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September 12, 2025

VIA Docket No. 24-BSTD-05

Energy Commission
Docket Unit
Docket No. 24-BSTD-05
715 P Street
Sacramento, CA 95184

Re: **Comments on the Energy Code Compliance Gap Analysis**

Dear Commissioners and Staff:

We write on behalf of the Joint Committee on Energy and Environmental Policy ("JCEEP"), the Western States Council of Sheet Metal, Air, Rail, and Transportation Workers ("WSC"), and the California State Pipe Trades Council ("CSPTC") (collectively, "the Coalition") to comment on the Energy Code Compliance Gap Analysis. We commend the thoughtfulness put into the preparation of this document. The analysis does a commendable job of reviewing prior studies, acknowledging the limitations of these prior studies, and identifying the challenges to more comprehensive and more reliable studies. In particular, we support the finding that, to assess and inform compliance efforts, the Energy Commission must adopt clear, meaningful definitions of compliance.

However, the Compliance Gap Analysis recommendation for further study of the scope of the compliance gap is problematic. This recommendation serves only to create justification for further delay in taking actual actions to improve compliance. It also proposes expensive studies where such resources would be better spent creating Energy Code document repositories and sales tracking systems that could be used to track and confirm compliance with design, construction and verification requirements. The Energy Commission and the State Legislature have been calling for action to be taken to improve permit and energy code compliance for the past twenty years. Rather than finally complying with this direction, this Compliance

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Gap Analysis proposes five more years of study with further development of compliance metrics after the completion of such studies – creating even more delay to actual implementation of solutions.

While gap analyses are important diagnostic tools, the priority must now shift from identifying gaps to closing them through direct action. The most immediate and effective way to improve compliance is through consistent enforcement of acceptance testing and permit requirements. Acceptance testing already exists as a robust, field-based mechanism to verify that critical systems – such as HVAC controls, economizers, ventilation, and lighting – function as intended. Yet enforcement is inconsistent, and data on acceptance test completion remains scarce.

Similarly, permit requirements are the foundation of process-based compliance yet permit rates for HVAC replacements are shockingly low. Without permits, there is no inspection, no compliance documentation, and no acceptance testing. Enforcing these requirements would provide immediate value, strengthen return on existing state investments, and ensure that compliance pathways function as intended.

To the extent the Commission continues to explore compliance gaps, five priorities should guide that work:

- 1. Meaningful action to improve compliance must occur concurrently with the proposed studies and not be delayed.**
- 2. Focus study resources initially on process-based compliance over energy-based compliance.**
- 3. Define process-based compliance as projects that pull permits and comply with all Energy Code compliance and testing documentation requirements.**
- 4. Ensure studies minimize selection and convenience bias and do not rely on self-selected participation or provide prior notice of selection.**
- 5. Establish a centralized electronic compliance document data repository.**

The Commission has sufficient evidence of recurring compliance failures – particularly around permits and acceptance testing. The most pressing need is to act on that evidence, not study it further. By focusing on direct compliance improvements, while also strengthening data transparency and visibility, the Commission can ensure that the Energy Code delivers its full potential in energy savings, consumer protection, and greenhouse gas reductions.

I. STATEMENT OF INTEREST

JCEEP is an advocacy organization that represents the California sheet metal workers' local unions and over 25,000 technicians working for over 600 contractors throughout California. JCEEP's mission is to promote responsible environmental and indoor air quality and energy policy in California as it pertains to and impacts the HVAC industry.

WSC represents Sheet Metal Workers' Local Unions in California, Arizona, Nevada, and Hawaii. Its members install all types of HVAC systems, both residential and commercial, and are committed to not only ensuring indoor comfort through heating and cooling but also safeguarding air quality and promoting energy efficiency in HVAC systems. In California alone, the WSC operates over 15 training facilities, where thousands of workers are trained daily in HVAC specialties, including heat pump installations.

CSPTC represents more than 30,000 union plumbing, pipefitting, and HVAC installers throughout California. The CSPTC and its local union members have long advocated for building standards and regulations to improve the health, safety and efficiency of buildings in California, and for meaningful enforcement of these standards to level the playing field for high road contractors that take compliance with permit, code and energy code compliance documentation requirements seriously. The California State Pipe Trades Apprentice Program invests over \$18 million annually to train the next generation of plumbers, pipe fitters, and refrigeration and air conditioning journeymen at 27 apprenticeship training centers across the state and to provide continuing education training opportunities to its existing members with a focus on new technologies such as heat pump water heating and HVAC equipment.

