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RURAL ELECTRIC COOPERATIVES AND THE TRANSITION TO A CLEAN ENERGY FUTURE

A Guide for Cooperative Leaders

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Ken Colburn retired as RAP's director of US programs in 2020. He continues to contribute to the clean energy transition part-time through his LLC, Symbiotic Strategies.

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A. Put Energy Efficiency First

Energy efficiency is the first option for cooperatives to consider and implement. Energy efficiency is not only the least-cost resource option, it can also simultaneously provide savings to the electric system and to individual member-owners who participate in programs, including decreasing the risk of fluctuations in energy prices. In addition to monetary savings, energy efficiency programs can increase the quality of life for participants by creating tighter building shells that provide more comfortable indoor living environments. Energy efficiency programs are modular and flexible in that they can be scaled to budget, targeted to member groups, and easily expanded. Energy efficiency programs can also create jobs within the local community.

To put this in perspective: Energy efficiency has become the nation's third-largest electricity resource. Without energy efficiency, an additional 313 large power plants would be needed to meet our energy needs.[62] With energy efficient appliances and home upgrades, member-owners can save anywhere from 5% to 30% on their utility bills, according to the U.S. Department of Energy.[63]

Despite these benefits, energy efficiency programs are often overlooked and underutilized. Programs can and should be evaluated to ensure they are cost-effective and to determine which programs provide the most savings. Industry tools are available to help the cooperative determine which programs are best for its community. *The National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources* provides an excellent guide for how to screen programs, taking into account the goals of the cooperative, as discussed in Section III-A-2 regarding cost-effectiveness screening.[64]

62 Beadle, R. (2019, May 8). *Benefits of energy efficiency go beyond saving energy and money.* Resource Innovations. https://www.resource-innovations.com/resources/benefits-energy-efficiency-go-beyond-saving-energy-and-money; and EnergySage (2021, August 30). *Why conserve energy: The top benefits of energy efficiency.* https://www.energysage.com/energy-efficiency/why-conserve-energy/

63 EnergySage, 2021.

64 National Energy Screening Project. (2020, August). *National standard practice manual for benefit-cost analysis of distributed energy resources.* https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/

A key piece of making efficiency investments equitable is prioritizing lower-income members of the community. Key to achieving this goal is better targeted outreach to low-income communities so that they are aware of the programs available. Further, greater flexibility is needed in providing people with the opportunity to participate in programs — for example, scheduling energy audits on a weekend so residents do not have to take off from work. Recognizing this, recent legislation in Colorado called for a task force to recommend improved access to state agencies and programs that schedule variable times of day and days of the week for public input and that use different methods of outreach, including language options.[65]

Growing the clean energy workforce

Partnerships between cooperatives and community colleges to develop clean energy job training or retraining enable community members to build skills and attract clean energy employers or help community-based employers grow. Workforce issues are a major concern for cooperatives across the nation, particularly as key long-serving employees like lineworkers approach retirement, and as new technology needs arise like load shaping and cybersecurity. As a result, NRECA has initiated significant workforce development efforts for the cooperative community.[66] Cooperatives are also partnering with community colleges and other schools to build these workforces through apprenticeships and tuition assistance programs.[67] Already, over 2.3 million Americans work in energy efficiency jobs, including in heating, ventilation, air-conditioning, electrical work, insulation and plumbing.[68]

1. Financing Mechanisms

Energy efficiency programs can be funded in numerous ways. The most common method that investor-owned utilities use is to fund energy efficiency through a ratepayer charge. Rural cooperatives can utilize this option or, depending on the size and scale of the programs, other approaches such as cooperative-financed programs, on-bill financing or property assessed clean energy programs or take advantage of federally funded weatherization programs.

a. Cooperative-Financed Programs: Energy Audits and Rebates

The most common mechanism for financing customer energy efficiency programs is to absorb costs in rates, in the same way that purchasing power or building a new power plant would be. Typically, the cooperative budgets for these costs and incorporates them contemporaneously in its electricity rates. If its energy efficiency program is financed in this way, the cooperative would develop a portfolio of programs and a budget for implementation. For example, Clay Electric Cooperative in Florida offers rebates for ceiling insulation, as well as the installation of high-efficiency heat pumps, solar water heating systems, window film, spray foam insulation, heat pump water heaters and heat recovery units. The rebate includes conventional and manufactured homes and small commercial facilities. Rebates are paid directly to Clay Electric members. [69] Intentional outreach is important to ensure all member-owners are aware of programs like this when they exist.

