| DOCKETED | |
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| **Docket Number:** | 23-DECARB-01 |
| **Project Title:** | Inflation Reduction Act Residential Energy Rebate Programs |
| **TN #:** | 260886 |
| **Document Title:** | Western States Council of Sheet Metal Workers Comments – Request for Information HEEHRA Phase II |
| **Description:** | N/A |
| **Filer:** | System |
| **Organization:** | Western States Council of Sheet Metal Workers |
| **Submitter Role:** | Public |
| **Submission Date:** | 1/3/2025 11:11:48 AM |
| **Docketed Date:** | 1/3/2025 |

*Comment Received From: Western States Council of Sheet Metal Workers*
*Submitted On: 1/3/2025*
*Docket Number: 23-DECARB-01*

## Docket Number 23-DECARB-01 â€“ Request for Information HEEHRA Phase II

*Additional submitted attachment is included below.*

**January 3rd, 2025**

California Energy Commission
Docket Unit, MS-4
Docket No. 23-DECARB-01
715 P Street
Sacramento, CA 95814

**Re: Docket Number: 23-DECARB-01 – Request for Information HEEHRA Phase II**

Dear Energy Commissioners and Staff:

We write on behalf of the Western States Council of Sheet Metal, Air, Rail, and Transportation Workers (SMART WSC). We appreciate the Commission's engagement with stakeholders in implementing HEEHRA Phase II and fully support the development of a comprehensive strategy to help streamline the rebate process, aligning with California's energy goals and standards.

We urge the Commission to learn from and leverage our Local Union No. 104's Residential Rebate Program - a successful maintenance and installation program of Heating, Ventilation, and Air Conditioning (HVAC) systems throughout Northern California which has issued over 30,000 rebates in the last 5 years for contractors utilizing members of Local 104. Dozens of contractors actively participate in the program and provide the rebate at Point-of-Sale. To meet California's carbon reduction and energy efficiency targets while focusing on equitable outcomes, Local 104 offers a rebate program paid for by Union Member Dues and by looking back on last year, 63% of the installers were from disadvantaged communities in California. The program offers AC tune-ups to new HVAC Heat Pump installs and we have found best practices throughout the program that pair well with our state-of-the-art training offered through our joint-labor management apprenticeship programs. Appendix A references approximated EPA calculated outcomes for energy savings from the Local 104 rebate program from 2018-2023.

SMART WSC represents Sheet Metal Workers' Local Unions in California, Arizona, Nevada, and Hawaii. Our members install HVAC systems 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. We partner with the Joint Committee on Energy and Environmental Policy (JCEEP) to research and accelerate best practices

in the industry along with our contractor partners. In California alone, SMART WSC operates over 15 training facilities, where thousands of workers are trained daily in HVAC specialties, including heat pump installations.

Sincerely,

Chris Ruch, Codes and Standards Representative (Local 104) - chrisr@smw104.org
Vince Sugrue, State Legislative Director (Local 104) - vince@smw104.org
Fernando Ochoa, Political Director (Local 105) - fochoa@smw105.org
Jeremy Zeedyk, Special Projects Coordinator (SMART WSC) - jeremy@wscsmw.org

**Input Request**
This RFI is only for the HEEHRA Phase II program and will support or inform the CEC's application to the DOE with proposals for program design, administration, timeline, and budget. When responding to questions, please include rationale, supporting documents or analysis, and/or data.

1. **Eligible Equipment and Appliance Rebates**
   The DOE defines eligible equipment and maximum rebates for low-income households and is illustrated in Table 1. For low-income households, rebates may not exceed the total project cost and total rebate specified by DOE, including equipment and labor. For moderate-income households, rebates may not exceed one half of total project cost and total rebate specified by DOE, including equipment and labor. CEC is considering which rebates and rebate amounts to offer in HEEHRA Phase II:
   a. Should all DOE eligible equipment (listed in Table 1) be available to single-family households and multifamily properties?
      i. To increase the amount of potential energy savings, this program should focus on Heating, Ventilation, and Air Conditioning (HVAC) equipment, electric panel upgrades and electrical wiring. HVACs are a primary driver of energy usage and in the event a panel and wiring are upgraded - California residents will be able to modernize their residence more easily with energy efficient equipment.
   b. Should the rebate amounts be reduced to allow more households to receive a rebate? If yes, please provide recommended amounts and rationale.
      i. No - with low and moderate incomes families being the targeted audience, these funding amounts provide access to these programs and encourage folks to procure energy efficient units. In reality, in order to have more participation in the program from both contractors and homeowners, the rebate amounts should more closely reflect the actual cost of the upgrade or replacement. The focus should be on quality as opposed to quantity. HVAC units only perform as designed when installed by skilled, trained, and certified technicians.
         1. Poor quality installation is pervasive. A study for a state energy commission found that 30 to 50% of new HVAC systems and up to 85% of replacement HVAC systems that

they evaluated were not performing correctly due to poor quality installation.[3,4]

