

## RESPONSES TO PUBLIC COMMENTS

Comment from Mark Meyers

Comment: "This study seems terribly flawed based on my experiences as a building official. Last year we found lots of systems replaced without permits of those not a single one was installed to the minimum code standards with out of date equipment not meeting minimum efficiencies to extremely poor quality installation that would have exceeded 20 % leakage. There were cases that were so egregious that we turned them over to CSLB and they did a great job of going after these licensed contractors that had performed the work. All were installed by CSLB contractors but because of the City's "kinder gentler" building department policy only the most egregious of the offenders were turned over to the CSLB. I'll close by saying if the results of this survey are correct then the local building department adds nothing to the compliance of HVAC installation and that all of the corrections written on system installed with a permits must be incorrect or unnecessary, and the unpermitted system were a waste of the local jurisdiction time in perusing, and that the consumer who is a very unsophisticated buyer in this market should be left to the market and they will get what they get".

**Response:** After further clarification, via an email exchange with the comment author, we were informed the above comment was applicable to multi-family apartments which are not within scope of the current sample frame.

Still, we appreciate anecdotal information as it constitutes valuable 'sniff test' to data collected in the field. The partial results of this memo so far support the common industry assumptions that: 1) there is room for improvement for both permitted and unpermitted work; and 2) building department officials may not focus on energy efficiency as they should due to various reasons, including lack of resources, although we are not researching the reasons why efficiency for permitted sites was not achieving expected results. This memo is not concluding that permits are not necessary or that building department officials' corrections are not beneficial. The results of this memo are based on a partial sample and we are not drawing final conclusions from it. The study includes other analyses and conclusions must be drawn from the results of the final report as a whole.

We would like to clarify that our preliminary analysis did identify non-permitted installations with duct leakage greater than 20% as stated in the comment. We appreciate the information and have follow-up questions that may inform our study:

- What is the rate of complaints and CSLB turnovers for the building department in question?
- Are complaints turned-over to CSLB tracked such that they can be analyzed? These may represent one extreme of the market and final permits are the other extreme with many of the non-permitted in our study falling in the middle.
- What other means or sources do you recommend to collect the data reflecting the experience described in the comment?

**Comment from CalCERTS, Inc.**

Comment1:

Thank you for the opportunity to comment on DNV-GL's Results of HVAC6 Phase One Market Assessment of Residential Permitting and Partial-Compliance (HVAC Assessment) supported by the California Public Utility Commission Energy Division's Evaluation, Measurement, and Verification work. As the Chief Executive Officer of CalCERTS, Inc., a Home Energy Rating Service (HERS) Provider, I am able to offer a unique perspective on DNVGL's HVAC Assessment.

CalCERTS applauds this important effort to assess the value and necessity of obtaining a building permit for the hundreds of thousands of HVAC units that are changed out each year in California. The importance of this study cannot be understated since it affects consumers on health and safety issues (inspected by building departments), and system performance issues (the Building Energy Efficiency Standards are *performance* standards) which are inspected and verified by HERS Raters. This market assessment must be done correctly and accurately to preserve the value of the \$1.4 million study cost, and to provide helpful guidance to policy makers going forward. A biased and flawed assessment cannot inform our industry and does not serve the interests of California's ratepayers.

Response1: [This is standard procedure for CPUC led studies.](#)

Comment2:

CalCERTS is an approved HERS Provider for the 2005, 2008, and 2013, California Building Energy Efficiency Standards, codified under Title 24 of the California Code of Regulations (Title 24). We are dedicated to working with stakeholders in the HVAC industry to improve and promote compliance with Title 24, and all building codes. Each day our *Field Support Team* answers calls and emails from contractors, installers, designers, builders, energy analysts, raters, and homeowners, all striving to comply with Title 24. Our team helps members of the industry work through the complicated nuances that arise when verifying compliance which in turn ensures energy efficiency for new and existing buildings. In addition, our *Quality Assurance Team* has conducted thousands of field reviews to verify the accuracy of our raters, who in turn verify compliance with Title 24. Through our involvement with the industry, we know firsthand that requiring permits and supporting enforcement leads to improved compliance with Title 24. Our experience in the field and on the phone conflicts with the preliminary conclusions espoused by DNV-GL.

