

Testimony to the Little Hoover Commission
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Underground Economy: Contractors Failure to Pull Permits
for Residential HVAC Replacements

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Little Hoover Commission Request: The Commission would like to better understand the role of the Energy Commission in addressing the high rate of regulatory violation associated with the installation of heating, ventilation and air conditioning (HVAC) systems in California, and the challenges this situation poses for the state's energy policy objectives.

1. What is the history of the state's efforts to address this problem?

In May 1974 Governor Ronald Reagan signed into law the Warren-Alquist Act that established the California Energy Commission as the state's lead agency for energy policy. One of the primary duties assigned to the Energy Commission was the adoption and periodic update of the California Building Energy Efficiency Standards (Standards) "in order to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy." The Standards (California Code of Regulations, Title 24, Part 6) were first adopted in 1977, and the Energy Commission updates them on a 3 year cycle in parallel to other Parts of the California Building Standards Code (Title 24). The Standards establish requirements for newly constructed buildings and for additions and alterations to existing buildings when permits are required to be pulled. The Standards reduce energy bills; reduce statewide energy system reliability and costs; avoid building unnecessary powerplants; improve outdoor air quality; improve building comfort, indoor air quality and functionality; lower the cost of emerging energy efficiency technologies and building practices, and mitigate climate change. Failure to incorporate energy efficiency measures at these critical points in the life of buildings represents a lost opportunity for the owners and occupants of the building and for the state as a whole because making these improvements on a retrofit basis is more expensive or impossible.

For the first 20 years of this history, the Energy Commission's Standards focused on the need for energy efficiency measures to exist in buildings. In the 1990's the Energy Commission, through field research related to common construction defects, became acutely aware of the need for the Standards to also address the quality with which measures are installed. This first was done for duct leakage where research showed that the average system leaked almost 30% - this is a big waste of energy, makes the system work much harder because the leaked air just

goes to heating or cooling the air in the attic rather than in the house, and potentially creates unhealthy conditions by sucking in dust, insulation material or even carbon monoxide if the leaks are on the return side of the duct system. At the time the Energy Commission began to first address this problem, the California Mechanical Code said only that ducts should be “substantially tight,” and there was no way to tell if that vague criteria was met or not. The Energy Commission participated in a national effort with the American Society of Heating, Ventilating and Air Conditioning Engineers (ASHRAE) to develop a test procedure that pressurizes the ducts to a standard condition so that leakage can be accurately measured, and set a level of 6% leakage as the criteria that was missing.

Field research also found that air conditioners commonly are poorly installed. For split system air conditioners, which have an outdoor unit typically in the yard and an indoor unit typically in the attic, contractors have to install refrigerant lines between the two units that fit the house and then get the right amount of refrigerant installed for that refrigerant line set. Although there are precise gauges for measuring refrigerant and testing the system using protocols recommended by the manufacturers, it is a time consuming process that in a low-bid competitive environment contractors often short-cut. Field research indicates that the refrigerant charge is often too low, and as a result the efficiency of the air conditioner can be reduced by 20 – 40%. The Energy Commission established standard protocols across manufacturers with specific criteria for gauge measurements to demonstrate quality installation of refrigerant.

When the Energy Commission was first beginning to address quality installation in the Standards, the California Building Industry Association’s (CBIA) number one issue was builder liability associated with construction defect litigation. CBIA actively worked with the Energy Commission on protocols to address quality installation of energy efficiency measures, and strongly encouraged the Commission to establish requirements for third party verification by a Home Energy Rating System rater, serving as a “special inspector,” as local building departments were not likely to have the expertise or resources to conduct the needed testing.

The Commission first introduced field verification of the quality of duct sealing and refrigerant charge as a compliance option in the 1998 and as a requirement in the 2001 Standards for newly constructed buildings in California climates with hot summers. However, these defects were as least as prevalent when HVAC systems were installed at “change-out” (replacement) of furnaces and air conditioners in existing homes, and the energy savings potential of getting it right was even greater for those homes. Consumer protection was important given that defects in these installations would result in homeowners not receiving the energy savings that was expected when they upgraded their units to meet the efficiency levels in compliance with federal furnace and air conditioner standards.

As a result in November 2003 the Energy Commission adopted requirements that went into effect in October 2005 for duct sealing and refrigerant charge verification for residential HVAC change-outs. At the time that these requirements were adopted, it was recognized that a significant fraction of change-outs were done without building permits, and that such actions as

publicity on Energy Commission and other public websites, consumer information campaigns, and publicity on HVAC industry websites would be useful to overcome this problem.