These organizations and their members have long advocated for quality installation practices, code and permit compliance, and the development and implementation of education and training programs that advance safety, performance and efficiency in California's building sector.

II. THE COMMISSION SHOULD PRIORITIZE DIRECTLY IMPROVING COMPLIANCE OVER STUDYING COMPLIANCE RATES

The Coalition strongly objects to spending tens of millions of dollars on more studies to confirm problems that industry stakeholders already know exist. This proposal wastes resources that would be better spent on implementing actual solutions such as creating a statewide nonresidential compliance documentation database and creating an HVAC equipment tracking system that would allow identification of unpermitted work. The proposal to spend time and money further confirming problems that everyone already knows exist reeks of bureaucratic delay in order to avoid taking real action to fix a problem.

California's Energy Code will only deliver its intended benefits if compliance is enforced in the field. Yet today, widespread unpermitted work, inconsistent acceptance testing, and poor installation quality mean the state is leaving hundreds of megawatts of potential savings untapped. While gap analyses and studies provide useful insight, further study of the scope of non-compliance cannot be used to continue the almost twenty year delay in taking the concrete actions needed to improve compliance. The Commission's funding priority should be direct action to improve enforcement of permit and compliance documentation requirements.

Acceptance testing demonstrates why immediate action is needed, not further study. California has invested heavily in requiring physical acceptance testing to verify "as installed" performance of critical systems. Yet enforcement is inconsistent, and data on how often tests are performed remains scarce.

Reports from Acceptance Test Technician Certification Providers ("ATTCPs") have shown that acceptance test requirements are not being enforced in most areas of the state. This has been demonstrated by acceptance testers who have testified they lost work when contractors informed them that the local building department officials do not require the submission of acceptance test forms and data from ATTCPs showing that numerous cities and counties have not submitted any

acceptance test reports for projects within their jurisdictions. As a result of this lack of enforcement, ATTCPs have warned they are losing money and may stop operations, which would undermine the entire acceptance test system.

The Compliance Gap Analysis states that it is proposing up to five years of studies on the scope of non-compliance, at which time the only stated outcome would be to adopt metrics for determining compliance at some future date at least five years in the future. By that point, there may be no ATTCPs left, and the acceptance test system may collapse.

The Energy Commission and the State Legislature have been calling for action to be taken to improve compliance for almost twenty years. More study documenting these compliance failures does not meet the mandate to “improve” compliance. The proposed studies do nothing to improve compliance outcomes and will have only limited utility.

Energy Code compliance problems are not a mystery and have already been documented, discussed and workshopped repeatedly: widespread unpermitted work, poor installation practices, and weak enforcement of compliance documentation requirements. What is needed now is not wasting more money on diagnosis but instead to focus resources on actual solutions. By prioritizing consistent enforcement of permits and Energy Code compliance documentation requirements (i.e., certificates of compliance, certificates of installation, certificates of verification and certificates of acceptance), the Commission can immediately improve installation quality, ensure efficiency measures perform as intended, and capture hundreds of megawatts of cost-effective energy savings, all while reducing greenhouse gas emissions and protecting consumers.

To the extent that further study of the scope of non-compliance is to move forward, we urge the Commission to ensure that meaningful action to improve compliance occurs concurrently and is not delayed by these proposed studies. We also recommend focusing initially on process compliance as such compliance can be assessed more cost-effectively and more accurately than studies of performance compliance or studies of projects that fail to pull permits altogether. We would also recommend focusing on project types that have not been the focus of prior studies such as industrial process projects and acceptance testing rates for new and existing non-residential projects.

III. RESPONSE TO QUESTIONS

1. Prioritization of Building Categories

The Compliance Gap Analysis asks which building category is most important for understanding compliance rates. The answer to this question differs depending on whether the Commission is asking which building categories should be the focus of *compliance improvement efforts* or if the Commission is asking which building categories should be the focus of *additional research re the scope* of non-compliance. For example, spending additional resources studying the scope of non-compliance in existing single family homes would be duplicative of numerous past studies and would have little value.