Response2: [We believe that complimentary analysis of CalCERTS past field reviews would certainly contribute to this study.](#)

[In Phase 1 only 9 of the 26 permitted cases were identified in the CalCERTS registry therefore over half of the permitted and all of the non-permitted installations would not be a part of the CalCERTS ratings or QA team review. In the Phase 1 sample, 15 out of 26 permitted cases did not have compliance forms in the registry making it impossible to compare with raters inspections or for potential registry QA. The absence of forms in the registry for the majority of permitted projects in our Phase 1 sample was unanticipated.](#)

Note, we are currently conducting a separate analysis of the HERS verified installations forms for additional comparison although this analysis may be limited by the data made available to the study.

Comment3:

As Title 24 has evolved, HERS Raters have become the experts on compliance. With each code change, HERS Raters learn the new compliance rules and are certified or recertified by an approved HERS Provider. Through this process, we have found that raters are, to a large extent, the ones educating California's builders, contractors, installers, and building officials on the changes to Title 24. Permits facilitate this process and are integral to ensuring that the health and safety, as well as the energy efficiency benefits of Title 24 are realized by California's homeowners. Unpermitted jobs do not benefit from the use of a HERS Rater or Building Inspector. Energy efficiency assessments, health and safety inspections, verification of licensed contractors and installers, and the compilation of information and data to inform energy savings, rebate programs, quality installation, are *all* direct benefits of permitting.

Response3: We agree with the comment that permits have benefits. This study is not questioning the importance of permitting but investigating the assumption that permitting ensures full realization of expected efficiency. The scope of this study does not include efficacy of all permitting benefits, as energy efficiency is the CPUC's focus for this research. The partial results of this memo so far support the common industry assumptions that: 1) there is room for improvement for both permitted and unpermitted work; and 2) building department officials may not focus on energy efficiency as they should due to various reasons, including lack of resources, although we have not researched the reasons why efficiency for permitted sites was not achieving expected results.

Comment4:

Regarding this specific study, there are significant deficiencies within the *HVAC Assessment* and some perceived biases. In DNV-GL's initial proposed study 2) DNV-GL set out to test what it categorized as an "assumption" that permitted HVAC systems are more compliant with Title 24 than non-permitted systems. 3) DNV-GL's "rigorous test" of this assumption included no more than 27 permitted units throughout the entire state of California, spanning multiple code cycles. Despite this limitation, in its preliminary conclusions, DNV-GL claims that there is little difference between permitted and non-permitted systems with respect to compliance with Title 24. At best, the preliminary conclusions are questionable and not supported by industry experience. DNV-GL should be asked to detail its methodology for verifying compliance and should address the perceived bias within its study.

Response4: The preliminary data shows that there is no statistically significant difference in most cases between permitted and unpermitted sites. Still, in order to avoid the perception that the findings are conclusive, we removed language on the permit rate in the revised memo and reiterate that findings are preliminary. Conclusions and recommendations will be based on the results of all tasks planned in the Research Plan together with additional analysis we have scoped based on the comments received.

In phase two of the onsite inspections we are oversampling permitted cases. We are also evaluating self-selection bias in the overall study based on additional research either initially scoped in the Research Plan or highlighted in the revised Phase 1 memo. We restate that the methods used in this analysis was distributed as a separate document (July 2015) that was shared with stakeholders and was included as an Appendix to the Phase 1 of the memo results.

Comment5:

DNV-GL approached CalCERTS numerous times, for data to support its study. The requests were ever-changing, inconsistent, and revealed a significant lack of understanding of how compliance with Title 24 is verified. Through the evolution of its requests, DNV-GL appeared to be searching for a methodology to execute its study, rather than seeking data to conduct its study. CalCERTS offered to advise DNV-GL on how compliance forms are processed and verified; however, DNV-GL declined our offer. DNV-GL has not demonstrated the industry specific expertise needed to conduct this study. DNV-GL should be directed to further invite the HVAC industry to comment on DNV-GL's initial research plan and the *HVAC Assessment* so that it can gain the expertise needed to complete its work.

