Modern Rate Design in the Northeast:
Unlocking Efficiency, Affordability, and Electrification

DECEMBER 2025

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About NEEP

NEEP was founded in 1996 as a non-profit whose mission is to serve the Northeast and Mid-Atlantic to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities. Our vision is that the region's homes, buildings, and communities are transformed into efficient, affordable, low-carbon, resilient places to live, work, and play.

Disclaimer: NEEP verified the data used for this white paper to the best of our ability. This paper reflects the opinion and judgments of the NEEP staff and does not necessarily reflect those of NEEP Board members, NEEP Sponsors, or project participants and funders.

Acronyms and Definitions

ACRONYMS

AMI: advanced metering infrastructure
AMR: automated meter reading
ccASHP: cold-climate air-source heat pump
CEP: competitive electricity provider
CPP: critical peak pricing
EIA: Energy Information Administration
EV: electric vehicle
FERC: Federal Energy Regulatory Commission
GHG: greenhouse gas
HPWH: heat pump water heater
IOU: investor-owned utility
kW: kilowatt
kWh: kilowatt-hour
LIHEAP: Low-Income Heating Energy Assistance Program
LMI: low- and moderate-income
NEEP: Northeast Energy Efficiency Partnerships
OPR: off-peak rebate
PIPP: percentage of income payment plan
PTR: peak time rebate
PUC: public utility commission
RTP: real-time pricing
SEO: state energy office
TOU: time of use (rate)
TVR: time varying rate

DEFINITIONS

- **Demand flexibility**: The ability to shift electric load demand by end-users to different times of the day.
- **Economic efficienc**y: Pricing electricity so that it properly reflects the cost of service, and sends price signals to customers to consume energy at the lowest possible total cost.
- **Electric consumption**: The number of kilowatt-hours (kWh) used by a customer over a given period of time.
- **Electric demand**: The number of kilowatts (kW) a customer draws at a given time.
- **Efficient electrificatio**n: Replacing the use of fossil fuels with electricity to reduce overall emissions, lower energy costs, and ensure a resilient, reliable grid.
- **Efficient electric heating technology**: Systems that utilize electric energy for heating, such as heat pumps.
- **Energy conservation**: Encouraging customers to change their behavior to save energy.
- Energy efficiency: Using technology to save energy while achieving the same level of output or service.
- **Energy equity**: Fair distribution of benefits and burdens of energy production and consumption, ensuring that all communities have fair access to affordable, reliable, and clean energy.
- **Modernized rates**: Rates updated to reflect new technologies, energy usage patterns, grid priorities, and affordability considerations (e.g., time of use rate).
- **Regulator**: An entity that has regulatory authority over electric utilities. Often called public utility commissions or public service commissions.
- **Restructuring**: The process by which competition was introduced into the electric generation/supply and/or retail component of the electric system (associated term: deregulation).
- **Standard two-part tariff**: The most common type of rate design in the United States. It includes both fixed and volumetric charges. Often, the fixed costs for utilities will be embedded in both the fixed and volumetric parts of a customer's bill to ensure that volumetric rates are high enough to incentivize customers to use energy efficiently.

Executive Summary

The Northeast and Mid-Atlantic regions face some of the highest energy costs and energy burdens in the country. Regionally, energy costs are rising, just as they are nationally, due to growing demand from data centers, rising gas and electricity supply costs, and increasing utility expenditures on transmission and distribution infrastructure. Meanwhile, spiking electricity demand, shifting and increasing system peaks, and the evolution of technology—such as advanced metering infrastructure (AMI), heat pumps, and electric vehicles—create opportunities to align electricity rates with changing consumption patterns. While some utilities have advanced time varying and technology-specific rates, most customer bills still consist of a traditional two-part rate and have not evolved to help meet these emerging challenges. Modern rate design enables utilities to lower electricity costs for customers, reduce demand when needed, support states' electrification goals, and save customers money.

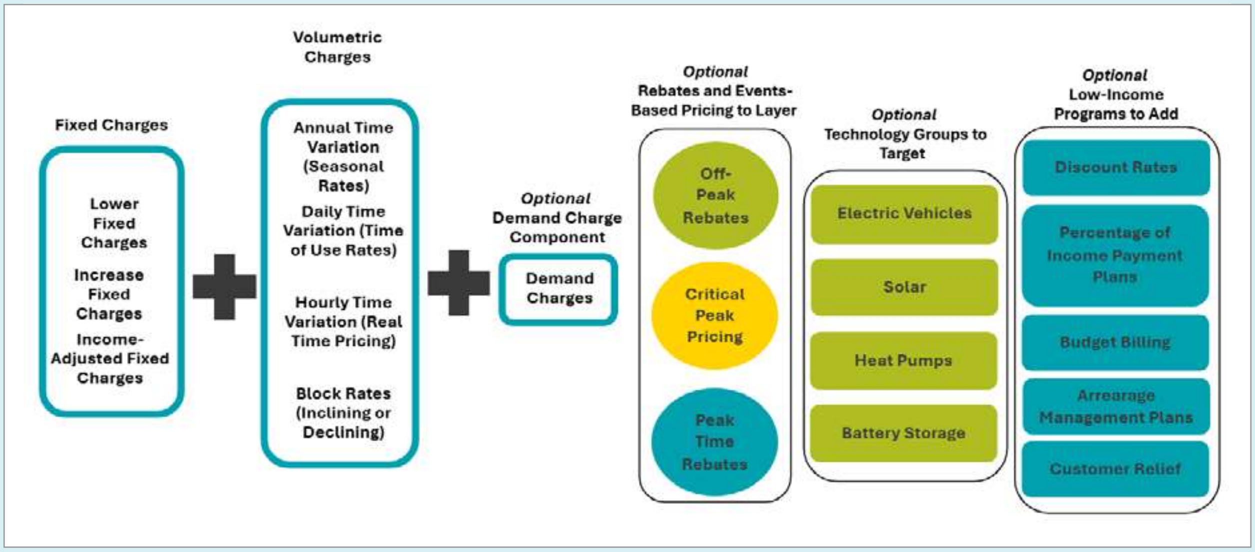
Utilities and regulators have long used rates to drive energy efficiency. Today, emerging priorities often compete with other objectives, including aligning prices with electrification, optimizing grid use, and ensuring affordability. Modernizing rates can accomplish these priorities and optimize the way we use electricity. This paper provides a framework for regulators, state policy officials, utilities, and other stakeholders to examine four key priorities when designing modern rates:

1. Ensuring rates continue to drive energy efficiency
2. Aligning rates with new usage patterns for electric technologies
3. Using rates to encourage demand flexibility
4. Aligning rates with goals of equity and affordability

Rate Design Primer

Rate design is the process of setting prices for electricity service. Establishing rates and determining rate design for customers includes multiple elements, starting with determining utilities' revenue requirements, allocating costs, and finally, designing rates for customer use. This paper will focus on the final step, designing rates for customers' usage for residential electric customers. Most rates today have two components, fixed and variable costs, with some utilities offering a third component, demand charges. The most standard type of rate design is standard two-part tariff, which includes both fixed and volumetric charges. When designing rates, if utilities are in a restructured market, additional considerations should be part of the rate design process, such as how to engage competitive energy providers and align supply, distribution, and transmission costs. Finally, modernizing rates is becoming a priority for many states as adoption of efficient electric technology is changing how customers use energy, costs to operate and maintain the grid are increasing, demand response technology is advancing, and customers are engaging more with their electric rates with the adoption of net metering and electric vehicle rates.

Modern Rate Design Structures



Rates can include six elements that can be modified to align with policy goals. Fixed rates can be adjusted to align with income level, increased to better reflect fixed costs, and lowered to increase the amount collected from volumetric or demand charges. Volumetric charges currently appear as a flat fee for most customers, but can be changed to better reflect changes in costs seasonally, daily, and hourly. Additionally, volumetric charges can increase or decrease with more usage, through the use of block rates. Demand charges are option components that look to charge customers for their total demand. These are mostly used for commercial customers but have been enacted in New York for residential use. The final two components are rebates and event-based pricing and target groups. Rebates and event-based pricing are additional layers that can be added to align with certain times or events and provide rebates when shifting their energy usage at certain times. Finally, there are groups that can be targeted with certain rate design or rate programs. This portion of the paper highlights how regulators and utilities can design rates to accommodate certain technology usage patterns and lower energy burden for low-income customers.

Current Rate Design in the Northeast

In the Northeast, many utilities offer examples of modern rate design that can be replicated, yet adoption is low and these rates could better reflect the costs to the grid. For example, some Northeast states have residential TOU rates, but many of these rates suffer from low customer adoption as the vast majority are opt-in programs, which rely on customers to choose to participate in a new rate structure. Most opt-in TOU rates where data was found (nine out of 13) have customer enrollment levels of less than 1 percent. Conversely the Delmarva Power Critical Peak Rebate, an opt-out peak time rebate, reaches nearly all customers (93 percent).

Maine and Massachusetts have proposals to create statewide default opt-out rates, which would make them the first states to do so. Additionally, the limited deployment and use of AMI meters in the region places restrictions on what type of rates can be used. Currently, Connecticut, Massachusetts, New Hampshire, and Rhode Island all have less than 20 percent of ratepayers with AMI meters. For low-income customers, all states in the Northeast have some form of an income-based rate or rate-adjacent program to provide relief to lower-income residents. However, these rates are often enacted after the rate design process and look to mitigate costs allocated through cross-subsidization.

