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Docket Number:	24-OIR-03
Project Title:	Energy Data Collection - Phase 3
TN #:	264545
Document Title:	Request for Information (RFI) Energy Data Collection Phase 3 – Space Conditioning And Water Heating Equipment Data Tracking
Description:	This document is a formal Request for Information (RFI) relating to development of data collection regulations that would apply to distributors, wholesalers, retailers, and other sellers of space heating, space conditioning and water heating equipment.
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Submission Date:	7/2/2025 7:57:00 AM
Docketed Date:	7/2/2025

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CEC-057 (Revised 1/21)

Request for Information (RFI)
Energy Data Collection Phase 3 – Space Conditioning And Water Heating Equipment Data Tracking

Docket # 24-OIR-03

Responses Due Monday, August 18, 2025

Purpose of Request

The California Energy Commission (CEC) is considering development of data collection regulations to ensure that it has access to sufficient information for its analytical, policy and program mandates. The CEC is requesting that stakeholders and interested members of the public provide written information and feedback on potential data reporting requirements for space heating, space conditioning, and water heating equipment (including heat pumps) sales and deliveries in California as described further below.

The goal in enacting these regulations is to develop an accurate determination of the numbers and types of building-installed space heating, space conditioning, and water heating devices that are sold, installed and delivered within California. Staff has estimated and simulated data in past policy analyses, but this type of analysis carries an inherent risk of being inaccurate or unintentionally misleading if any assumptions or estimates prove to be incorrect. The CEC therefore has a need for real and specific data so that energy forecasts as well as policy and program recommendations by the CEC continue to meet the high bar needed for effective state governance.

Background

The CEC is mandated by statute to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices." (Pub. Resources Code section 25301(a).) To meet this mandate, the CEC develops and adopts a detailed energy demand forecast that is used by other energy agencies to identify resource additions needed to ensure reliability and meet California's air pollution mitigation goals. (Pub. Resources Code section 25302(f).)

The energy demand forecast is developed and published as part of the Integrated Energy Policy Report (IEPR) (Pub. Resources Code section 25302) and is used "for

analyzing the success of and developing policy recommendations for public interest energy strategies." (Pub. Resources Code section 25305.) The work includes an electricity demand forecast, a natural gas demand forecast, a transportation energy demand forecast, and various additional energy market assessments and tracking assessments which evaluate energy supply constraints, system performance, and progress towards policy goals. (Pub. Resources Code sections 25301(a); section 25303(a)(2), (a)(5), & (a)(7); section 25304(a), (c), (d), (f), & (g).)

Taken together, this forecast forms the analytical core of the IEPR and serves two fundamental purposes:

1) To identify actions needed to ensure the reliable operation of the state's electricity, natural gas, and transportation energy supply systems; and

2) To develop recommendations and assess progress towards meeting state energy goals.

Distributed energy resources are an increasingly important component of the forecast. Energy efficient technologies such as heat pumps are a growing component of the electricity forecast; and fuel substitution from gas to electric heating impacts both the electric and gas demand forecasts. Understanding trends in technology adoption is imperative both to ensure the utility of these forecasts and to calibrate market interventions – programs and policies – in support of California's energy and climate goas.

California's energy policy focuses on reducing the carbon intensity of energy sources used within the state to achieve the goal laid out by Executive Order S-3-05 in lowering California's gas emissions to 80 percent below 1990 levels by 2050, and across the economy by Executive Order B-55-18. Achieving these goals require changes in both the sources and patterns of energy usage at every level of California's economy. Current data submission requirements do not capture the technologies that drive energy use and emissions, and thus cannot support meaningful characterization of these key demand-side forecast components. Continuing California's progress in decarbonizing and improving its efficient use of energy in residential, commercial, industry, and transportation sectors require data to inform policy and program decisions that "ensure that a reliable supply of energy is provided consistent with protection of public health and safety, promotion of the general welfare, maintenance of a sound economy, conservation of resources, and preservation of environmental quality." (Pub. Resources Code section 25300(b).)