In December 2004 Governor Schwarzenegger issued Executive Order S-20-04¹ directing state agencies to take leadership roles in achieving energy efficiency. The Executive Order included direction to the Energy Commission to “collaborate with the building and construction industry state licensing boards to ensure building and contractor compliance” with the Building Energy Efficiency Standards adopted in 2003. In July 2005 the Energy Commission entered into a Memorandum of Understanding with the Contractors State License Board (CSLB). The MOU stated the following:

This MOU “establishes a collaborative working relationship to improve the performance of licensed contractors in their responsibility to comply with the Building Energy Efficiency Standards and addresses the Governor’s Executive Order S-20-04 ... The Standards require installation of energy efficiency features and measures. Special compliance credit is provided for high quality installation practices. Compliance by contractors is critical to achieving the energy, economic, public health, safety and welfare, and environmental benefits of the Standards. A commitment to compliance and attention to installation protocols by contractors is absolutely necessary. For the 2005 Standards the Energy Commission extended its emphasis on quality installation to particular alterations of existing buildings. When air conditioners are replaced, the duct systems that they are attached to must be sealed, and the refrigerant charge must be correct ... The CSLB has the authority to license and discipline ... contractors ... The efforts of this MOU support CSLB’s mission which includes ensuring that construction is performed in a competent and professional manner; enforcing the laws, regulations and standards governing construction contracting in a fair and uniform manner; providing resolution to disputes that rise from construction activities; and educating consumers so that they make informed choices ... This MOU establishes a pilot program for cooperative work between the CSLB and the Energy Commission to focus on educating licensed contractors and consumers on Standards compliance.”

As a result of this MOU, the Energy Commission and the CSLB have jointly and separately provided a substantial amount of information to licensed contractors and consumers (see early examples²) regarding the benefits of and requirement for building permits to be pulled and Standards requirements for change-outs to be met.

In June 2008 the Energy Commission released the *Strategic Plan to Reduce the Energy Impact of Air Conditioners*³ (Plan), pursuant to the direction of AB 2021 (Levine, Statutes of 2006). This seminal Plan was the product of a 45-member working group of professionals in the HVAC

¹ http://www.alicelaw.org/uploads/asset/asset_file/841/2004_California_Executive_Order_S-20-04.pdf

² CSLB Alerts Contractors to New Heat and Air Conditioner Work Law, <http://www.cslb.ca.gov/GeneralInformation/Newsroom/IndustryBulletins/IndustryBulletins2005/IndustryBulletin20050929.asp>

Letter to Homeowners: Save Energy and Money – Have Your Ducts Sealed, http://www.energy.ca.gov/title24/2008standards/changeout/documents/2010-07-06_Letter_Regarding_Duct_Sealing_and_Permitting.pdf

³ <http://www.energy.ca.gov/2008publications/CEC-400-2008-010/CEC-400-2008-010.PDF>

industry, sponsored by the Energy Commission and the California Public Utilities Commission (CPUC).

“The working group concluded that focusing merely on increasing or improving the rated efficiency of new cooling would not successfully result in the goal of reduced peak energy use. This is because the widespread lack of quality control procedures during system installation can increase the actual HVAC system energy use by 20 to 30 percent, regardless of their rated efficiency. The lack of quality control is exacerbated by the failure of many contractors to pull building permits and verify quality when replacing air-conditioning systems.”

“The majority of the strategies presented in this plan focus on improving the customer’s ability to verify that a quality installation has been achieved by introducing quality control procedures ... This report provides recommendations to ... reduce the cost of pulling permits and increase the probability that contractors will pull legally required permits; and complete quality work in compliance with building code and licensing requirements for HVAC installations.”

The Plan established the following Vision:

“A revitalized HVAC industry will contribute to increased energy efficiency and reduced peak electricity use. California’s consumers will recognize and demand quality installations and maintenance services of cooling and heating systems that result in lower peak energy use, better comfort, higher reliability, and better indoor air quality. This will lead to sustained profitability for the HVAC industry and trade allies as the business model changes from a commodity to a value-added service business.”

“Contractors must routinely pull permits for HVAC system installations in existing homes and compete for customer jobs based on their reputation as a quality provider of installation and maintenance services that maximize comfort, system performance, and reliability. Building officials and Energy Commission compliance staff must work together to ensure consistent enforcement of the current building standard requirements so that conscientious contractors are not disadvantaged in the market for properly seeking a permit and certification of quality installation practices.”

The Plan concluded that approximately 10 percent of residential replacement installations pull building permits and meet the quality verification requirements in the 2005 Building Energy Efficiency Standards⁴. The Plan (Appendix A, pp. 30-31) estimated that in 2005 about 340,000 central air conditioning systems were replaced in California homes, which would have had the potential for high energy savings if they had been quality installed. The report estimated that if the contractors installing these systems had pulled permits, met field verification requirements and followed quality installation procedures, that California’s peak energy load would have been reduced by 130 MW each year following installation. To put this into context the report indicated that this would have been about 80% of the peak energy savings resulting from the entire portfolio of energy efficiency programs operated by Southern California Edison at the time.

⁴ This conclusion was based on the study “*Enforcement of T-24 Compliance Pertaining to Residential Alterations*,” Steve Mohasci, Energy Standards Liaison for the Institute of Heating and Air Conditioning Industries, Inc., August 2006 and the knowledge of the working group members.

