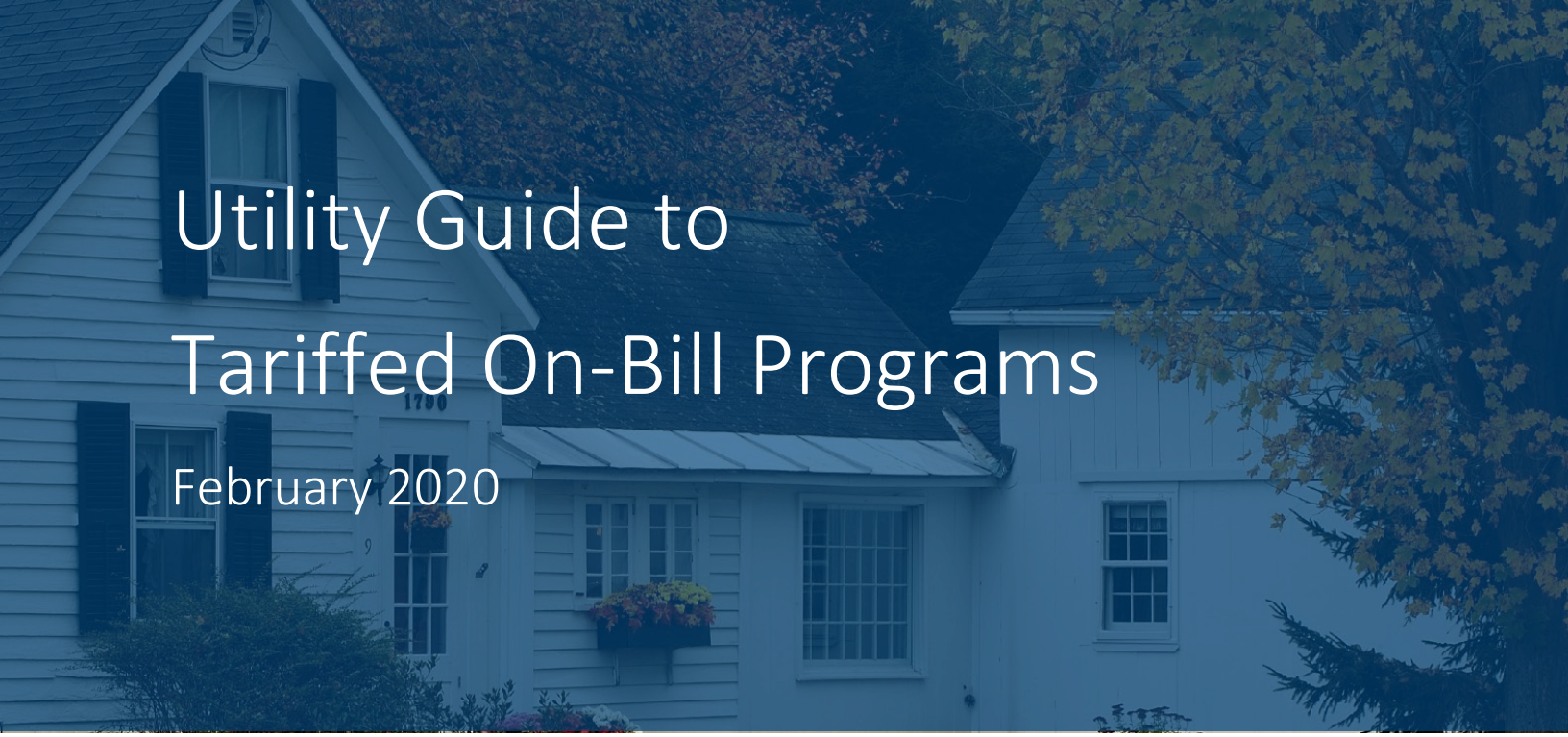

Utility Guide to Tariffed On-Bill Programs

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Editors

Wesley Holmes, director of strategy and development; **Cyrus Bhedwar**, director of policy; **Kate Lee**, policy manager; and **Emme Luck**, policy associate

About Us

The Southeast Energy Efficiency Alliance (SEEA) is a 501(c)(3) nonprofit organization headquartered in Atlanta, Georgia. Established in 2007, SEEA is a Regional Energy Efficiency Organization (REEO) serving eleven states across the Southeast, including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.