The California Legislature enacted three bills directly related to the installation of heating and air-conditioning equipment:

- Assembly Bill (AB) 2021 (Levine, Chapter 734, Statutes of 2006) directed the CEC to develop a plan to improve the energy efficiency and decrease the peak electricity demand of air conditioners. In collaboration with the California Public

Utilities Commission, the CEC formed a 45-member working group of heating, ventilation, and air-conditioning (HVAC) professionals to prepare the plan. The working group concluded: "Failure to ensure quality installations or maintenance of cooling systems result in a 20 to 30 percent increase in the peak electricity needed by such systems to provide customers with the cooling and comfort they demand on hot summer afternoons." "The lack of quality control is exacerbated by the failure of many contractors to pull building permits and verify minimum quality installation when replacing air-conditioning systems."

- Senate Bill (SB) 350 (De León, Statutes of 2015, Chapter 547) directs the CEC to "adopt, implement, and enforce a responsible contractor policy … to ensure that retrofits meet high-quality performance standards and reduce energy savings lost or foregone due to poor-quality workmanship."
- Senate Bill (SB) 1414 (Wolk, Statutes of 2016, Chapter 678) directs the CEC to "promote compliance with Part 6 of Title 24 of the California Code of Regulations in the installation of central air-conditioning and heat pumps" and "adopt regulations to increase compliance with permitting and inspection requirements for central air conditioning and heat pumps, and associated sales and installations." (Public Resources Code 25401.12)

In response to SB 1414, the CEC presented the following recommendations relating to space heating, space conditioning and water heating equipment:[1]

- Require distributors to sell heating and air-conditioning equipment only to licensed contractors, and to report to the CEC the number of equipment units sold to each purchaser.
- Work with manufacturers and distributors to ensure that warranty registrations include the permit number for the equipment installation, and that warranty claims require permits to have been pulled for the installation.

Additionally, in a letter to the California Air Resources Board in July of 2022, Governor Newsom reiterated these goals by stating "Buildings are a large source of carbon pollution, and decarbonization of California's buildings must be accelerated to achieve our climate targets. This will also help us reduce harmful air pollution both inside and outside of people's homes. Transforming the market for climate solutions in buildings will lower costs for consumers in California and across the nation while spurring increased domestic manufacturing and installation jobs. That is why I am establishing a goal of 3 million climate-ready and climate-friendly homes by 2030 and 7 million homes by 2035, which shall be supplemented through the deployment of 6 million heat pumps

[1] Kenney, Michael, Jacob Wahlgren, Kristina Duloglo, Tiffany Mateo, Danuta Drozdowicz, and Stephanie Bailey. 2022. Final 2021 Integrated Energy Policy Report, Volume I: Building Decarbonization. California Energy Commission. Publication Number: CEC-100-2021-001-V1.

statewide by 2030. At least fifty percent of the funding to achieve these goals shall be directed toward disadvantaged communities."[2]

Request for Responses

The CEC is requesting that stakeholders and interested members of the public provide written information and feedback on potential data reporting requirements for space heating, space conditioning, water heating, and heat pump equipment delivered to California homes and businesses, including middle-step businesses such as distributors, wholesalers and retailers. Amendments to regulation would potentially occur in California Code of Regulations, Title 20, Chapter 3, *Data Collection*. The CEC is interested in information and feedback relating to the logistics of data reporting as well as the content of reported data.

Data Reporting Logistics

California's goal in enacting these regulations is to develop an accurate determination of the number and types of space heaters, space conditioners, and water heaters (including heat pumps) sold, distributed and installed within California over time. This would involve monitoring the supply of equipment into California, and sales of space conditioners and water heaters within California. Given that no one participant in the supply chain is likely to have complete information along all steps of that supply chain, reporting the number of units passing through multiple steps are likely required.

The CEC has identified the following questions it would like answered to fulfill this goal:

1. Which steps of the supply chain are most/least appropriate for reporting of accurate equipment data, and why?
2. Should data be reported from more than one step of the supply chain? Why or why not?
3. How often should data be reported? Should reported data be more granular than the frequency of reporting (e.g., a quarterly report that includes monthly sales figures)?
4. What types of information are infeasible to report on?
5. How geographically accurate will the reported location of delivery be to its final installed location? Is there a category of geographic information, such as zip code or county, that would best or most accurately inform forecasting, policy and program efforts?
6. What cost impacts are incurred by reporting sales and distribution information consistent with a potential reporting requirement? What are the different electronic reporting capabilities of stakeholders at different points of the supply chain?