As regulators look to modernize rates in the Northeast and Mid-Atlantic, it will be important to keep key characteristics of the region in mind, such as restructuring and high costs of delivered fuels, which is encouraging more customers to transition to efficient electric heating with heat pumps. The Northeast is unique because most states have restructured supply and retail energy markets. This introduces competitive electricity providers into retail markets and adds complexity to rate design as utilities and regulators look to align supply, distribution, and transmission charges. Additionally, the Northeast has a higher use of delivered fuels compared to other parts of the U.S., resulting in high prices and price volatility, and offering opportunities for cost-effective rates for efficiency and electric heating. This will likely lead to increased electric demand and usage in the winter. In the long run, the growth of electric heating has the potential to shift the grid from summer-peaking to winter-peaking in the next 10 to 20 years. Finally, data centers have already started to drive up costs in the Mid-Atlantic. Over the coming years, it is still unclear the total impact they will have on electric bills, but it is clear that regulators, utilities, and customers should expect costs to rise and look to mitigation strategies.

> Through modern rate design, regulators and utilities can use rates to encourage energy efficiency, accommodate the use of energy efficient electric technology, minimize grid costs at times of high system usage, and focus on affordability.

Aligning Rates with Policy and Grid Needs

Through modern rate design, regulators and utilities can use rates to encourage energy efficiency, accommodate the use of energy efficient, electric technology, minimize grid costs at times of high system usage, and focus on affordability. Modernizing rate design can better reflect costs to the grid and provide benefits to customers through reducing bills. But aligning rates with the goals of efficiency, electrification, demand flexibility, and affordability can be a challenge. This section examines four different policy goals and provides recommendations for what rate designs to consider.

- **Prioritizing Energy Efficiency in Rates**: Efficiency has long been a core principle of rate design, as most utilities utilize a standard two-part tariff that aligns customer usage with volumetric charges and keeps fixed charges relatively low. This ensures proper prices signals are sent to customers to minimize usage. Modern rate design should continue to send these signals to reduce overall consumption.

- **Modernizing Rates for Adoption of Efficient Electric Heating**: Heat pump adoption is growing in the Northeast, which is leading to new customer usage patterns. Studies have shown that increased usage in the winter can result in overcharging customers. Rate designs for efficient electric heating seek to align ratepayer bills with costs to the grid and lower operational costs for heat pump users.
- **Rates to Enable Demand Flexibility**: Rates that enable demand flexibility drive down energy usage at peak times, improve system reliability, and lower the need to invest in costly new infrastructure. These rate designs encourage customers to lower energy usage during times of peak demand and use more energy when demand is low. Modern rate design can encourage demand flexibility through adjustments to volumetric rates and use of rebates and event-based pricing.
- **Prioritizing Equity and Affordability in Rates**: Utilities and states offer discounts or additional financial support for low-income customers. These programs look to address high energy burden after rates are designed, but there are mechanisms that can embed equity and affordability in rates when they are initially designed, such as establishing low-income rate classes or creation of income graduated fixed charge.

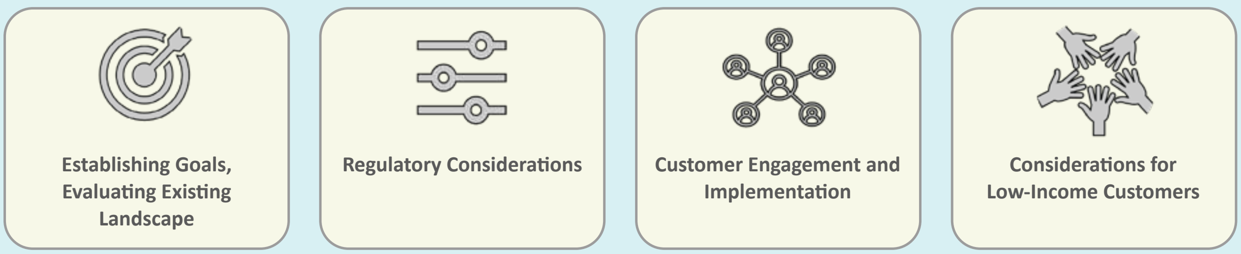
Considerations for Successful Implementation

Designing and implementing modern rate design depends on the goals of regulators, state energy offices, consumer advocates, and utility planners, as well as key considerations throughout the design, regulatory, and implementation process. In this section, we discuss additional considerations for states, regulators, and utilities as they go through the process of designing new rate structures:

- **Establishing Goals and an Implementation Pathway**: This section outlines key considerations for regulators, state energy offices, consumer advocates, and utilities when they first begin the rate design process. These considerations include identifying goals, engagement with key stakeholders, and establishing a regulatory proceeding. Implementing these steps when starting the rate design process ensures there are clear objectives and builds consensus between key stakeholders.
- **Regulatory and Implementation Considerations**: This section outlines considerations for regulators, utilities, and other stakeholders when designing a new rate structure, including identifying new technology investments, if rates should be opt-in or opt-out, considerations for implementing rates in a restructured market, and ensuring this is a mechanism to evaluate rates and adjust them over time. Considering these implications during the rate design process can help with implementation as they can identify any issues that might appear.
- **Customer Engagement Best Practices**: Utilities and regulators should pursue effective consumer engagement and education when rolling out new rates. Customer engagement is crucial to ensure that modern rate design is adopted and can achieve its intended goals. If customers do not understand how to respond to a new rate's price signals, they will not make behavioral

changes that lead to improved outcomes. Some utilities have seen participation below one percent as a result of limited customer engagement.

- **Considerations for Low-Income Customers When Modernizing Rates**: As regulators and utilities implement modern rates, it is important to adopt strategies and methods that enable affordability and lower energy burden, especially for low-income customers. Following the considerations outlined in this section can ensure implementation of ways to modernize rates that are both affordable and equitable as it outlines steps regulators can take before implementing a new rate structure, as well as during implementation to ensure low-income customers are not harmed by a new rate and benefits flow to them.



Conclusion

Rising electricity prices affect an increasing number of customers’ ability to pay their bills and increase energy burdens. With many competing policy priorities, evolution of technology, and affordability concerns, now is the time for regulators and utilities to modernize rates and ensure customers’ bills reflect the true costs of the energy system and provide incentives to lower consumption as well as reduce peak demand. Modern rate design can work in combination with other policies to use the existing electric grid in the most energy efficient way, while minimizing the need for investment in costly new infrastructure.

Introduction

A recent Lawrence Berkeley National Laboratory report found that states in the Northeast and California had the largest jump in retail electricity prices nationwide from 2019 to 2024 (Wiser et al. 2025). Factors causing these elevated regional prices include the high costs for transporting gas to generators in New England, increases in capacity prices through regional transmission organizations and independent system operators and a rise in data centers causing an increase in demand (EIA 2025b). Additionally, utilities have continued to spend increasing amounts of money on transmission and distribution infrastructure: Real annual spending by major U.S. utilities has more than doubled, amounting to more than $90 billion per year, and forecasts project further increases in the coming decades. States in the region are also striving to meet their decarbonization goals leading to investments in energy efficiency, clean energy, and electric technologies. This impacts customers' ability to pay their energy bills. In a 2024 study, more than one-third of American households reported skipping other necessary expenses to pay their energy bills (Davis 2024). Regulators must balance this increase in rates with the need to ensure reliability, affordability for customers, and broader societal objectives.

> Utilities and regulators can use rate design—the process of setting consumer prices and charges for electricity service—to influence customer electricity use and support affordability.

Utilities and regulators can use rate design—the process of setting consumer prices and charges for electricity service—to influence customer electricity use and support affordability. In the past, rate design has been used to encourage efficient energy use. With the recent upsurges in electricity costs, availability of grid-interactive technology, and adoption of energy efficient electric technology, now is the time for regulators and utilities to look at opportunities to modernize rate design to accommodate energy efficiency alongside additional objectives of electrification, grid or demand flexibility, and affordability. Through modern rate design, regulators and utilities can use rate design to encourage efficient electricity usage, adjust how customers are charged to accommodate the use of efficient electric heating, minimize grid costs at times of high system usage, and focus on equitable electricity affordability.

As regulators and utilities look to implement modern rates, it is important to adopt strategies and methods that enable affordability and lower energy burden, especially for low-income customers. Research shows that 10.5 percent of low-income residents are energy burdened in New England and 9.4 percent in the Mid-Atlantic, which are the highest percentages in the country (Driehobl, Ross, and Ayala 2020). Power bills are inherently regressive, as low-income customers must pay much more of their total income to utility bills than other ratepayers (California Public Advocates Office, TURN, and NRDC 2024). When implementing modern rate design, regulators and utilities should look to relieve existing burdens and create rates that will not exacerbate them. This includes special considerations for low-income customers and customers who are unable to shift their electricity load due to circumstances, such as customers who use durable medical equipment or have young children. Additionally, low-income customers may not have access to technology that enables load-shifting, due to costs or whether they rent or own their home. As states look to modernize rates, it will be important to use this opportunity to design rates that are equitable and consider protections that could be in place, such as shadow billing and arrearage forgiveness, to lower the potential negative consequences of any rates enacted.

Scope of Paper

The frameworks presented in this paper address rate design for residential electric customers only, specifically for customers of investor-owned or publicly regulated utilities. The paper does not include recommendations on rate design for gas customers, nor does it encompass recommendations for commercial and industrial customers. Additionally, all recommendations assume that the proceeding has already established a revenue requirement and allocation of costs, as this paper focuses only on the last step of the ratemaking process—customer rate design to end-users. Based on examples and lessons learned from the concurrent challenges of rate design in the Northeast and Mid-Atlantic, this paper provides regulators, utilities, state energy offices, and other interested parties with background information on ways to modernize current rate structures for residential electric utility customers. It includes discussion on which rate options are best suited for different goals and design aspects to consider when applying these options to your jurisdiction. Finally, the paper presents tailored considerations for regulators, utilities, and other stakeholders when designing a new rate structure.

SECTION 1: PRIMER ON RATE DESIGN

Rate design has historically adhered to longstanding guiding principles first established in James Bonbright's Principles of Public Utility Rates (Abal et al. 2021). When states in the Northeast restructured retail electricity markets, it became difficult to know the costs of supply and to regulate supply rates offered by third parties, adding more complications to rate design. The current changes occurring in electric heating technology, grid reliability, and increased costs of grid operation are driving regulators and utilities to reconsider how rates are designed for residential customers.