50 Hurt Plaza, Suite 1250, Atlanta, GA 30303
seealliance.org

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Table of Contents

Overview

Summary

This document guides the reader through resources about on-bill financing, tariffed on-bill programs, and the Pay As You Save® (PAYS) system. An understanding of these resources is necessary for the design and implementation of a successful tariffed on-bill program. This guide follows steps outlined in the EEI Decision Tool to facilitate navigation of this process, available under **Introductory Resources**.

On-bill financing is a means of paying for energy efficiency upgrades through payments on customer electric bills over time. It has been most commonly implemented using a loan model where a utility loans capital to a customer to pay for the upfront cost of energy upgrades, or alternatively, a third-party lender makes consumer loans to eligible customers and collects the debt payments with a charge on the utility monthly bill.

Over the past decade, many utilities have seen greater program participation and energy savings by implementing a tariffed on-bill program (TOB). A TOB program differs from typical utility rebate and loan programs in several important ways, in particular, the customer eligibility criteria are much broader and barriers to participation are much lower. For example, TOB programs can be implemented to serve any type of customer, including renters and low-to-moderate income (LMI) customers, whereas rebate and loan programs are effectively limited to building owners with available capital or a willingness to take on debt. This guide is intended to describe key attributes of TOB programs and the resulting benefits reported in the field. For utilities interested in adopting a TOB program model, it also provides information on best practices and lessons learned as well as answers to frequently asked questions.

On-Bill Program Model

Tariffed on-bill programs treat improvements to the energy performance of homes and buildings as an investment in system reliability and as a development of lower cost distributed energy resources, such as energy efficiency. The utility employs its established authority to make investments and seek cost recovery through tariffs using existing mechanisms for issuing bills and collecting revenue. The investment in energy savings is tied not to an individual customer but to the location until the value of the utility's investment is recovered. A tariffed investment does not add to the debt profile of the location owner the way a bank loan would. A notable benefit of this model is that it can be utilized by renters and LMI customers, especially those with limited credit or low credit scores, because the utility's investment is based on the cost effectiveness of the upgrades and not the socio-economic status of the billpayer at that location.

Pay As You Save® (PAYS®) is a market-based system developed by the Energy Efficiency Institute (EEI) that provides a platform for TOB investment programs. Pay As You Save® and its acronym, PAYS®, are EEI trademarks for a resource efficiency system defined by specific essential elements and minimum program requirements. EEI has never charged a utility implementing a program consistent with that definition for use of the trademark, providing the program has all of these elements and program requirements. The trademarks ensure that "Pay As You Save" and "PAYS" may only be used to refer to programs with the essential elements and program requirements that have produced successful programs reaching all customers, including hard-to-reach customers. Customers, vendors, and capital providers using the PAYS system have produced an unprecedented rate of resource efficiency investment while also improving options for low cost, local, clean energy resources. PAYS is the most widely used form of tariffed on-bill programs for energy efficiency.

Introductory Resources

- On-Bill Finance (SEEA website)
- Inclusive Financing for Energy Efficiency Webinar Series
- Low-income Energy Efficiency Financing through On-Bill Tariff Programs
- Tariffed On-Bill Financing Programs Presentation
- ACEEE Summer Study on Buildings, 2018
- EEI Tariffed On-Bill Decision Tool for Utilities

Preliminary Assessment and Program Design

There are several steps to conducting an effective preliminary analysis and many program design elements to consider in launching a TOB program. The utility must establish a tariff to recover its costs on customer bills and secure or allocate sufficient funds to pay for installations and to operate the TOB program. Program design considerations include the role of a program operator, the duration and estimated size of the program, outreach to customers with a high likelihood of cost-effective savings, and potential software system upgrades. Other considerations include legal and regulatory requirements, licensing or developing program forms, and agreements and protocols.