In September 2008 the CPUC released the *California Long-Term Energy Efficiency Strategic Plan*⁵. The Strategic Plan set a roadmap for a comprehensive set of program areas that the California investor-owned utilities (IOUs) to pursue through the year 2020 and beyond. The Strategic Plan gave highest priority to 4 Big/Bold Strategies, including “Heating, Ventilation and Air Conditioning (HVAC) will be transformed to ensure that its energy performance is optimal for California’s climate.” Chapter 6 of the Strategic Plan established goals and implementation plans for pursuing the Big/Bold HVAC initiative. The Strategic Plan built upon the AB 2021 Plan to establish the goal of “Consistent and effective compliance, enforcement, and verification of applicable building and appliance standards.” The implementation plan recognized:

“Changing the status quo will require significant effort, since contractors who comply with HVAC code provisions incur higher costs that are difficult to pass onto customers in a highly competitive market. Such contractors may also experience delays due to local government permit timelines. Local building officials may not have the resources or knowledge to establish streamlined permitting systems to support quality HVAC installations or penalize contractors who do not comply.”

The HVAC implementation plan emphasized convening of industry and local government stakeholder groups to develop further action, including participation by the CPUC, Energy Commission, CSLB, IOUs, building officials and industry representatives.

In May 2009 the CPUC convened an HVAC Roundtable, which resulted in the creation of the Western HVAC Performance Alliance (WHPA) to spearhead the development of the more specific HVAC Action Plan⁶ (published in March 2011) to flush out specific actions to achieve the Strategic Plan’s goals and further implementation. The WHPA is large organization of 200 HVAC industry organizations. The Compliance Committee⁷ of the WHPA actively pursues the HVAC compliance goal of the Strategic Plan with representation of all of the stakeholder groups identified in the Strategic Plan.

In March 2009 the U.S. Department of Energy authorized the Energy Commission to administer the federal American Recovery and Reinvestment Act (ARRA) State Energy Program and the state administered part of the Energy Efficiency and Conservation Block Grant Program. The Energy Commission allocated a portion of this funding to local and regional agencies to develop and implement market transformation programs, piloting whole house energy upgrades in California, in collaboration with the CPUC and IOUs through the *Energy Upgrade California (EUC)* program. These programs included consumer information, homeowner recruitment, contractor workforce development, homeowner and contractor support, rebates and financing programs. The programs were operated in conjunction with IOU whole house energy efficiency programs that conducted homeowner intake, project tracking, quality assurance and control, and provided rebates. 5,407 whole house projects were encouraged by ARRA funding, of which about 40% had HVAC change-outs. The Energy Commission required program administrators to ensure that contractors doing the upgrades be licensed and pull permits (the

⁵ <http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf>

⁶ <http://www.cpuc.ca.gov/NR/rdonlyres/25B56CBE-7B79-41BC-B1C0-AE147F423B19/0/HVACActionPlan.pdf>

⁷ <http://www.performancealliance.org/Committees/StrategicPlanGoal1Compliance/tabid/200/Default.aspx>

CPUC separately directed that IOU whole house programs to ensure this). The IOUs who did the project tracking for the *EUC* projects took different approaches to comply with this direction; permit numbers were collected for less than half of the projects.

In October 2009 the U.S. Department of Energy authorized the Energy Commission to administer the federal ARRA State Energy Efficient Appliance Rebate Program in California, named the *Cash for Appliances Program*. This program offered \$35.2 million for rebates for Californians to install high efficiency appliances, including HVAC equipment. The Energy Commission required that applications for rebates include the contractor license number [the program verified that these licenses were valid], a copy of the executed building permit, and a copy of the certificate of verification form showing that the duct sealing and refrigerant charge requirements in the Building Energy Efficiency Standards were verified to have been met. The program paid 17,505 HVAC rebates between July and December 2010 (9,099 central air conditioners, 7,539 furnaces and 854 heat pumps, 13 boilers), totaling over \$11 million.

In June 2010 the CSLB MOU was extended further to include other areas of collaboration, including:

- “Cooperatively explore additional communications with building departments, contractors, and consumers.”
- “[CEC] Report alleged violations of permit requirements, Building Standards, Appliance Regulations, HERS Regulations, and/or Contractors License Law when appropriate.”
- “Participate in the joint investigation of complaints about contractor noncompliance, including inspection of job sites.”
- [CEC] Upon request, provide assistance to CSLB at CSLB sting and sweep operations.”
- [CEC] Upon request, provide testimony and documentation to support any disciplinary action undertaken by CSLB against contractors for their failure to comply with ... Standards ...”
- “Participate in joint task force meetings to develop working relationships and strategies to enhance the enforcement of ... Standards ..., as well as the CSLB Rules and Regulations.”

As a result of this expanded MOU, CSLB actions to enforce pulling of building permits and compliance with Standards increased with Energy Commission support, including the creation of a Permit Violation Referral Form⁸, inclusion of a focus on failure to pull permits in CSLB stings and sweeps, resolution of complaints regarding failure to pull permits and comply with the Standards, active communication to contractors and consumers about expanded enforcement efforts (see examples)⁹, and active participation in the Compliance Improvement Advisory Group and the Western HVAC Performance Alliance.

