

Date of Hearing: June 22, 2022

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Eduardo Garcia, Chair

SB 1164 (Stern) – As Amended June 14, 2022

**SENATE VOTE:** 36-0

**SUBJECT:** Energy: building energy efficiency: heating, ventilation, and air conditioning equipment: sale registry and compliance tracking system: compliance document data registry

**SUMMARY:** Requires the State Energy Resources Conservation and Development Commission (CEC) to develop and implement two electronic registries. One is a statewide database of all building code compliance data and the second is a statewide heating, ventilation, and air conditioning (HVAC) equipment sales registry. Specifically, **this bill:**

- 1) Requires, before January 1, 2025, the CEC to adopt rules to develop and implement an electronic statewide compliance document database (Main database) for all building installations pursuant to Part 6 (commencing with Section 100) of Title 24 of the California Code of Regulations. The database shall:
  - a. Be capable of registering and storing compliance, installation, and acceptance test documentation data that would be uploaded directly by applicable agencies including local building departments, the parties responsible for completing the documentation, or applicable certification providers, as specified.
  - b. Track compliance, installation, and acceptance test documentation data electronically and make the data available to local building departments and other applicable agencies for building permit review and to the Contractors State License Board (CSLB) and other applicable agencies for compliance and enforcement activities.
  - c. Provide building owners access to uploaded compliance, installation, and acceptance test documentation data linked to buildings they own.
  - d. Provide the public the ability to check if projects in their area have obtained the required permits and complied with specified documentation requirements.
  - e. Include registration of HVAC equipment serial numbers and be integrated with the HVAC equipment sales registry and compliance section described below.
  - f. Provide the CEC the ability to analyze the data to evaluate compliance, inform development of specified standards, and inform program implementation and policy development.
  - g. Only include the personal information necessary to certify permitting and completion of compliance, installation, and acceptance test documentation requirements, as specified.

- 2) Requires, by March 1, 2024 and annually until 2028, the CEC to submit a report to the Legislature describing the implementation status of the Main database, including, where applicable, any legal barriers to implementing the Main database.
- 3) Requires, before January 1, 2026, the CEC to adopt rules to develop and implement an electronic statewide HVAC equipment sales registry and compliance tracking system (HVAC-only Sales registry). The registry shall:
  - a. Be designed to identify HVAC equipment that is installed without permits and without completion of the compliance, installation, and acceptance test documentation requirements, as specified.
  - b. Allow local building departments to identify noncompliant installations in their jurisdictions.
  - c. Allow the CSLB to identify and investigate contractors that are routinely violating licensure requirements by not obtaining permits and failing to comply with requirements, as specified.
  - d. Require stores and dealers that sell HVAC equipment to register the sale of HVAC equipment, the contractor license number of the purchaser, and any other information necessary to effectuate the HVAC Sales registry.
  - e. Be capable of being linked to the compliance database described above.
  - f. Be able to identify HVAC equipment that has, within a to-be-specified period of time, failed to submit required documentation to the compliance database discussed above.
  - g. Only include the personal information necessary to certify permitting and completion of compliance, installation, and acceptance test documentation requirements, as specified.
- 4) Allows the CEC to share information contained in Sales registry with local building officials, the CSLB, and other agencies. Requires that any of this information collected or shared by the CEC complies with the Information Practices Act of 1977.
- 5) Requires, by March 1, 2024 and annually until 2028, the CEC to submit a report to the Legislature describing the implementation status of the compliance database, including, where applicable, any legal barriers to implementing the Sales registry.
- 6) Makes various findings and declarations.

**EXISTING LAW:**

- 1) Establishes the CEC's authority to create regulations for building efficiency standards. Existing law requires the CEC to create cost-effective regulations for lighting, insulation, climate control systems, and other building design and construction standards that increase energy and water efficiency for new residential and new nonresidential buildings. Local governments may not issue permits for construction and installation projects that fail to comply with the CEC's certified efficiency standards. (Public Resources Code § 25402(a-b))