[2] Governors Letter to California Air Resources Board, July 22, 2022. https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf

7. Should businesses below a certain size threshold be excluded from data reporting requirements? If so, what should the size threshold be and why is it appropriate?
8. Who else collects this data? In particular, are there other governmental entities (i.e., federal, state or local agencies) that require reporting of sales and distribution data?

The CEC understands the supply chain for space heating, space conditioning, and water heating equipment to broadly consist of manufacturers, distributors, wholesalers, and retailers. A manufacturer will, in most cases, be the origin point for equipment entering the supply chain. From the manufacturer, equipment most commonly moves to one or more distributors, distributors will distribute products to bulk purchasers such as wholesalers, who in turn supply products to retailers and other direct sellers, and these final sellers deliver equipment for installation at its end-use destination (often at the direction of a contractor). Often HVAC units are sold by distributors to contractors, who sell to and install units for building owners. However, the CEC also understands that not every piece of equipment passes through each of those steps on its way to installation. For example, a large homebuilder may secure inventory directly from a distributor and transport it to their own warehouses, while a small independent contractor may arrange a purchase through a big-box retail store for delivery to a client's address.

Thus, in considering who should be required to report data, staff's initial recommendation is for distributors, wholesalers, and retailers to report the number of units delivered to other parties. Each of these entities may be the final step before delivery to a job site for installation; therefore data from all these sources is necessary to compile a complete picture of energy demand for these end uses within California. Staff understands that direct shipment from manufacturers to job sites is extremely rare, however staff would be interested in knowing more about the situations in which this occurs. At the other end, staff understands that an installing contractor can have a role more like a concierge than a retailer, acting to secure a purchase and arrange delivery for installation without necessarily taking direct possession of the equipment or holding any standing inventory. It may make more sense for sellers to simply report when the sale was to a contractor under the assumption that contractors rarely hold inventory for extended periods and are highly likely to install the unit soon after purchase, meaning that it can be treated as installed for all intents and purposes. The CEC is therefore interested in understanding which participants would be appropriate sources of unit shipment or delivery information and whether more or fewer steps in the supply chain should be required to report data.

Regarding the frequency of data reporting, staff's initial recommendation is a quarterly cadence for data reporting to match other CEC data collection programs, with monthly figures contained in those reports. The CEC is interested in hearing from participants how often similar information is compiled and reported internally or for other purposes and whether a different cadence would provide benefit to entities responsible for

submitting data or state or local government agencies seeking to leverage submitted data.

The CEC has considered estimating installation information and creating simulated data to perform policy analysis. In many cases, this estimated and simulated data has been used in past reports and analysis to complete CEC tasks. Yet, over the years this type of information has been criticized as inaccurate and misleading, which undermines related policy recommendations. While the CEC continues to improve its data analysis techniques, it has concluded that best practice is to obtain point specific information where possible.

The CEC has also considered using other California agency data to complete this objective but has found each considered data source lacking key items making its use infeasible for forecasting and unit determination needs. Additionally, creating a state-level data source for use by other state and local agencies can improve consistency and eliminate redundancy.

Data Reporting Content

The CEC has identified the following options for the level of detail in reported data, arranged from least to most detailed information:

Equipment Resolution	Spatial Resolution	Temporal Resolution	Include Refrigerant?
Total	State	Annual	No
Capacity	Region	Quarterly	Yes
Model Family	County	Monthly	
Model Number	Zip Code	Weekly	
Serial Number	Address	Daily	

The CEC recognizes the privacy and competitive market implications present in collecting equipment sales or delivery data at any level of detail, and will adhere to all laws and policies regarding the collection, handling, use, and disclosure of sensitive or confidential data found to be applicable to adopted data reporting requirements. The CEC understands that there are pros and cons to seeking a simpler or greater level of detail in each of these areas apart from data security, such as ease of reporting or programmatic utility.

The CEC would therefore like to know the answers to the following questions:

9. How detailed should reported information be about the type or model of equipment? Should equipment counts be grouped or aggregated by model family, size or capacity, or by some other factor? Why or why not?

10. How detailed should reported information be about the destination and purchaser / receiver of any equipment? Should sales to contractors record their contractor license number?
11. How detailed should reported information be about when equipment was delivered?
12. Should refrigerants used by reported units be specified? Why or why not?