⁸ Filing a Building Permit Violation Referral,

<http://www.cslb.ca.gov/consumers/filingacomplaint/BuildingPermitComplaint.asp>

⁹ Energy Efficiency and HVAC Building Permits,

http://www.energy.ca.gov/title24/2008standards/changeout/documents/C-20_Permit_Enforcement_Letter.pdf

Active Enforcement of Building Energy Efficiency Standards, <http://www.cslb.ca.gov/Newsletter/2010-Summer/page7.htm>

Unlicensed Contractors Full of Hot Air,

<http://www.cslb.ca.gov/GeneralInformation/Newsroom/PressReleases/PressReleases2010/News20100804.asp>

In 2010 the California Attorney General's Office investigated a concern that the California IOUs were awarding rebates for installation of high efficiency HVAC units in existing homes, without any obligation to pull building permits. After extensive discussion with the Energy Commission, Governor's Office, CPUC, and the IOUs, the AG's Office requested that applications for rebates include an affirmation that the unit had been installed "... in accordance with all applicable permitting requirements, and where applicable by a licensed contractor," a checkbox indicating that a permit was obtained and a line for the permit number, and a checkbox indicating whether a licensed contractor was used and a line for the license number. In 2011 the IOUs ultimately agreed to post a customer education piece, Guide for Heating, Ventilating and Air Conditioning (HVAC) Systems (see example¹⁰), on their websites, and adding the following to their rebate applications:

By checking this box, I confirm that I have used a licensed contractor, as appropriate, and followed applicable permitting requirements for this installation.

The IOUs stated that, "It is not the role of the IOUs to act in an enforcement capacity for other jurisdictional agencies and we are unaware of any statutory or regulatory requirement that would require us to implement an enforcement program ... Collecting specific permit and license information may cause the IOUs to overreach in this respect ... Despite the IOUs not being in an enforcement role, the IOUs actively contribute to the development of a culture of compliance in California through participation in the statewide Codes & Standards Program ... the Codes & Standards Compliance Enhancement Program's primary purpose is to increase the number of customers complying with energy efficiency standards through delivery of the following services:

- Providing training and support to building officials;
- Developing and testing process improvement tools while collaborating with California Building Officials (CALBO) ... and the CEC to conduct outreach and encourage other jurisdictions to adopt these tools;
- ... and Working with different experts and entities to simplify and expedite the permitting and compliance processes such as increase the availability of online permitting resources and consistency of requirements and documentation across all jurisdictions."

In October 2010 the Statewide IOU Codes and Standards Team started the Energy Code *Compliance Improvement Advisory Group (CIAG)* "... creating a forum for relevant spokes in the compliance wheel to cooperatively explore potential solutions to today's significant compliance issues." The CIAG is comprised of 20 practitioners representing a wide variety of professions whose role is contributing street-level advice. The CIAG did not intend to duplicate nor replace the work of the WHPA, but would fold WHPA findings and analysis into the CIAG's broader context of compliance improvement. The invited 20 members of the CIAG included building department plan checkers and building inspectors, the CSLB, the Energy Commission, as well

Changing Your HVAC System? Don't Forget Permits, <http://www.cslb.ca.gov/generalinformation/newsroom/pressreleases/pressreleases2011/News20111116.asp>

Remember Building Permits to Avoid License Penalties, <http://www.cslb.ca.gov/Newsletter/2013-Spring/title24.asp>

Message From the Board Chair, <http://www.cslb.ca.gov/Newsletter/2013-Winter/index.asp>

¹⁰ <https://www.socalgas.com/for-your-business/rebates/hvac-systems.shtml>

as the other specific practitioners. Although the CIAG addresses the much broader scope of compliance with the Standards for newly constructed buildings and additions and alterations to existing buildings, both residential and nonresidential, including requirements for HVAC, the building envelope, lighting and plumbing, the CIAG has placed substantial emphasis on the compliance problems and potential solutions for residential HVAC change-outs. The CIAG has worked collaboratively to write some excellent white papers on these problems and solutions, including:

- *Creating Incentives for Contractors to Comply with Energy Codes*¹¹
- *Help Consumers Realize the Value of Compliance*¹²
- *Tracking Sales and Permit Volume*¹³

2. *What legislative efforts have been made to provide state agencies with greater authority in addressing the problem? Have those efforts been successful? If so, to what factors can the success be attributed? If not, please explain this.*

AB 549 (Longville, Statutes of 2001): Public Resources Code 25402.6.

“The commission shall investigate options and develop a plan to decrease wasteful peakload energy consumption in existing residential and nonresidential buildings ...”¹⁴

The Energy Commission published in November 2005 “*Options for Energy Efficiency in Existing Buildings*.”¹⁵ The report mentioned (p. 9) the direction in Executive Order S-20-04, the MOU with CSLB, and the special attention on achieving contractor compliance with the Standards requirements for alterations to existing buildings. The report also mentioned (pp. 30-31) the importance of quality installation of HVAC equipment, using protocols and third-party verification procedures developed by the Energy Commission for change-outs.”

AB 2021 (Levine, Statutes of 2006): Section 4.