From preliminary analysis to program approval, timelines have ranged from six to eighteen months. Once a tariff is approved, utilities have been able to launch programs in as little as three to four months. The overall process is shorter if the utility's regulatory oversight body is its own board.

Financial Analysis

Cost Recovery

Of the utilities who have implemented TOB programs, and who have reported on cost recovery, TOB program collection rates exceed those for electricity sales. One utility reported cost recovery for their TOB program at 99.8%, the others 99.9%. Because the utility must meet its capital obligations regardless of collections from upgraded locations, it must recover missed payments charged off from its accounts receivables (i.e. expected payments). For charge offs of this scale (0.1% and 0.2%), utilities routinely recover the missed revenue from all customers as part of their normal rate setting mechanisms.

Resources

- Financial Analysis of a Pay As You Save® Investment Program

To maintain high levels of customer engagement, utilities must ensure that no more than 80% of the estimated annual savings are used to cover annual TOB cost recovery charges. The onsite cost effectiveness analysis for targeted upgrades must include the utility's current retail rates, actual upgrade price, estimated savings at that location, the value of rebates or incentives that can be applied to lower project expenses, and the utility's upfront investment. The maximum cost recovery period must be equal or less than 80% of the estimated life of the upgrades.

To recover its investments, the utility must have a billing and collection system capable of processing TOB charges throughout the duration of cost recovery. Once the monthly charge is established for a participating location, the fixed payment amount remains constant. However, the time span for cost recovery may be increased due to missed payments, extended vacancy, or repair expense at that location to keep the upgrade functioning.

Feasibility

Utilities must consider the aggregate effect of energy efficiency investments on its overall business. Prior to implementation of a PAYS program, utilities are urged to perform a financial analysis of the impacts of operating the program. This analysis should include the inputs to the cost effectiveness analysis, the utility's cost of power supply, the value of all utility benefit streams generated by the upgrades (e.g. peak demand reduction), and the estimated number of participating customers.

Legal and Regulatory Approval

Generally, TOB programs are subject to the same oversight and approval process as other tariffs. The specifics vary by utility type and the utility's relationship with its oversight or regulatory body (public service commission, cooperative board, city council, etc.). While evaluating the feasibility of implementing a TOB program, utilities should also complete a legal review of tariff, contracts, and other forms to ensure compliance with state and local requirements. The utility should also have a clear understanding of the agreements involved in a tariffed on-bill program. Most current TOB programs purchased licensed Intellectual Property (IP) from EEI or hired a licensed IP operator. Alternatively, a utility can develop its own agreements, worksheets, and forms. The choice includes consideration of staff time and cost to develop documents that are untested in the field. Utilities using licensed IP to develop their TOB program may adapt the materials, recognizing that changes in the PAYS system may impact performance.

Resources

- **Authority for Rural Electric Membership Corporations to adopt the PAYS® System of Tariffed On-Bill Financing for Energy Efficiency in North Carolina**

Many electric cooperatives and municipal utilities can establish tariffs under the authority of their oversight boards without being subject to state regulatory approval. Regulated utilities seeking public service commission (PSC) approval of TOB programs can benefit from precedents set by commissions in other states. Dockets for proposed TOB program tariffs are currently open in Arkansas, Hawaii, Kansas, Kentucky, and New Hampshire. The orders linked below show commission approval; see full dockets for more details.

TOB Docket Orders

- Arkansas PSC Docket 15-106-TF Order No. 2
- Hawaii PSC Docket No. 2006-0425 Order No. 23531
- Kansas Corporation Commission Docket No. 09-MDWG-777-TAR
- Kentucky PSC Docket Order No. 20101-00089
- New Hampshire PSC Docket DE 01-080 Order No. 23,758

Sourcing Capital

There are multiple options for sourcing capital for a TOB program. The cost of capital varies depending on whether it is sourced as debt, equity, or a weighted average of both. Investor Owned Utilities (IOUs) in New Hampshire and Hawaii have used ratepayer funds budgeted for efficiency programs to start their TOB programs, and in both cases, the funds proved to be insufficient compared to demand for the programs. As a result, ratepayer funds are not considered to be a long-term capital source solution.

