



Preliminary Data on the IRA Residential Clean Energy Credit

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In August 2024, the Internal Revenue Service (IRS) released [preliminary 2023 data](#) on the residential clean energy credit (RCEC) and the energy efficient home improvement credit (EEHIC). The credits were scheduled to expire at the end of 2023 and 2021, respectively, before being [reinstated and expanded](#) by P.L. 117-169 (commonly known as the Inflation Reduction Act of 2022, IRA). This publication describes the fiscal cost, uptake among high-income taxpayers, geographic distribution, and energy sources used to claim the RCEC. A companion Insight, CRS Insight IN12422, *Preliminary Data on the IRA Energy Efficient Home Improvement Credit*, provides similar analysis of the EEHIC.

The Residential Clean Energy Credit (RCEC)

The RCEC, authorized in [26 U.S.C. §25D](#), subsidizes taxpayer purchases of renewable energy equipment used at taxpayer residences. Between 2022 and 2032, individuals and couples installing solar electric panels, solar water heaters, small wind energy property, geothermal heat pumps, and other renewable energy equipment can receive an RCEC equivalent to 30% of the costs of [purchasing, assembling, and installing](#) such equipment. The credit phases down to 26% for equipment placed in service in 2033 and to 22% for equipment placed in service in 2034 before expiring for equipment placed in service after 2034. Both [renters and homeowners](#) may claim the credit for domestically located homes in which they reside; landlords who rent property to others are not eligible. The RCEC is nonrefundable, meaning that if a taxpayer's RCEC is greater than their income tax liability, the taxpayer may *not* receive a refund for the difference. However, unlike the EEHIC, [unused credit amounts](#) may be “carried forward” to [offset income tax liabilities](#) in future years.

RCEC Data

IRS data appear to show that the RCEC has been utilized more than previously estimated. A December 2023 estimate [projected](#) that the RCEC would cost \$3.6 billion in FY2023. The [new IRS data](#), released in August 2024, show that the RCEC reduced federal revenues by \$6.3 billion in tax year 2023. These data do not account for late filer claims.

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The tax benefits of the RCEC were concentrated, by both income and location. As shown in **Table 1**, taxpayers with incomes of \$100,000 or more received 67% of RCEC benefits, while taxpayers in the bottom quarter received 0.3%. High-income taxpayers were disproportionately likely to claim the RCEC, and they also received a larger average credit than low-income taxpayers. Approximately 43% of RCEC beneficiaries had incomes of \$100,000 or more, and taxpayers in this income range received an average credit of \$7,841. Taxpayers with incomes below \$25,000 received 2.5% of RCEC amounts, with an average credit of \$518. These preliminary IRS data may understate the benefits to low-income taxpayers (who often have [low annual income tax liabilities](#)) if they use excess credits from this year to offset future tax liabilities. (**Table 1** also does not include approximately 142,000 taxpayers who carried their entire RCEC forward to 2024.)

Table 1. Residential Clean Energy Credits (RCECs), by Taxpayer Income, 2023

Share of RCEC beneficiaries, average RCEC benefits, and share of total RCEC benefits, by taxpayer income group

	Share of All Tax Returns	Share of RCEC Beneficiaries	Average RCEC per Beneficiary	Share of RCEC Benefits Received
Incomes below \$25,000	27%	3%	\$518	<0.5%
Incomes: \$25,000 to \$49,999	23%	17%	\$1,618	6%
Incomes: \$50,000 to \$99,999	26%	37%	\$3,778	27%
Incomes of \$100,000 or more	24%	43%	\$7,841	67%
Incomes of \$500,000 or more	1%	2%	\$11,657	5%

Source: CRS calculations based on preliminary 2023 income tax data from the Internal Revenue Service, available at <https://www.irs.gov/statistics/soi-tax-stats-clean-energy-tax-credit-statistics>.

Notes: Table includes early and on-time income tax filers. Late filers are not included. Taxpayers who carry their entire credits forward to 2024 are not considered 2023 RCEC beneficiaries. Taxpayers with incomes of \$500,000 or more are a subset of the group “Incomes of \$100,000 or more.”

RCEC beneficiaries hail predominantly from southern states, as shown in **Table 2**. Ranked from highest to lowest, about 2% of Nevadan taxpayers claimed the RCEC in 2023, as compared to 0.9% of taxpayers nationally and 0.2% of taxpayers in North Dakota.