- 2) Establishes the CEC's authority to create regulations for appliance efficiency standards. Existing law requires the CEC to set minimum levels of operating efficiency and allows the CEC to set other cost-effective measures, including incentive programs, fleet averaging, energy and water consumption labeling not preempted by federal labeling law, and consumer education programs, to promote the use of energy and water-efficient appliances. (Public Resources Code § 25402(c))
- 3) Requires the CEC to adopt standards for appliances to facilitate the deployment of flexible demand technologies. These regulations may include labeling provisions to promote the use of appliances with flexible demand capabilities. (Public Resources Code § 25402(f))
- 4) Requires the CEC to adopt a plan by January 1, 2019, 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. The CEC must consult with the Contractors' State License Board (CSLB), local building officials, and other stakeholders to create the plan. Existing law authorizes the CEC to create regulations to increase compliance with permitting and inspection requirements for central air conditioning and heat pumps, based on the plan. (Public Resources Code § 25402.12)
- 5) Establishes Energy Efficiency Standards that include requirements for installation and acceptance test documentation to verify that heating, ventilation, and air conditioning equipment are installed and performing correctly. (California Code of Regulations, Title 24, Part 6)
- 6) Establishes the Information Practices Act of 1977 which prescribes a set of requirements, prohibitions, and remedies applicable to public agencies, as defined, with regard to their collection, storage, and disclosure of personal information. (Civil Code § 1798 et seq.)

**FISCAL EFFECT:** An earlier version of this bill required two reports submitted to the Legislature proposing the creation of the two registries that this new iteration of the bill would directly implement. For that earlier version, the Senate Appropriations Committee found cost impacts of \$300,000 of one-time costs to the CEC, \$200,000 of one-time costs to the Air Resources Board, \$200,000 of one-time costs to the CSLB, and unknown but likely significant cost pressure to implement one or both of the systems as proposed by the studies. The costs incurred by the current version of the bill are likely to be higher.

**BACKGROUND:**

*CEC's Title 24 Building Code Authority.* Existing law establishes the CEC's authority to adopt cost-effective building and appliance standards to promote the conservation of energy and water. Title 20 of the California Code of Regulations includes the CEC's appliance standards and Title 24 includes the CEC's Building Energy Efficiency Standards. While the CEC establishes the Building Energy Efficiency Standards, enforcement of these standards rests with local building officials. Existing building codes require the completion of compliance documents and testing to demonstrate that certain installations are correctly installed and functioning. Correct installation of appliances and building elements ensures that these appliances and building elements deliver expected energy savings. Existing building codes also specify a process for submitting compliance and testing records in a digital format to a compliance document repository;

however, these requirements depend upon the CEC approving a document repository. In March 2022, the CEC issued a notice to award a contract for developing a document repository.

*HVAC permitting compliance is abysmally low.* In 2011, the CEC issued an update to the California Energy Efficiency Strategic Plan, identifying trends in energy efficiency, barriers to greater potential energy savings, and goals for addressing those barriers.<sup>1</sup> The document noted that only approximately 10 percent of HVAC installations may be meeting permitting requirements. The plan identified a goal of correctly installing and permitting 90 percent of HVAC installations by 2020. However, it is unlikely that California has met that goal. A 2017 study of HVAC installations conducted between 2014 and 2016 was contracted by the California Public Utilities Commission (CPUC) Energy Division and estimated a permitting rate ranging from 8% to 29% with the true value laying somewhere in-between.<sup>2</sup> The reasons for this low compliance are myriad. For one thing, there are more than 500 building departments (city and county) in California and no uniform requirements on what data ought to be obtained for a given job. Lack of knowledge, on the part of homeowners and contractors alike, is also a contributing factor. The lack of online permitting is also a commonly cited reason for low compliance. The time and expense of pulling a permit is in itself a disincentive, but also results in unfair competition between contractors who comply with permitting requirements and contractors who don't pull permits and gain a cost advantage.

To promote HVAC and heat pump installations' compliance with building code, the Legislature passed SB 1414 (Wolk, Chapter 678, Statutes of 2016) which required the CEC to adopt a plan by January 1, 2019. The bill allowed the CEC to adopt regulations to increase HVAC installations' compliance with permitting requirements and required a customer or contractor to demonstrate that a permit is closed for the customer or contractor to obtain a rebate or incentive provided by a utility for HVAC or heat pump installation. At the time of this analysis, the CEC has not published its plan pursuant to SB 1414; however, it has published a list of recommendations arising from SB 1414 in the 2021 Integrated Energy Policy Report.<sup>3</sup> These recommendations include expanding oversight to enforce permitting requirements and requiring HVAC distributors to sell equipment only to licensed contractors and report to the CEC the number of equipment units sold to each purchaser. Notably, the 2017 CPUC study mentioned above anticipated that the SB 1414 requirement that a customer or contractor demonstrate that a permit is closed in order to obtain a utility rebate or incentive would raise permitting rates in the future.