Foundations of Rate Design

Establishing rates is a complex process that sets prices for electricity service and involves multiple elements, starting with determining the revenue requirement for utilities, allocating costs among customer classes (residential, commercial, and industrial), and designing rates for customer use. This paper will focus on the last component of this process, rate design, and specifically look at electric rates for residential customers. Rate design requires regulators and utilities to balance multiple competing priorities.

While rate design requires regulators and utilities to balance multiple competing priorities, several key principles have historically guided regulators in the pursuit of effective rate structures, known as the "Bonbright principles" from James Bonbright's 1961 "Principles of Public Utility Rates" (Bonbright 1961; Abal et al. 2021). Bonbright principles are seen as the "gold standard" of principles to consider and follow when establishing rates (Abal et al. 2021). These principles are listed below:

- **Sufficiency**: Ensuring that electricity rates allow a utility to recover its revenue requirement, which is the cost of providing electricity plus a reasonable rate of return. This principle ensures that utilities have sufficient funding to continue to serve customers.
- **Fairness**: Fair allocation of rates and risks between customer classes. Regulators should ensure that costs are apportioned correctly and equitably between customer classes. Risk—whether the risk of unforeseen events falls on customers or utilities—should also be fairly allocated.
- **Economic Efficiency**: Seeking to align customer usage and grid costs through setting rates at economically efficient levels. Economically efficient rates provide price signals that reflect the true costs of providing electric service to each customer class and are not inflated or deflated (Abal et al. 2021). In theory, such price signals would allow each customer to consume electricity in the way that best fits their individual financial considerations and energy needs.
- **Rate Practicality**: Ensuring simplicity, feasibility of application, customer understanding, and customer acceptability. Customer acceptability looks to ensure that rates are understandable and enable customer participation. This includes considerations around whether customers are able and willing to pay, and whether regulators have set affordable rates.
- **Revenue Stability**: Ensuring utility revenue stability over multiple years. Utilities and their customers will benefit from a stable revenue source that is reliable over the course of multiple years and will enable better financial planning decisions for the utility.

- **Rate (and Bill) Stability**: Limitation of unexpected, adverse changes to customers. This principle looks to ensure that ratepayers have a degree of certainty in their rates and bills over time, as large increases or decreases in prices or bills can impact a customer's ability to pay.
- **Avoidance of Discrimination in Rate Relationships**: Rates are designed to be shared equally among customer classes but without significant cost subsidies between groups of customers. Regulators should seek not to unduly favor or disadvantage any customer class.
- **Clarity**: Limitation of potential misinterpretations. Rates should be designed so that they are clear to end consumers. Customers should be able to understand how their consumption decisions impact their bills. (Bonbright 1961)

In 1988, Bonbright published a second edition of "Principles of Public Utility Rates," which added two additional principles (Bonbright, Danielsen, and Kamerschen 1988):

- **Internalization of Externalities**: Rate structures should reflect the present and future private and social costs that contribute to the cost of electric service. This concept is like the inclusion of non-energy benefits in cost-benefit analyses and suggests that regulators should consider factors such as carbon emissions that incur additional social costs.
- **Dynamic Efficiency and Innovation**: Rate structures should encourage innovation that allows rates to respond economically to changes in patterns of supply and demand. Rates should be able to provide cost-reflective pricing even in the face of a changing electric system landscape. (Bonbright, Danielsen, and Kamerschen 1988)

Since the publication of Bonbright's principles, experts from various organizations including the Regulatory Assistance Project (RAP), Rocky Mountain Institute (RMI), and the American Council for an Energy-Efficient Economy (ACEEE) have proposed modernized, updated versions of rate design principles to fit advancing technology and needs of the grid. The modernized principles acknowledge and build upon the Bonbright principles. Examples include:

- RAP provides three Principles of Modern Rate Design:
  1) customers should be able to connect to the grid for no more than the cost of connecting,
  2) customers should pay for power supply and grid services in proportion to how much they use these services and the power consumed, and
  3) customers that supply power to the grid should be fairly compensated (Lazar and Gonzalez 2015).
- RMI presents four principles:
  1) social equity, which looks to enable protections for low-income customers;
  2) resource efficiency, which aims to continue the incentive to conserve energy and promote peak-time load shifting;
  3) simple customer experience, tools and services to automate customer responses to price shift, lessening their burden to shift costs;
  4) minimal cross subsidization (RMI 2015).
- ACEEE emphasizes the principles of rate simplicity, utility revenue stability, and price signals that encourage energy efficiency (Baatz 2017).

For regulators, these principles can help establish guideposts as they navigate the complex process of rate design. They work to provide a framework to analyze rates and considerations to ensure fairness for both utilities and ratepayers.

How Electric Rates Are Designed for Residential Customers

Current rate structures typically use a standard two-part rate structure (fixed and volumetric charges) with an optional third component for demand charges (Lazar et al. 2020). Most commonly customer bills use what is known as a standard two-part tariff, which is comprised of both fixed and volumetric charges. In addition to these elements, customer bills can also include charges for efficiency programs and other policy priorities in the form of fixed or volumetric fees (see Figure 1).

Figure 1. ***Overview of different components of a residential customer electricity bill. Fixed and volumetric charges comprise a standard two-part rate structure.***

Fixed Charges	Volumetric Charges	Demand Charges (not typical)	Policy Charges
Flat fee ($) each bill period to cover utility fixed costs	Charge ($ per kWh) based on total customer usage during bill period	Charge ($ per kW) based on highest customer demand during bill period	Charge for energy efficiency or other programs (typically recovered as volumetric, $ per kWh)

The fixed charge, or customer charge, portion of a customer's bill is a flat fee each billing period that is meant to represent all fixed fees incurred by the utility. Experts, regulators, and utilities have debated extensively what components of a bill to include in the fixed charge. Some believe that the fixed charge should only represent the costs for the utility to serve a customer, such as metering, customer service, and establishment of billing systems. As utilities will always incur these costs when a new customer receives service, and these costs can be attributed to the customer directly (Lazar and Gonzalez 2015). Others, utilities especially, posit that the fixed charge should be more expansive and include the fixed infrastructure costs of the grid, such as the maintenance costs associated with poles, wires, and transformers because these costs are independent of sales and all customers equally rely on maintenance of the grid (Lazar and Gonzalez 2015). Most often, fixed charges are set to cover both the costs of customer service and maintenance of grid infrastructure as regulators and utilities find a balance between these two ideologies in utility regulatory proceedings (Borden et al. 2023). Average fixed charges nationally are around $11 with some utilities going as high as $30 a month (Borenstein and Bushnell 2021).

The volumetric charge portion of the bill, which charges customers in cents per kWh, increases with higher usage—setting the price signal for economically efficient electricity use (Baatz 2017). The volumetric bill charge recovers the costs to supply the energy used and includes some portion of the transmission and distribution system costs as well (Lazar 2016b). A portion of transmission and distribution charges are often included in the volumetric portion of a customer's bill to more accurately mirror the higher infrastructure costs that result from higher customer usage (Chhabra et al. 2024).

A demand charge can be a potential third component of a customer's bill. This charges customers for their peak energy demand during a given period, measured in kilowatts (kW) and can be implemented at certain times throughout the year or when a customer's demand is highest during their billing period. Demand charges reflect the costs to cover additional supply and distribution resources needed to meet this peak usage. Demand charges are often used for commercial and industrial customers but are not typical for residential customers. Finally, many states fund efficiency programs, bill assistance, and/or renewable portfolio standards through additional charges on a customer's bill (Salkowski 2024). These can be in the form of an additional fixed or volumetric charge.

These different components of the residential electric bill all function to recover costs that go into providing electricity. Fixed costs are designed to include costs to provide service to customers and a portion of grid infrastructure maintenance. Volumetric costs mostly include supply, generation, transmission, and distribution. At times regulators and utilities can also use demand charges to cover some of the volumetric components and additional costs needed to meet peak demand. Finally, policy charges are used to cover external programs but also contribute to lowering the costs of providing electricity, such as energy-efficiency programs that lower both supply and distribution costs. The list below provides more detail on the various costs (United Power):

- **Supply or Energy Generation Costs**: Costs that depend on the amount of electricity used. For customers, these costs fluctuate monthly. These costs are often included as a separate bill item in states with restructured markets.
- **Generation Capacity Costs**: Operation and maintenance of power plants used to produce power. These costs can vary depending on the time when energy is used. These costs can be included in both the fixed and volumetric charges.
- **Transmission Capacity Costs**: Transmission delivers power to the utility's distribution system through high voltage transmission lines, substations, and communication sites. These costs also change depending on the time when energy is used. These costs can be included in both the fixed and volumetric charges.
- **Distribution Costs**: The distribution system provides power to homes and buildings and is sized to meet the peak demand. It includes the costs to build, operate, and maintain power lines, transformers, substations, and other facilities. These are fixed costs. These costs can be included in both the fixed and volumetric charges.
- **Fixed (Customer) Costs**: These costs cover providing services to customers including billing, collections, metering communications, and data management systems. These are often included only in the fixed charges. (United Power)

Electricity Restructuring and Impacts on Rate Design

Utility restructuring has significantly impacted rate design. From the 1990s to the early 2000s, various states implemented utility restructuring policies in an effort to spur market competition and lower rates for electricity supply. Restructuring or deregulation resulted in utilities not owning supply or generation assets. Instead, utilities and regulatory commissions only oversee transmission and distribution. Utility restructuring aimed to introduce competition into the electricity supply market, providing customers with greater transparency into electricity prices and, ideally, offering them opportunities to save money on electricity (Lazar 2016b). For rates, the result of restructuring is that regulators have authority to influence transmission and distribution rates but not supply rates (Warwick 2002). Restructuring impacts rate design in two key ways: through the introduction of customer choice and through wholesale market deregulation (Warwick 2002).

