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## AHRI's Comments- Docket No. 201-EBP-01

*Additional submitted attachment is included below.*

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**VIA EMAIL: docket@energy.ca.gov**

November 26, 2018

Honorable Commissioner Andrew McAllister
California Energy Commission
Dockets Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

**RE: AHRI's Comments on CEC's Request for Written Comments for Improving Energy Compliance of Central Air Conditioning and Heat Pump Systems, Docket No. 2017-EBP-01**

Dear Commissioner McAllister:

On behalf of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), I respectfully submit the following comments to the California Energy Commission's (CEC) request for public comment on Improving Energy Compliance of Central Air Conditioning and Heat Pump Systems, Docket Number 2017-EBP-01.

AHRI is the trade association representing manufacturers of heating, cooling, water heating, and commercial refrigeration equipment. More than 300 members strong, AHRI is an advocate for the industry and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the annual output of the heating, venting, air-conditioning, and refrigeration (HVACR) and water-heating industry is worth more than $44 billion. In the United States alone, the HVACR and water heating industry support 1.3 million jobs and $256 billion in economic activity.

AHRI and its members have participated in several CEC workshops and have engaged in discussions with CEC staff. These discussions focused on alternative solutions that CEC consider in addressing California's low compliance percentage and why digital number tracking is not a practical or feasible solution.

On August 3, 2018, Charlie McCrudden, Director of Regulatory Affairs, Daikin U.S. Corporation, presented the manufacturers' perspective and the problems associated with a proposed statewide digital tracking system. AHRI followed up with several in-person meetings with CEC staff on September 26, 2018 and on October 16, 2018. These comments are a follow-up to AHRI and members ongoing discussion with CEC staff.

### *1. CEC Should Analyze Localized Online Permitting Systems*

AHRI identified the following online permitting systems in effect in California cities and counties and recommends that CEC analyze these localized online permitting systems as part of a viable solution. This may not be a complete list but one that can provide a starting point for CEC in its search and analysis of on-line permitting system costs, benefit, and feasibility. The California counties and cities include:

1. County of Sonoma
2. City of Los Angeles- Plan Check Permit Online Permitting System
3. County of San Bernardino- EZ Online Permitting Portal
4. City of Sacramento- Minor Permit Program

***New Jersey Assembly Bill AB 4463***

While the aforementioned jurisdictions might provide useful models of an online permitting system administered at the local level, AHRI also recommends researching other states that have implemented or proposed statewide online permitting systems. One such example, in New Jersey, Assemblyman Roy Freiman recently introduced legislation – AB 4463 – that would direct New Jersey's Commissioner of Community Affairs to establish, develop, implement and administer an electronic permitting system.[1]

As currently drafted, this online permitting system would allow New Jersey contractors to submit their application materials online for review and submit requests for on-site inspections.[2] Rather than attempting to integrate this software into existing local jurisdictions' permitting systems, the statewide system would offer a dual-track approach, meaning permit applicants would have the ability to either submit their application for review through the new online state system or in person at their local building office. AHRI believes this dual-track approach is critical to the successful implementation of a statewide online permitting system.

### *2. CEC Should Review their own Modernized Appliance Efficiency Database Systems (MAEDBS) as an Example of Database*

AHRI has extensive experience with online database systems, specifically with sharing information and facilitating database communication with the CEC's Modernized Appliance Efficiency Database Systems (MAEDBS), and have noted the technical challenges in the MAEDBS system. Although, MAEDBS is not an equipment registration system as proposed by proponents of serial number tracking, the concepts of developing, implementing, and maintaining a database system by CEC is a useful reference.

[1] NJ A4463, 2018-2019 Regular Session
[2] *Id.*

Under California's Appliance Efficiency Regulation Title 20, manufacturers are required to meet federal and state standards of energy efficiency and must certify the performance of their products with the standard before their products are sold in California.[3] To meet this requirement, manufacturers submit their certification data to CEC through the use of CEC's MAEDBS. AHRI assists manufacturers by submitting members' compliance data to MAEDBS. In 2017, AHRI submitted nearly 40,000 records to MAEDBS, representing less than 2% of all AHRI Certified central air-conditioners and heat pumps eligible for sale in the state of California.

Historically, the submittal process has been onerous, inefficient, and costly to AHRI due to the technical limitations of the MAEDBS system. Some of the specific challenges AHRI has faced using the MAEDBS system are as follows:

- MAEDBS only allows a user to manually upload data one Excel file at a time and does not offer a web service for providing data. Web service would remove the need for manual data uploading and would allow products to be posted to the MAEDBS website quickly.
- MAEDBS frequently crashes or locks up when an upload file contains more than 500 records. There have been periods where MAEDBS crashes if an upload file contains more than 50 records.
- MAEDBS is not easy to maneuver and additional steps are required to find specific products and/or components. The MAEDBS search does not disclose the complete matched system since indoor model numbers (and furnaces where applicable) are not captured.

