SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

The Colorado on-bill financing opportunity

Ramón Alatorre & Justin Brant
Southwest Energy Efficiency Project (SWEEP)

REPORT

February 2025

SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

About the authors

Ramón Alatorre

Ramón DC Alatorre is Utility Program Senior Program Manager at the Southwest Energy Efficiency Project (SWEEP), where he supports work at public utilities commissions around the Southwest advocating for stronger energy efficiency, demand management, rate design, and beneficial electrification. Ramón works collaboratively with utilities and policymakers to implement best practice programs across the region, and is involved in much of SWEEP's work around the gas transition and decarbonization of gas utilities.

Justin Brant

Justin Brant is Utility Program Director at the SWEEP, where he leads work at public utilities commissions around the Southwest advocating for stronger energy efficiency, demand management, rate design, and beneficial electrification. Justin works collaboratively with utilities and policymakers to implement best practice programs across the region, and leads much of SWEEP's work around the gas transition and decarbonization of gas utilities.

February 2025

REPORT

The Colorado on-bill financing opportunity

A report by the Southwest Energy Efficiency Project (SWEEP)

February 2025

To achieve Colorado's greenhouse gas reduction goals for 2030 and beyond, the state will need to transform the market for residential HVAC equipment, replacing gas furnaces and air conditioners with heat pumps, while also improving the energy efficiency of existing buildings in the state. Significant utility, state, and local incentives and tax credits have been approved to help achieve these goals. However, even with these incentives, meeting the state's goals will require substantial private investment from individuals and businesses. The availability of low-cost financing is one additional lever that can help close this funding gap and provide greater equity in adoption of electrification and energy efficiency investments.

The purpose of this analysis is to support Colorado based stakeholders (local governments, the State, utilities, lenders, etc.) as they consider the dimensions of program sizing and design when developing new financing products. It first examines the magnitude of the financing opportunity in the state of Colorado and the Xcel Energy service territory to achieve heat pump sales at the pace assumed in the Colorado Greenhouse Gas Roadmap[1]. It then considers how the magnitude of these financing opportunities compares with established financing programs in other states. Finally, it examines the cost of buying down interest rates to target levels, based on program size.

Direct subsidies can and do incentivize investments by a particular set of customers, typically higher-income customers with deployable capital or access to sources of low cost loans, as well as sufficient tax liability to make full use of subsidy-based tools (e.g. - 78% of tax credits[2] for electric vehicles were claimed by filers with income of $100,000 or more). However, accessible low-cost financing can significantly expand the pool of customers who might invest in electrification or energy efficiency by reducing the amount a customer will need to either have in savings or borrow.

Financing is a well known tool to expedite investments in energy efficiency, by allowing customers to install appliances with no or very little money down. A loan is the most common type of financing, where a lender provides the capital needed today in exchange for payments over time, typically with a rate of interest. Car loans and mortgages are well known examples, and a similar loan product could be used to cover the upfront expenses of replacing or installing electric heating and cooling equipment. Indeed, given the price tag for replacing a furnace or other HVAC equipment at the end of its lifetime, only one third of residential customers expect to

[1] https://energyoffice.colorado.gov/ghg-pollution-reduction-roadmap
[2] https://sgp.fas.org/crs/misc/IF11017.pdf

pay for the entire project with cash[3], meaning that most will require some type of financing. In addition to traditional loans, other types of financing that people might use to cover the up front costs of electrification can include: credit cards (which typically carry high interest rates); Home Equity Loans or a Home Equity Line of Credit (HELOC) — though these are only available to homeowners and may include fees, rates and risks that may be non-starters for many; and special financing products from manufacturers[4] or from utilities[5], local governments, or other entities that might have a business, public benefit, or other interest in providing low-cost financing to support the purchase and installation of the equipment. Traditional loans, Home Equity Loan, and HELOCs often have similar equity based shortcomings as do tax credits — they are most available and accessible to homeowners and those with higher incomes, leaving renters and those with lower incomes with limited options.

To fill the gap, utilities can also provide low-cost loans to customers that are conveniently and reliably paid back through the utility bill. These types of loans can increase the availability of financing by foregoing strict credit limit requirements, making loans available to more people, and providing access to capital with lower interest rates than may be available in the private market. The convenience of utility on-bill repayment is further amplified by the fact that the financing is associated with the meter rather than the resident, a feature which helps to make investments in energy efficient heating easily transferable should the owner of the dwelling choose to move, sell or rent. Utility financing can take many forms, with on-bill financing or on-bill repayment programs[6] the best options for removing barriers to accessibility and investment, though standardized products that rely on third-party lending have also proven successful in other jurisdictions.