Customer choice enables rate payers to choose their supplier from competitive energy providers (CEPs). CEPs are companies or organizations that sell electricity. CEPs set their own prices that can generate their own supply or purchase it from another source. Because CEPs are not regulated by utility commissions, they do not need to adopt rates that are implemented by the commission. Therefore, any efforts to implement new rates with CEPs require additional planning and coordination (Exeter Associates 2025; Sergici et al. 2021).

Regulated utilities also offer what is known as "default supply." Default supply allows customers who do not choose a CEP to default to their utility as their supplier. Utilities purchase their electricity from wholesale regional markets overseen by regional transmission organizations (Cross-Call et al. 2018). These markets set supply costs. As a result, utilities have no control over the cost of supplying electricity; they just pass this cost along to ratepayers. Default electricity supply is procured in accordance with regulatory requirements that can differ by state (Warwick 2002). Depending on state regulations, this could result in changes in supply rates at various times throughout the year.[1] In recent years, prices in these markets have been at an all-time high. A recent capacity auction in PJM resulted in a 22 percent increase in supply rates compared to the year before (PJM 2025a).

Components of a Restructured Market		
Transmission • Set by utilities to recover costs of long-distance transmission of electricity • Approved and regulated by utility regulators in distribution rate cases	**Distribution** • Set by utilities to recover costs of distributing electricity locally • Approved and regulated by utility regulators in distribution rate cases	**Supply** • Utilities do not control costs • Purchased via wholesale electricity markets • Rate not regulated through distribution rate cases

[1] Connecticut procures electricity supply for its standard offer service on a semiannual basis. Maine procures electricity supply on an annual basis. Maryland procures residential electricity supply on a semiannual basis. New Jersey procures electricity supply on an annual basis. Massachusetts procures residential energy supply on a semiannual basis. New York updates residential electricity supply costs on a monthly basis. Based on NEEP's review of PURA Announces Electric Rate Adjustments to Take Effect July 1 (Connecticut PURA 2024), Request for Proposals to Provide Standard Offer Service to Central Maine Power Company Customers (Maine PUC 2024), Standard Offer Service (Maryland PSC), Basic service information and rates (Massachusetts DPU a), BGS Auction (New Jersey BPU a), Central Hudson Gas & Electric Corporation Schedule for Electric Service (Central Hudson 2025).

Deregulation can also create barriers for CEPs to implement modernized rates. For example, CEPs considering a supply TOU rate in Maine noted that these rates only appear as a single line item on the customer's bill, which does not allow them to accurately communicate the time-varying nature of TOU billing and limits their ability to influence customer behavior. Additionally, there are added costs for CEPs to develop and implement modern rate design, such as upgrades to meters and billing software. Because CEPs are not regulated, they would have no way to recover these costs, as regulated utilities are able to do (Exeter Associates 2025; Sergici et al. 2021). California is one state that has managed coordination between regulated utilities and CEPs. In the orders approving TOU rates in California, both CEPs and utilities recognized that a joint approach to default TOU rates would be clearer and more understandable for customers. The joint strategy involved timelines for CEPs to decide whether they would offer supply TOU rates in line with the utilities' TOU framework and coordination between the utilities and CEPs to minimize potential customer confusion (California PUC 2018; California PUC 2019).

Movement to Modernize Rates

States throughout the country have started to examine ways to modernize rates through deploying net metering, electric vehicle (EV) rates, and TOU rates[2]. These rate design initiatives have been pursued for multiple reasons, such as better aligning customer rates with grid costs for electrification, reducing peak demand to limit the need for grid buildout, and adopting net metering and other demand response technologies (Cross-Call et al. 2018). Additionally, emerging issues around affordability, grid reliability, and energy efficient electrification have brought innovative approaches in rate design to the forefront:

- **Electrification is changing how customers use energy on the grid**: Electric vehicles and heat pumps are growing in adoption with help from state and federal programs, which provide rebates for purchasing this equipment. These technologies affect electricity use in different ways and have started to change customer behavior, as well as daily and annual energy usage patterns. EV rates are designed to incentivize charging at times when there is lower demand on the grid. Heat pump adoption has led to higher energy usage in the winter, resulting in overcharging heat pump customers (Murray and Velez 2025).
- **Costs to operate the grid are increasing and creating issues of affordability**: The U.S. is facing a period of high load growth driven by the rise of artificial intelligence and data centers, as well as the electrification of homes and vehicles (Hakim et al. 2025). Research shows that a quarter of low-income households spend more than 15 percent of their income on energy bills. Typically, customers are considered "severely energy burdened" if they spend more than 10 percent of their income on energy bills (ACEEE 2024b). As electric bills are increasing at unprecedented levels, we must ensure affordability and cost stability so that all customers can afford their energy bills. Rate design can provide a pathway for utilities and regulators to ensure that all customers—especially those with high energy burdens—can afford their energy bills.
- **Customers have started to engage more with their electric rates**: In recent years, net energy metering proceedings, adoption of electric vehicles (EVs), and distributed energy resource programs have

[2] See Appendix A.

encouraged residential customers to engage more closely with their electric rates. Net energy metering is the process by which utilities pay customers for providing this additional energy to the grid, often via a bill credit (Massachusetts DPU c). Net energy metering rates for both residential and commercial customers exist in at least 43 states (Stanton 2019). EV rates are also becoming more common with 10 states in the Northeast and Mid-Atlantic having some form of an EV time of use rate or off-peak rebate (see Appendix A for more detail). The adoption of these rates has increased customers' interactions with their bills, setting groundwork for regulators and utilities to implement more advanced, modernized rates.

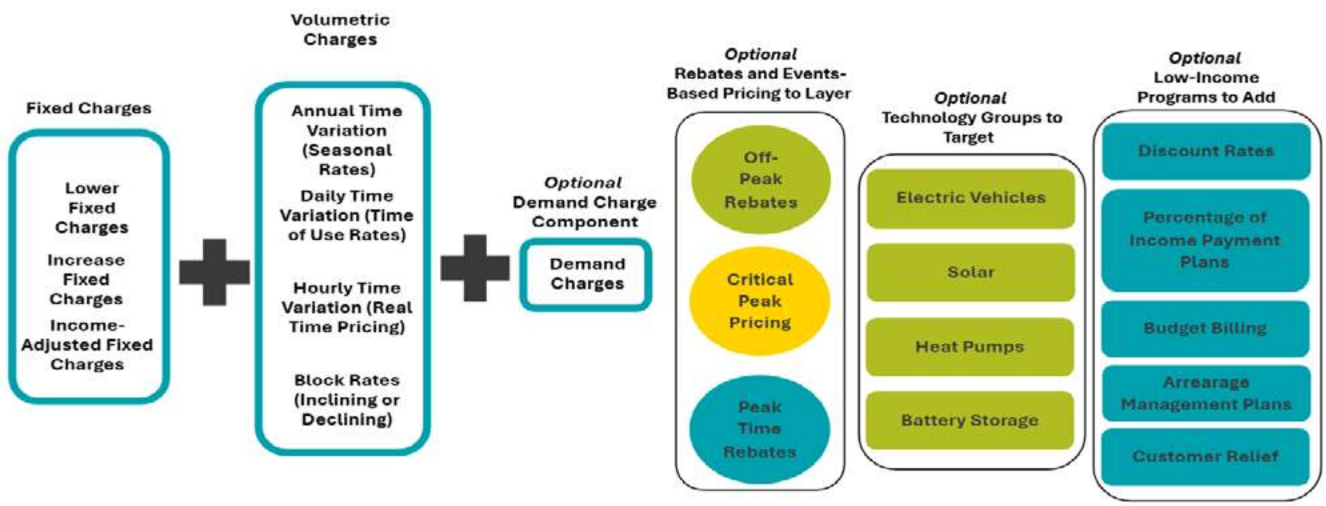
- **Growth of demand response and advancement of grid-interactive technology**: Demand response programs and the advancement of grid-interactive technology, can distribute energy resources and potentially lower utility infrastructure costs (Hissom 2025). The advancement of grid-interactive technology also eases participation for customers. Some examples of how technology has advanced and eased participation include battery programs and smart thermostats. Battery programs enable customers to enroll their systems in a utility program that automatically discharges the battery during peak demand periods while letting the customer use the battery system how they want at other times. Customers receive an incentive payment based on the amount of load their battery system can curtail (National Grid a). This allows utilities to tap into additional power when it is needed to meet demand. In Maryland, Pepco offers a smart thermostat program (Energy Wise Rewards) that grants customers annual bill credits for enabling Pepco to adjust their thermostat temperatures a few times per summer during peak periods (Pepco b). This lowers demand on the grid during peak times, lowering costs for all ratepayers.

These changes present an opportunity for regulators, utilities, and policymakers to modernize rate design to ensure affordability, prioritize efficiency, enable a flexible grid, and align rates with new loads in electrification while maintaining economic efficiency.

SECTION 2: MODERN RATE DESIGN STRUCTURES

When implementing modern rate designs, there are many different levers that regulators and utilities can use, including what component of rate design is modified and how it is changed. This section outlines the possible components of a modern rate that can be modified and tailored to new objectives: 1) the fixed charge, 2) the volumetric charge, 3) an optional demand charge component, 4) an optional additional rebate or incentive, 5) an optional target group based on technology ownership, and 6) an optional low-income program. Discussions on each component include examples and design and implementation considerations.

Figure 3. ***An overview of recent trends and options for rate components*.**



Trends in Customer Fixed Charges

Allocating cost recovery between fixed and volumetric charges is a challenging task. It is important to ensure any adjustments to fixed charges are reflective of the needs of ratepayers. Further, if fixed charges go down, there is a risk that the volumetric charge will likely go up, creating a balancing act between what is fixed and what is variable. The three main ways to change a fixed charge are lowering the fixed charge, increasing the fixed charge, or creating an income-adjusted fixed charge.