Existing single-family homes represent the largest share of building stock in most jurisdictions and account for a significant portion of statewide energy use. Retrofits and alterations in existing homes are also widely accepted as having the lowest rates of permit compliance. Accordingly, adopting strategies to improve compliance in existing single family homes should be a priority, but not necessarily the primary priority.

Focusing compliance and enforcement efforts on nonresidential, multifamily and industrial covered process energy code compliance may be more cost-effective since, on a building by building basis, these categories use more energy and provide more energy saving opportunities than single family homes. Ensuring compliance on one 50-unit apartment would be much easier than ensuring compliance for 50 single-family homes. Focusing enforcement efforts on nonresidential occupancies, covered process, and multifamily occupancies may also be more equitable as developers of those projects have greater resources to afford strict compliance.

2. Compliance Definition and Achievable Objectives for Process-Based Compliance

The Coalition recommends focusing any compliance studies primarily on process-based compliance rather than energy-based compliance. A process-based compliance approach would be more cost-effective, more readily achievable and provide much more reliable and useful results than studies of performance compliance or studies of projects that fail to pull permits altogether.

The Coalition recommends defining process-based compliance as strict compliance with all the Commission applicable Energy Code compliance documentation, including certificates of compliance, certificates of installation, certificates of verification and certificates of acceptance. This means verifying that all applicable forms were filled out completely and accurately by the correct qualified personnel and submitted to the AHJ.

Such an approach recognizes that the Energy Commission has already developed robust compliance documentation and testing requirements to verify energy code compliance, including adopting qualification requirements for those preparing the documentation and performing the testing. However, there is often very little compliance with these requirements.

In many cases, these requirements are avoided altogether by projects that fail to pull permits and thus avoid oversight and documentation requirements altogether. But even when permits are pulled for a project, AHJs regularly fail to strictly enforce these requirements. It is common knowledge among contractors in California that many jurisdictions or individual building officials do not require Energy Code compliance documentation to be submitted, do not enforce Energy Code compliance during plan check, and do not require acceptance testing and other compliance testing requirements to be performed and documented.

The Coalition's recommendation is to randomly select projects that have already been completed and to investigate if the approved plans meet all Energy Code requirements, and to verify if all applicable compliance documentation was filled out completely and accurately by the correct qualified personnel, and submitted to the AHJ. These compliance documentation requirements should be strictly followed in order for a project to be deemed compliant with process requirements.

We also urge the Commission to ensure that any studies minimize selection and convenience bias. If studies cannot be constructed that ensure a "blind" study where projects are not self-selected or do not have prior warning of a future study, they are not worth funding since they will not provide any more accurate information than has already been provided by past studies.

3. The Proposal for Energy-Based Compliance Studies Is Ill-Defined and Have Limited Utility in Compliance Improvement Efforts

As a preliminary comment, the Coalition notes that the Compliance Gap Analysis fails to define what energy-based compliance actually means and how it would be assessed. It is impossible to provide any recommendations regarding energy-based compliance studies without a clear definition of what is being evaluated, how energy performance is being verified and evaluated, and how such an evaluation can avoid being contaminated by the numerous uncontrollable variables that impact a building's energy use.

For purposes of our comment, we assume that energy-based compliance is determined by comparing actual energy use with expected energy use. Such energy performance studies, however, are complicated, unreliable and expensive if done right. How does one accurately compare performance outcomes when the number of variables related to building design and occupant activity make such building-wide analyses almost impossible to be reliable?

In addition, selection bias is a significant issue with energy performance review – how does one create a blind study where contractors and building owners do not know ahead of time that their work will be reviewed? These types of studies have so many practical challenges that they have limited value in evaluating whether homes actually constructed in the field have met energy code requirements.

Moreover, unlike a process-based study, an energy-based compliance study would not provide any indication of why a building is not meeting expected energy efficiency outcomes. It is unclear what value such a study would provide in helping the Commission identify actions needed to improve compliance.

Energy-based compliance studies have a place, but only in very controlled circumstances. They may be more useful for evaluating specific building systems whose electrical use can be tracked independently from the rest of the building's energy use. They may also be useful in identifying compliance issues (such as poor-quality installation by under-trained workers) that cannot be readily caught by current Energy Code compliance documentation and testing requirements.

