

CALIFORNIA ENERGY COMMISSION

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Staff Supplement to CASE Report #2016-RES-HVAC1-F

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Subject: Residential HVAC Verification and Diagnostics 2016-RES-HVAC1-F

California Energy Commission

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DESCRIPTION OF PROPOSED REGULATORY CHANGES

CASE report #2016-RES-HVAC1-F, titled Residential HVAC Verification and Diagnostics, proposes to make the following changes to the Standards:

- Require that a liquid line filter drier be installed and verified on air-cooled air-conditioners and heat pump systems.
- Rename Charge Indicator Displays (CIDs) to Fault Indicator Displays (FIDs) to reflect that a broader range of devices can fulfill the specified technical requirements and be submitted for approval with the CEC.
- Clarify that manufacturer refrigerant charge procedure should be used, when available, as the basis for charge verification.
- Require that installers provide notice to homeowners that their units have not been verified of charge if outside temperatures are below 55°F and the installer has charged the unit(s) using the weigh-in procedure, but has not used the HERS observation of weigh-in procedure for verification of compliance.

Staff agrees with the proposed changes to 150.0(h)3, 150.1(c)7A, 150.2(b)1F, JA6.1, RA2.4.4 and has incorporated substantively similar changes into the proposed Express Terms.

Staff does not agree with the proposed changes to Section RA3.2 regarding alternate procedures and have instead proposed to make the following changes to Section(s) 10-109, RA1 and RA3.2 in the Express Terms:

- Clarify that if a manufacturer decides to submit their refrigerant charge procedure, or any other field verification protocol, for inclusion in the Residential Reference Appendices, then a formal submittal and review process will be taken by CEC Staff. If Staff

determines that the procedure is satisfactory, then an addendum to the RA Field Verification Protocols will be published.

Staff is proposing this alternative because the Residential Appendix already insists that the manufacturer's protocol be performed prior to performing the refrigerant charge protocol found in RA3.2. Given the variability of refrigerant charge procedures, RA3.2 standardizes the procedure for verifying correct charge in order for the installing contractor and HERS Rater to perform the same test for verification. Forgoing a standardized protocol will result in increased HERS Rater training as well as further complicate compliance forms and enforcement.

STAFF ANALYSIS AND CONCLUSION

Staff has analyzed the submitted CASE report and reached the following conclusions for the measures included in the Express Terms:

- Based on the evidence presented in the CASE Report, the measures, as proposed, appear to be cost effective and the author appears to have appropriately followed the Energy Commission's Life Cycle Cost methodology.
- Measure costs premiums presented in the CASE Report appear reasonable and appropriate for the measure proposed.
- Measure energy savings presented in the CASE Report appear to have been appropriately modeled and appear credible.
- Measure environmental impacts presented in the CASE Report appear reasonable and appropriate for the measure proposed.

Staff additionally find that the alternate proposal for RA 3.2 falls within the analysis of the CASE report and does not affect either the analysis or conclusion. The manufacturer's protocol for charging their system is still required to be followed: the change merely retains performing a standardized verification of charge as a following step.