Table 2. Highest and Lowest Shares of Taxpayers Benefiting from the RCEC, by State, 2023

Share of taxpayers benefiting from the RCEC, by state, 2023

<i>Highest shares of taxpayers benefiting from the RCEC:</i>	
Nevada	2.0%
Florida	1.8%
Arizona	1.6%
Hawaii	1.6%
Texas	1.6%
<i>Lowest shares of taxpayers benefiting from the RCEC:</i>	
Wisconsin	0.3%
Nebraska	0.3%
West Virginia	0.2%
South Dakota	0.2%
North Dakota	0.2%

Source: CRS calculations based on preliminary 2023 income tax data from the Internal Revenue Service, available at <https://www.irs.gov/statistics/soi-tax-stats-clean-energy-tax-credit-statistics>.

Notes: Table includes early and on-time income tax filers. Late filers are not included. Taxpayers who carry their entire credits forward to 2024 are not considered 2023 RCEC beneficiaries.

RCEC benefits still flowed to certain northern states as a result of their high average credits. The 10 states with the highest RCECs per credit recipient included northern coastal states such as New Hampshire, Connecticut, Massachusetts, Rhode Island, Washington, and Oregon. The average credit nationally was \$5,084, more than double the average RCEC in Mississippi (\$2,248), as shown in **Table 3**.

Table 3. Highest and Lowest Average RCEC Amounts, by State, 2023

Average RCEC per credit recipient, by state, 2023

<i>Highest average RCECs per credit recipient:</i>	
New Hampshire	\$7,581
Hawaii	\$7,055
Connecticut	\$6,642
Minnesota	\$6,538
Massachusetts	\$6,251
<i>Lowest average RCECs per credit recipient:</i>	
Indiana	\$3,682
Louisiana	\$3,551
Georgia	\$3,394
Tennessee	\$3,110
Mississippi	\$2,248

Source: CRS calculations based on preliminary 2023 income tax data from the Internal Revenue Service, available at <https://www.irs.gov/statistics/soi-tax-stats-clean-energy-tax-credit-statistics>.

Notes: Table includes early and on-time income tax filers. Late filers are not included. Taxpayers who carry their entire credits forward to 2024 are not counted as 2023 RCEC beneficiaries.

Solar power was the most common qualifying energy source. Approximately 752,000 taxpayers claimed the RCEC for solar electricity panel installations, while 139,000 claimed the credit for solar water heaters. Nearly 81,000 RCEC recipients installed geothermal heat pumps, and another 42,000 claimed RCECs for small wind properties.

Overall, more than 1.2 million taxpayers (not including late filers) used the RCEC to reduce their income tax liabilities in 2023. Roughly half (601,000) carried part of their credit forward to 2024, while 645,000 used their entire credit in 2023. Another 142,000 taxpayers carried their full RCECs to 2024.

Residential Energy Tax Credits: Combined Data

According to the IRS's preliminary data release, at least 3.4 million taxpayers used the RCEC, the EEHIC, or both to reduce their income tax liabilities in 2023. Approximately 1.1 million taxpayers claimed only the RCEC, while 163,000 taxpayers claimed both the RCEC and the EEHIC. Although dual receipt was rare for all types of taxpayers, it was most common among high-income households: in 2023, 0.4% of taxpayers earning \$500,000 or more received both IRA residential energy credits, as compared to 0.003% of taxpayers earning less than \$25,000.

Initial EEHIC and RCEC costs roughly offset relative to initial projections: the EEHIC has cost less than expected, while the RCEC has cost more. The credits' combined 2023 fiscal cost has thus far come out to \$8.4 billion, not counting late filers, tracking relatively closely to the Joint Committee on Taxation's projected cost of \$7.6 billion for FY2023. Both the number of recipients and the fiscal cost of the credits are likely to increase as late filers continue to claim the RCEC and the EEHIC.

Both the number of recipients and the fiscal costs of the credits are expected to increase as late filings roll in. The IRS's preliminary 2023 data only include [138 million tax returns](#), whereas [over 160 million returns](#) were filed in 2021 and 2022.

RCEC claims are disproportionately high among taxpayers in the South, and the EEHIC is disproportionately claimed by taxpayers in the Northeast. The income distributions for the credit claims, however, are similar. According to the preliminary IRS data, 0.3% of RCEC benefits, 0.8% of EEHIC benefits, and 0.4% of the two credits' combined benefits went to taxpayers in the bottom 27% of the taxpayer income distribution in 2023. Taxpayers in the top 24% of the income distribution, on the other hand, received two-thirds (66%) of the credits' combined benefits.

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