Below we present an estimate of the magnitude of the total cost of electrifying existing homes in Colorado consistent with the goals contained in the state's Greenhouse Gas Roadmap 2.0 and Xcel Energy's Clean Heat Plan, both with and without anticipated direct rebate incentives and tax credits. This full dollar amount does not need to be available through new financing mechanisms, but can help guide policymakers to assess the potential financing need in the state over the next six years.

This report concludes with a comparison with major utility financing programs in other states, and a discussion of using interest rate buydown as a way to achieve greater customer participation and equity benefits from on-bill financing programs.

[3] https://modernize.com/wp-content/uploads/2021/10/Modernize-Homeowner-Survey-Results.pdf
[4] https://www.trane.com/residential/en/resources/blog/hvac-financing-how-it-works/
[5] https://www.epa.gov/statelocalenergy/inclusive-utility-investments-tariffed-bill-programs
[6] https://rmi.org/wp-content/uploads/dlm_uploads/2024/09/home_electrification_financing.pdf

Colorado decarbonization financing opportunity: Residential retrofit heat pump equipment and installation

Using the sales trajectory contained in the Colorado Greenhouse Gas Roadmap 2.0,[7] between 2025 and 2030 the annual number of residential retrofit heat pump equipment installations will need to grow to over 125,000 units/year (see Table 1). By 2030 the total annual residential retrofit heat pump sales in the state is forecasted to be greater than $1.9 billion, of which as much as $1.6 billion may need to be financed (Table 1). Rebates and other direct subsidies[8] that reduce upfront costs are projected to cover between 17% (2025) and 12% (2030) of the total annual equipment replacement and installation costs in Colorado.[9] While the government and utility rebates are designed to cover a significant portion of project costs for eligible and participating low-income residents, the large majority of the total upfront annual equipment replacement costs statewide will not be covered by rebate programs. Tax incentives may be available to further support many of these projects (see Table 3 that follows), though the arrival of tax credits typically occurs 4-16 months after the project, a time lag that often limits the homeowner's ability to cover upfront costs (absent creative financing terms). For those unable to pay the balance of the upfront project costs with rebates and cash, a financing product will be necessary.

Using the sales trajectory contained in Xcel Energy's Clean Heat Plan (CHP)[10], by 2030, the total cost of annual residential retrofit heat pump sales in Xcel Energy's service territory is forecast to be greater than $900 million, of which as much as $665 million may need to be financed (see Table 2). Rebates are projected to cover as much as an estimated 68% (2025) of the total annual residential equipment replacement and installation costs, although in reality some of the rebate funds identified from the Strategic Issues (SI) and CHP will also be spent on residential upgrades such as insulation, air sealing, etc. — and the timing of state and local government program rollout is still unknown.[11]

---

[7] https://energyoffice.colorado.gov/ghg-pollution-reduction-roadmap

[8] The rebates and direct subsidies that reduce upfront costs that have been considered in this analysis include a) Colorado State Tax Credits b) rebates from the Denver Regional Council of Governments (DRCOG), c) Inflation Reduction Act (IRA) rebates that have been awarded to the state to run the Home Energy Rebate programs, d) Xcel Energy utility rebates approved in the Strategic Issues (SI) and Clean Heat Plan (CHP) proceedings.

[9] The estimates of 17% and 12% are conservative, and rebates may cover a larger portion of the total annual equipment replacement and installation costs. A few of the conservative assumptions include:not considering rebates available for other utilities and assuming that in 2028-2030 rebate budgets offered by Xcel Energy remain at 2027 levels.

