The Residential Capital Stack
Maximizing Impacts of HOMES, HEEHR, 25C Tax Credit, WAP, GGRF, and Utility Programs for Existing Single-Family Homes
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The Department of Energy (DOE)’s Home Energy Rebate Programs, enacted in the Inflation Reduction Act (IRA) of 2022, aim to save consumers money on home efficiency and electrification upgrades to cut energy use and carbon emissions in residential buildings. The historic $8.8 billion in funding for these programs—the largest pot of money ever for home energy efficiency and electrification rebates—has tremendous potential to reduce residential greenhouse gas emissions, while also helping low- and moderate-income households better heat and cool their homes, save money on their utility bills, and increase resilience to extreme weather.

To ensure these investments reach their full potential, state rebate programs should coordinate federal, state, and utility dollars while pointing participants to additional federal tax credits.

“Stacking” rebates and tax credits to fund distinct upgrades across a home project will unlock maximum decarbonization outcomes while saving consumers the greatest amount of money - and potentially reducing the number of contractor visits to the home.

Recent DOE Home Energy Rebate guidance (Version 1.1, October 2023) affirms the performance-based (HOMES) and electrification-focused (HEEHRR) rebates are not taxable and can be paired with the 25C Energy Efficient Home Improvement tax credit for certain upgrades. While the IRA does not allow HOMES and HEEHR to both be used to fund the same single upgrade, the law does allow for stacking of these rebates across federal funding sources, including the Weatherization Assistance Program (WAP), provided that “each Federal grant only funds distinct, separable upgrades.” Per updated guidance, HOMES Measured Energy Savings rebates can be stacked with HEEHR at a single address, but only for non-energy-saving measures (electric wiring and load service

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1 This document reflects Department of Energy (DOE)’s updated guidance (Version 1.1) as of October 13, 2023. DOE may make additional clarifications and modifications.

2 DOE guidance defines an “upgrade” as “a single energy improvement to a dwelling unit or multifamily building that is a distinct and separable part of the overall scope of work of a home efficiency or electrification project” (p.9). See p.12 for details on HOMES Modeled/Measured stacking with HEEHR, with updated portions of text highlighted yellow. In certain cases, incentives can stack not just across a home project for separate upgrades, but also for the same single upgrade via combining federal tax credits and federal rebates, combining federal rebates and state/utility rebates, and combining federal rebates and federal loans or other financial products.

3 DOE IRA Home Energy Rebates Program Requirements & Application Instructions (Version 1.1) here.

4 The DOE Guidance is clear that the HEEHR rebate should reduce the amount of the expenditure on which the consumer calculates the amount of the credit (p.46; p.89). Additional clarification is still needed on HOMES. Per DOE, consumers receiving IRA rebates are not required to report the value of the rebate as income. For more on the 25C tax credit, see the AnnDyl Policy Group & Building Performance Association Energy Efficient Home Improvement Tax Credit (25C) Factsheet.

5 Per DOE, “funds may be used to supplement, and no funds may be used to supplant, weatherization activities under the Weatherization Assistance Program for Low-Income Persons” (p.91).

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Meanwhile, HOMES Modeled Energy Savings rebates can be stacked with any HEEHR rebate in a home project – again, provided each rebate covers a separate single upgrade.

For non-federal funding, DOE guidance “strongly encourages” states to design rebate programs that combine funding—including state, local, utility programs, or even philanthropic support. According to guidance, these non-federal funds can cover “any remaining costs for upgrades and individual components of qualified electrification projects beyond the value of the Federal rebate” under both HOMES and HEEHR – provided other funding programs also allow for the combining of resources. DOE urges careful accounting, however, noting that “home energy upgrade packages that use multiple Federal grants must braid the funding in a manner that ensures each Federal grant only funds distinct, separable upgrades” - and also does not cover more than 100% of the cost of the project.

When considering how to pair these incentives in the same project, state programs may rely on household income to best understand what options are available to each state resident. This brief guide provides examples of how to fully maximize the available capital stack for residential energy efficiency and electrification retrofits in existing single-family homes for three income categories:

1) Low-Income Households – Households at or below 80% of Area Median Income (AMI), including those qualifying for WAP at under 200% of the Federal Poverty Line (FPL).
2) Moderate-Income Households – Households between 80% - 150% AMI.
3) Market Rate Households – Households with over 150% AMI and/or no income qualification.