The number of MAEDBS submittals made by AHRI on behalf of its members continues to grow each year as manufacturers place more energy efficient products into the marketplace. Without improvements to MAEDBS or a better system in place to deal with this volume of data, AHRI expects continued increases in time and costs to provide equipment efficiency data to California.

The number of records AHRI submits to MAEDBS is very small compared to the millions of records manufacturers would be expected to submit to CEC via a proposed digital tracking system, so AHRI is concerned about the technical and operational feasibility of a digital tracking system.

### *3. CEC Should Consider the Challenges of Digital Tracking System*

As noted in AHRI's joint comments with the Heating, Air-conditioning and Refrigeration Distributors International (HARDI), we have expressed our concern and doubts about the effectiveness of a digital tracking system. Proponents of a digital tracking system, none of which are manufacturers of HVAC equipment, allege that it is a simple process with minimal impact on manufacturers, distributors, contractors, and other HVAC industry stakeholders. On the

[3] 20 CCR § 1606

contrary, a digital tracking system would have a significant impact to manufacturers, CEC, and potentially California residents.

One commentator, Mr. Roy Eads submitted public comments in favor of a statewide "equipment registration system."[4] Mr. Eads describes the equipment registration system as a high-level database operation and flow where each equipment component (i.e., condenser, heat pump, evaporator/indoor coil, furnace, air handler) shipped into California would be added to a database along with identifying information such as brand name, model number, serial number, and date of entry. The combination of the above information for each component would be considered (1) one record in the database, with the records being created by the manufacturer or distributor. Once added to this hypothetical database, other database users, such as manufacturers, distributors, installers, and HERS Raters, would be responsible for editing the records to note the current possession of the component leading up to installation.

Mr. Eads assumes that manufacturers/distributors do not need to predict where equipment will be installed because units are registered when the designated shipping address is located in California.[5] Mr. Eads goes on to state that the records are already required under federal regulations. However, Mr. Eads fails to understand that Original Equipment Manufacturers (OEMs) may know initially where their units are headed once they leave the manufacturing plant but they may not know the final destination and whether the final destination is in California.

Mr. Eads' proposal is high-level and over-simplified, lacking details that even provide rudimentary insight into feasibility, cost, or practicality of developing and maintaining a digital tracking system. Without a realistic and in-depth design requirement and implementation analysis, it is unknown if the end result of digital tracking system would even be practical to ensure permit compliance and improve energy efficiency. Mr. Eads' proposal has not taken into consideration the millions and millions of records that a digital tracking system would have and the burden on users to provide that data. It has also not considered the technical implications of uploading, maintaining, and providing a query system for such a large data set. Heavy system loads impact the performance and practicality of any database system and ultimately determines user satisfaction and their willingness to use an inefficient system.

### *a. Costs for a digital tracking system*

AHRI has conducted a hypothetical analysis to estimate the potential costs incurred by a manufacturer to enter and upload data to a digital tracking system. The analysis is based on 1) data entry times experienced by manufacturers providing data to the AHRI Directory; 2) data upload times experienced by AHRI when uploading data to CEC's MAEDBS system; 3) AHRI public shipment data; and 4) U.S. Census Data. [6] Based on AHRI's assumptions and available

[4] Docket 2017-EBP-01 Submission: Equipment Registration – Updated 20 Aug 2018. Eads, Roy. August 20, 2018.
[5] *Id.*
[6] *NOTE:* AHRI's analysis is intended for reference only to understand possible manufacturer costs, and without a fully specified and designed digital tracking system it is impossible to accurately predict the real cost that would be experienced by manufacturers to provide data to such a system.

quantified data, AHRI estimates it would cost manufacturers approximately $2 million just to enter and upload data into a proposed 5-field data equipment registration system for the AHRI Certified products currently listed in the AHRI Directory of Certified Product Performance and sold into the State of California in 2016. This figure does not include any of the substantial additional costs that each manufacturer would incur due to 1) possible system outages or slowed performance of the manufacturer's systems and/or the CEC's systems; 2) data error rectification or change processing; 3) internal operational changes a manufacturer would be required to make to accommodate a digital tracking system; and 4) development and maintenance of an IT solution for providing required data to an external organization. As new components are continually added to the marketplace, the potential costs would continue to increase.

Manufacturers would be required to put forth a sizable investment to support a large development and sustained data maintenance effort. Smaller manufacturers with less advanced IT systems and fewer personnel would be particularly disadvantaged because they may not have the personnel, internal systems, or financial resources to support such a system and data reporting endeavor.

In addition, the CEC would be required to fund substantial costs to a digital tracking system to include system development and maintenance. In the 2015-2016 California Legislative Session, Senate Bill 1414 included language directing CEC to develop a system to track central heating and air cooling equipment sales and installations to verify the compliance with state permitting requirements.[7] The Senate Appropriations Committee determined that there would be an unknown, but significant, one-time cost to the California Energy Commission (CEC) to develop a tracking system and on-going costs of $1.3 million to the CEC for staffing and system maintenance.[8] CEC noted that a tax on California businesses and residents would be needed to fund such a tracking system. The final version of the bill did not include a digital tracking system.