*The energy impact of poor HVAC permitting is an open question.* The concern about HVAC code compliance largely arises from concerns about poor energy efficiency, especially as summers get hotter and air-conditioning usage increases. HVAC systems are a major contributor to peak energy consumption and as average temperatures have increased, HVAC energy consumption has increased. According to the CEC's Summary of the 2022 Building Code Update, residential and non-residential buildings are responsible for approximately 70 percent of California's electricity consumption, and in certain climate zones, HVAC systems are the largest

---

<sup>1</sup> California Energy Commission. *California Energy Efficiency Strategic Plan – January 2011 Update*. January 2011.

<sup>2</sup> DNV GL. *Final Report: 2014-2016 HVAC Permit and Code Compliance Market Assessment (Work Order 6) Volume I – Report*. September 22, 2017. CPUC contract #12PS5119 (HVAC WO6)

<sup>3</sup> California Energy Commission. *Final 2021 Integrated Energy Policy Report Volume I Building Decarbonization*. February 1, 2022. Docket #21-IEPR-01

source of buildings' energy consumption. The 2011 California Energy Efficiency Strategic Plan, citing a 1999 nationwide study<sup>4</sup>, estimated the lack of HVAC installation compliance could limit potential peak energy savings by up to 30 percent. AB 2021 (Levine, 2006) required CEC to develop a strategic plan to improve the energy efficiency of air conditioning and decrease their peak energy demands.<sup>5</sup> However, the 2017 CPUC study found similar levels of efficiency for equipment at permitted and non-permitted sites in a representative statewide sample, concluding that, under current market and enforcement conditions, permitting does not lead to increased energy efficiency of HVAC changeouts:

*“There are few statistically-significant differences in the energy efficiency of permitted and non-permitted installations. There were few significant differences at the requirements level and none at the aggregate level across installations. Non-permitted cases had a wider range of performance, but, like permitted cases, compliance rates were nonetheless fairly high in coastal areas and moderate inland.”*

The working group responsible for the estimated peak energy savings in the AB 2021 report assumed only 20% of new construction (and 5% of replacement) HVAC installations would meet building code efficiency specifications for airflow, refrigerant charge, and duct leakage if performed by contractors who did not comply with permitting and testing requirements. They also assumed all installations performed by contractors who complied with requirements would meet code. This large difference in the success rate between permit-compliant and non-compliant installations led them to calculate a large potential for peak energy savings if compliance rates were dramatically improved. However, the 2017 study conducted quality tests on permitted and non-permitted installations and found much smaller differences in the rates of successful HVAC installations. In particular, the data showed that 14% of non-permitted installations met building standards for airflow compared to 26% for permitted. For refrigerant charge, 68% of non-permitted installations met code standards compared to 63% of permitted installations. And for duct leakage, 47% of non-permitted installations met code quality specifications compared to 56% of permitted installations. The reports cited here are obviously in conflict with each other, but it is important to note that this analysis is by no means an exhaustive study on the topic.

## COMMENTS:

- 1) *Author's Statement.* According to the author, “Barriers to effective compliance and enforcement are undermining California’s building energy efficiency standards. Studies show, for example, that the vast majority of HVAC replacement projects are performed without a permit and without completion of acceptance testing and other Title 24 energy efficiency verification requirements. This puts contractors that pull permits and comply with the California Energy Code at a disadvantage because they must bid against contractors that cut costs by ignoring these requirements altogether. Some estimates have put permit and code compliance for HVAC replacement projects at just 10 to 15 percent. It is estimated that increasing permit and Title 24 Energy Code compliance could reduce peak energy demand by up to 400 megawatts.

---

<sup>4</sup> Neme, C., Proctor, J., and Nadel, S. *Energy Savings Potential from Addressing Residential Air Conditioner and Heat Pump Installation Problems*. February 1999, American Council for an Energy-Efficient Economy (ACEEE).

<sup>5</sup> California Energy Commission. *Strategic Plan to Reduce the Energy Impact of Air-Conditioners*. June 2008, CEC-400-200-010

Currently, however, there is no way to readily track and identify HVAC replacements that are installed without a permit. To address this issue, past Energy Commission reports have called for developing an HVAC equipment sale registry that can be used to track HVAC sales to ensure that permit requirements are being followed for all HVAC installations. In addition, stakeholders have long called for a central Title 24 compliance document repository and data registry that would provide building officials the ability to simply type in an address in order to confirm that all required Title 24 compliance documents have been completed. Even when permits are pulled, the large number of Title 24 energy efficiency compliance documents now required for each project makes it difficult for building officials to verify compliance, resulting in uneven enforcement.”