Funding options listed will vary state by state based on existing state and utility programs, the status of other federal funding in both the IRA (including the Greenhouse Gas Reduction Fund) and the Infrastructure Investment and Jobs Act (including the Energy Efficiency Revolving Loan Fund Capitalization Grants) - as well as state-level decisions on HOMES and HEEHR program design and participation, and each state’s rebate program funding allocation. Per October 2023 EPA guidance, forgivable GGRF loans are considered loans, not grants – and therefore can be used to cover the remaining balance of a single upgrade after a HOMES or HEEHR rebate has been applied.

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6 Because HOMES rebates require projects to meet certain energy saving thresholds overall, it is more challenging for non-energy saving measures to qualify for HOMES rebates - making potential stacking with HEEHR, which does include non-energy saving measures like electrical wiring and breaker box upgrades, more important.
7 DOE Home Energy Rebates Program Requirements & Application Instructions, p.45 & p.83.
8 Ibid.
9 Indeed, in guidance to states, DOE warns any “attempts to claim multiple Federal rebates for the same single upgrade is a violation of Federal law and must be reported to DOE” (p.45 & p.83).
10 Existing homes are residences that have been built and occupied for a period of time. New homes must adhere to current state energy codes which drive their initial efficiency baseline.
11 See the U.S. Department of Housing and Urban Development (HUD) 2023 AMI levels here.
12 See DOE’s 2023 WAP income eligibility here. Note, some states utilize their LIHEAP funds to expand on the eligibility and measures supported by their state WAP.
13 See EPA's GGRF framework here. EPA has also released detailed Notices of Funding Opportunity (NOFOs) for all three subprograms: the $13.97B National Clean Investment Fund (NCIF); the $68B Clean Communities Investment Accelerator (CCIA); and the $7B Solar For All (SFA) competition.
14 See DOE’s EERLF Capitalization Grant Program page here.
15 Per DOE guidance, “States may choose to implement the modeled path, measured path, or both.” (p.34).
16 See DOE HOMEs and HEEHR State and Tribal Allocation Amounts here.
17 See EPA CCIA and NCIF FAQs. Per DOE, “loans from previously granted Federal funds [like GGRF] are not considered Federal grants [and] may be used to finance any remaining costs for upgrades and individual components of qualified electrification and energy efficiency projects additional to and separate from the value of the rebate.” (p.45, p.83).

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1) Low-Income Households

Below 200% Federal Poverty Line (FPL) for WAP eligibility
Below 80% of Area Median Income (AMI) for maximum HOMES/HEEHR rebate eligibility

Low-income families below the 200% FPL should first qualify for the Weatherization Assistance Program to receive up to $8,250 to fully cover cost-effective energy conservation measures.\(^{18}\) This initial investment can be coupled in the same home with up to $14,000 in HEEHR Rebates for up to 100% of the HVAC and electrification upgrades, provided they are not for the same measure(s) – plus any additional support from utility rebates or potential funding in the form of loans or grants provided by GGRF recipients under the National Clean Investment Fund (NCIF), Clean Communities Investment Accelerator (CCIA), or Solar for All (SFA).\(^{19}\) Importantly, HEEHR funds and services must be provided at the point-of-sale or project.

Additionally, a Modeled HOMES rebate of $4,000 for 20% improvement or $8,000 for a 35% improvement\(^{20}\) could be included (up to 80% of the project cost\(^{21}\)) - but because it would have to be achieved without the same measures included in WAP or HEEHR, it would likely be more cost effective for a low-income homeowner to take advantage of the other funding options available. Where the resident qualifies for HEEHR and not WAP, HOMES should be considered.