“(a) The Legislature finds and declares that the use of air-conditioners in a hot, dry climate drives peak electricity demand in much of this state. (b) The ...Energy ... Commission shall ... (1) Investigate options and develop a plan to improve the energy efficiency of, and to decrease the peak electricity demand of, air-conditioners.”¹⁶

As discussed above, the Energy Commission published the *Strategic Plan to Reduce the Energy Impact of Air Conditioners* in June 2008, pursuant to AB 2021. This plan developed by a working group of industry experts was foundational to actions that have been taken within the

¹¹ <http://www.caciag.com/Documents/Creating%20Incentives%20for%20Contractors%20to%20Comply%20with%20Energy%20Codes%20FINAL.pdf>

¹² <http://www.caciag.com/Documents/Help%20Consumers%20Realize%20the%20Value%20of%20Compliance%20White%20Paper%20FINAL.pdf>

¹³ <http://www.caciag.com/Documents/Tracking%20Sales%20and%20Permit%20Volume%20FINAL.pdf>

¹⁴ http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200120020AB549&search_keywords=

¹⁵ <http://www.energy.ca.gov/2005publications/CEC-400-2005-039/CEC-400-2005-039-CMF.PDF>

¹⁶ http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB2021&search_keywords=

state to try to change the underground economy that exists related to HVAC contractors failing to pull permits and comply with state and local laws, including the Standards.

AB 758 (Skinner, 2009): Public Resources Code 25943.

“ (a) (1) ... the commission shall ... develop and implement a comprehensive program to achieve greater energy savings in California’s existing residential and nonresidential building stock. This program shall comprise a complementary portfolio of techniques, applications, and practices that will achieve greater energy efficiency in existing residential and nonresidential structures that fall significantly below the current standards in Title 24 of the California Code of Regulations ...”¹⁷

The Energy Commission has been conducting an extensive public proceeding to develop an Action Plan for the *Comprehensive Energy Efficiency Program for Existing Buildings*.¹⁸ The Energy Commission released a Draft Action Plan in June 2013 that recognized support for Standards compliance and enforcement as a high priority, “no regrets” strategy.¹⁹ The Draft Action Plan recommended the following key initiatives:

- “Conduct statewide studies to understand and monitor the extent to which permits are being obtained and compliance is being achieved.
- Develop approaches to track and determine whether specific equipment sold and installed in California complies with state and local requirements.
- Develop or adopt a statewide online permitting system for local building departments and contractors. Collaborate with manufacturers, distributors, and retailers to encourage contractor and consumer participation in the online permitting system and tools.
- Collaborate with state and local agencies to actively enforce state building standards and establish clear consequences for noncompliance.
- Encourage local governments to establish initiatives to improve enforcement of the state building standards and local energy and green ordinances. Provide nonmonetary incentives to market actors to increase the motivation to obtain permits and comply with current energy efficiency requirements.”

SB 454 (Pavley, Statutes of 2011). Public Utilities Code 399.4.

“ (b) (1) Any rebates or incentives offered by a public utility for an energy efficiency improvement or installation of energy efficient components, equipment, or appliances in buildings shall be provided only if the recipient of the rebate or incentive certifies that the improvement or installation has complied with any applicable permitting requirements and, if

¹⁷ http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100AB758&search_keywords=

¹⁸ <http://www.energy.ca.gov/ab758/>

¹⁹ <http://www.energy.ca.gov/2013publications/CEC-400-2013-006/CEC-400-2013-006-D.pdf> , pp. 23-27

a contractor performed the installation or improvement, that the contractor holds the appropriate license for the work performed.”

This language essentially codifies what the IOUs agreed to do in response to the request from the Attorney General’s Office discussed above. Relying solely on a certification by the homeowner or contractor assumes that the homeowner is knowledgeable regarding whether building permits are required, and assumes that the “honor system” will be reliable to ensure that permits are pulled and the Standards requirements are met. That flies in the face of the reason why the Little Hoover Commission finds it necessary to hold this proceeding on the Underground Economy. Greater due diligence would be achieved by following the Energy Commission’s *Cash for Appliances Program* example of expecting that rebate applicants also would provide the license number and permit number, and a copy of the permit and the certificate of verification that the HVAC equipment was installed in compliance with the Standards. The Sacramento Municipal Utility District’s (SMUD) high efficiency air conditioner and heat pump rebate program historically has required this documentation from the large number of contractors who participate in the program, as a condition of paying rebates on behalf of their customers (ratepayers). Although the installation of high efficiency air conditioners qualifying for the program is likely a small percentage of all air conditioners installed in the Sacramento area, there is a perception that the SMUD program drives a higher rate of pulling permits for all change-outs in the Sacramento area than the estimated 10% level for change-outs statewide.²⁰

3. *What is the Energy Commission’s role in addressing the problem? What challenges or barriers does the commission face?*

The CIAG white paper *Creating Incentives for Contractors to Comply with Energy Codes*, presents the results of a survey that the WHPA conducted to better understand how contractors assess the risk of not obtaining permits. The survey was sent to several contractor associations, the California Building Officials’ organization (CALBO), and the HVAC distributor trade group. These groups circulated the survey to their members and 268 responses were received. The findings were presented at the 2010 Institute of Heating and Air Conditioning Industries, Inc. (IHACI) show.²¹ The survey asked three questions. The graph below illustrates that there is a low expectation of any detection of wrongdoing for those who don’t obtain the permit.