Another innovative program is one at Southern Pine Electric Cooperative in Alabama, which offers devices for sale to all member-owners that may help to reduce or in some cases eliminate problems caused by fluctuating voltage. Charges for certain equipment may be added to members' bills and repaid over time on a monthly basis.[70]

65 General Assembly of the State of Colorado. (2021). HB 21-1266. https://leg.colorado.gov/sites/default/files/2021a_1266_signed.pdf

66 National Rural Energy Cooperative Association. Workforce Solutions. https://www.cooperative.com/programs-services/hr/Pages/default.aspx

67 LaBerge, J. (2016). The Next Generation of Lineworkers. https://crea.coop/2016/07/04/the-next-generation-of-lineworkers/

68 National Association of State Energy Officials. (2020). 2020 U.S. energy & employment report. https://static1.squarespace.com/static/5a98cf80ec4eb7c5cd928c61/t/5ee78423c6fcc20e01b83896/1592230956175/USEER+2020+0615.pdf

69 Clay Electric Cooperative. (n.d.). Energy rebates & loans. https://www.clayelectric.com/member-information/energy-information/energy-rebates-loans.

70 Southern Pine Electric Cooperative. (n.d.). Surge protection equipment. https://southernpine.org/surge-protection-equipment

b. On-Bill Financing

On-bill financing is a loan made from the cooperative to member-owners to pay for energy efficiency improvements.[71] The cooperative collects the regular monthly payments through the electricity bill until the loan is repaid. This mechanism can be designed to apply to one or more member classes. In most cases, the loan funds are provided by the cooperative or a program administrator.[72] There are generally two kinds of on-bill financing: one in which the financing is a loan with debt repayment added to the member-owner's bill, and another that is tariff-based. With the Pay As You Save (PAYS) program, the costs of the energy efficiency are recovered through a tariff. The benefit of a tariff-based program is that all member-owners can be eligible for the program, reaching a larger group since many low- and moderate-income (LMI) members are routinely disqualified from other debt-based on-bill financing programs.[73] The PAYS program can therefore serve typically hard-to-reach households such as single-family-home renters, mobile home residents, multifamily apartment renters and low-income members.[74] Utilities with tariffed on-bill programs have reported estimated kWh savings of greater than 20%.[75]

Although there are differences between on-bill financing programs and tariffed-based programs, they essentially work in the same manner:

1. Energy savings are installed in a home or building with no upfront cost from the member-owner.
2. The cooperative pays for it either by self-financing the program or through low-cost financing, recovering a monthly set amount in the member-owner's bill and remitting it to the lender.
3. Once the costs are recovered, the payment ceases, and the member enjoys larger bill savings.

Some key elements of on-bill financing include:

- All residential member-owners are eligible.
- There are no upfront costs.
- To make this work for low-income member-owners, there are no credit scores or debt-to-income ratios.
- An energy audit is performed to determine the most cost-effective measures.
- The cost-recovery charge is established to be less than the estimated savings from reduced use so that members get a bill reduction benefit from the beginning.
- The member-owner is subject to disconnection for nonpayment.
- The charge for repayment remains with the dwelling should the member move.

The benefit for member-owners is that it creates no loan debt that would occur if the member procured energy efficiency installations or products independently, and it allows the member-owner to repay over time while still saving on energy bills. For utilities, it provides a mechanism to finance energy efficiency at the lowest-cost resource option without having to raise rates. The risk of nonpayment is reduced because if structured correctly, the member's overall bill goes down. For society, it accelerates the adoption of clean energy options and improves the environment and the health and productivity of its citizens.

Ouachita Electric Cooperative in Arkansas offers a PAYS to finance energy efficiency. An energy auditor performs an energy audit on individual buildings and recommends energy efficiency upgrades. No upfront payment is required; upgrades are paid back on member-owners' monthly bills over an extended period of time. Energy savings are calculated to be more than the monthly payments.[76] Member-owners of Roanoke Electric Co-op in North Carolina can opt into a voluntary tariff that allows the utility to pay for energy

71 For more information, see Energy Efficiency Institute Inc. (2021). *PAYS essential elements & minimum program requirements.* https://www.eeivt.com/pays-essential-elements-minimum-program-requirements-2/; Henderson, P. (2013, July). *On-bill financing overview and key considerations for program design.* National Resources Defense Council. https://www.nrdc.org/sites/default/files/on-bill-financing-IB.pdf; and Gardner, J. W. (2017, February 12). *On-bill financing with tariffed on-bill program in Kentucky: How$martKY* [Presentation]. National Association of Regulatory Utility Commissioners Winter Committee Meetings. https://pubs.naruc.org/pub/0BCFCDDC-DDA6-7D08-AE1D-A077B87835D3

72 A program administrator can be an independent nongovernmental entity; a utility administrator, in this case a specialized group within the cooperative; a governmental administrator; or a hybrid of the above.