2. Poor quality installation of HVAC systems results in a 20% to 30% increase in energy use.[1,2]
3. The EPA estimates that duct systems in a typical home lose about 20 to 30 percent of the conditioned air due to leaks, holes, and improperly installed ducts.[3]
4. A study conducted by the U.S. Department of Energy Office of Scientific and Technical Information demonstrated that moderate compression in flexible ducts, typical of that often seen in field installations, could increase the pressure drop by a factor of four, while further compression could increase the pressure drop by factors close to ten. This overreliance on flexible ducts can increase the likelihood of underperforming systems or increased unit size to compensate for poor installation practices.[4]

2. **Regional Allocation and Customer Engagement**
   With the HEEHRA program, the CEC is committed to reducing greenhouse gas emissions in existing homes while also improving efficiency and advancing energy equity. Key challenges to the success of income-based rebate programs like HEEHRA are homeowner access, education, outreach, and engagement. These challenges are particularly difficult in underserved, disadvantaged, low-income, and rural communities.
   a. To ensure fair geographic disbursement of funding that aligns with other energy equity programs, CEC allocated HEEHRA Phase I funding to three regions of California based on the proportion of under-resourced communities. This formula provides 23 percent of funding to Northern California, 19 percent to Central California, and 58 percent to Southern California. CEC is considering a similar allocation approach for HEEHRA Phase II funding. Should CEC consider other factors to ensure statewide distribution?
      i. No issue with the allocated percentages used in HEEHRA Phase I.

[1] Messenger, M. (2008). Strategic Plan to Reduce the Energy Impact of Air Conditioners. California Energy Commission Staff Report. CEC-400-2008-010. p. 20.
[2] California Energy Commission, Strategic Plan to Reduce the Energy Impact of Air Conditioners (June 2008), CEC-400-2008-010 at p. 5
[3] Improve your home's duct system for comfort and savings. (n.d.-b). https://www.energystar.gov/sites/default/files/asset/document/ES_Duct_Sealing_flyer.pdf
[4] Abushakra, B., Walker, I. S., & Sherman, M. H. (2002, July 1). Compression effects on pressure loss in flexible HVAC ducts. HVAC & R Research. https://www.osti.gov/servlets/purl/836654

b. Are there other active or past rebate programs in California or the United States with high uptake in underserved communities that CEC can learn from?
    i. Within the SMART WSC, our Northern California Union - Local 104, has an incredibly successful rebate program to help emulate what contractors and our members provide to customers at a point of sale. This program, which has been around for over 20 years, has dozens of contractors actively utilizing the rebate. Within the last 5 years alone, over 30,000 rebates have been issued to customers - from a single family AC tune up to a new HVAC Heat Pump Installation. While a variety of metrics are tracked in this process, in the last year alone, 63% of the installers lived in disadvantaged communities - showcasing a new important angle to consider when offering rebates. The rebate is funded through Union Dues and members are proud to offer it to customers as a thank you for utilizing a skilled and trained workforce with employee benefits that include livable wages, worker representation, a family-covered healthcare plan, and a pension.

3. **Contractor Engagement and Support**
As stated above, CEC is considering providing rebates for both DIY and professionally installed equipment. DOE requires states to maintain a list of eligible contractors who can participate in the program and professionally install qualified equipment requiring a certified installer. As a point-of-sale program focused on low-and moderate-income households, the CEC is interested in increasing contractor enrollment for specific electrification measures and support in underserved, disadvantaged, low-income, and rural communities.
    a. What are effective methods to recruit contractors to participate in the program, especially in underserved, disadvantaged, low-income, and rural communities?
        i. Prioritize high road contractors that have a track record of utilizing a skilled and trained workforce, participate in joint labor-management apprenticeship programs, and partner with the SMART WSC to help with contractor outreach and education. Through “badging” High Road Training Partnership (HRTP) participants, as proposed in the HEEHRA Draft Community Benefits Plan, and a priority listing of HRTP participating contractors, we can assure the CEC

increased participation from contractors in disadvantaged communities.

b. What type of training should the CEC offer to help installation contractors understand program requirements and streamline rebate processing for retailers, contractors, and homeowners?
    i. Partnerships with unions (SMART WSC) and high road contractor associations (SMACNA) would allow for a streamlined process for all involved. The SMART WSC proposes a collaborative training initiative in partnership with the California Energy Commission (CEC). We aim to develop a comprehensive training program for our contractors, to address any questions in coordination with the CEC, and deliver the training either at regional training centers or online, based on demand and interest. One of SMART WSC's affiliates, Local 104 has had a similar point-of-sale rebate program that they have been self-administering for the last 20 years. Just in the last 5 years, this program has issued over 30,000 rebates to date and with additional support from the CEC, this program and the HEERHA rebate program could be combined to increase the effectiveness of each while providing more benefits to the consumer.
    ii. We request that a CEC staff member familiar with the program requirements contact SMART WSC to initiate the training program's development.