[10] https://www.xcelenergy.com/company/rates_and_regulations/filings/clean_heat_plan

[11] https://www.swenergy.org/colorado-approves-spending-xcel-energy-efficiency-electrification/

This financing opportunity analysis does not include federal tax credits, as absent creative financing terms, tax credits do not reduce upfront costs. Therefore their impact on the total financing requirements statewide and in Xcel Energy's service territory as outlined above is somewhat limited. Additionally, while contracts have been signed for the Home Energy Rebate [12] programs (and therefore there is lower risk, it is believed, of the funding being taken away), there is uncertainty about whether the Federal tax credits in the Inflation Reduction Act will be maintained at their current levels through 2032. For these reasons Federal tax credits were not included in Tables 1 and 2 below as a factor that would reduce the magnitude of the total financing opportunity. Still, they are an important supplementary piece of the total residential retrofit costs, incentives and financing pictures, with significant potential benefits to Coloradans as shown in Table 3 below.

Based on the analysis below, it is projected that Colorado would need access to at least $6 billion of financing between 2025-30 to electrify existing homes. Within the Xcel Energy service territory, the amount of financing needed is at least $1.5 billion. On-bill financing could play a significant role in filling that financing gap, particularly for lower-income households.

[12] https://www.energy.gov/articles/biden-harris-administration-announces-colorados-launch-first-phase-federal-home-energy

Tables summary: Residential retrofit heat pump sales potential, rebate money available, and the financing opportunity in Colorado and the Xcel Energy service territory.

Table 1: Projected total residential retrofit heat pump equipment and installations sales/costs (before incentives), rebate money available and the financing opportunity in Colorado ($ millions)							
		2025	**2026**	**2027**	**2028**	**2029**	**2030**
Colorado (sales based on Roadmap 2.0 growth assumptions)	Full electrification retrofit, heat pump sales (furnace replacement - units)	28,220	35,275	42,330	49,385	56,440	63,495
	Hybrid electrification retrofit, heat pump sales (AC replacement - units)	28,481	35,601	42,721	49,841	56,961	64,081
	Full electrification retrofit, heat pump sales (furnace replacement)	$ 494.50	$ 618.12	$ 741.74	$ 865.37	$ 988.99	$ 1,112.61
	Hybrid electrification retrofit, heat pump sales (AC replacement)	$ 360.31	$ 450.39	$ 540.46	$ 630.54	$ 720.62	$ 810.69
	Total heat pump sales (retrofit)	**$ 854.80**	**$ 1,068.50**	**$ 1,282.21**	**$ 1,495.91**	**$ 1,709.61**	**$ 1,923.31**
	Rebates from DRCOG CPRG	$ 4.42	$ 5.53	$ 6.63	$ 7.74	$ 8.84	$ 9.95
	Rebates from Federal Home Energy Rebate programs	$ 7.88	$ 9.85	$ 11.82	$ 13.79	$ 15.76	$ 17.73
	State of Colorado tax credits - upfront cost reduction Impact	$ 42.53	$ 53.16	$ 63.79	$ 74.42	$ 85.05	$ 95.68
	Total non-utility rebates and upfront cost reductions	**$ 54.83**	**$ 68.53**	**$ 82.24**	**$ 95.94**	**$ 109.65**	**$ 123.36**
	Total utility rebates (Xcel SI and CHP only)*	**$ 121.36**	**$ 163.73**	**$ 197.52**	**$ 197.52**	**$ 197.52**	**$ 197.52**
	Financing opportunity (sales less rebates)	**$ 678.62**	**$ 836.24**	**$ 1,002.45**	**$ 1,202.44**	**$ 1,402.44**	**$ 1,602.43**
	* 2028 - 2030 utility rebates held steady at 2027 proposed levels. See Table 2 for more detail.						