73 Hummel, H., & Lachman, H. (2018). *What is inclusive financing for energy efficiency, and why are some of the largest states in the country calling for it now?* ACEEE Summer Study on Energy Efficiency in Buildings. https://www.aceee.org/files/proceedings/2018/assets/attachments/0194_0286_000158.pdf

74 Hummel & Lachman, 2017.

75 Hummel & Lachman, 2017.

76 Ouachita Electric Cooperative Corp. (n.d.). *HELP PAYS (Pay As You Save — energy efficiency program).* https://www.oecc.com/help

efficiency upgrades that provide immediate savings on a member's electric bill. Roanoke recovers its costs through a fixed charge on the bill that is less than the total estimated savings.[77]

Other cooperatives have established different kinds of loan programs. Access Energy Cooperative in Iowa offers members low interest financing for energy efficiency improvements. Loans are available for up to 80% of total costs of the project with a minimum of $500 and a maximum of $10,000 per member-owner. As of early 2022, the annual interest rate is 1.85% on the unpaid balance of the loan.[78] New Hampshire Electric Cooperative's SmartSTART program, allows member-owners to pay for energy efficiency products in monthly payments on their electric bill, up to 75% of the savings resulting from the upgrades.[79]

2. Cost-Effectiveness Screening for Energy Efficiency Programs

Energy efficiency programs decrease the demand on the system and can reduce the need for new, more expensive supply-side resources. To maximize the benefits of energy efficiency, programs should be screened through a cost-effectiveness test to determine which programs provide the most savings. The *National Standard Practice Manual* provides an excellent guide for how to screen programs taking into account the goals of the cooperative as the energy efficiency provider.[80] The manual does not prescribe one test but rather creates parameters for jurisdictions to include their own inputs in accordance with their needs. It includes a five-step process: (1) articulate goals, (2) include utility system impacts, (3) decide which nonutility system impacts to include (such as improvements in air quality and health), (4) ensure that benefits and costs are properly addressed and (5) establish comprehensive and transparent documentation.

A secondary test can also be deployed for discrete purposes, such as to ensure program availability for low-income member-owners by reallocating program costs so that the bulk, if not all, of the costs are borne by the cooperative and its members instead of the low-income member-owner, who would otherwise not be able to participate. These programs may include measuring the societal benefits of reducing trips to the hospital, absenteeism from work or school and service disconnections.

The *National Standard Practice Manual* also includes a list of potential impacts from the utility, customer and societal perspective that can be very helpful in cataloging the full benefits to be included in the benefit-cost analysis.

3. Weatherization for Low-Income Customers

Energy affordability is a significant problem for low-income member-owners, who typically pay 13.9% of their income on energy, compared with the 3% that other households pay.[81] Energy efficiency targeted for low-income households can therefore have a significant positive impact on monthly household energy expenditures. A big efficiency opportunity is weatherization, or weather-proofing buildings to limit leaking of air-conditioning or heating.

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77 Roanoke's program is modeled on the trademarked Pay As You Save (PAYS) program. To pay for the investments, Roanoke draws upon low-cost financing available through the Energy Efficiency & Conservation Loan Program. Southern Environmental Law Center. (n.d.) *Members save money while saving power: Roanoke Electric Cooperative leads the way with a debt-free on-bill program for energy efficiency.* https://www.southernenvironment.org/wp-content/uploads/legacy/infographics/SELC_Roanoke_Electric_OBF_Handout_Final.pdf

78 Access Energy also provides rebates for heat pumps, energy efficiency improvements, and efficient appliances. Access Energy Cooperative. (n.d.). *Low interest financing for energy efficiency improvements.* https://www.accessenergycoop.com/low-interest-financing-energy-efficiency-improvements

