

SCOPE 5 | CARBON SAVINGS ACCOUNT

**For the employer, a tool to address "Scope 5" emissions.
For the employee, a tax-advantaged fund for home upgrades.
Think *health savings account*, but for *carbon reduction expenses*.**

THE OPPORTUNITY

In 2019, residential energy consumption was responsible for approximately 20% of US energy-related greenhouse gas emissions.¹ From a financial perspective, the average US household spends roughly \$2,800 per year on energy and water bills.² Due to high upfront capital costs, homeowners are frequently unable to afford key home upgrades that could drastically reduce both their utility bill burden and their carbon footprint.

Residential utility consumption and bills have increased by almost 10% since the start of the COVID-19 pandemic,³ due to people sheltering in place and working from home. Now more than ever, it's imperative for employers to address their "Scope 5" emissions: the carbon footprint of their employees' personal homes. Employers have the opportunity to provide an investment vehicle that enables employees to upgrade to electric-powered energy- and water-efficient home technology, lowering their employees' personal carbon footprints and utility bills.

THE SOLUTION

Similar to a health savings account (HSA) benefit, employers can offer a carbon savings account (CSA). Employees would contribute pre-tax dollars to their CSA, which can be supplemented by a tax-advantaged employer match. Employees can use this fund to cover the upfront capital costs of eligible home upgrades that would provide long-term savings on utility bills and reduction of carbon emissions.

Employees can also realize capital cost savings through partner vendors and rebates. Because employees of a single company generally live in clusters (e.g., many of Nike's employees live in Portland, OR), the company can partner with local home technology vendors for discounts on home upgrades. Furthermore, the CSA platform will contain a list of up-to-date local and federal rebates.

Between home upgrade purchases, employees can choose to invest their CSA in ESG funds or in Community Development Financial Institution (CDFI) loan pools. The loan pool provides an opportunity for CDFI clients to afford home energy and water upgrades with low-interest loans. This is advantageous to households without access to CSAs because these interest rates are lower than credit cards, payday lenders, and online lenders.

BENEFICIARIES



Employer

1. Tax Benefits
2. CSR
3. Employee Retention



CDFI Client

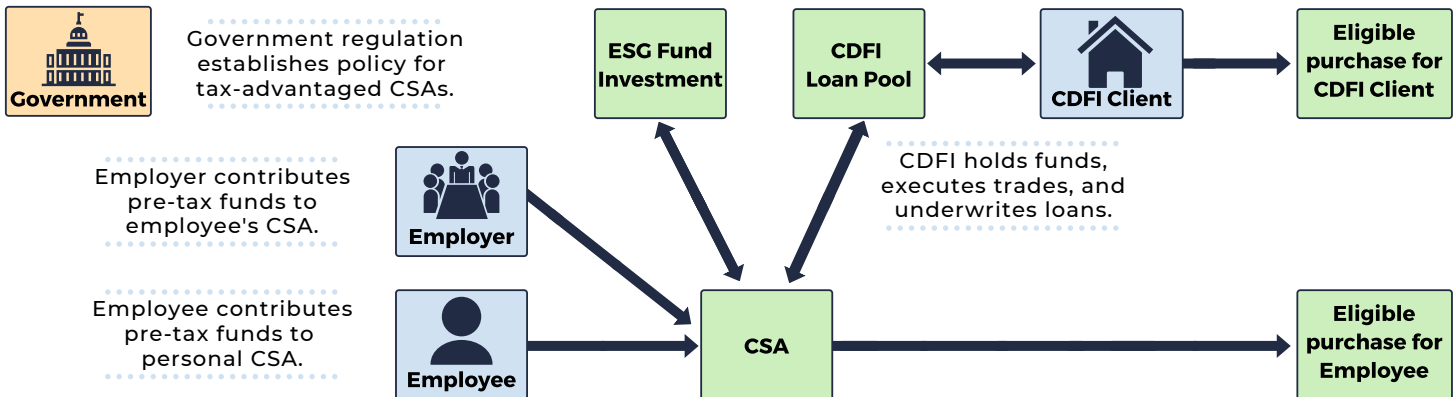
1. Low-interest loans
2. Utility bill savings
3. Increased home value



Employee

1. Upfront cost savings
 - Lower tax liability
 - Employer match
 - Partner vendors
 - Rebates
2. Long-term benefits
 - Utility bill reduction
 - Reinvestment of savings
 - Returns from ESG
 - Interest from CDFI loans
 - Increased home value

CASH FLOW DIAGRAM



CDFI LOAN

Investment Type	Annual Rate
Loan Recipient Interest Rate	12%
CSA Loan Pool Return	4%
CDFI Margin	8%

ROI

Investment Type	Annual Rate
ESG ETF	8.2%
Compare to: S&P 500	10.5%

EQUITY

Approximately 33% of households in this United States struggle to afford their energy bills. These households often cannot afford the high upfront costs of more efficient devices that would make their utility bills more affordable.