Resources

- Sourcing Capital for Inclusive Financing Webinar
- Deliberative Approach to Developing a Reserve Fund for a TOB Investment Program for Efficiency Upgrades
- NCSEA Energy Solutions Reserve Fund

Licensing (PAYS® vs. TOB)

PAYS start-up expenses can include the cost for licensing Intellectual Property (IP), which includes a standardized Implementation Plan and consulting support. A utility may license IP directly itself or work with a program operator that has licensed IP.

A utility can design and implement a TOB program without the PAYS IP, however, there is currently not a successful TOB program that has been tested and measured that did not use directly use PAYS IP or an operator with licensed IP.

Whether or not a TOB program is designed with licensed IP, the utility is required to arrange for a legal review of all program documentation in the context of the state legal and regulatory environment.

PAYS® Intellectual Property

EEI licenses its IP to individual utilities and states for fees based on the size of the utility. EEI includes the PAYS Tariff Model as a part of its IP but offers it free of charge to any utility that requests it and can provide a list of PAYS-certified program operators who can use its IP without a utility fee.

Program Design Considerations

Eligibility: While a customer may be eligible to opt into a TOB program, the building that they seek to upgrade may not qualify. Most utilities prohibit installations at buildings not likely to be habitable or suitable for the building's purpose for the duration of TOB charges. If a building needs major structural repairs, it is likely not a good site for investing in a long-term energy efficiency upgrade.

Resources

- PAYS® Model Tariff
- PAYS® Essential Elements & Minimum Program Requirements
- Options for Program Operator Services in an Inclusive Financing Program Webinar

Program Size: Custom TOB programs can be of any size, providing they are cost-effective. Programs often vary based on the size of the utility and the class of customers served. Pilot programs should target enough customers to provide useful program data for evaluation. The most effective programs reach approximately 4% of their customers in approximately three years and can spend approximately four dollars on customer improvements for every one dollar of program administration.

Program Operator Models: A utility can implement its own TOB program or it can hire a third-party operator to oversee the program. This decision may depend on the amount of available staff, the staff's experience with and knowledge of the targeted technologies, the accurate estimation of their savings, and the size and complexity of the program.

Standard or Custom Implementation: The PAYS system is designed so that a utility can invest in any upgrades that produce sufficient net savings for any class of customers while allowing the utility to recover its costs. The utility can follow a standardized implementation plan for residential customers or create a customized plan to reach more customers. Whole house energy upgrades are likely to qualify for a tariffed charge at any utility but will vary with weather, residential energy rates, labor rates, negotiated upgrade prices, and housing types and conditions. Utilities can also offer single-measure upgrades such as heat pumps for a standardized residential program.

Software and Billing

Integration of a TOB program with the utility's billing and information system is an essential component of planning for implementation. Utilities may consider adjusting billing and management systems for TOB programs. Of the 18 utilities that have implemented TOB, only one paid for enhancements to support program implementation. This utility's cost for enhancements was under $40,000. Utilities already considering enhancements to their billing and information systems can easily integrate requirements for a TOB program as part of the improvement project.

Resources

- Program Billing Systems and Administrative Functions Checklist
- Billing and Information System Enhancement Advice

Program Evaluation

Cost effectiveness analysis software and training support program implementation and facilitate evaluation, measurement, and verification (EM&V) processes. Utilizing deemed savings is too generalized to accurately estimate individual project savings. Utilities, or their program operators, implementing whole-house energy upgrades must purchase building energy efficiency analysis tools such as blower doors, pressure pans or duct blasters, and in some jurisdictions infrared cameras. For quality assurance and oversight, it is important that utilities implementing TOB programs have staff knowledgeable about the proper use of this equipment and capable of verifying third party staff performance and test results.