79 For example, if a member-owner installs $1,000 in efficiency upgrades and those products save them $100 per month on their electric bill, the member is responsible for $75 per month. The program can be used for weatherization (including air sealing and insulation), lighting and lighting controls and other energy-saving measures. New Hampshire Electric Cooperative. (n.d.-a). *SmartSTART project financing.* https://www.nhec.com/smartstart-project-financing/

80 "The *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources (NSPM for DERs)* provides a comprehensive framework for cost-effectiveness assessment of DERs. The manual offers a set of policy-neutral, non-biased, and economically-sound principles, concepts, and methodologies to support single- and multi-DER benefit-cost analysis (BCA) for: energy efficiency (EE), demand response (DR), distributed generation (DG), distributed storage (DS), and (building and vehicle) electrification. It is intended for use by jurisdictions to help inform which resources to acquire to meet their specific policy goals and objectives." National Energy Screening Project. (n.d.) *National Standard Practice Manual (NSPM).* https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/

81 U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy. (n.d.). *About the Weatherization Assistance Program.* https://www.energy.gov/eere/wap/about-weatherization-assistance-program

One of the main sources of weatherization is the U.S. Department of Energy Home Weatherization Assistance Program, which provides funding to all 50 states, the District of Columbia, Native American tribes and U.S. territories through an allocation formula.[82] The funds can be used for specific mechanical, building shell, energy and water, and health and safety measures as well as client education.[83] This program is able to fund approximately 35,000 homes per year and helps save approximately $283 in energy costs per year per dwelling. (The average weatherization cost is $4,695 per unit.) Thus, this program alone is not sufficient to cover the energy efficiency needs of low-income member-owners and needs to be supplemented with state and local programs as well as programs offered by the cooperative in order to reach a larger portion of the population.

Cooperatives can work with the community action agencies or local groups that provide the weatherization programs for low-income member-owners by offering additional funding to expand on the program or to provide specific weatherization measures. This approach is an efficient way to reach more members with minimal use of utility staff and resources. For example, Mohave Electric Cooperative, in coordination with the Western Arizona Council of Governments, offers a free home repair program designed specifically for qualifying low-income families. Participants receive a free energy audit and are eligible for up to $3,000 worth of energy efficiency measures.[84] New Hampshire Electric Cooperative offers a program whereby income-qualified members living in an apartment or house, either rented or owned, can receive up to $8,000 in services, including a free customized audit report. Measures identified in the audit are then installed by community action agencies (contractors managed by the cooperative or cooperative energy specialists).[85] Sun River Electric Cooperative in Montana provides funding to weatherize residential homes for low-income households. Insulation, window replacement, weather stripping and furnace repair or replacement qualify under this program. The Universal Systems Benefit Program dollars collected from the cooperative fund the program.[86]

Useful Resources on Energy Efficiency

Berry, D. (2010). *Delivering Energy Savings: Innovative Energy Efficiency Strategies for Rural Electric Cooperatives and Small Public Power Utilities.* Western Resource Advocates.https://westernresourceadvocates.org/wp-content/uploads/dlm_uploads/2015/07/deliveringenergysavings.pdf

Bickford, A., & Geller, H. (2016). *Review of Leading Rural Electric Cooperative Energy Efficiency Programs.* Southwest Energy Efficiency Project. https://www.swenergy.org/data/sites/1/media/documents/publications/documents/Leading_REC_Energy_Efficiency_Programs_Jan_2016.pdf

Wheeless, A., Grant, C. & Keegan, P. (2016). *Practical Partnerships: Collaborative Approaches to Energy Efficiency.* National Rural Electric Cooperative Association. https://www.cooperative.com/programs-services/bts/Pages/TechSurveillance/collaborative-approaches-energy-efficiency.aspx

82 U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy. (2021, January). *Weatherization Assistance Program* [Factsheet]. https://www.energy.gov/sites/default/files/2021/01/f82/WAP-fact-sheet_2021_0.pdf

83 U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, 2021.

84 Mohave Electric Cooperative. (n.d.). *Weatherization.* https://www.mohaveelectric.com/energy-solutions/weatherization/

85 Hampshire Electric Cooperative. (n.d.-b). *Home energy assistance.* https://www.nhec.com/home-energy-assistance/

86 Sun River Electric Cooperative. (n.d.). *Weatherization.* https://sunriverelectric.coop/weatherization. The Universal Systems Benefit Program is a state-mandated program that requires a utility spend a minimum amount on certain social programs such as low-income assistance, energy conservation and renewable resources. A portion of these expenses is funded through a program charge on each member's bill.