33%

of households struggle to afford their energy bills²

Additionally, for workers in the lowest 25% of annual income, only 41% have access to employer-sponsored medical benefits. These workers are much less likely to have additional employer-sponsored benefits, such as a CSA.

41%

of workers in the lowest 25% of income receive medical benefits⁴

The CDFI pooled loan program is essential to establish equitable access to more affordable carbon reduction home upgrades in populations beyond full time employees receiving comprehensive benefits packages.

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CASH FLOW SCENARIO

An employee named Steve wants to buy a heat pump water heater (HPWH) in 4 years. The graphs below show his financial and carbon positioning, with and without using his CSA, starting 4 years before the purchase and extending throughout the 15-year lifespan of the heat pump water heater. In the CSA scenario, Steve contributes \$525/yr of pre-tax money to his CSA for 4 years; once the HPWH is purchased, his only contributes his annual utility bill savings of \$150/yr. In the non-CSA example, Steve saves \$600 per year in a cash account for 4 years, then keeps his utility bill savings in a cash account. This scenario assumes Steve takes advantage of rebates in either case, so they are excluded from the analysis.

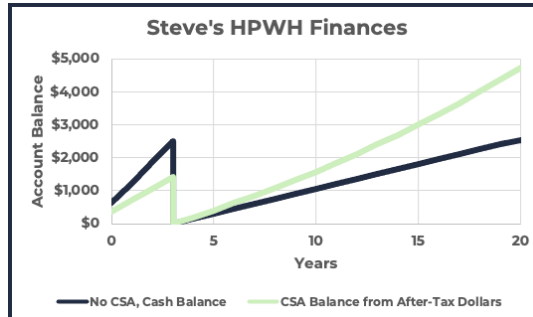


- Annual Pre-Tax CSA Contribution: \$525
- Annual Employer CSA Contribution: \$50
- Growth Rate with CDFI Investment: 4%
- Steve's Income Tax Percentage: 30%
- Discount from Partner HPWH Vendor: 5%

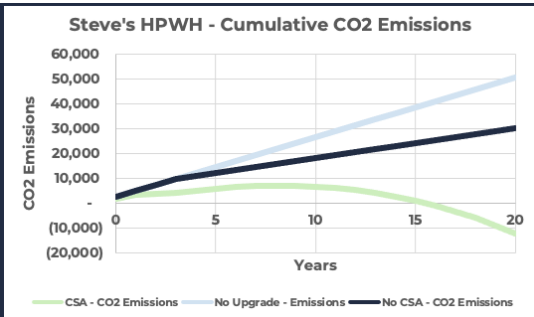
Real Cost of HPWH: \$2,500

Steve's Cost after Partner Discount: \$2,375

Annual Utility Savings Post-Upgrade: \$150



This graph indicates that Steve pays \$1,425 instead of \$2,500 for the HPWH. The majority of this \$1,075 difference represents the reduced tax liability. The remainder of this difference is credited to the partner vendor discount.

