CLIMATE CABINET EDUCATION

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ELISABETH HAUB SCHOOL OF LAW

ELECTRIC MUNICIPAL UTILITIES AND THE TRANSITION TO A CLEAN ENERGY FUTURE

A Guide for Municipal Utility Leaders

Climate Cabinet Education combines data science with policy expertise, local partnerships and cross-state experience to support climate leadership in local governments across the US — working towards a clean energy economy that creates jobs, improves community health, and unlocks local opportunity and leadership.

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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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Pleiades Strategy works with mission-driven leaders striving to build an open, democratic, climate-safe future rooted in justice and equity. Experienced in policy research, communications, and partnership development, we assist organizations in understanding and shaping the policy landscape to accelerate the clean energy future and realize energy justice. We are deep systems thinkers who relish bringing clarity to complex situations through listening, strong communications, and collaborative building. We operationalize big ideas and thrive when working on multidisciplinary challenges in fast-moving, dynamic environments.

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A. Put Energy Efficiency First

Energy efficiency is the first option for utilities 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 customers 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 customer 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.[51] With energy efficient appliances and home upgrades, customers can save anywhere from 5% to 30% on their utility bills, according to the U.S. Department of Energy.[52]

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 municipal utility 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 municipal utility, as discussed in Section III-A-2 regarding cost-effectiveness screening.[53]

A key piece of making efficiency investments equitable is prioritizing lower-income members of

51 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/

52 EnergySage, 2021.

53 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/

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.[54]

Growing the clean energy workforce

Partnerships between municipalities 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. Denver, while not a municipal utility city, has invested $2 million toward a clean energy workforce that will provide both a training pipeline and construction job opportunities prioritized for local residents and especially those from under-resourced communities.[55] These jobs and the workforce development programs that support them represent a unique opportunity to benefit the whole community while helping bridge the deep, persistent gaps in economic opportunity and access to education within the community. Already, over 2.3 million Americans work in energy efficiency jobs, including in heating, ventilation, air-conditioning, electrical work, insulation and plumbing.[56]

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. Municipal utilities can utilize this option or, depending on the size and scale of the programs, other approaches such as utility-financed programs, on-bill financing or property assessed clean energy programs or take advantage of federally funded weatherization programs.

a. Municipal-Utility-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 utility receives cost recovery at the time the costs are incurred or shortly thereafter. If a municipal utility's energy efficiency program is financed in this way, the municipal utility would develop a portfolio of programs and a budget for implementation. For example, the Lansing Board of Water and Light Hometown Help program in Michigan serves income-qualified residential electric customers. Free products and services available under the program include a home energy assessment, a custom energy-saving kit with LED light bulbs, education on other ways to save, and water-saving measures for homes with an electric water heater. The program may also be able to provide financial assistance to replace older appliances including refrigerators, air conditioners, dehumidifiers and air purifiers.[57] Intentional outreach is important to ensure all customers are aware of programs like this when they exist.

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

55 Denver Office of Climate Action, Sustainability & Resiliency. (2021, November 9). *Denver invests more than $2 million to create green workforce, providing career pathways in a growing clean energy industry.* Globe Newswire. https://www.globenewswire.com/news-release/2021/11/09/2331024/0/en/Denver-Invests-More-Than-2-Million-to-Create-Green-Workforce-Providing-Career-Pathways-in-a-Growing-Clean-Energy-Industry.html; and Community College of Denver. (2021, December 21). *Denver invests more than $2 million to create green workforce, providing career pathways in a growing clean energy industry.* https://www.ccd.edu/blog/press-room/denver-invests-more-2-million-create-green-workforce-providing-career-pathways&sa=D&source=docs&ust=1643130627889377&usg=AOvVaw2hGAZoIJuKg1_Z8coqvPgo

56 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

57 Lansing Board of Water and Light. (n.d.). *Hometown Help.* https://www.lbwl.com/hometownhelp

b. On-Bill Financing

On-bill financing is a loan made to the utility customer to pay for energy efficiency improvements.[58] The utility collects the regular monthly payments through the utility bill until the loan is repaid. This mechanism can be designed to apply to one or more customer classes. In most cases, the loan funds are provided by the utility or a program administrator.[59] There are generally two kinds of on-bill financing: one in which the financing is a loan with debt repayment added to the customer'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 customers can be eligible for the program, reaching a larger group since many low- and moderate-income (LMI) customers are routinely disqualified from other debt-based on-bill financing programs.[60] 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 customers.[61] Utilities with tariffed on-bill programs have reported estimated kWh savings of greater than 20%.[62]

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 customer.
2. The municipal utility pays for it through low-cost financing. The utility recovers a monthly set amount in the customer's bill and remits it to the lender.
3. Once the costs are recovered, the payment ceases, and the customer enjoys larger bill savings.