- 2) *Arming the NIMBYs.* This bill points out that enforcement of penalties on contractors who evade energy efficiency requirements is very poor and seeks to arm the enforcement agencies with the ultimate weapon: data. In supplying the Main database, the bill aims to create a single source for building departments, licensing boards, homeowners, and building owners to confirm that their contractors have followed the rules. The bill also includes “the public” in those who shall have the ability to check if projects in “their area” are up to snuff. This broad inclusion of any concerned citizen with an Internet connection may have unintended consequences in terms of privacy. It seems unnecessary for a neighbor, real estate developer, or even a home repair technician to know the installation flaws of the house around the corner. That system seems rife for misuse. Additionally, this publicly available data may conflict with consumer privacy. Is the inclusion of the documentation of one’s home in the Main database something that a consumer can opt out of or not? If consumers can opt out, what implications does that have for the usefulness of the Main database? If consumers cannot opt out, what information attached to their home address is floating around for anyone to see? The bill is silent on this outstanding question,
- 3) *An Analog Industry.* This bill envisions a Main database of digitalized documents, but very few components of the compliance, installation, and testing of energy efficiency requirements are currently digitized. This may be a cumbersome requirement for parties to digitally upload materials which have previously only existed on paper.
- 4) *Is HVAC sales tracking the right solution?* This bill identifies that compliance with energy efficiency building codes, specifically in HVAC installation and testing, is very low. It then posits that this has immense consequences on energy demand. The bill then offers, as a solution to increase compliance, the tracking of HVAC sales to each purchaser to then compare the number of sales to the number of HVAC compliance documents the purchaser uploads to the Main database.

The evidence supports the notion that HVAC compliance with energy efficiency building codes is low; however, there is conflicting data as to the impact of properly *permitted* installations on energy efficiency and the largest claims of potential energy savings are the least convincing. Proponents of the bill correctly point out that HVAC systems are the largest energy users in homes and many commercial buildings, and that there is energy waste caused by errors in installation. However, the bill plucks a Sales registry out of a long list of recommended actions without investigation of the costs and benefits. Opponents of the bill argue that the proposed tracking system will not be able to keep up

with purchases made online or from multi-state distributors and will only place a greater burden on those who play by the rules.

5) *Prior Legislation.*

SB 49 (Skinner) expanded the CEC's authority to create appliance efficiency standards to require the CEC to adopt standards to promote the deployment of appliances with flexible demand capabilities. Status – Chapter 697, Statutes of 2019

SB 1414 (Wolk) required the CEC to create a plan to promote HVAC and heat pump installations' compliance with building codes. The bill also required customers or contractors to demonstrate that a permit for the installation of an HVAC or heat pump system is closed for the customer or contractor to obtain a rebate or incentive provided by a public utility. Status – Chapter 678, Statutes of 2016

Assembly Bill 2021 (Levine) established energy efficiency procurement and planning requirements for local publicly owned electric utilities. The bill also required the CEC to take certain steps for energy efficiency planning, including requiring the CEC to create a plan to improve HVAC energy efficiency and decrease the peak electricity demand of air conditioners. Status – Chapter 734, Statutes of 2006

- 6) *Double Referral.* This bill is double-referred; upon passage in this Committee, this bill will be referred to the Assembly Committee on Natural Resources.

## **REGISTERED SUPPORT / OPPOSITION:**

### **Support**

350 Sacramento  
 350 Silicon Valley  
 BeniSol, LLC  
 Beyond Efficiency INC  
 Board of Passive House California  
 Building Electrification Institute  
 California Climate Voters  
 California State Pipe Trades Council  
 Carbon Free Palo Alto  
 Citizens' Climate Lobby, San Mateo County  
 City of Menifee  
 City of Petaluma Climate Action Commission  
 Design Avenues LLC  
 Earthjustice  
 Green Building Architects  
 Home Energy Analytics, INC.  
 Integral Group  
 Menlo Spark  
 Natural Resources Defense Council (NRDC)  
 NRDC Action Fund  
 Project Green Home  
 RMI

Sierra Club California

SMUD

The Utility Reform Network (TURN)

USGBC-LA

Western States Council Sheet Metal, Air, Rail and Transportation

**Opposition**

None on file.

**Oppose Unless Amended**

Air-Conditioning Heating and Refrigeration Institute

**Analysis Prepared by:** Natalie Seitzman / U. & E. / (916) 319-2083