Lowering Fixed Charges

Lower fixed charges mean that utilities recover more costs through volumetric charges and customers have a greater incentive to be energy efficient. Low fixed charges can encourage energy efficiency because more costs are recovered through volumetric charges, which directly correlate energy usage to energy bills. This approach gives customers significantly more control over their bills. But collecting costs through volumetric rates can lead to inequities in rate design if there are not sufficient discounts for low-income customers, who pay a higher percentage of their incomes on utility bills (California Public Advocates Office, TURN, and NRDC 2024).

Although rare, some utilities have no fixed charge and rely only on volumetric charges to collect fees. For years, some customers of investor-owned utilities (IOUs) in California had no fixed charges and instead only paid for the electricity that they used through volumetric charges (Christopher 2024). The state shifted this policy recently because they have some of the highest electricity rates in the nation and were seeking options to improve affordability. California regulators incorporated income-graduated fixed charges for IOU customers, which are discussed below.

Increasing Fixed Charges

Customers must pay the fixed charge regardless of how much electricity they use (or generate for customers with solar panels). When regulators increase fixed charges and lower volumetric rates, customers end up paying a flat fee and have less control over their bills. This means that any behavior changes or energy conservation measures will make less of an impact on bills. This can deter customers from being efficient but has been seen as a pathway to encourage electrification as customers will worry less about higher electric usage (Lazar et al. 2020). In recent years, utilities have proposed a higher fixed charge to include additional costs, such as distribution, generation, and transmission. Higher fixed charges increase costs for customers who use less energy, especially low-income customers who have less control of their energy bill (Whited 2015). A study on fixed charges in California found that increasing fixed charges can disproportionately increase bills for low energy users, which is counter to affordability goals (Borden et al. 2023). Very few utilities have looked to increase fixed charges. In 2014, Madison Gas and Electric in Wisconsin proposed a higher monthly fixed charge of $57 per month to better align fixed rate elements with fixed utility costs (Lazar 2015; Wisconsin PSC 2014). Following significant public pushback against the high fixed charge, the actual fixed charge was finalized at $19 per month (Lazar 2015).

Income-Graduated Fixed Charges

Fixed charges can also be adjusted to pursue affordability goals, based on income, using income-graduated fixed charges. An income-graduated fixed charge reallocates fixed charges based on income to help those who are most energy burdened. This can be used in tandem with a reduction in the volumetric rate while introducing or increasing the non-low-income fixed charge amount to maintain revenue stability for the utility. Income-graduated fixed charges support affordability goals (California PUC 2024a). A recent prominent example of this structure is in California in 2024, when regulators tied both fixed and volumetric rates to customer income (California PUC 2024a). The fixed charge for non-low-income customers is $24.15 per month. If a customer 1) is enrolled in the Family Electric Rate Assistance Program, 2) resides in deed-restricted affordable housing, and 3) has a household income at or below 80 percent of the area median income, the fee is discounted to $12 per month. If a customer is enrolled in the California Alternate Rates for Energy low-income assistance program, this fee is discounted to $6 per month. Along with these changes to the fixed charge, volumetric charges are lowered by 5–7 cents per kWh for all residential customers.

Trends in Time-Varying Volumetric Charges

Volumetric rates are designed to encourage economic and energy efficiency and reflect the costs of grid operation. Yet, standard volumetric rates are set at a flat rate that does not vary temporally—either daily or seasonally. While flat rates are administratively simpler and easier for customers to understand, they limit the price signals to customers. Also, this traditional approach is not reflective of the cost of service because higher consumption can lead to higher supply and distribution costs. For example, the system costs of meeting the summer peak are much higher than system costs in shoulder seasons. Flat volumetric rates result in utilities recovering costs evenly throughout the year but can over or undercharge customers for use that is not reflective of the actual costs on the energy system.

Regulators can implement new, time-varying rates designed to address this issue by tailoring rates to defined time periods. There are four main methods:

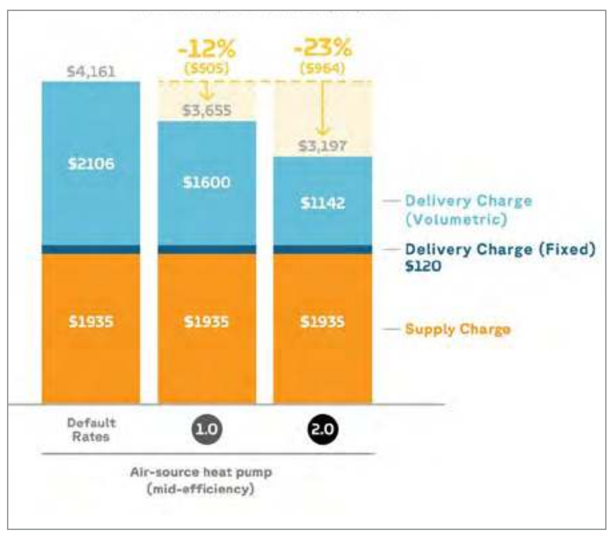
1. Annual time variation (seasonal rates)
2. Daily time variation (time of use pricing)
3. Hourly time variation (real-time pricing)
4. Block rates

The modern volumetric charge options outlined below adjust the volumetric price to influence how customers use electricity, based on both time and the amount of electricity used. In Appendix B, we provide example electric bills under six rate structures to illustrate the differences in how they bill customers.

Annual Time Variation: Seasonal Rates

Seasonal rates align costs with seasonal differences in the cost of electricity delivery on the grid. In most states, electricity usage is highest in the summer months due to air conditioning (Malinowski et al. 2025). Higher peaks lead to increases in the amount of investment needed in transmission and distribution infrastructure, which translates into higher rates for consumers (EIA 2023). When volumetric rates are flat throughout the year, they are designed to cover the costs of operating the grid in the summer and winter. Yet often the costs to operate during these times are different.

Figure 4. ***A median electric bill for Massachusetts homes that install air-source heat pumps under default rates, enacted heat pumps rates, and proposed 2.0 heat pump rates***
(Murray and Velez 2025).



Seasonal rates adjust this charge during the winter and/or summer months to better reflect the costs of energy in that season. Seasonal rates in the Northeast region use a lower volumetric rate in the winter and a higher volumetric rate in the summer. For restructured markets, seasonal rates often apply to just transmission and distribution charges and result in spreading out these costs to match the increased usage from technologies, such as heat pumps. In Massachusetts, investor-owned utilities are implementing seasonal heat pump rates that modify only the distribution and transmission charges (Massachusetts DPU 2025 c).

Structure

Seasonal rate structures can be implemented alone, tailored to a certain technology, or paired with other types of rate structures, such as time of use (TOU) rates. Seasonal rates are a good step for states that are contemplating more advanced TOU rates but have limitations on technology. Seasonal rates do not require any specific advanced metering technology, making them an accessible option in states that have not fully rolled out advanced metering infrastructure (AMI).

Seasonal rates also enable affordability as they lower costs in the winter for customers with all types of electric heating. Xcel Energy, operating in Minnesota, offers a winter discount rate for customers who use electricity as their primary space heating source, including both electric baseboard and heat pumps (Carroll 2025). Because the seasonal rate is technology agnostic, it lowers costs for all ratepayers using electric heat (Malinowski et al. 2025).

Design and Implementation Considerations

When designing seasonal rates, regulators must decide which months the rates will apply to, the cost ratio between the winter and summer seasons, and whether the seasonal rate will be technology specific. The cost ratio provides the strength of the economic signal. Seasonal rates have been tied to heat pumps to accommodate increased energy usage in the winter. Often, states will limit the rates to just heat pump users, which can help with design and cost allocation, as well as increase adoption.

Daily Time Variation: Time of Use Rates

TOU rates are another common rate design method offered throughout the Northeast. TOU rates charge customers higher rates per kWh for usage during peak times of the day, i.e., when demand is higher on the grid, and lower rates during off-peak hours (Baatz 2017). When communicated effectively, they encourage customers to shift electricity use away from daily peak use times using price signals (Baatz 2017).

TOU rates are one of the most widely offered modern rate options in the region because they incentivize affordability and energy efficiency in a manner that is accessible to most customers (Sergici et al. 2020). Customers can habituate their energy-savings practices (e.g., programming the thermostat so the indoor temperature is one or two degrees higher during the summer peak period) or energy-shifting practices (e.g., using a time delay function to run the dishwasher at night) in a way that does not require constant awareness of and response to grid conditions like real-time pricing, which is discussed next.

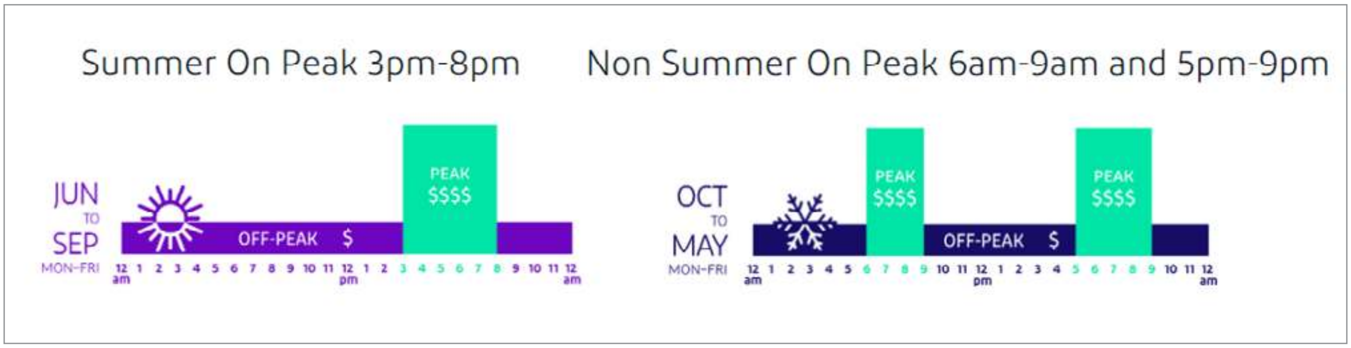
However, vulnerable customers who are low-income, homebound, rely on medical equipment, or have other nondiscretionary use cannot lower or shift usage. Regulators typically seek analysis of the impacts of TOU rates on these customers and can establish unique consumer protections.