The Coalition also notes that the “energy-based analysis” cost per sample estimate in Table 13 is not explained or justified in the report. If energy performance studies are to be funded, there should first be clear, stakeholder review of what exactly will be evaluated, how it will be evaluated, and how the study will ensure that its results will be reliable and meaningful. In addition, any such studies should only proceed if there is a clear indication of how the study’s results will help to identify how to improve compliance.

4. Further Analysis of the Impacts of Unpermitted Project Would Not Be an Effective Use of Resources

The Coalition has long called for the Commission and other state agencies to take meaningful action to improve permit compliance. Contractors who perform unpermitted work can underbid competitors, cut corners on quality, skip acceptance testing, and often rely on unlicensed or untrained labor. This creates unfair competition, erodes workforce standards, and leaves consumers with unsafe, inefficient, and noncompliant systems. Without permits, local building departments have no opportunity to enforce Energy Code requirements, rendering compliance documentation meaningless and making statewide savings estimates unreliable.

Permit compliance alone, however, is not sufficient on its own to ensure better installation outcomes. For example, the DNV GL Res HVAC Retrofit Study Phase 1 found that even permitted jobs often fall well short of code compliance.¹ Accordingly, permit compliance strategies need to be aligned with other strategies to ensure that when permits are pulled, better code compliance and installation outcomes result. ***But without permit compliance, these other strategies cannot be enforced.***

While there is no question that Energy Code enforcement efforts need to include strategies to improve permit compliance, *further study of the scope or impacts* of unpermitted projects would not be an effective use of Commission resources. We already know that permits are often not pulled for building retrofit work or even for construction of ADUs. But enforcement of permit requirements is extremely difficult because AHJs do not have the tools or resources to readily

¹ DNV GL, Results of HVAC6 Phase One Market Assessment of Residential HVAC Installations (July 18, 2016), *available at* http://www.energydataweb.com/cpucFiles/pdaDocs/1598/HVAC6%20Market%20Assessment%20of%20Residential%20HVAC%20Installations%20Results%20Phase%20One_FINAL.pdf.

identify projects that fail to pull permits. Commission resources should be spent on helping to develop such tools, not on further studies to verify a problem that everyone already knows exists.

If the Commission were to pursue a study to determine the scope of non-compliance, the Coalition recommends starting with a focus on HVAC installations in both new and existing buildings, as information regarding such installations already exists. Federal regulations require the collection and retention of detailed sales and installation information for HVAC units. Pursuant to the Department of Energy's Regional Standards Enforcement Procedures, California distributors must retain the following records for at least 54 months from the date of sale of a central air conditioner unit: the manufacturer name, model number, serial number, date unit was purchased, party from whom the unit was purchased, date unit was sold to contractor or dealer, party to whom the unit was sold, and if delivered, delivery address.² Contractors must retain the following records for at least 48 months from the date of installation of a central air conditioner: the manufacturer name, model number, serial number (except for split-system central air conditioner indoor units), location of installation, date of installation, and party from whom the unit was purchased.³

Any study of permit non-compliance should leverage this existing data collection. This information would allow the Energy Commission to identify where equipment has been purchased but no permit has been pulled, and no Energy Code compliance documentation has been submitted.

5. Compliance Evaluation Should Focus on Meeting Existing Documentation Requirements

The Compliance Gap Analysis also asks whether compliance evaluation should be focused on the full text of the Energy Code or just a targeted set of key impact measures. Energy Code compliance documentation requirements (certificates of compliance, certificates of installation, certificates of verification and certificates of acceptance) already target key impact measures. By studying compliance with already existing documentation requirements, key impact measures will inherently be covered in an achievable manner.

² 10 C.F.R. § 429.142(a)(2).

³ 10 C.F.R. § 429.142(a)(1).

6. Understanding Variability in Local Jurisdictions Workflow, Capacity, and Supporting Infrastructure

With compliance responsibilities spread across hundreds of local building departments, each with its own practices and resources, sampling design must balance representativeness, feasibility, and administrative burden. First, sampling must ensure representativeness of jurisdictions. While large jurisdictions issue the majority of permits, smaller ones collectively cover much of the state's geography. Both must be included to capture the full picture of compliance. It is equally important to recognize the variation in local enforcement. Some AHJs have strong procedures and staff capacity, while others have limited resources or inconsistent enforcement. A sampling designed that only includes well-resources AHJs risks overstating compliance rates.