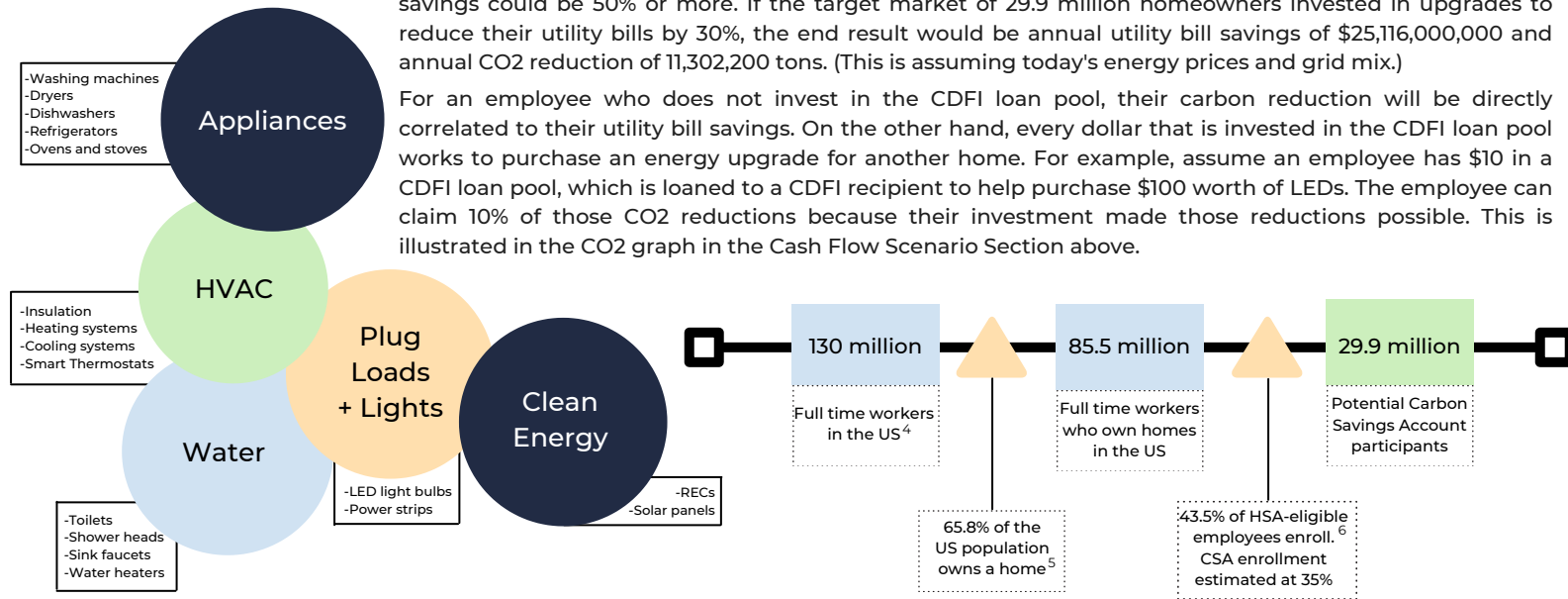


Steve's HPWH footprint is net-negative because his CSA balance funds multiple CDFI clients. This is further explained below in the Impact Section. The blue line represents Steve's emissions if he chooses not to upgrade his water heater.

IMPACT

The eligible CSA purchases are shown at left and are broken into 5 categories: 1) appliances, 2) heating, ventilation, and air conditioning (HVAC), 3) water, 4) plug loads & lights, and 5) clean energy. The average homeowner can achieve a 30% reduction in energy and water bills by targeting key upgrades of heating, cooling, water heating, water fixtures, and lighting. If all eligible upgrades were implemented, utility bill savings could be 50% or more. If the target market of 29.9 million homeowners invested in upgrades to reduce their utility bills by 30%, the end result would be annual utility bill savings of \$25,116,000,000 and annual CO2 reduction of 11,302,200 tons. (This is assuming today's energy prices and grid mix.)

For an employee who does not invest in the CDFI loan pool, their carbon reduction will be directly correlated to their utility bill savings. On the other hand, every dollar that is invested in the CDFI loan pool works to purchase an energy upgrade for another home. For example, assume an employee has \$10 in a CDFI loan pool, which is loaned to a CDFI recipient to help purchase \$100 worth of LEDs. The employee can claim 10% of those CO2 reductions because their investment made those reductions possible. This is illustrated in the CO2 graph in the Cash Flow Scenario Section above.



RISK



Policy

The tax-advantaged feature is a key selling point for both employees and employers to contribute to CSAs. Creating a tax policy that allows for this helps state governments to 1) assist low-income households, 2) decrease peak load for utilities, and 3) reach their carbon goals.



Tax Loopholes

To reduce risk of users exploiting the tax-advantaged benefit, maximum contribution limits and withdrawal timeframes should be established. The withdrawal timeframe will also encourage the employees to use their funds for home energy upgrades.



CDFI Returns

CDFI home improvement loans will be funded by pooled investments from multiple CSA accounts. The "pool" aspect reduces the risk to CSA lenders should a small percentage of CDFI loan payments are late or if they default.

SOURCES

1. Proceedings of the National Academy of Science | 2. US Energy Information Administration | 3. Center on Global Energy Policy
4. Bureau of Labor Statistics | 5. US Census Bureau | 6. Centers for Disease Control and Prevention