Even when customers do not change their behavior, TOU rates can remove an inherent cross-subsidy from the market—electricity prices at off-peak times would no longer be artificially inflated to keep the volumetric rate flat across all hours of the year. Therefore, customers' bills have the potential to decrease even without behavior modifications.

Structure

Traditionally, TOU rates include at least two pricing periods (on-peak and off-peak) during which utilities charge different volumetric rates.[3] Some TOU rates include additional pricing periods, including super-peak, shoulder, and super-off-peak. Regulators may also establish technology-specific TOU rates (e.g., electric vehicle, heat pump, water heater) and may vary TOU rates by season. Baltimore Gas & Electric (BG&E), an investor-owned utility in Maryland, has a seasonal TOU rate that highlights how TOUs can be layered with seasonal rates. During the summer season, BG&E includes one peak period from 3–8 p.m. In the winter season, the rate includes two peak periods, one from 6–9 a.m. and one from 5–9 p.m. The ratio of peak-to-off-peak prices is 3.337 for both the winter and summer seasons (BGE c).

Figure 5. ***BGE's seasonal TOU rate structure (BGEc).***



Variable peak pricing is a form of TOU rates that uses the structure of peak and off-peak periods, like a TOU rate, but at least one of the periods has more dynamic variable pricing that is reflective of real-time costs (see discussion of real-time pricing next). In Connecticut, Eversource runs a variable peak pricing program with the goal of encouraging customers to habituate load shifting away from daily peaks (Eversource b). They selected a variable peak pricing format over a standard TOU format because of state legislation about real-time pricing programs (Eversource b). Peak pricing information is made available in the late afternoon or evening before the pricing is effective.

As explained above, time of use rates in restructured markets are usually only able to apply to transmission and distribution rates but not supply. This can limit the impact rates can have after they are implemented. For example, in Maine, the PUC found that TOU rates need to include transmission, distribution, and supply to create meaningful opportunities for demand flexibility (Maine PUC 2023). Creating standard offer TOU rates can impact a portion of the market, as it will ensure that all customers on default supply service have a TOU rate, yet coordination will still need to occur to align with competitive electricity providers (CEPs).

[3] For a summary of different TOU rates enacted in the Northeast, see Appendix A.

Design and Implementation Considerations

The ratio of peak-to-off-peak prices can influence a customer's willingness to shift their energy usage. When designing a TOU rate, it is important to keep the time blocks and costs simple for customers to successfully use the rate and to frequently and effectively communicate to customers. Some strategies for TOU rates include: 1) limiting the peak period to only the late afternoon and evening hours, 2) setting the peak period to encompass 12 hours of the day (e.g., a peak period of 8 a.m.–8 p.m.), or 3) establishing multiple peak periods—one in the morning and one in the early evening. It is best practice to create one smaller on-peak period in the late afternoon / early evening so that customers are most likely to curb electricity use when it is most important for the grid (Faruqui and Tang 2023). Additionally, a simple, predictable daily structure makes it easier for customers to react to rate signals (Bonbright 1961). For variable peak pricing, regulators must consider whether only the peak period is variable or if any shoulder or off-peak periods are also variable.

Variable peak pricing programs may be offered as part of a suite of rate options. For example, Oklahoma Gas & Electric offers a variable peak pricing program alongside a standard TOU rate and an electric vehicle (EV) TOU rate so customers can select the best option for their use and desired engagement level (OGE).

Utilities should consider what price difference between peak and off-peak periods will send a meaningful signal to shift load from peak to off-peak. It is also critical to communicate early and often to customers to prevent shocking an unaware customer with the price change. When designing rates to encourage customers to shift their energy usage, research shows that differentials of 4 to 6 times higher for peak versus off-peak usage can provide a strong incentive for customers to shift their energy usage (Sergici et al. 2020). As shown in Table 1, peak-to-off-peak ratios throughout the region range from 1.0–15.5 with a median of 2.6. This analysis was based on our review of 34 TOU offerings from 30 utilities throughout the region in recent years. This shows that the summer portion of seasonal TOU rates have the highest median and maximum peak-to-off-peak ratios. The winter portion of seasonal TOU rates and non-seasonal TOU rates have similar median and average peak-to-off-peak ratios; however, the winter rates include a higher maximum value. The minimum value of 1.0 comes from the PSE&G seasonal TOU rate, which has a summer peak-to-off-peak ratio of 5.7, while the winter peak and off-peak rates are the same.

Table 1. ***Peak-to-off-peak ratios throughout the region.***

Time of Use (TOU) Rates: Peak-to-Off-Peak Ratios (PTOPRs)				
	All TOU PTOPRs	Summer TOU PTOPRs	Winter TOU PTOPRs	Non-Seasonal TOU PTOPRs
Average	3.9	4.9	3.3	3.5
Median	2.7	3.0	2.6	2.6
Minimum	1.0	1.1	1.0	1.2
Maximum	15.5	15.5	11.8	8.0

Note: Analysis included a review of 30 utilities' TOU offerings.

Utilities make varying choices on the size of the peak-to-off-peak ratio, but many skew to the lower end of the spectrum, e.g., doubling or tripling the off-peak cost versus increasing it by 10–15 times. However, there are limitations to the price signal, known as an “arc of price responsiveness,” where customers’ likeliness to respond can diminish at higher peak-to-off-peak ratios (Baatz 2017).

Regardless of which option is selected, it is important to keep rate design simple using few daily rate blocks to maintain relevant price signals and ease of use for customers (Colgan et al. 2017). ConEd, an IOU in New York, offers a residential seasonal distribution TOU rate that highlights how TOUs can be layered with seasonal rates. The peak period that runs from 8 a.m. through midnight and the off-peak period runs for the rest of the day, from midnight to 8 a.m. During weekdays in the summer, ConEd includes a supply-side super-peak period from 2–6 p.m. Super peak pricing for this residential rate class depends on location. Winter rates do not include the super-peak period. The off-peak distribution rate for both summer and winter is $0.0249/kWh. The summer peak distribution rate is $0.3523/kWh, and the winter peak distribution rate is $0.1305/kWh. This means that the peak-to-off-peak ratio in the summer is 14.1, and the ratio is 5.2 in the winter (ConEd b). The price signal for energy efficiency, conservation, and load shifting away from peak periods is stronger in the summer. When compared to Table 1, 14.1 is near the maximum peak-to-off-peak ratio for summer seasonal TOUs, so this is one of the stronger price signals in the region.

Hourly Time Variation: Real-Time Pricing

Real-time pricing (RTP), sometimes referred to as dynamic pricing, charges customers hourly rates based on real-time data use and market prices. This rate design more accurately reflects system costs than other options and can incentivize customers to use electricity efficiently based on current market signals. As prices will likely be higher during daily peak usage periods, customers would be incentivized to use electricity outside of peak periods. The advantage of this type of system over a TOU rate is that it can send more accurate peak period signals as opposed to a more general estimate based on historic trends, which allows utilities to more accurately charge those customers who are contributing to peak loads and creating the highest costs for the grid (U.S. DOE a). Yet, prices fluctuate regularly for customers enrolled.

Structure

Variations include one-part and two-part RTP. One-part RTP applies the fluctuating energy price to all metered usage; two-part RTP collects a fixed supply charge and charges customers for hourly marginal costs of supply (EPRI 2021). Hourly prices are shared with consumers so they can react to actual price signals and change their electricity use accordingly. In Illinois, both Ameren and ComEd offer residential RTP programs through two different avenues, day before and in real-time. Ameren sets hourly prices in the evening for the following day to allow customers to plan their electricity use (Plug In Illinois). ComEd’s program bases prices on real-time market data, which changes throughout the day. In 2023, the program had 38,591 participants, which was approximately 1 percent of ComEd’s total customer base.

Design and Implementation Considerations

Currently, the success of RTP depends on customers who are willing to check on pricing daily and have the flexibility to change their electricity use accordingly. Increasingly, advanced technology, such as smart thermostats and grid-connected distributed energy resources, can adjust automatically in response to price signals. RTP is seen as part of a future, highly responsive distributed grid using artificial intelligence. California is currently taking steps to explore the feasibility of using RTP as part of the CalFUSE proposal (Madduri et al. 2022).

As shown in the Illinois examples, utilities with RTP programs choose whether to share pricing information the day ahead or in real-time. Regulators must consider the value of this type of rate, as it requires more program administration. RTP is most often offered for businesses who can adjust their daily energy usage and can use this pricing to lower their operational costs overall (Martin 2024). RTP can be offered alongside other rate designs, like TOU rates (see variable peak pricing under TOU discussion). Offering both structures in tandem can ensure a broader audience is able to react to the price signal and create the desired grid-level impacts.

Block Rates

Block rates were one of the first strategies available to utilities looking to modify flat volumetric rates (Faruqui and Tang 2023). Block rates were viewed as a transitional tool while AMI technology caught up to the vision of TOU rates as they do not require hourly usage information, but charge customers based on total usage over the month (Faruqui and Tang 2023). While new technology allows regulators and utilities to access more rate structures, block rates can offer a simpler structure that may even be implemented in concert with other newly available rate structures, such as seasonal rates.

Structure

Block rates, sometimes referred to as tiered rates, increase or decrease volumetric charges based on a customer's usage or consumption. Generally, rates have two to three "blocks" of electricity usage (e.g., 0–100 kWh, next 600 kWh, over 700 kWh) over which prices increase (called inclining block rates) or decrease (called declining block rates). The first block can be priced at a lower volumetric rate or recovered outside of the volumetric charge at a fixed fee, and all other blocks are priced at a higher price per kWh (Versant Power 2025; Appalachian Power Company and Wheeling Power Company 2025). Inclining block rates are intended to encourage energy efficiency because the more a customer uses, the more they pay per kWh. This sends a signal to save electricity by lowering usage. Declining block rates, on the other hand, encourage electricity usage and can reward inefficient electricity use.