Response5: Generally, research is an evolving task where preliminary data is reviewed, processed and additional specifications may be made to achieve the objective. Normally, we scope the initial data we believe to be necessary to carry out the analysis. Once we obtain the data, further specification, clarification and/or request for expanded set of data is made if the initial data set is not sufficient for the scoped analysis. When limitations persist, we may need to refine or completely redefine methods, to the extent possible. In this particular study, DNV GL interacted with five separate CalCERTS representatives spanning over the course of a year, which may have caused confusion. Challenges in obtaining data requests caused the research team to cancel some scope or work previously requested.

In the case of this study, changes to our requests were due to, in addition to the evolving nature of research already explained, the fact that our initial data needs could not be fulfilled by CalCERTS as requested. Fulfilling data needs continue to be challenging.

We have requested industry input via webinars and written comments and received very little input until now. We welcome any further contribution from industry that can be implemented in this research.

Comment6 (Footnotes): In support of the above, our raters tell us that most HVAC contractors like to have the rater present at completion of the initial installation. This allows the rater to test the system and tell the contractor what is not in compliance so the contractor can make the appropriate adjustments to bring the system into compliance before leaving the job.

DNV-GL must not be allowed to blame the lack of industry related comments on its proposed study for its poor execution of the *HVAC Assessment*. DNV-GL was ostensibly awarded this contract based on its purported expertise and qualifications and/or its ability to secure the expertise needed to conduct the study.

Response6: Studies funded from the Commission approved funds for Evaluation Measurement and Verification are required to follow a Commission approved public process, which include

study plans, methods, findings (including partial findings), results and recommendations. DNV-GL has worked in evaluations for HVAC programs and other studies under contract with the CPUC for many years. We have specifically targeted the WHPA Compliance Committee for input as it is regarded as a key stakeholder group. Since the spring of 2015, DNV GL has attempted to engage CalCERTS as it holds essential data for this study with variable success. CalCERTS has had ample opportunity to review and engage in the study to support objectives and collaborate.

Comment7:

Towards this effort, last week DNV-GL presented the *HVAC Assessment* to the *Western HVAC Performance Alliance* (WHPA) and received tremendous feedback from industry players. This feedback should be considered to advise next steps. Industry expertise is needed to ensure that the findings are accurate, fairly target all relevant practices, and are scientifically defensible. Key terminology and concepts should be vetted and data sources should be identified.

Response7: Industry expertise has been sought out for input in every key stage of this research, including several previous presentations to this group and the public.

Comment8:

DNV-GL should not be allowed to forge ahead with this study simply to meet project deadlines since the work being conducted is flawed and will result in erroneous conclusions. CalCERTS recommends that the CPUC direct DNV GL to address the statistical and methodological deficiencies of the *HVAC Assessment* before moving on to Phase Two of the study. We also recommend that the comment period on the *HVAC Assessment* be extended so that stakeholders in the HVAC industry can have time to review the *HVAC Assessment* and have time to provide meaningful comments. The CPUC Energy Division's Evaluation, Measurement, and Verification work is very important to consumers, state energy goals, and the energy efficiency industry. It is imperative that the information gathered to inform future program and policy decisions be correct and complete. We appreciate the opportunity to help ensure that the Energy Division's efforts generate accurate data that is supportable by commonly acceptable scientific principles. Overall, DNV GL's study seems predestined to come to the conclusion that pulling a permit for HVAC installation will not lead to more energy efficiency. Yet having a permit, which triggers a HERS Rater, generates compliance forms that include *exactly* the information needed by the Energy Division to determine the energy savings being achieved through compliant installations for California homeowners.

Response8: DNV-GL will present findings based on analysis of the data and will contextualize results. One way that CalCERTS can support this study is by making data available to the CPUC and its contractor DNV-GL.

For all stakeholders interested, additional data or alternative methods or suggestions are welcome by August 31, 2016. Please send suggestions to:

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