Resources

- HELP PAYS® Residential Energy Efficiency Program Evaluation
- DOE Uniform Method for Whole Building Energy Retrofits

Success Stories

Utilities exploring their options can gain insight from the experience of existing TOB programs in the region. The following resources provide information on TOB programs for energy efficiency.

Arkansas

Ouachita Electric Cooperative – HELP PAYS®

Ouachita Electric Cooperative started its HELP PAYS® program in 2016 after recognizing its previous on-bill loan program, called HELP, posed higher financial risks, limited eligibility, and limited project size.

Learn More

- Ouachita's HELP PAYS® Program
- HELP PAYS® Program Report, June 2017

Ouachita Electric worked with its program operator, EEtility, to make the transition from making consumer loans to making TOB investments. The tariff was approved by the state's utility commission in approximately four months, accounting for half of the time in the transition from due diligence to field implementation, which was eight months. Ouachita EMC upgraded 198 homes during eight months of 2016, reaching 2% of the market in the utility's service area. The utility prioritized attention to renters in multifamily homes, making an offer to capitalize upgrades in every rental unit assessed. Of eligible units, 100% opted to proceed with the upgrades. In addition, more than 80% of the residents in single-family homes who received an offer through the HELP PAYS® program accepted it. Comparing the best four months of the previous on-bill loan program to the first four months of the HELP PAYS® program, the project size and number of participants doubled. The average cost of an upgrade project was $5,634, and the average estimated energy savings was 22%.

Kentucky

MACED – How$mart®KY

The Mountain Association for Community Economic Development (MACED) has administered the How$mart®KY TOB program since 2011. At the time of publication, it is offered by six electric co-ops, all of which partner with MACED as the program operator. MACED worked with the co-ops to adapt its program design from intellectual property licensed from the Energy Efficiency Institute, as well as on precedents developed by Midwest Energy's How$mart® program in Kansas. Residential and small commercial customer classes are eligible, and most of the projects are residential. As of June 2019, the program had assessed 607 buildings, offered upgrades to 405 member-owners, and facilitated 320 energy efficiency retrofits. The average job cost is $7,743, and the cost recovery rate is over **99.6%**, with zero disconnections for non-payment. The average monthly projected savings is $51.98, or 5492 kWh, while the average monthly charge is $39.98.

Learn More

- **How$mart®KY**
- **How the Program Works**

North Carolina

Roanoke Electric Cooperative – Upgrade to $ave

Roanoke Electric Cooperative began Upgrade to $ave in July 2015 after finding the vast majority of customers with the highest bills in its service area would not qualify for or be willing to apply for a loan through its debt-based program. As of September 2017, the average Upgrade to $ave job cost was $7,200, and the average monthly tariffed charge for cost recovery was about $60, with cost recovery ranging from **4-12 years**, while the estimated monthly savings averaged over $80 per month. Participants are estimated to keep an average of 25% of savings during the cost recovery period. As of June 30, 2019, the co-op has invested approximately $3.4 million into energy efficient upgrades for

Learn More

- **Upgrade to $ave**
- **Open letter on the TOB program from the president and CEO of Roanoke Electric Cooperative,** February 21, 2017
- **Upgrade to $ave video**
- **Update on Inclusive Financing Programs in the South Webinar**

member-owners through Upgrade to $ave and still has nearly $3.1 million left in federal financing to invest in the program with a capital cost less than 3%. 638 member-owners have already benefited from this high-impact program.

Tennessee

Appalachian Electric Cooperative – U-$ave Advantage

Appalachian Electric Cooperative was the third cooperative in the Southeast to implement a PAYS program and the first Tennessee Valley Authority local power company to do so. As of September 2019, the average job cost was $6,414, while the estimated monthly savings averaged more than $68 and 640 kWh per month. 37 member-owners have already benefited from this high-impact program, the result of an 82% conversion rate of eligible homeowners.