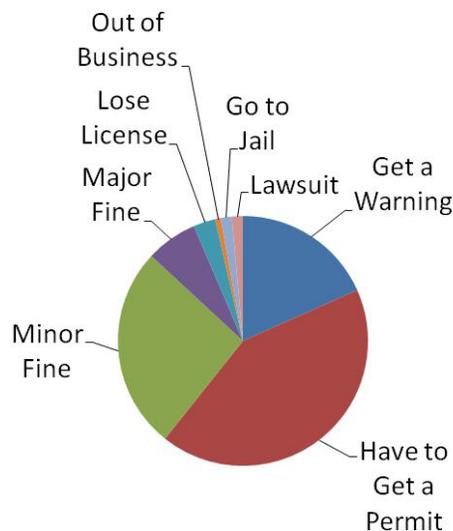
²⁰ One analysis estimates the rate of pulling permits for air conditioner change-outs in the City of Sacramento to be approximately 20% http://www.energy.ca.gov/ab758/documents/2012-10-08-09_workshop/comments/Proctor_Engineering_Group%20Ltd_Comments_2012-10-29_TN-68241.pdf, pp. 4-5.

²¹ The survey results were also reported in the paper “*Contractors Walk on the Wild Side...Why?*” by Kristin Heinemeier, Ph.D., P.E., University of California, Davis Western Cooling Efficiency Center, presented to the American Council for an Energy Efficient Economy Summer Study, August 2010. <http://wcec.ucdavis.edu/wp-content/uploads/2013/07/Kristin-Heinemeier-ACEEE-2012.pdf>



Would your competitor get caught for not taking out a permit?

The second question was equally as revealing. The majority of responses indicate that there would be no punitive effect expected. The offending contractor would just likely need to rectify the situation and would likely receive a warning not to do it in the future.



What would happen to him if he got caught?

The CIAG paper states the following:

“If they are caught doing work without a permit, currently CSLB’s maximum fine for the contractor for this violation is \$5000. In many cases, violations rarely escalate to this level. Most contractors who get caught just receive a warning letter. There is usually no repercussion to the building owner other than the inconvenience of work being interrupted and having to get a permit.”

The third question directly asks about the contractor's perception of the risk. The responses reveal that there is a significant number who would feel competitively disadvantaged for following the rules.



Why would he take this risk?

It is important to recognize the authorities, priorities and resources of the key public entities that would be expected to be in a position to address contractors' perception of very little risk and little business reason to pull permits and comply with the Standards.

Local Building Departments: Local building departments commonly have very low resources for doing the large job of ensuring that our buildings are structurally and fire safe and meet all building code requirements, including energy efficiency requirements. Building departments are also under pressure to do their reviews and require needed changes in construction projects as expeditiously as possible with little disruption to the local economic development resulting from these projects. Building departments get their revenue from building permit fees. Commonly, those fees are dialed back to amounts that only cover the costs of doing reviews for those projects that pay the permit fee. There is virtually no extra revenue coming from these fees that would be available to fund building departments to search the streets for projects that are being done without permits, and take corrective action against illegal projects. Building departments have no systematic way of identifying all installations of HVAC equipment that is occurring in their jurisdiction to be able to verify if permits were pulled for those installations. At best they can respond to complaints from competing contractors to identify jobs getting done without permits; however, this survey data would indicate that is a rare occurrence that poses a low risk to contractors.

Contractors State License Board: The CSLB is not responsible for ensuring that all construction projects are properly permitted and in compliance with the Standards. They are authorized to take actions to ensure that licensed contractors comply with the licensing laws as a condition of their licensure, including pulling permits and complying with building codes. This is a large and multi-faceted responsibility given the range of construction projects that are done related to buildings and facilities of all types, and the extensive set of requirements throughout the building codes. Their primary approach to these responsibilities is to address complaints that they receive from contractor customers. Addressing such complaints requires an extensive effort to determine the facts related to the complaint and provide a fair and equitable hearing of all parties involved and determination of appropriate consequences to resolve the complaint. Each complaint hearing and resolution case can take many months to comprehensively address. As the survey responses indicate, contractors perceive limited risk of major consequences coming out of this process. The CSLB necessarily places high priority on taking actions to stop projects that are done by unlicensed persons. As a result they augment their complaint response process by doing proactive stings and sweeps to catch unlicensed persons and contractors who are violating licensure and other state and local laws. This creates an opportunity for addressing the extensive problem of failing to pull permits and complying with the Standards by catching wrong-doers and making an example of persons who blatantly fail to comply. Stings and sweeps are an extremely valuable approach, which the Energy Commission strongly encourages, but the resources of the CSLB to do them on a wide scale and focus them on the issues that are of high importance to the Energy Commission is limited.