Versant Power, an IOU in Maine, offers a Home Heating Eco Rate (HHER)—a seasonal declining block rate. The HHER is available to residential customers with all types of electric heating systems but specifically lists electric heat pumps and heat pump water heaters as options. This rate is a seasonal declining block rate with three blocks. The first block ranges from 0–100 kWh of usage and is billed via a fixed charge of $11.94 per month. The utility also includes a customer fixed fee of $10.87 regardless of monthly energy usage. The second block for the next 600 kWh of usage has the same price of $0.11938 per kWh for both the heating and non-heating seasons.

The third block has different prices for the heating and non-heating seasons. Any additional usage is charged at $0.05154 per kWh during the heating season and $0.11938 per kWh during the non-heating season. The heating season is October through April, and the non-heating season is May through September. Therefore, the declining block part of the HHER is only effective for the heating season (Versant Power 2025).

Design and Implementation Considerations

The main design considerations for both inclining and declining block rates include 1) defining the usage blocks and 2) deciding on the rates for each block. Regulators can also compare block rates to other potential options, such as TOU rates, through the lens of ease, cost of implementation, and availability of enabling technology (e.g., AMI or AMR for TOU rates).

Demand Charges

Demand charges, while complicated to deploy, may provide benefits for states seeking to implement heat pump rates. A study found that demand charges gave the greatest benefit to heat pump users (Malinowski et al. 2025) because these customers have a more constant use of electricity. Yet, they are uncommon for residential customers in the U.S. because of their complexity and equity concerns. Demand charges have also been shown to limit the incentive for grid flexibility and energy efficiency (Lazar 2016a). Some argue that time varying rates are a more representative option of customer cost causation than demand charges (LeBel et. al. 2020). A TOU rate would charge someone with constant high usage during a peak period more than someone with a single spike of the same high usage during the peak period, which better reflects that peak usage is driving costs (LeBel et. al. 2020).

Structure

Demand charges are based on a customer's maximum demand (measured in kW) during a given period instead of monthly usage (measured in kWh). They typically charge a customer based on the maximum demand for any 15- to 60-minute interval period over the course of the month (Sergici et al. 2023). These charges can be implemented in two ways: customers are charged for their peak demand during set time periods over a billing period that are the same for all customers (coincident peak) or customers are charged for their own highest demand, regardless of when it takes place over the billing period (non-coincident peak) (Lazar 2016a).

Demand charges may be used to encourage grid flexibility if designed to coincide with periods of grid-level peak usage. ConEd offers a seasonal demand charge with peak and off-peak periods through their Select Pricing Plan (ConEd a). This is a TOU plan that defines peak hours as noon to 8 PM on weekdays. What customers pay during the peak period adjusts seasonally. From June through September, customers pay $25.36 per peak kW. During October through May, customers pay $19.50 per peak kW. Off-peak prices remain the same throughout the year at $7.48 per kW. This plan only applies to delivery pricing and does not affect supply pricing. ConEd highlights that the demand charge program works well for households that have consistent energy use instead of high peaks. The plan also offers a one-year price guarantee to the first five hundred ASHP customers and five hundred geothermal customers who sign up. Because this plan uses a peak TOU period, it would encourage load shifting.

Design and Implementation Considerations

In designing demand charges, it is important to consider whether to use a coincident or non-coincident peak structure. Coincident peak is a common strategy for commercial and industrial customers but is currently uncommon for residential customers in the United States. Research has found that non-coincidental peak demand charges may be more straightforward for customers to understand and utilities to administer (Cross-Call et al. 2018).

If designed to be non-coincident peak, there is potential that the demand charges will not cause a reduction in peak load as they charge customers based on their highest usage over a set period and not their usage at grid peak (Yim and Subramanian 2023). Thus, they do not accurately reflect an individual residential customer's contribution to system capacity costs and can even penalize customers that shift energy demand to off-peak hours. They may also adversely impact customers with high loads, such as those with durable medical equipment (Massachusetts Interagency Rates Working Group 2025).

Rebates and Event-Based Pricing

Regulators and utilities can also layer in rebates and event-based pricing, on top of existing and modern rates, to incentivize desired load shifting behavior. Rebates and event-based pricing are nimbler than rates and can offer peak load reduction incentives on demand when they are most impactful. These often take the form of rebates that are paid to customers to increase or decrease energy usage at certain times of the day or year.

Rebates and event-based pricing are nimbler than rates and can offer peak load reduction incentives on demand when they are most impactful.

Rebate: Off-Peak Rebate

Off-peak rebates (OPR) offer customers a reduction on their energy bill for using energy during off-peak hours. They have most commonly been used for charging electric vehicles (EVs) during off-peak hours. OPRs can be used in tandem with other EV incentives, such as enrollment incentives and EV charger rebates. For example, National Grid in Massachusetts offers an OPR focused on EVs, along with a $50 enrollment incentive, and estimates annual savings of $100 per EV (National Grid c). Rebates accumulate per kWh charged, with a $0.05/kWh rebate in the summer and a $0.03/kWh rebate in the winter.

Design and Implementation Considerations

Regulators must determine a few program mechanics for OPRs, including 1) the off-peak period timeframe, 2) whether to add a seasonal component to the rate, 3) which types of EVs and chargers are approved for the program, and 4) whether to limit the number of enrolled EVs per household. For example, the MA National Grid OPR limits enrollment to one charger or two EVs per house (National Grid c). Regulators should also compare an OPR program with an EV-TOU rate to see which best suits their needs.

As OPR is inherently an opt-in program, regulators should plan how to raise awareness of the rebate and enroll customers. This could include partnering with EV dealerships to include OPR information at the point of sale. OPR marketing could also be provided on utility websites alongside decision-making tools for buying a vehicle and information about state-level rebates and good charging practices (National Grid c).

Event-Based Pricing: Critical Peak Pricing

Critical Peak Pricing (CPP) increases the price of electricity during a select few annual peak load periods. The goal is to encourage customers to significantly limit electricity use when the grid is operating at peak with the least cost-effective fuel sources. Some utilities use the definition as a component of their TOU rate, such as daily "critical peak periods," but critical peak pricing in practice is meant to refer to a select few annual peak periods not daily events. In New Hampshire Liberty Utilities use the term "critical peak" to describe the daily on-peak period for their TOU rate, which is not a CPP program (Liberty Utilities).

Green Mountain Power (GMP) in Vermont offers a residential CPP program. Critical peaks are limited to an eight-hour period from noon to 8 p.m. (Green Mountain Power 2025). There is a maximum of 10 CPP events during the year when volumetric rates quadruple their normal amount. Peak events take place on weekdays from May through September, excluding select holidays. When signing up for the CPP program, customers must share a phone number or email to allow for notification of a CPP event. CPP events are decided by 5 p.m. the day in advance. Customers must have AMI installed to participate.

Design and Implementation Considerations

Regulators must also decide the duration, frequency, and seasonality of CPP events. Like seasonal rates, when the grid shifts to winter-peaking, CPP events must be updated from summer to winter to continue to impact annual peak demand. As with the GMP example, customers must have access to AMI to participate in CPP events so their usage can be tracked during specific, sporadic time windows.

This is another rebate option where timely and accurate communication with customers is important so customers can act and impact peak demand. GMP outlines the CPP customer communication plan in the rate schedule, showing that it was part of their decision-making process.

Event-Based Pricing: Peak Time Rebate

Peak time rebates (PTR) aim to lower annual peak demand by providing rebates to customers who lower their energy usage during annual peak periods. Rebates are based on customers' ability to lower their energy usage in comparison to their normal usage during a specified peak period. Unlike CPP programs, there is no penalty for continuing to use electricity during peak times. In Maryland, both Pepco and BG&E offer PTR programs (BGE b; Pepco b). The Pepco program, called Peak Energy Savings Credit, offers a rebate of $1.25 per kWh below a customer's average energy use that they use during peak savings days. Peak periods occur during the summer from noon to 8 p.m. Pepco notes that customers receive an average of a $5 rebate for participating in peak savings days. BG&E offers PTR as part of their Demand Response program. Peak periods run from 2 p.m. to 6 p.m. on designated energy savings days. In both examples, customers are alerted to PTR periods during the evening in advance.

PTR programs can have meaningful impact on peak load shaving. One analysis found that customers enrolled in Portland General Electric's PTR and Smart Thermostat programs decreased overall peak demand by 2 percent during two consecutive days of a heat wave in 2023 (Brehm and Tobin 2024).

Design and Implementation Considerations

See design considerations for CPP. When examining how to address the goal of decreasing the annual peak load, regulators should compare the merits of CPP and PTR programs and decide whether the “carrot and stick” CPP program or “carrot only” PTR program approach fits best. PTR may be a better fit for an opt-out program because it does not penalize participants who do not decrease usage. If PTR is selected, regulators must decide on the amount of the rebate used to incentivize load shifting.

Additional Lenses

In addition to adjusting the three components of rates outlined above (fixed, volumetric, and demand charges), regulators and utilities can also target specific groups to offer certain rates too. These most commonly are owners of efficient electric technologies, and low-income ratepayers. Oftentimes any rate design enacted will only apply to customers within these categories. As detailed below, this means that regulators and utilities need to establish processes to enroll customers and verify their eligibility.

Rates to Reflect New Usage Patterns of Efficient Electric Technology

Adoption of efficient electric technology changes the way that customers use energy on the grid. As a result, regulators and utilities have offered certain rate designs to owners of technology that can align rates with new usage patterns and ensure that adoption of this technology does not result in additional grid infrastructure costs. These rates incentivize usage of technology at certain times of the day and dispatch energy to the grid when needed. Through technology-specific rates, regulators can proactively implement rates that will respond to contemporary trends in technology and align new usage patterns with what is best for the grid.