\(^{18}\) See DOE’s 2023 WAP Adjusted Average Cost Per Dwelling Unit calculation on p.8 [here](#).
\(^{19}\) All three GGRF categories list energy efficiency retrofits as an eligible expense: NCIF and CCIA projects may include “whole-home retrofits for 1- to 4-family homes and manufactured homes to improve energy efficiency” (NCIF p.11; CCIA p.12); SFA projects may include enabling upgrades that include energy efficiency measures, up to 20% of the cost (SFA p.9).
\(^{20}\) This assumes the HOMES rebate follows the Modeled Approach to energy savings and is based on predictions. A Measured Approach may provide similar or greater rebate based on an aggregator model and actual savings of at least 15% across a portfolio – but, as noted, only HEEHR non-energy saving measures can be combined with HOMES Measured rebates.
\(^{21}\) DOE guidance allows states to request authority to provide even larger HOMES rebates – up to 100% of project costs (p.15).
Tax incentives are a less effective option for many low-income homeowners, because many lack the tax liability needed to claim a credit.\textsuperscript{22} Even without HOMES or the tax incentive, \textit{low-income households could potentially receive over $22,000 in potential federal support} (also not including utility rebates or potential GGRF dollars). We do not include financing in this section (beyond potential forgivable loans issued by GGRF NCIF or CCIA grant recipients), since the ability to qualify and provide debt repayment is particularly challenging for low-income residents.

\textbf{2) Moderate-Income Households}

\textit{Between 80\% - 150\% AMI}

Moderate-income households will be able to recover up to 50\% of the costs of their electrification projects with HEEHR Rebates and receive 30\% of the remaining balance of the cost of key equipment with the 25C tax credit when they file their taxes (up to a $3,200 maximum annual credit). To combine \textit{Modeled} HOMES\textsuperscript{23} and HEEHR rebates in the same home, the contractor will need to use a model that has been calibrated with the home’s utility data to

\textsuperscript{22} According to the National Bureau of Economic Research (NBER), from 2005-2012, just 11 percent of the benefits from previous iterations of the 25C and 25D (Residential Energy Efficient Property Credit) tax credits went to taxpayers making under $40,000 per year. Taxpayers making under $20,000 per year received just one percent of the benefits. In contrast, 62 percent of the benefits went to taxpayers making over $75,000 per year. National Bureau of Economic Research, “The Distributional Effects of U.S. Clean Energy Tax Credits.” \url{https://www.journals.uchicago.edu/doi/epdf/10.1086/685597} 211.

\textsuperscript{23} An ENERGY STAR natural gas furnace/propane/oil furnace also could potentially qualify for both HOMES (\textit{Modeled} and \textit{Measured}) approaches and a 30\% tax credit (up to $600) via the 25C tax credit. If not using energy saving HEEHR measures, the HOMES \textit{Modeled} approach should be considered and has more flexibility on the size of the rebate.

\textsuperscript{***} Depending on state plan design, households can pursue \textit{Measured} Energy Savings, a pathway relies on granular energy savings and features a $2,000 payment rate per kilowatt hour saved equal to a 20\% reduction for the average home in the state, up to 50\% of project cost (minimum 15\% energy savings). With no dollar cap, this has the potential to result in larger rebates. Rebate amounts will vary per state and aggregator business model.
affirm that measures from the HOMES rebate alone are predicted to save at least 20% of the energy usage.24 States including high-efficiency gas HVAC as an allowable HOMES measure may also consider the HOMES Measured or Modeled Energy Savings approaches.25 The 25C tax incentive can still be applied to the balance of the upgrade costs.

HOMES and HEEHR rebates cannot cover more than 50% of the project cost for this income bracket, nor can their measures overlap. Critically, this analysis assumes states will offer HOMES and HEEHR rebates to moderate income households - although moderate income households are included in IRA statute under both programs, DOE guidance allows states to limit both HOMES and HEEHR programs to only households with under 80% AMI.