California Energy Commission: The Energy Commission has no express authority to levy sanctions, such as fines or stop work orders, for construction projects that fail to pull permits and comply with the Standards. We have no express authority to charge a fee to cover the Commission's costs related to Building Energy Efficiency Standards. We have virtually no resources to conduct enforcement related actions. As a result we are highly dependent on local building departments and CSLB to make maximum use of their authority and resources to create consequences for persons who fail to pull permits and comply with the Standards. What the Energy Commission can do is to work collaboratively with all stakeholders who would benefit from stopping the underground economy that motivates contractors to not pull permits and not comply with the Standards.

As discussed above substantial efforts have been conducted, since the original industry working group came together to prepare the AB 2021 Plan. At this point, 6 years later, the following major barriers need expanded attention to overcome the underground economy problems.

Tracking of Equipment Sold, Permitted and Installed

Very little data is available to determine the extent of the problem of contractor failure to pull permits and comply with the Standards. Estimates of the rate of pulling permits has been back-calculated based on estimates of the portion of national sales of residential furnaces and air conditioners installed in the state for change-outs and data regarding the number of projects that have been field verified by HERS raters. Data on permits has been very difficult to obtain

because there are 530 local building departments in the state that determine independently what data is useful to collect regarding permits and how such data should be organized. No centralized and systematic reporting of this data statewide exists. Without better information regarding the rate of pulling permits, it is difficult to assess improvement.

Resolution of the issues cannot be expected without the necessary data to track on an ongoing basis the sales, permitting and installation of specific equipment (by serial number for example) to localized area, such as the zip code level. Such a tracking system would allow the identification of localities with high and low compliance rates, so that targeted solutions to increase compliance could be developed and improved. Such data would enable exemplary building departments to be identified so that best practices could become models for improvement in other localities. Such a tracking system would need to be reliable, secure, accurate and cover most if not all equipment sold. Such a tracking system would have substantial development and maintenance costs.

Streamlining the Permitting Process

One of the reasons that contractors bypass the permitting process is the amount of time (and therefore added cost) to walk projects through the local building department permitting process. Typically, getting a permit to do the installation requires the contractor standing at the permit counter of the building department in question, understanding and completing the permit application process which varies across jurisdictions, and dealing with any unexpected documentation or change order directions. Closing out the permit typically requires the homeowner to schedule a final builder inspector visit, and addressing any rework instructions which can frequently come after the contractor has been paid for the work. Making the steps along the way more user friendly and less time consuming would reduce the inclination of the contractor to just bypass the process. Implementation of an online building permit process that standardizes the transaction, and allows it to be completed remotely without the time spent at the counter is a major opportunity. Such systems are being implemented at building departments across the country, including coordination of online permitting at big box home improvement stores. A substantial issue in the expanded use of online permitting is that building departments have unique documentation systems that resist standardization.



Collaboration with Enforcement Agencies

Failure to pull permits is often accompanied by blatant violation of other state and local laws that are underground economy issues to other agencies. Importantly, it withholds the revenue that local building departments rely upon to fund their work to protect the public through their review to ensure that safety and other building code requirements are met. Persons who fail to pull permits also may not be licensed contractors, or have business licenses to operate in the local area, or carry workers compensation for the employees on the job site (causing homeowners to be liable for accidents), or collect and pay sales tax on the HVAC units they install. Failure to pull permits may invalidate subsequent homeowners insurance claims. Failure to pull permits may indicate that homeowners have been advised to “act as their own contractor,” taking on the burden to oversee and secure quality and lawful work when they are unprepared to do so.

These myriad problems warrant collaborative enforcement approaches with the agencies that are impacted. CSLB spearheads stings and sweeps, in conjunction with local building departments, District Attorney offices and local law enforcement, coordinating with other state agencies participating in the Joint Enforcement Strike Force²². The CSLB in coordination with the Energy Commission has successfully incorporated failure to pull permits and comply with the Standards in stings and sweeps. Inclusion of these issues and referral to other agencies of the violation of other laws by contractors who fail to pull permits and comply with the Standards will be important to include in future stings and sweeps, to increase the consequences to violators.

Local building departments can strongly assist with reduction of the barriers that lead contractors to not pull permits and comply with the Standards. In cooperation with the Energy Commission and other stakeholders, they can take actions to streamline the permitting process, including moving to online permitting. One of the reasons that permits are not pulled is homeowner fear that building departments will find out about previous improvements that have been made without a permit. Building departments could provide “amnesty” for homeowners that voluntarily pull permits when previous un-permitted improvements are found. For example, fees and penalties could be waived for the previous violation.

4. Are there ways that you would suggest the state change or expand its approaches in this area? Are there recommendations that you would suggest the Little Hoover Commission consider?

The following efforts to change or expand approaches, to address the underground economy behavior of contractors failing to pull permits and comply with the Standards requirements for HVAC change-outs, are beginning to get underway. Each of these new and expanded approaches should establish better understanding, for how to systematically reduce the underground economy behavior that leads to contractors failing to pull permits and comply with the Standards, going forward.