Some key elements of on-bill financing include:

- All residential customers are eligible.
- There are no upfront costs.
- To make this work for low-income customers, 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 customers get a bill reduction benefit from the beginning.
- The customer is subject to disconnection for nonpayment.
- The charge for repayment remains with the dwelling should the customer move.

The benefit for customers is that it creates no loan debt that would occur if the customer procured energy efficiency installations or products independently, and it allows the customer 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 customer'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.

The City of Tallahassee Utilities offers financing for various energy-saving appliances, measures and systems including solar.[63] The city offers 5% interest financing for more than 25 energy efficiency measures. Loan payments are made on monthly utility bills. Financing terms are up to five years for most measures and up to 10 years for solar measures and for certain items in qualifying historic homes. Notes are secured with a property lien.

c. Property Assessed Clean Energy Program

A property assessed clean energy program allows customers to finance energy efficiency and renewable

58 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

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

60 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

61 Hummel & Lachman, 2017.

62 Hummel & Lachman, 2017.

63 City of Tallahassee. (n.d.). *Energy-efficiency loans — Residential customers.* https://www.talgov.com/you/you-products-home-loans.aspx

energy improvements through a tax assessment that runs with the property.[64] The advantage of the program is a lower interest rate, but this needs to be balanced with the cost to the customer of the overall payment. The downside is that in contrast to on-bill financing, these programs can lead to higher risks for consumers due to credit score considerations and instances of predatory loan structures.[65] It should be noted that this becomes a debt payable with taxes, so affordability of the loan is important.

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 municipal utility as the energy efficiency provider.[66] 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: articulating goals, including utility system impacts, deciding which nonutility system impacts to include (such as improvements in air quality and health), ensuring that benefits and costs are properly addressed and establishing comprehensive and transparent documentation.

A secondary test can also be deployed for discrete purposes, such as to ensure program availability for low-income customers by reallocating program costs so that the bulk, if not all, of the costs are borne by the utility and its customers instead of the low-income customer, 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 customers, who typically pay 13.9% of their income on energy, compared with the 3% that other households pay.[67] 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.

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.[68] The funds can be used for specific mechanical, building shell, energy and water, and health and safety measures as well as client education.[69] 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 customers and needs to be supplemented with state and local programs as well as programs offered by the utility in

64 For state-by-state status of these programs, see PACENation. (n.d.) *PACE programs.* https://www.pacenation.org/pace-programs/

65 Burns, R. (2021, April 6). *The subprime solar trap for low-income homeowners.* Bloomberg Green. https://www.bloomberg.com/news/features/2021-04-06/the-subprime-solar-trap-for-low-income-homeowners

66 "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/

67 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

68 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

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

order to reach a larger portion of the population.

Municipal utilities can work with the community action agencies or local groups that provide weatherization programs for low-income customers by offering additional funding to expand programs or to provide specific weatherization measures. This is an efficient way to reach more customers with minimal use of utility staff and resources. For example, Knoxville Utilities Board offers the Home Uplift program, which provides weatherization and energy efficiency upgrades to low-income customers. The program is funded by the Tennessee Valley Authority, the Tennessee Department of Environment and Conservation, and Knoxville Utilities Board. In fiscal 2021, the utilities board committed to an annual contribution of $1 million for low-income home weatherization, which will be used in conjunction with the Tennessee Valley Authority's Home Uplift funds, customer contributions and other sources.[70]

Useful Resources on Energy Efficiency

U.S. Environmental Protection Agency. (2011). *Energy Efficiency in Local Government Operations.* https://www.epa.gov/sites/default/files/2015-08/documents/ee_municipal_operations.pdf

70 Knoxville Utilities Board. (n.d.). *KUB weatherization programs*. https://www.kub.org/uploads/Round_It_Up_Program_Handout_1.pdf