The chart on the previous page shows two different paths moderate-income households can take, stacking either the HOMES Modeled or Measured approaches with HEEHR and other incentives. The path to the left assumes a project is electrification-focused, reaches the maximum HEEHR project cap, meets at least the 20% Modeled energy savings HOMES program requirement, and costs over $32,000 – which would enable a moderate-income household to potentially receive some $19,000 in federal incentives when stacked. The path to the right charts an electrification-focused project that uses non-energy saving HEEHR measures and assumes deep energy savings using the Measured HOMES rebate with a total project cost over $21,000 – which could enable a moderate-income household to receive more than $13,700 in federal incentives.26 Alternately, a project focused on high-efficiency gas HVAC could achieve $5,200 - $11,700 in federal support. Per DOE, projects may also use low interest loan and utility rebates.27

3) Market-Rate Households
Over 150% AMI / no income qualification

Market-rate homeowners, while not income-qualifying for support from HEEHR, are still a critical part of the public policy solution to climate change, grid reliability and decarbonization. In addition to any utility rebates, programs should incentivize these households to invest heavily in high-efficiency HVAC, electrification, and insulation. By undertaking a home performance retrofit that saves at least 20% of household energy use under the Modeled approach, market-rate households can receive up to $2,000 from a HOMES28 rebate, and up to $4,000 for measures that achieve over 35% energy savings. Under the Measured approach, aggregators can provide rebates for actual energy savings and not be subject to the $2,000 or $4,000 caps -

24 In the moderate-income chart, the scenario to the left assumes that since HEEHR offers much more generous HVAC rebates, households would pursue HEEHR for HVAC upgrades and use the HOMES Modeled approach for other home energy savings. As a result, this scenario also anticipates that moderate-income households would likely pursue the 20% Modeled energy savings tier, since achieving the 35% Modeled energy savings tier on a HOMES project without any HVAC upgrades would be challenging.

25 DOE allows states to restrict HOMES rebate eligibility to solely electric HVAC upgrades (see DOE Home Energy FAQ #25 - “States may choose to provide rebates for all, or some, of the allowable products”), though per IRA statute HOMES is performance-based and fuel neutral.

26 This figure is approximate. As noted, HOMES Measured rebate amounts will vary per state.

27 DOE guidelines affirm that any loans from DOE EERLF, GGRF, and HUD “are not considered Federal grants in that the recipient household receives these programs as financial products rather than as grants or rebates. Therefore, these programs may be used to finance any remaining costs for upgrades and individual components of qualified electrification and energy efficiency projects additional to and separate from the value of the rebate.” (p.45, p.83).

28 An ENERGY STAR natural gas furnace/propane/oil furnace also could potentially qualify for both HOMES (Modeled and Measured approaches) and a 30% tax credit (up to $600) via the 25C tax credit.
provided their portfolios achieve at least 15% of energy savings on average. In addition, a homeowner may receive up to $3,200 annually off their tax bill for the qualifying products included in an annual retrofit. If high-efficiency gas HVAC is included in the state’s HOMES program, some households might not take advantage of the 25C $2,000 heat pump tax incentive – though these households could still pursue the 25C credit of 30% up to $1,200 for building envelope and efficiency upgrades.

**Market-rate households could potentially receive over $7,200** in incentives – while this may be a fraction of the cost of the upgrade, the total provides a key incentive for households to perform more efficient, electric, and climate-friendly upgrades. If installing gas HVAC, the total incentive could amount to $5,200 (since the heat pump / heat pump water heater tax credit would not be used). Furthermore, market-rate households may be able to access low interest loans and additional utility incentives because they are pursuing clean home energy upgrades that support a stable grid.

Similar to the moderate-income section above, this analysis assumes states will offer HOMES rebates to market rate households - although households of all income levels are included in IRA statute under HOMES, DOE guidance allows states to limit HOMES programs to low and/or moderate-income households.

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29 Unlike the Modeled energy savings pathway, the Measured energy savings pathway does not have a statutory dollar cap, and features additional flexibility, since the rebate is offered by an aggregator that could potentially rebate more than the Modeled rebate dollar amounts. Importantly, both the Measured and Modeled pathways have a cost cap equal to 50 percent of the total project cost.

30 Critically, the IRA makes 25C an annual credit, meaning eligible taxpayers can claim it every year for new improvements (but cannot carry the credit forward to future years).

*** As noted, depending on state plan design, households can pursue Measured Energy Savings, a pathway relies on granular energy savings and features a $2,000 payment rate per kilowatt hour saved equal to a 20 percent reduction for the average home in the state, up to 50 percent of project cost (minimum 15% energy savings). With no dollar cap, this has the potential to result in larger rebates. Rebate amounts will vary per state and aggregator business model.