.

TOPIC 5: Greenhouse Gas (GHG) Calculation Approach and Data Sources with Recommendations for eTRM

This paper builds from the work started in 2020 and seeks to finalize the approach for calculating GHG reductions, including the appropriate data sources, so measure-level GHG reductions can be incorporated into the eTRM. The approach proposed by Cal TF can be used as new data (load shapes and emissions rates) become available to further refine calculations of CO2 reductions for both IOUs and POUs.

Additional stakeholder comments:

- Approach should address cost and benefits of all means to reduce demand side carbon emissions, including demand side sequestration/carbon capture
- I may be mistaken but I think there's a lot of this already happening. I think we would need to be sure this is not duplicative to current work being done or described how the current work may be flawed.
- As climate change becomes more important, this is critical
- This effort may need to consider review of existing multiple sources to determine what is the gold standard from international, federal, and state agencies (CARB, CEC, CPUC, etc). I recall that E3 was leading this effort (<https://www.ethree.com/tools/pathways-model/>)
- This is needed for Custom ASAP so that our Energy Insight system can adopt the GHG calc approach.
- Are adequate societal costs included? Shall CalTF compare best available science GHG data so CPUC & CEC may understand if their regulations adequately support California's evolving ambitious GHG reduction goals.

TOPIC 6: Measure lifecycle integration into eTRM (Potential and Goals, ETP, EM&V, and C&S)

This paper will explore how the different stages of an EE measure can be best integrated into the eTRM. Various components of the measure from (1) the visualization of Market Potential to (2) the introduction of an Emerging Measure to (3) the Evaluation of the most impactful measures to (4) the sunseting of measures into Codes and Standards will be discussed to understand how and if these elements can be incorporated into the eTRM.

Additional stakeholder comments:

- I'm not clear how this provides value to the eTRM stakeholders.
- I would personally be interested in supporting the development of this one.
- Keeping track of savings throughout multiple cycles (both codes & EULs) may be important to quantify cumulative effects more accurately over longer timeframes.
- Everything, at all stages of deployment, doesn't have to be in the ETRM
- Both Topic 4 and Topic 6 are related and see topic 4 as a sub-set (parent to child) relationship.
- Sounds like this could be a good overview of the EE ecosystem.

TOPIC 7: Dual fuel gas and electric measures

In July 2022, a CPUC proposal to phase out EE natural gas incentives framed the benefits and timeline for a transition to occur over the next ten years. This paper will explore changes to the eTRM that could include identification of measures as a gas and/or electric measure, characterization of exempt gas measures, identification of viable electric alternatives, and relative cost comparison to an electric alternative. This paper also would examine emerging gas and dual fuel savings measures to document prospective measures that may fit into the proposed transition.

Additional stakeholder comments:

- The impacts of this transition in terms of customer impacts and societal and business costs relative to Cap-and-Trade program might be considered as part of this as well. In essence, what is the most cost-effective approach that yields the most carbon reduction for the lowest cost should be the effort that is pursued.
- This is a topic that is somewhat controversial and complicated. While I have labeled this as somewhat important, there's a lot of issues to consider that a WP likely would not be able to tackle. There is no definition of what a "viable electric alternative" is. Equity is an issue as the "viability" of this alternative may be different depending on the economic class. I think it is too soon to develop this.
- The policies are really pushing towards full electrification. This may be a moot subject and will have a very short shelf life. I would recommend focusing on those harder to fully electrify equipment (outside of residential applications) for this kind of effort
- I think we're moving too fast with the phase out of gas
- This will be more important once the CPUC decides they want to get serious about fuel substitution and promote achievable fuel subgoals other than "zonal" electrification. I think the current thinking suffers from an "all or nothing" bias. Allowing dual-fuel heating systems allows for a lower-priced point of entry for customer to begin their electrification without having to change-out the electric panel and/or increase the size of the service entry conductors.

OTHER TOPICS. Provide brief descriptions of topics Cal TF to consider for 2023.

Topic 8: Hybrid Measure (Semi-Deemed/Semi-Custom) Development.

CalTF has previously discussed the need for better guidance and process for developing hybrid measures. As work has continued on improving deemed and custom track, there is a need to define a hybrid pathway that builds on both of these to provide a regulatory framework.

Topic 9: Custom Review Process