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NRDC Comments - CA Building Energy Performance Strategy Report

Additional submitted attachment is included below.

June 26, 2024

California Energy Commission
715 P Street
Sacramento, California 95814

IN THE MATTER OF: California Building Energy Performance Strategy Report	**DOCKET NO. 24-BPS-01** **REQUEST FOR INFORMATION (RFI)** RE: California Building Energy Performance Strategy Report

Introduction

The Natural Resources Defense Council (NRDC) is a non-profit membership organization with more than 125,000 California members who have an interest in receiving reliable and affordable energy services while reducing their environmental impact and combatting climate change.

NRDC appreciates CEC's Implementation Plan for SB 48 and aims to help the agency with the development of the strategy and recommendations required by the bill. Managing energy use and reducing emissions of greenhouse gases from buildings is crucial to achieving California's decarbonization goals and a priority for NRDC.

Below you can find responses to some of the questions of the RFI. We look forward to further engaging and collaborating with the CEC in this docket.

Answers to some of the RFI questions

Stakeholder Contact Information and Areas of Interest

1. **Contact information**

1.1. Names and email addresses: Julia de Lamare, jdelamare@nrdc.org; Mohit Chhabra, mchhabra@nrdc.org; Olivia Walker, owalker@nrdc.org.

1.2. Areas of interest: Building benchmarking and performance, load flexibility, cost-effectiveness, and housing affordability and tenant protection considerations.

Building Benchmarking and Performance

2. Building performance metrics

The ideal building performance metric is hourly energy consumption. This is so because the marginal impacts on the grid, i.e., the impact of slightly more or less energy consumption, vary with time. At certain times and conditions, additional energy consumption could mean additional costs borne in the form of GHG emissions and pollution, or transmission constraints, or capacity constraints, or a mix of all. Generally, these different constraints occur either during gross peak times or net peak times. So, at a minimum, the CEC must gather data at a specific temporal granularity to be able to identify the impact of building load on the grid during gross and net-peak times. Hourly data can be aggregated to this level, however, if data at less temporal detail are collected then they can't be accurately disaggregated to these levels.

The ideal temporal granularity is thus hourly data. For ease of analysis, these data can be aggregated into time of use period definitions applied by each local utility. This would capture seasonal and peak, super-peak, and off-peak time periods.

Locationally, the data should be at the IOU and Climate Zone level. Hyper local effects, mainly distribution system constraints, may lie beyond this level of detail, but little is known about that, and disaggregating at a more detailed level presents significant data management challenges with an unknown added benefit of going to this level of detail. Tracking at an IOU x Climate Zone level would capture most of what impacts building energy use and allow said building energy use to be expressed via meaningful performance metrics.

The most meaningful performance metric is developing total system cost of additional building energy use. The total system cost is the product of energy consumption and the avoided costs on the system. These avoided costs, such as those developed by the CPUC, should account for a cost of clean energy/ GHG policy compliance as implied by SB 100. This will then also be aligned with the total systems benefit (TSB) metric being employed by the CPUC to track energy efficiency, some demand response, and some load flexibility measures.[1] Organizing the analysis in this manner has multiple benefits.

[1] Mohit Chhabra, One metric to rule them all: A common metric to comprehensively value all distributed energy resources, The Electricity Journal, Volume 35, Issue 8, 2022, 107192, ISSN 1040-6190, https://doi.org/10.1016/j.tej.2022.107192.

First, it provides one metric that aggregates all impacts of building energy use while accounting for temporal and locational detail. This will allow the CEC to prioritize buildings that aren't just higher energy users, but buildings that impose the most costs on the electric grid and make it harder to comply with CA's clean energy policy. Second, the impact of all demand-side actions can be represented via this metric. Third, individual components of marginal costs can be disaggregated to the extent the CEC or stakeholders want to target a specific stream of cost (such as capacity constraints, or additional emissions) due to usage. Fourth, being consistent with CPUC methodology of estimating DER impact allows for further collaboration. This can be accomplished for both electricity and gas to be able to identify electrification opportunities and determine the net value add from electrification.