Learn More

- U-$Save Advantage

TOB Program Comparison

	AR	KY	NC	TN
Enrollees	850	N/A	1,093	103
Enrollees Assessed	630	607	632	80
PAYS Upgraded Buildings	518	405	511	57
Lite Upgrades	N/A	320	376	N/A
Average Dollars Financed	$6,041	$7,743	$7,096	$6,730
Average Monthly Energy Savings	$71.50	$51.98	$74.33	$63.08
Average Monthly Tariff	$54.45	$39.98	$56.97	$48.95
Charge Offs	0	0	0	0

Frequently Asked Questions

What is the average scale of investment in cost-effective energy efficiency upgrades through a tariffed, on-bill program?

- The average scale of investment in cost-effective energy efficiency upgrades at a site depends on the type of site, weather zone, the energy use equipment in the building, the utility's cost of capital, and the useful life of the upgrades being undertaken.
- For residential energy efficiency upgrades undertaken through on-bill programs in Kansas, Kentucky, and South Carolina, the average cost of all cost-effective energy efficiency upgrades at a location are in the range of $7,000-8,000.

If the utility capitalizes efficiency upgrades at a site, what happens to the obligation for cost recovery when a new customer signs up for service at that meter?

- In a tariffed on-bill program, the utility's cost recovery for a site-specific investment is tied to the location at the site until cost recovery is complete. The successor customer (whether renter or owner) will enjoy the net savings from the investment and will likewise be obligated to pay the fixed, on-bill charge, which is significantly less than the estimated annual savings.
- Due to the on-bill payments made by the prior customer(s) served by that meter, a successor customer will have fewer billing cycles remaining until cost recovery is complete, at which point they will keep 100% of the savings.

In the case of a renter, does the opt-in tariff require landlord approval? Does it require new renter approval?

- Before a utility can capitalize an upgrade to a property, the owner must consent by signing an agreement. In the same agreement, the owner commits to not removing the upgrade and to maintain it. The owner also agrees to provide notice to successor renters or prospective buyers that the utility has made improvements that result in savings for the account holder at that site. The agreement provides the owner with language that can be added to a lease agreement, for example.
- Because the terms of the tariff are binding on successor customers at that site, the utility need not seek approval from a landlord or renter thereafter. When each new successor customer opens an account at an upgraded site, the utility must provide information about the program and its benefits in order to explain the cost recovery charge that will appear on the bill until cost recovery is complete. This communication also ensures that notice has taken place.

Will an investor-owned utility require legislation to gain the authority to disconnect for non-payment of cost recovery for cost-effective energy efficiency upgrades?

- In states that do not allow customers to choose and change energy service providers: For a tariffed on-bill program, an investor-owned utility will need approval from the state utility commission for the terms of its investments that deliver essential utility services, as it does for

other tariffed terms of service. Once approved, the tariff is a regulated charge, and subject to the same rules governing disconnection as any other regulated service.

Has any utility using the PAYS system reported a program participant being disconnected for non-payment?

- No, each utility with experience has affirmed no disconnections for non-payment of tariffed charges.

Does the opt-in tariff generate benefits that flow to all ratepayers?

- Yes, there are cross-subsidies from the opt-in tariff participants to non-participants. Examples of such benefits include avoided wholesale demand charges, avoided Transmission and Distribution costs, and deferred capital requirements to accommodate higher peak demand.
    - Utility systems with weather-driven peak demand can reduce peak demand by investing in energy efficiency upgrades to weather-driven loads. The scale of this potential savings stream depends on the climate zone of the service area.
    - Utility systems with distribution circuits or substations that are reaching load capacity can defer investment in expansion with deliberate focus on energy efficiency.

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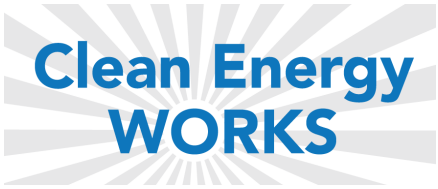

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