Table 2: Projected total residential retrofit heat pump equipment and installations sales/costs (before incentives), rebate money available and the financing opportunity within the Xcel service territory ($ millions)								
		2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Xcel territory (sales based on CHP growth assumptions)	Full electrification retrofit, heat pump sales (furnace replacement - units)	2,878	9,343	12,867	16,437	20,007	23,576	27,146
	Hybrid electrification retrofit, heat pump dales (AC replacement - units)	3,760	12,196	16,936	21,631	26,325	31,019	35,713
	Full electrification retrofit, heat pump sales (furnace replacement)	$ 50.5	$ 163.8	$ 225.5	$ 288.0	$ 350.6	$ 413.1	$ 475.6
	Hybrid electrification retrofit, heat pump sales (AC replacement)	$ 47.6	$ 154.3	$ 214.3	$ 273.6	$ 333.0	$ 392.4	$ 451.8
	Total heat pump sales (retrofit)	**$ 98.04**	**$ 318.10**	**$ 439.75**	**$ 561.67**	**$ 683.59**	**$ 805.51**	**$ 927.43**
	Rebates from DRCOG CPRG**		$ 2.70	$ 3.37	$ 4.04	$ 4.72	$ 5.39	$ 6.07
	Rebates from Federal Home Energy Rebate programs		$ 4.81	$ 6.01	$ 7.21	$ 8.41	$ 9.61	$ 10.82
	State of Colorado tax credits - upfront cost reduction impact**	$ 4.98	$ 16.15	$ 22.35	$ 28.55	$ 34.75	$ 40.95	$ 47.14
	Rebates from Xcel Strategic Issue (SI) proceeding, Gas DSM funds*	$ 22.50	$ 22.50	$ 22.50	$ 22.50	$ 22.50	$ 22.50	$ 22.50
	Rebates from Xcel Strategic Issue (SI) proceeding, BE funds*	$ 11.40	$ 25.20	$ 44.40	$ 44.40	$ 44.40	$ 44.40	$ 44.40
	Rebates from Xcel CHP (addt'l Gas DSM)*		$ 17.21	$ 18.09	$ 18.90	$ 18.90	$ 18.90	$ 18.90
	Rebates from Xcel CHP (BE)*		$ 56.44	$ 78.74	$ 111.72	$ 111.72	$ 111.72	$ 111.72
	Total utility rebates*	**$ 33.90**	**$ 121.36**	**$ 163.73**	**$ 197.52**	**$ 197.52**	**$ 197.52**	**$ 197.52**
	Total rebates and upfront cost reductions available in Xcel territory	**$ 38.88**	**$ 145.01**	**$ 195.46**	**$ 237.33**	**$ 245.40**	**$ 253.47**	**$ 261.55**
	Financing opportunity in Xcel territory (sales less rebates)	**$ 59.16**	**$ 173.08**	**$ 244.29**	**$ 324.34**	**$ 438.19**	**$ 552.03**	**$ 665.88**
	* 2028 - 2030 utility rebates held steady at 2027 proposed levels							
	**Xcel customer share as % of Colorado customers: 61%							

Table 3: Federal Tax Credits distributed for eligible residential retrofit heat pump installation projects in Colorado and the Xcel service territory ($ millions).*						
	2025	2026	2027	2028	2029	2030
Federal Tax Credits distributed in Colorado statewide	Not Estimated	$54.84	$68.55	$82.26	$95.97	$109.68
Federal Tax Credits distributed Xcel service territory	$5.76	$17.94	$24.80	$31.75	$38.70	$45.65

*Note that tax credits are shown to be received in the calendar year after equipment installation.

In Colorado, only cold climate heat pumps qualify for Federal tax credits.[13] Therefore, for this analysis and when considering the projections in Tables 1 and 2, federal tax credits were only assumed to be distributed to eligible full electrification projects (hybrid projects assumed to be using non cold climate equipment). 100% of Denver Regional Council of Governments (DRCOG) projects and 50% of Home Energy Rebate projects were excluded, as these were assumed to have all project costs covered by those programs. An additional consideration for these exclusions is that many of the residents qualifying for the DRCOG and Home Energy Rebates rebates will not likely have sufficient tax liability to fully utilize these nonrefundable tax credits

Comparison to similar programs nationwide

A number of other states have been running successful energy efficiency financing programs for decades. Table 4 presents data from the largest existing energy efficiency financing programs in the country to show the potential customer demand for low-cost financing in Colorado. This data shows that there is potential significant customer demand for utility financing, especially in programs where utility or state incentive dollars are used to buy-down interest rates to zero or near zero.

The largest of these programs, in Massachusetts, is not an on-bill financing program, but relies on private banks to lend to customers, using utility and public funds to offer those loans at 0% interest for all customers, regardless of income. This program has grown to over $250 million per year in loans, with no limits on the capital available. Connecticut runs a similar program, using a mixture of state and private capital to offer 0.99% interest rate loans to all customers for heating system improvements, in addition to other loan products for different equipment with higher interest rates. New York has an on-bill financing program that is run by the state, offering 3.5-4% interest loans to low-income customers and 6.5-7% interest loans to all other residential and small business customers.

[13] https://www.energystar.gov/about/federal-tax-credits/air-source-heat-pumps

The popularity of these low rate programs has grown significantly in recent years as interest rates have risen. As shown in Table 4 below, the largest of these programs within states that offer multiple interest rate products are those with low or zero percent interest rates.