3. Building specific conditions and circumstances

At a minimum, the following specific conditions should be captured:

- Building vintage: this allows building construction specs to be tied to a specific building code vintage and provides the CEC with an idea of what retrofit opportunities might exist. Moreover, outliers within each vintage can be identified and focused on if needed.
- Building end-use: energy consumption of buildings is dictated by their primary use. To identify outliers that could reduce energy consumption, it is important to account for what the building's end-use is. A mixed-use, retail building and a residential, large building will have very different usage profiles.
- Transportation electrification flag: presence of in-use EV chargers, if not flagged, could falsely imply that some buildings are inefficiently high electricity users. This information should be captured.
- Building dimensions: this will include building size and number of floors.
- Residential occupancy type: The data should capture whether a building is primarily low-income (deed-restricted housing or percentage of customers that qualify for CARE/ FERA), or what percentage of homes within a building are owner-occupied versus tenant-occupied. The types of efficiency-enhancing interventions necessary will vary by these dimensions.

4. Prioritizing building upgrades and incentives

Once all the building-specific conditions have been determined, then the CEC should create groups, or clusters, of building energy use organized by locational detail and building-specific conditions. E.g., clusters could look like: IOU + Climate Zone + Building End Use + Vintage. The lowest performing buildings, expressed as buildings with the highest total system cost per square foot, should then be identified and prioritized. We recommend using total system cost and not just energy use to identify buildings as that helps differentiate buildings that use energy at times of grid constraint and high marginal emissions. Gas and electric total system costs should be tracked separately; they can be aggregated to determine the total cost imposed by a building across fuel types.

<u>Load Flexibility and Resiliency</u>

8. Incorporating local flexibility benefits

By capturing time-varying energy impact of buildings, and expressing them in terms of total system costs, the CEC will have what it needs to identify high-value load flexibility. See the response to Q2. and the linked paper for further details.

<u>Cost-Effectiveness</u>

9. Incorporating measure cost-effectiveness

Two perspectives of cost-effectiveness are important. First, how cost-effective is a specific intervention from the perspective of the state; second, how cost-effective is an intervention from the perspective of an end-user. The CEC should focus on the first to identify opportunities for upgrades and provide necessary information regarding the second to the end-user so that they can determine whether they should make an upgrade or not.

From the state's perspective, an intervention is cost-effective if the total resource spent on making an intervention is less than the benefits that accrue from it. Costs of the intervention are the sum of all program administrative costs and any project-specific outreach costs and incentives provided to the end-user. The benefits are the total system costs reduced. The total system costs would include a cost of compliance with CA clean energy policy. This includes the cost of clean resource procurement to displace polluting power plant usage. Displacement of polluting power plant usage leads to reduced GHG, and air pollution. The CEC could add additional externality values to this if they deem it necessary.

An investment is cost-effective from an end-user side if the total benefits the end-user receives are greater than the total cost of installing or implementing the demand side measure. The benefits an end-user receives are a decrease in the energy utility bill (electric or gas rates time usage) and any non-energy benefits, the valuation of which is unique to each end-user. The costs are the costs (labor plus material less any federal and/or state subsidies) to implement a measure. To this end, if the CEC can provide a customer with an estimate of savings from implementing a demand-side measure, a list of non-energy benefits that may accrue to the customer, and an estimate of the costs of implementing the measure from the customer's perspective, the end-user has all the information they need to determine whether implementing that measure is cost-effective from their own perspective.

11. Housing affordability and tenant protection considerations

NRDC supports and signed on to SAJE's comment letter about housing affordability and tenant protection.

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NRDC appreciates the CEC's commitment to a cost-effective, reliable, affordable, and equitable transition to all-electric buildings. Thank you for the opportunity to comment on this RFI.

/s/

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/s/

Mohit Chhabra, Senior Analyst, Regulatory and Economic Policy

/s/

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