Financing programs are a step beyond energy upgrade rebate programs and provide increased access to capital for co-ops to reduce carbon emissions. Our research identified 51 co-ops across the Midwest (17 percent) that offer some type of financing program for energy efficiency or conversion, including on-bill financing programs. While financing programs are more complex than rebate programs—as they include energy auditors, repayment processes, and follow ups—these programs leverage more capital and energy upgrade actions from members than rebates alone.

Financing energy upgrades is not new for co-ops. Starting in the 1980s, Energy Resource Conservation (ERC) loan programs allowed co-op members to retrofit their homes and save energy. About 20 Midwest co-ops still run ERC loan programs, including Butler Rural Electric Cooperative (Ohio), which has an on-bill financing program. Participants can repay these loans on the utility bill (on-bill financing) or through a separate bill to the co-op.

Newer on-bill financing programs center equity in their core program elements by including no upfront costs, eliminating the use of credit scores to screen potential participants, offering very low interest rates to keep costs down, and having longer-term payback schedule to ensure a net positive cash-flow from the improvements. Beneficial electrification programs can ease the sticker shock of pricey, but very efficient, new-generation cold climate air-source heat pumps and heat pump water heaters. With on-bill financing the participating member can repay over time the cost of converting to electric end-use equipment and leverage the savings accrued.

One goal of the research was to determine if any Midwest co-ops offered a full beneficial electrification program, but the website review found none. This report defines a fully beneficial electrification program as one that includes the following elements: 1) incentives and/or financing to cost-effectively convert fossil fuel-powered equipment to electric equipment; 2) a central program goal of reducing net carbon emissions; 3) a verification process to check that the replacement has indeed occurred; and 4) energy audits to calculate estimated energy and monetary savings resulting from the switch-out.

The research did find, however, 19 programs offered by co-ops that fall short of this report's definition of a beneficial electrification program. Of these, 16 programs provide conversion incentives for members to switch from fossil fuel-powered residential water heaters to electric/heat pump water heaters. An additional three programs help co-op members replace their fossil fuel-powered furnaces with more efficient air-source heat pumps. Each of these programs are managed by large cooperative power providers. While none of the programs have all the elements of a fully developed beneficial electrification program, they do offer incentives that form building blocks for a complete beneficial electrification program.

Nationwide, more co-ops are running more-inclusive on-bill financing programs for their members to save energy and switch to electric end-use devices. Midwest Electric Cooperative (Kansas), Ouachita Electric Cooperative (Arkansas), Roanoke Electric (North Carolina), South Carolina Electric Cooperatives, and Orcas Power and Light Co-op (Washington) are among a group of co-ops leading with beneficial electrification financing and equitable programs.

FULL REPORT INSIDE

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Equitable Beneficial Electrification (EBE) for Rural Electric Cooperatives

ELECTRIFYING RESIDENTIAL SPACE AND WATER HEATING

Image courtesy of Orcas Power and Light Co-op

BENEFICIAL ELECTRIFICATION EXECUTIVE SUMMARY

This report focuses on equitable beneficial electrification as a pathway for rural electric cooperatives to decarbonize their power grid. Particularly, this report examines how Midwest rural co-ops incentivize members to switch from fossil fuel–powered end-use equipment to electric end-use equipment. About 5 million homes in the rural Midwest—mostly served by co-ops—power their space-heating and water-heating equipment predominately with propane.

The lens in which the authors are viewing this research and information is based on the ReAMP Networks' Equitable Deep-Decarbonization Framework which states, "Include everyone, electrify everything, and decarbonize electricity."

To address equity, we examine some of the barriers that have led to historic inequity in distribution of energy efficiency program funds, evaluate equity of existing beneficial electrification and efficiency programs, and discuss opportunities to address equity in future program design and implementation.

"Include everyone, electrify everything, and decarbonize electricity."

Rural electric cooperatives have been energy innovators and leaders since their formation around eighty years ago. Today, about 900 co-ops nationwide provide power to 13 percent of all Americans and 56 percent of the US landmass. In the Midwest, 300 co-ops serve power to about 3.7 million members across 12 states.

As nonprofits owned by their members, co-ops are guided by seven cooperative principles, which are: voluntary and open membership; democratic member control; member economic participation; autonomy and independence; education, training and information; cooperation between cooperatives; and concern for community. Electric Cooperatives also have a commitment to serve their members by providing safe, low-cost, and reliable power. One way to better serve their members is for co-ops to offer incentives for beneficial electrification programs.

Beneficial electrification (aka Strategic Electrification) refers to switching fossil-fuel end-use equipment to electric equipment in a way that reduces overall carbon emissions, while providing benefits to the environment and to members. In buildings, this means replacing older and inefficient gas or propane-powered furnaces and water heaters with more efficient, electric space and water heat pump technology. It could also include incentives to electrify vehicles, for example, incentives to finance electric charging stations or electric school buses. Specifically, the report focuses on the replacement of fossil fuel–powered space and water heating with air-source heat pumps or water heaters in residential buildings.

In 2018, the National Rural Electric Cooperative Association (NRECA), an organization providing resources to all 900 co-ops, unanimously approved a resolution supporting beneficial electrification programs. This resolution indicates that the national association is putting all its resources behind beneficial electrification and that co-ops should start to consider such actions and programs as part of the services they provide to their membership. This report provides a landscape view of current residential energy efficiency, energy equipment programs, and space- and water-heating beneficial electrification programs run by Midwest co-ops for their members.

The report reviews beneficial electrification reports published on this emerging topic. The report also analyzes hundreds of Midwest electric cooperative websites to identify electric space- and water-heating conversion programs and assess whether these programs could be deemed "beneficial electrification."

Unlike older fossil fuel–powered end-use devices, newer electric equipment provides multiple benefits creating a winning proposition for the member, the utility, and the environment. For the co-op member, new equipment achieves energy and monetary savings as new generation air-source heat pumps and electric water heat pumps are two-to-three times more efficient than their fossil fuel–powered counterparts. Cold climate air-source heat pump (ccHP) technology has advanced greatly in the last five years to the point where ccHP can efficiently heat buildings as outdoor temperatures approach 0 F.

Co-ops also benefit as these devices offer a multitude of grid management attributes including load shifting and load shedding capabilities. These actions flatten the load curve and make it more predictable. All these attributes provide reductions in energy usage during high-demand times, meaning savings for utilities through lower demand charges. Additionally, co-ops experience increased load and revenue by incorporating newly converted electrical equipment into their grids.

Unlike older fossil fuel–powered end-use devices, newer electric equipment provides multiple benefits creating a winning proposition for the member, the utility, and the environment.

The environment also wins with lower carbon emissions as (mostly) propane-powered devices are replaced by residential electric space- and water-heating equipment. With more renewable energy on the grid, this same equipment can contribute to even lower carbon emissions.

Combing through hundreds of co-ops websites and performing a dozen surveys and interviews, our research found that about 88 percent of all Midwest co-ops offer some type of energy upgrade and/or loan program for their members to improve their energy efficiency and/or replace their heating and water equipment. Co-op energy efficiency upgrade programs can serve a dual purpose: first, they can help a member weatherize their home, which saves money; and second, these programs can be building blocks for a beneficial electrification program. A non-insulated home can negate the savings from a new electric heat pump/and or water heater. Some of these co-op energy upgrade programs are offered in partnership with their larger power providers, especially for specific-conversion rebates for water heaters and heat pumps.