4. **Point-of-Sale Methodologies**
For HEEHRA Phase II, the CEC plans to require the program Implementers/Administrator(s) to collaborate with various point-of-sale organizations – such as retail stores, wholesalers, online distributors, and registered installation contractors – to leverage the DOE-provided Home Energy Rebate Tools at https://www.pnnl.gov/projects/rebate-tools and DOE-certified vendor implementations for secure rebate processing
    a. How can CEC facilitate homeowners obtaining a rebate when shopping online? Are there any program design considerations or best practices unique to an online sales point?
    b. How can CEC support small and local business owner participation in the program design?
        i. Work with the SMART WSC on walking through how we organize our rebate program to ensure the maximization of units maintained

and installed. With our contractors offering the rebate at the point-of-sale, we see the most success in installing new energy efficient systems this way.

c. What are options for homeowners who don't have a smartphone and want to receive a rebate in store?
    i. In-store rebates should be limited or eliminated from this program in line with our position on question 1a(i) to encourage the installation of HVAC equipment and electrical upgrades.
d. What are challenging elements with existing point-of-sale rebate programs and what are some solutions or best practices to minimize or eliminate the challenge?
    i. For Heat Pump HVAC systems and Heat Pump Water Heaters, it is not ideal for homeowners to select equipment before consulting with a contractor. Ideally, the contractor should be involved early to assess the individualized home's needs, recommend qualifying equipment, and ensure compatibility with the manufacturer-certified technician training the contractor provides.

5. **Do-it-Yourself (DIY) Considerations**

The CEC is considering allowing rebates for equipment that a homeowner can install themselves, like a stove or insulation. For other equipment requiring a permit homeowners will need to work with professional, licensed installers. In both the DIY and professional contractor route, DOE requires homeowners to provide proof of a quality install. Examples of proof of a quality installation include proof of purchase or invoices plus before and after geo-tagged installation photos or county approved permit.

a. What are best practices to ensure a quality DIY install? What type of proof should be provided?
    i. How can a case be made for this without proper training?
    ii. Each of the systems listed in 5a(3) requires a certified professional with a thorough understanding of the system to ensure installation safety, maintain ongoing building safety, and achieve the expected energy savings.
    iii. Proper proof of installation would be provided by utilizing a high road contractor who ensures permit compliance and employs a skilled and trained workforce that has been properly trained in the installation of the listed equipment.

1. Heat Pump for Space Heating and Cooling
2. Heat Pump Water Heater
3. Electric stove, electric cooktop, or electric range
4. Heat pump clothes dryer
5. Electrical panel
6. Insulation, air sealing, ventilation
7. Electric Wiring

Even in the case of a stove - we would be worried too many homeowners would not adequately have the knowledge base and first hand experience to safely cap their own gas line and then properly install the new stove. This question of DIY completely negates safety and proper installation concerns to ensure the efficiency of systems.

There is also a question of proper sizing of equipment that most homeowners will not be qualified to determine. If equipment is undersized or oversized for the application, systems will not perform properly, which wastes energy, increases long term costs and shortens the life of the equipment. Utilizing a contractor with technicians with the expertise to properly size equipment is the right way to move this program forward and achieve the goals of the program in a fiscally responsible way.

b. What are some guidelines and best practices for a program that allows for DIY installation of eligible equipment?
    i. DIY installs should be encouraged on a limited basis and should be separated by the difficulty of installation. Any equipment that can simply be plugged into an existing terminal should have completely separate requirements than an item that requires installation beyond only plugging it in. Final inspection must be conducted by a third-party inspector, with proof of a closed permit provided upon completion of the installation.
c. Are there other successful rebate programs in California or the United States that have provided rebates for DIY installed eligible equipment?
    i. To our knowledge, there are no successful rebate programs that promote the installation of equipment without proper training. Moreover, the rebate program must address the critical issue of

permit non-compliance, as obtaining a mechanical permit is essential to ensuring adherence to state and regional requirements. Unfortunately, in residential projects, these fundamental protections are frequently overlooked. Allowing DIY installations would likely exacerbate this issue, further undermining compliance and safety standards.