Second, data availability and consistency pose major challenges. Some AHJs maintain detailed digital permits and inspection records, while others rely on paper files or track little information related to Energy Code enforcement. This inconsistency complicates sampling and may require supplemental field verification. Moreover, whole-building energy measurements cannot substitute for evaluation of individual building systems because they do not verify whether specific systems are functioning as designed and can create opportunities for manipulation. Instead, sampling should prioritize system level verification, especially for HVAC equipment and lighting, which represent a major share of building energy use.

Third, the administrative burden on AHJs must be considered. Many smaller jurisdictions lack the staff capacity to participate in labor-intensive data collection or respond to repeated data requests. A practical sampling strategy must minimize burden and should not take away from their enforcement efforts.

Currently, there are no mechanisms for AHJs to efficiently share compliance data with the Energy Commission. To address this gap, the Energy Commission should develop and operate a centralized compliance database. Such a system would allow local jurisdictions to upload permitting, inspection, and acceptance testing data in a standardized format, making it accessible to relevant stakeholders and agencies. This would provide regulators with real-time insight into compliance performance across the state, support more accurate evaluation of savings, and enable targeted interventions where problems are the most common.

Shifting responsibility for compliance data collection and management to private entities is inappropriate, costly, and irresponsible. Private data systems are designed to profit from access and can create barriers for smaller jurisdictions, contractors, and even regulators. They raise costs for local governments, which are already resources-constrained, and risk fragmenting the data landscape further than solving the problem of siloed information. Compliance data is a public good – it should be collected, managed, and overseen by the agency charged with ensuring the Energy Code’s effectiveness.

Finally, minimizing the burden on local jurisdictions is essential as AHJs operate with limited staff and resources. Data collection strategies must therefore be designed to reduce duplication, automate reporting where possible, and centralize compliance data. This can be accomplished in four ways.

First, the Energy Commission should establish a centralized compliance database. Rather than requiring AHJs to respond to repeated data requests or maintain separate reporting systems, jurisdictions could upload permit, inspection, and acceptance testing data once in a standardized format. This approach would eliminate fragmented requests, reduce administrative workload, and give regulators real-time visibility into compliance trends statewide.

Second, wherever possible, the Energy Commission should leverage existing permitting and inspection systems. Many jurisdictions already collect digital records through building department software. Creating simple interfaces or automated feeds that transfer this information directly to the Commission would minimize manual reporting and make participation nearly effortless for local staff.

Third, the Energy Commission should prioritize high-value, standardized fields that can be reported consistently across jurisdictions. Overly complex or customized data requirements increase the reporting burden and reduce data quality. A limited set of standardized fields – such as project type, system tested, acceptance test results, and permit closure status – can provide meaningful insights without overwhelming local departments.

Fourth, the Energy Commission should provide support and training to smaller or resource-constrained jurisdictions. This could include technical assistance, standardized tools or templates, and dedicated staff who can help

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jurisdictions upload data or troubleshoot reporting issues. By ensuring that participation is straightforward and supported, the Energy Commission can reduce the risk that smaller AHJs are left out of compliance evaluations.

In short, minimizing burden on local jurisdictions requires a centralized, standardized, and supported approach. With a single Commission-run database, integration with existing systems, and targeted assistance to smaller AHJs, compliance data can be collected efficiently without overtaxing local resources.

IV. CONCLUSION

We thank the Commission for undertaking the Energy Code Compliance Gap Analysis and for its efforts to shed light on Energy Code compliance. The report provides valuable insights into data gaps and areas for future study. However, the most urgent need is to turn this knowledge into action.

We encourage the Commission to focus its resources on improving enforcement of permits and acceptance testing, which remain the most immediate and effective levers for closing the compliance gap. By strengthening these foundations of process-based compliance, the Commission can ensure that efficiency measures are installed and verified as intended, deliver real energy savings, protecting consumers, and maximizing the return on the state's investments in the Energy Code.

Thank you for consideration of these comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Andrew J. Graf".

Andrew J. Graf

AJG:lj1