²² <http://www.cslb.ca.gov/Newsletter/2012-Winter/underground.asp>

HVAC Code Compliance Incentive Program Pilot²³

The CPUC approved this “to code” pilot program in January 2014 for immediate implementation. The IOUs jointly developed this program in response to prior CPUC direction. The program will provide incentives for HVAC distributors and homeowners to voluntarily participate in conjunction with contractors in the tracking of the sale, permitting and installation of residential HVAC change-outs in compliance with the Standards. The pilot will be conducted during the current IOU program cycle in 3 hot summer climate zones: the Fresno area (PG&E), the Coachella Valley (Palm Springs area – Southern California Edison/Southern California Gas), and the hot inland area of San Diego County (San Diego Gas & Electric). The pilot is expected to be expanded to the rest of the state in the next program cycle. The program will pay distributors \$100 per unit to assign a unique ID number for each unit participating in the program and report that for tracking to the HERS registration system. The program will pay homeowners \$200 to “final” the permit after installation and verification by the HERS rater that the system meets the Standards requirements. These incentives can be shared with the contractor. The pilot program will be assisted through education of the market about the value of code compliance.

Cool Comfort Financing – HVAC Permit Compliance Pilot²⁴

Through Energy Commission allocation of ARRA funding for continuing financing programs, the County of Los Angeles and the California Center for Sustainable Energy recently launched this pilot program to provide low interest financing for high efficiency HVAC equipment change-outs with assurance that permits are pulled and installations comply with Standards requirements. The program is offered throughout Los Angeles and San Diego Counties. For the first 500 projects interest rates will be 2% (5 years) or 3% (10 years), moving to 4.99% and 5.99%, respectively, thereafter. CCSE will conduct active monitoring and troubleshooting to ensure proper permitting and compliance. CCSE will also work in collaboration with building departments to reduce barriers that cause contractors to not comply with permit requirements, including the development of approaches to streamline permit processing and to encourage the establishment of online permitting systems. CCSE will target the building departments of the 20 largest Cities in the area, whose jurisdictions represent approximately 25% of the entire population of California. The program will establish baseline estimates of the rate of permit pulling and compliance with the Standards in the area.

Ambassador Program

CSLB in collaboration with the Energy Commission plans a pilot program in conjunction with all of the local building departments in Santa Clara County to encourage contractors to pull building

²³ https://www.socalgas.com/regulatory/tariffs/tm2/pdf/4536_et_al_.pdf

²⁴ <http://energycenter.org/sites/default/files/docs/nav/buildings/contractors/cool-comfort/Cool%20Comfort%20Financing%20Webinar%20Slides%2BQ%26A%2011-5-13.pdf>

permits and comply with Standards requirements. CSLB will provide incentives to homeowners, whose contractors did not pull permits for change-outs that are required after July 1, 2014 to comply, to cover the cost of HERS rater verification for those projects. Contractors who have installed units that do not meet the requirements will be required to make all necessary repairs at their expense. The CSLB and Energy Commission will work with local building departments to waive penalties for failure to pull permits, and to offer reduced costs for permits for homeowners that participate. Contractors will be provided with informational materials that can be shared with prospective customers during the bidding process to help educate consumers about the value of using licensed contractors and making sure that permits are pulled and inspections are completed. CSLB is planning a town hall meeting in May 2014 to discuss the Ambassador Program with contractors and building officials.

California Homebuilding Foundation – Construction Industry Research Board²⁵

The Construction Industry Research Board (CIRB) has been collecting and reporting statistical permitting information for newly constructed residential buildings since the 1960's. The data is collected on a monthly basis from all of the building departments in the state, and summarized in standard reports that are provided on a subscription basis. Since 2012 the California Homebuilding Foundation (CHF), a research and education foundation of the California Building Industry (CBI), has provided funding for the continuation of CIRB. The Energy Commission and the CPUC were made aware in 2013 that CIRB had been receiving information also about permit activity related to alterations to existing buildings. The Energy Commission has held discussions with CHF/CIRB about the potential to use building department data submissions to better understand permit activity for HVAC change-outs. It turns out that there are major gaps in building department reporting, and the data is hard to organize because it is submitted in categories that make sense for individual building departments with substantial variation. It appears that it would take a major effort to establish standardized reporting for HVAC change-outs and solicit widespread participation by building departments, but given that precedent has been established for very useful reporting for newly constructed buildings, there is the potential that this could be extended to permitting of change-outs. This would need to be pursued in collaboration with the CPUC, IOUs, WHPA, CIAG and the building departments.

Market Assessment to Identify Baselines and Barriers for Existing HVAC Conditions, Building Permitting and Standards Compliance

The CPUC-approved Evaluation, Measurement and Verification (EM&V) Plan for 2013-14 includes this study to be completed during 2014. The study will estimate a baseline for “existing conditions” across California of HVAC industry standard practice in obtaining building permits and achieving Standards compliance. The study will examine the awareness of contractors and building officials on code requirements and verification processes. The study also will evaluate whether IOU efforts to ensure permits were pulled for the *EUC* program were sufficient.

²⁵ <http://www.myCHF.org/go/cirb/>