1. A 2008 Energy Commission report revealed that permits for residential HVAC replacements were obtained only about 10% of the time[5]. The report estimated that addressing these issues could reduce California's annual peak energy demand by 130 megawatts[6]. (130 megawatt/hours equals 59.7 tons of CO2[7])
2. A decade later, the California Public Utilities Commision (CPUC) estimates that permits were obtained for less than 8% of residential HVAC replacements. Additionally, the number of replacement projects in the 2018 study had risen to approximately 1 million per year, nearly three times the figure reported in 2008[8].
3. This suggests that improving HVAC compliance alone could result in 400 megawatts of energy savings. (400 megawatt/hours equals 184 tons of CO2).

6. **Recycling Appliances and Refrigerants**
   The DOE does not provide funds for recycling of old equipment, appliances, or refrigerants. Recycling is important to the CEC's mission and may be considered a requirement where available for the HEEHRA Phase II program. Even where required by law, recycling and refrigerant recovery can be particularly challenging for disadvantaged, low-income, and rural communities, where facilities may not be available.
   a. How can the CEC ensure proper recycling of old equipment replaced by HEEHRA-funded measures?
      i. In addition to permit compliance, Heat Pump HVAC system installations should include the contractor's proof of proper

[5] California Energy Commission, Strategic Plan to Reduce the Energy Impact of Air Conditioners (June 2008), CEC-400-2008-010 at p. 17, 31.
[6] California Energy Commission, Strategic Plan to Reduce the Energy Impact of Air Conditioners (June 2008), CEC-400-2008-010 at p. 31.
[7] Environmental Protection Agency. (n.d.). *Greenhouse Gas Equivalencies Calculator*. EPA. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
[8] See California Energy Commission, Request for Proposals: HVAC Equipment Installation Compliance Tracking System Business Needs and Functional Requirements, RFP-16-403 (Feb. 2017) at p. 10.

equipment and refrigerant disposal, ensuring environmentally responsible practices.

**Appendix A:**

Local 104's rebate program from 2018 to 2023 has produced the following approximate results (based on the EPA Savings Calculator[9]) primarily in Northern California from the installation of more efficient units:

**2,850 AC/Furnace replacements**

- Lifetime lbs of GHGE saved - 112,763,140
- Lifetime kWh's saved - 72,371,490
- Lifetime savings to consumers - $11,557,000

**1,514 AC only replacements**

- Lifetime lbs of GHGE saved - 36,317,230
- Lifetime kWh's saved - 16,950,540
- Lifetime savings to consumers - $2,471,930

**4,011 furnace only replacements**

- Lifetime lbs of GHGE saved - 69,244,810
- Lifetime kWh's saved - 44,362,080
- Lifetime savings to consumers - $7,654,680

**Total of all:**

- 8,375 units changed
- Lifetime lbs of GHGE saved - 208,325,180
- Lifetime kWh's saved - 133,684,110
- Lifetime savings to consumers - $21,683,610

Properly marketing this program, as well as expanding its reach to Southern California, could likely double these numbers in 5 years.

Purchasing high efficiency equipment alone is not enough to ensure that units will perform as designed and achieve the intended savings. Utilizing a skilled, trained, and certified workforce is essential. According to the EPA[10], "improper installation can

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[9] *Energy Star Heating & Cooling Guide*. Savings Calculator | Products | ENERGY STAR. (n.d.). https://www.energystar.gov/products/heating_cooling/guide/savings-calculator/standalone?systemtype=2&splitorsingle=2&zipcode=&systemsize=48000&systemage=1996&smartthermostat=no

[10] *A guide to energy-efficient heating and cooling*. (2009). . U.S. Environmental Protection Agency, Office of Air and Radiation. https://www.energystar.gov/sites/default/files/asset/document/HeatingCoolingGuide%20FINAL_9-4-09_0.pdf

reduce system efficiency by up to 30 percent—costing you more on your utility bills and possibly shortening the equipment's life."

This does not include the thousands of AC and Furnace Tune-ups done under this program, which can, according the to EPA:

1. Ensure heat pumps and AC units have the proper refrigerant charge - Incorrect refrigerant level can lower efficiency by 5% – 20% and can ultimately cause premature component failure, resulting in costly repairs.
2. Inspect system filters for proper installation and level of filtration - according to the DOE - "Replacing a dirty, clogged filter with a clean one can lower your air conditioner's energy consumption by 5% to 15%."[11]

[11] Maintaining your air conditioner | Department of Energy. (n.d.-c). https://www.energy.gov/energysaver/maintaining-your-air-conditioner