Staff determined that reporting units by model number would be desirable for enabling matching of equipment to energy use ratings stored in the CEC's certification database, allowing for highly precise estimation of electricity demand growth. Aggregating units by size or capacity would also allow for estimation of total energy use, though the CEC would need to rely on assumptions of "average" or "typical" performance and therefore be less precise than use of specific model data.

Conversely, aggregating units by model family or other arbitrary factor unrelated to energy use would diminish the utility of reported data, as would reporting only a nonspecific grand total of units of a given equipment type. Reporting the serial numbers of each specific piece of equipment may provide some utility for enforcement of certain laws but is not useful for electricity demand forecasting. Staff is therefore interested in information and feedback pertaining to these alternatives, including the level of detail of inventory data and the ease of providing model number data or aggregated data.

Staff determined that geographic location of installed equipment matters for understanding where electricity demand growth is occurring within California's energy grid. Staff's initial recommendation was for data reporting to be broken down by delivery zip code, supplemented by contractor license number for deliveries to contractors, as it provides the greatest granularity that avoids reporting personally identifying information (PII). Staff recognizes that some of the utility would remain if data reporting was broken down by delivery city or county in place of zip code, as it would still assist in identifying the transmission infrastructure and corridors that would be used to meet demand. Broader geographic regions, for example utility service territories, are technically feasible though have significantly diminished utility. Staff is therefore interested in information and feedback relating to geographic destination data.

Staff understands that space heating, space conditioning, and water heating equipment sales are highly seasonal and therefore that knowing the number of units delivered each month can help in modeling seasonal demand forecasts. Staff is uncertain whether reporting at a more granular level of detail (i.e., reporting weekly or daily units delivered) would significantly enhance the utility of reported data compared to reporting the month that the unit was delivered to another party. Staff is equally uncertain if there are specific advantages to longer reporting periods that offset the disadvantage of being "data blind" for significant periods of time each year. Staff is therefore interested in information and feedback relating to reporting when units were shipped from inventory.

Staff understands that refrigerant data is highly valuable to several state-led programs, though it has limited direct utility for demand modeling. Nonetheless, staff believes the information to be readily available for space heating, space conditioning and water heating equipment generally. Staff is therefore interested in information and feedback relating to specifying the refrigerant used by delivered equipment as a part of data reporting.

Submitting Responses to the CEC Docket

Providing responses to this RFI is highly encouraged to inform CEC's policy decisions and planning processes. Public input is essential to ensure a comprehensive record that includes the best available data and information.

Written responses, comments, proposals, and other technical material must be submitted to the docket linked below by **5:00 PM on Monday, August 18, 2025.** Written comments, attachments, and associated contact information (for example, address, telephone number, email address) included in the response will become part of the public record, with access available via any internet search engine.

The CEC encourages use of its electronic commenting system. Visit the e-commenting page, https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=24-OIR-03, which links to the comment page for this docket. Enter your contact information and a comment title describing the subject of your comment(s). Comments may be included in the "Comment Text" box or attached in a format consistent with CCR, Title 20, section 1208.1. The maximum file size is 10 MB.

Written materials may also be submitted by email. Include the docket number **24-OIR-03** and "Energy Data Collection - Phase 3" in the subject line and sent to docket@energy.ca.gov.

If preferred, a paper copy may be submitted to:

California Energy Commission
Docket Unit
Re: Docket **24-OIR-03**
715 P Street
Sacramento, CA 95814

Questions regarding submitting comments to the docket, including inquiries regarding confidentiality, should be referred to the Docket Unit at docket@energy.ca.gov or (916) 654-5076.

CEC Contacts

Public Advisor. The CEC's Public Advisor assists the public with participating in CEC proceedings. To request interpreting services, reasonable modification or accommodations, and other modifications, contact the Public Advisor at publicadvisor@energy.ca.gov or by phone at (916) 957-7910. Requests should be made as soon as possible but at least five days in advance.

Technical Inquiries. Direct questions on the subject matter of this RFI to appliances@energy.ca.gov or call (916) 776-3597.

Media. Email mediaoffice@energy.ca.gov or call (916) 654-4989.

Availability of Documents
All records will be accessible in the Energy Data Collection - Phase 3 docket, https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=24-OIR-03. When new information is posted, an email will be sent to those on the Appliance Efficiency Standards listserv. To subscribe to that listserv, visit the California Natural Resources Agency at: https://public.govdelivery.com/accounts/CNRA/signup/31719