### *b. Technical Challenges*

A digital tracking system with millions of records presents technical challenges for timely and accurate data entry, data management, and data query. The following are a list of issues that will likely impact the design, implementation, and continual costs and maintenance of a digital tracking system:

1. determining who will access the system to maintain data integrity (i.e., permissions system and maintaining user accounts);

2. considering all possible data flows and providing expected logic performance;

[7] CA SB 1414, California State Assembly, 2015-2016 Legislative Session.
[8] CA SB 1414, California State Assembly Appropriations Report. August 10, 2016.

3. avoiding potential deadlock situations;
4. developing data upload/edit method and rules;
5. standardizing data validations for data query;
6. managing and optimizing upload queues;
7. developing data filtering and querying;
8. designing acceptable user interfaces;
9. establishing acceptable system performance thresholds for all users;
10. developing access method(s) (browser, laptop/tablet/mobile); and
11. continual monitoring of system performance and ensuring technical support and issue resolution for users.

A database system holding millions of records will likely experience severe system uploads due to the online traffic within the system. There will be simultaneous data entry uploads by manufacturers and distributors, whether by manual file upload or web service that may result in system timeouts or slow processing time to get records posted. This will likely increase costs to all system users and potentially cause delays in the permitting timeline.

A digital tracking system would be slow to query for end users due to the millions of records and complicated data filters and potentially become an ineffective system. A strict standard for data acceptance and specific user standards for querying data would need to be in place (i.e., what characters are allowed in serial numbers, model numbers) to ensure efficiency. Some additional challenges in developing a digital tracking system include the number of options in the dropdown menus can become impractical when the list is too long; smart querying logic can be complicated; and the data volume would require continuous CEC software development maintenance to re-index data to optimize data searching performance. Even with maximum optimization, a search could take a few or several minutes per search, and it would not be instantaneous.

### *c. Usability Challenges*

Per Mr. Eads' proposal, the equipment registration system would be applicable to specific components.[9] All central air-conditioning and heat pump equipment[10] is comprised of multiple components. For example, a split system will be comprised of indoor unit(s)/coil(s), condenser, and possibly a furnace. Each component would be its own record in the proposed digital tracking system and to record a whole system, various components would need to be combined to form one system. For example, split systems can only have specific combinations of indoor unit/coils, condensers, and furnaces to become AHRI Certified--AHRI refers to this as a

[9] Docket 2017-EBP-01 Submission: Equipment Registration – Updated 20 Aug 2018. Eads, Roy. August 20, 2018.
[10] With the exception of packaged units.

"matched system." Thus, it is not possible to arbitrarily put together any indoor unit/coil, condenser, and furnace and assume it is an AHRI Certified record.

An end user would need to go through a multi-step process: 1) the end user would have to verify that the individual components were listed in the digital tracking system; and 2) the user would have to verify that the installed equipment is AHRI Certified and meets California's energy efficiency requirements. This could potentially be a lengthy process for the end user, particularly with a large database system.

### *d. Data Security*

Cybersecurity or data security is an important topic vital to a company's survival in the age of data breaches. Manufacturers fear that the mass collection and disclosure of data threatens to expose vital confidential business information, such as market share. The proposal of a digital tracking system does not ensure the protection of manufacturers' confidential market data and can potentially be costly for manufacturers. A July 2018 study sponsored by IBM Security and conducted by Ponemon Institute LLC reported that the average total cost of a data breach was $3.86 million.[11]

To the extent that manufacturers and distributors are engaged in basic product record keeping, such as for Regional Standards Enforcement, it is for a small subset of products with specific DOE record keeping requirements. Manufacturers exclusively retain and control this documentation and if DOE were to request access to the records, it would be on a small-scale only. DOE's Requests for Information are limited to a few products and are rarely exercised by DOE. Therefore, the potential exposure of manufacturer data is limited and kept confidential. Mr. Eads' proposal does not ensure that manufacturers' propriety data will not be released.

### *e. Digital Privacy Law*

In addition to the above-mentioned challenges, California's data privacy law likely prevents the development of a digital tracking system that would collect and maintain HVAC consumer information, i.e., any information that would be linked, directly or indirectly with a particular consumer or household. The digital tracking system would not only collect equipment type, model number, serial number and contractor's license number but would also need to identify the consumer to whom the contractor installed the central air conditioner and/or heat pump to.

At this point, manufacturers will not know the impact of the new data privacy laws. This new legislation goes into effect in January 2020. Consumers who are not in compliance with permitting requirements are not likely willing to consent to the collection of personal data that exposes liability.

[11] Ponemon Institute LLC, "2018 Cost a Data Breach Study: Global Overview," July 2018.

AHRI appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,

Marie Carpizo
Associate General Counsel