Table 4: Example state and utility-run financing programs in other states.

Program	Interest Rate	2021	2022	2023
Massachusetts HEAT Loan	**0.00%**	**$201,465,500**	**$192,746,495**	**$260,338,782**
Connecticut	0.00%	$859,106	$470,376	$799,019
	0.99%	$19,266,079	$21,584,702	$25,100,904
	1.99%	$8,371,511	$264,828	$0
	2-6%	$5,049,157	$15,725,309	$19,937,910
	6-8%	$360,450	$1,633,439	$4,374,289
Total		**$33,906,303**	**$39,678,654**	**$50,212,122**
New York	0.00%	$7,462,711	$116,407	$0
	3.49-4%	$43,027,014	$35,996,720	$49,650,837
	6.49-7.49%	$6,933,415	$6,444,134	$9,421,939
Total		**$57,423,140**	**$42,557,261**	**$59,072,776**

Interest rate buydown opportunities

The most successful utility financing programs use utility or public funds to reduce interest rates for customers to zero or near zero. Some programs base the available interest on income to make buydown less costly, while others offer subsidized interest rates to all customers. To buy down an interest rate, a utility, or other entity, will generally have to pay the lending institution the present value of interest payments over the life of the loan or use public funding that is available with no interest payment. For mortgages this is commonly referred to as “points” where an upfront payment reduces the interest rate over the life of the loan. There are also other options to reduce interest rates required by lenders, such as a loan loss reserve where a state or utility can create a reserve to cover non-payment, reducing the risk that lenders are taking on. To provide an example of the amount of funding that may be necessary to offer zero rate loans to customers, Table 5 below shows the present value of loan payments for different levels of financing and interest rates. The calculations assume a 10-year loan. For example if lending institutions have a 5% interest rate, it would cost the state or a utility $38.6 million to buy down interest rates to 0% for a $100 million loan program. These numbers are illustrative and different interest rates could be offered based on income, the types of energy efficiency or beneficial electrification (BE) measures installed, or other criteria.

Table 5: Illustration of the cost to buy down interest rates to 0% for different size loan programs.

Program Size	2.00%	5.00%	7.00%
$20,000,000	$3,593,034	$7,721,735	$9,833,014
$50,000,000	$8,982,585	$19,304,337	$24,582,535
$100,000,000	$17,965,170	$38,608,675	$49,165,071
$150,000,000	$26,947,755	$57,913,012	$73,747,606
$200,000,000	$35,930,340	$77,217,349	$98,330,142
$250,000,000	$44,912,925	$96,521,687	$122,912,677

Conclusion

Based on the analysis above, it is projected that Coloradans will need access to at least $6 billion of financing between 2025-30 to electrify existing homes at the pace envisioned in the state's Greenhouse Gas Roadmap. Within the Xcel Energy service territory, the amount of financing needed over the same time period is at least $1.5 billion. These full dollar amounts do not need to be made available through new financing mechanisms exclusively, but an understanding of the magnitude can help guide policymakers to address the potential financing opportunity and need in the state. On-bill financing could play a significant role in filling the financing gap, particularly for lower-income households.

Established financing programs in New York, Connecticut, and Massachusetts have scaled up in size to provide between $50 million — $250 million annually in low cost financing for energy efficiency measures. By 2030, a program equal in size to the one in Massachusetts today ($250 million/year) would address approximately 15% of the total financing opportunity in the state of Colorado. Assuming a baseline interest rate of 5%, it would cost $96.5 million per year to buy down the interest rate of the entire program to 0%. The cost to buy down interest rates could be less if considering financing products at different rates (i.e. 1% or 2% instead of 0%) or differentiating the product available based on income (i.e. 0% if below AMI, 1% if below 150% AMI, 2.5% if below 200% AMI).

Similar considerations can be made for the Xcel Energy service territory using the data above. For example, by 2030, a $150 million/year program would address approximately 23% of the total financing opportunity in the service territory. Assuming a baseline interest rate of 5%, it would cost $58 million to buy down the interest rate of the entire program to 0%.

REPORT

SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

For more reports, visit
SWENERGY.ORG

2334 Broadway Ste A, Boulder, CO 80304
303-447-0078 • swenergy.org