Figure 6. ***Example of EV charging*****.** *Source:* Maryland EV

Technology-specific rates were initially used in some parts of the Northeast to discount electricity used for water heaters and electric resistance heating (aka electric baseboard heating) either year-round or seasonally. Based on the rates presented in Appendix A, many of these rates come from the pre-1990s ratemaking era to promote affordability but have largely been phased out. Some technology-specific rates in Appendix A only apply to the portion of electricity used by the specified technology, while others apply to the whole home.

There are several ways that regulators can design rates to better align costs with new usage patterns, as each of these devices have a different load profile. Each of these rates encourages efficient use of grid resources and could lower the need for infrastructure buildout. Below is a snapshot of the types of rate designs and technology and a table summarizing technology-specific rates in the region. See Appendix A for a full summary of our analysis.

- **EV Specific Rates**: EV rates are designed to ensure that charging of vehicles occurs when it creates the lowest cost for the grid. This drives affordability, electrification, and demand flexibility. TOU rates are most often used to align charging with grid costs and deter charging at times of peak demand. EV owners can take advantage of these rates through managed charging that lets owners or the utility take control of when and how an EV battery is charged. This can help utilities directly balance energy needs of EVs with other grid needs and increase charging at time when demand is low (U.S. DOE c).
- **Battery Storage Demand Response Rates**: These rates align battery storage charging and energy dispatching with grid needs to reduce peak demand. The rates incentivize charging and storing energy during periods of low demand and enable utilities to access the stored energy when demand is higher (APPA and MPR Associates 2024).
- **Solar Specific Rates or Net Metering**: Net metering rates compensate customers for providing energy to the grid and are usually associated with adoption of solar panels (APPA and MPR Associates 2024). As solar and batteries become more prevalent, regulators nationwide have shifted towards inflow-outflow differential pricing, where utilities charge and compensate customers based on the hourly retail rate of power (Parkman 2025).
- **Heat Pump Specific Rates**: For states with a summer-peaking grid, there is headroom on the grid for electrification of heating systems but as more customers adopt heat pumps, they end up paying more in the winter months than is needed. Heat pump rates seek to better reflect the lower costs of grid usage in the winter by lowering rates. This lowers the amount heat pump customers are overpaying into the electrical system (NYSERDA 2019). These rates are discussed more in Section 4.

Table 2. *Technology-Specific Rates and Rebates*

State	Seasonal Only Rates	Daily Time Varying Rates*	Technology Discount Rates	Battery Storage Demand Response	Events-Based Pricing and Rebates	Demand Charges
CT	None	None	Eversource (EH)	Eversource (Battery DR)	Eversource (EV OPR)	None
DC	None	Pepco (EV TOU)	None	None	None	None
DE	None	Delmarva Power (EV TOU)	None	None	None	None
ME	CMP (Seasonal HP Pilot), Versant (Seasonal EH/WH - Inclining Block)	Versant (Seasonal TOU for ES)	CMP (IUET), Versant (WH)	None	None	None
MD	Potomac Edison (Seasonal MF EV)	BGE (Seasonal EV TOU, EH/EC TOU), Delmarva Power (Seasonal EV TOU), Pepco (Seasonal EV TOU), Potomac Edison (EV TOU)	None	None	BGE (EV OPR), Pepco (PTR), SMECO (EV OPR, EV PTR)	None
MA	Eversource (Seasonal HP), National Grid (Seasonal HP), Unitil (Seasonal HP)	Unitil (EV TOU)	None	Eversource (Battery DR), National Grid (Battery DR)	None	None
NH	None	Liberty (Battery Storage Seasonal TOU Pilot, EV TOU), Unitil (EV TOU)	Eversource (WH, EH), Liberty (WH DR, Off-Peak WH)	Eversource (Battery DR)	None	None
NJ	ACE (Seasonal EV MF - Inclining Block), PSE&G (Seasonal EH - Inclining Block in Summer, Declining Block in Winter)	JCP&L (Seasonal HP/ GS TOU), RECO (EV TOU, WH/EH TOU)	JCP&L (Off-Peak WH, Controlled WH)	None	ACE (EV OPR), PSE&G (EV OPR)	None
NY	PSE&G Long Island (Seasonal EH - inclining block in summer, declining block in winter)	Central Hudson (EV TOU)	None	National Grid (Battery DR)	Central Hudson (EV OPR), NYSEG (EV OPR), Orange and Rockland (EV OPR, EV PTR), RG&E (EV OPR)	ConEd (Demand Charge)**
PA	None	Duquesne (EV TOU Pilot)	Duquesne (HP), PECO (EH)	None	Duquesne (EV PTR)	None
RI	None	None	None	None	None	None
VT	None	GMP (EV TOU)	GMP (Off-Peak WH)	GMP (Battery DR)	None	None
WV	None	Appalachian Power and Wheeling Power (WH TOU, ES TOU, EV TOU)	None	None	None	None

*Some utilities offer separate metering for EVs as part of their TOU rate offerings.
**ConEd's demand charge rate is available to all customers

Acronyms:
DR: demand response
EC: electric cooling
EH: electric heating
ES: energy storage
ETS: electric thermal storage
EV: electric vehicle
GS: geothermal systems
HP: heat pump
IUET: intermittent use electric technology
MF: multifamily
WH: water heater

Design and Implementation Considerations

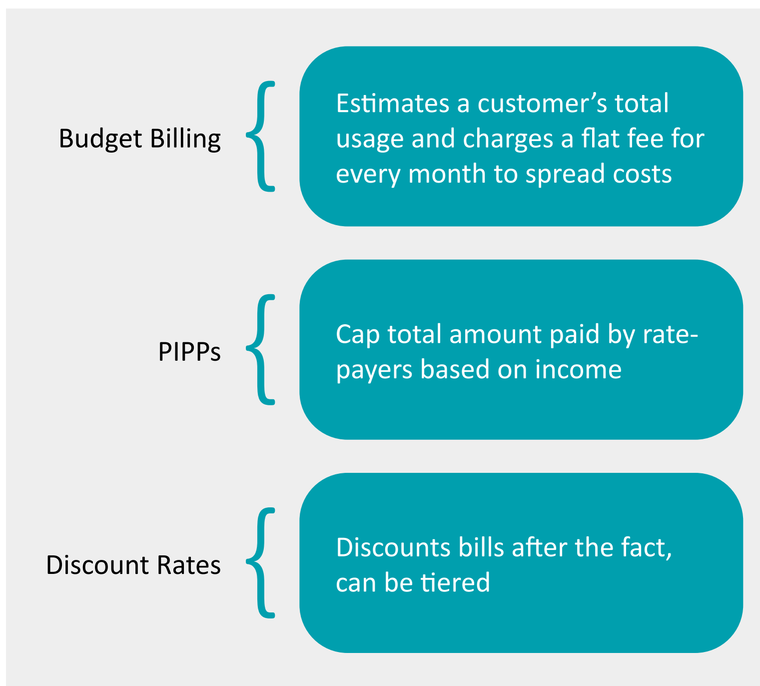
Rates that are designed to accommodate new load shapes for efficient electric technology can either be tied to usage of that specific technology or apply to the whole home. Requiring that the rate only be offered to owners of the technology can ensure that there is no perverse incentive. For example, heat pump rates can be seasonal rates that are lower in the winter. If these rates were applied to every customer, it could encourage the use of inefficient technologies like electric resistance heaters.

In designing rates tied to specific technology, it is important to consider who has access to this technology. Most often, new technology follows a pattern of adoption where wealthy, early adopters bring down the costs, decreasing prices and making the technology more accessible (Norton et al. 2021). Yet, this pattern of adoption means that most low-income households will be the last to adopt this technology and the benefits these programs provide. Additionally, EVs, heat pumps, and other electrification technologies can lead to the need for additional buildout of electric infrastructure both on the grid and in the home. Low-income customers are less likely to have access to this technology.

Programs to Lower Energy Burdens and Address Affordability

Low-income households across the nation have high energy burdens, spending three times more on energy than non-low-income households when measured as a percentage of their total income (Huang et al. 2023). Some consider households to be energy burdened when the proportion of income spent on energy bills is over 6 percent (Climate Reality Project 2023). Energy burden can lead to energy insecurity, which occurs when households are unsure if they will be able to pay their energy bills or curtail necessary energy use. This can not only put a household at risk for missing payments on energy bills and experiencing utility disconnections but also can force households to engage in unsafe coping mechanisms such as relying on risky heating methods or postponing the use of heating or cooling (Carley et al. 2025). This is particularly concerning as electricity prices are expected to continue their upward trajectory (Mackovyak et al. 2025). To try to combat these issues, regulators, state legislators, and utilities have adopted programs for low-income customers to reduce energy bills and lower energy burdens. These programs often occur after rates are designed, providing a discount or cap

Figure 7. ***Preview of different low-income assistance programs*.**



on the total amount charged to low-income households through financial assistance. Often, they use a tiered format, with benefits increasing as income decreases at various levels. In all cases, the cost of subsidizing these rates is spread throughout the remainder of the population (Yim and Subramanian 2023). These rates can also be paired with arrearage forgiveness programs, to help customers remove past debts, weatherization programs, to ensure customers can afford future bills, and direct customer relief. Direct customer relief programs are offered through utilities, states, and other entities. Additionally, states administer federal funding for Low-Income Home Energy Affordability Programs (LIHEAP) that helps to cover heating and cooling costs. See Appendix C for a summary of customer relief and arrearage management programs in the region.

Utilities and states that offer income-based program designs and bill payment options usually use one of three main structures: 1) percentage of income payment plans (PIPPs), 2) discount rates, and 3) budget billing (Yim and Subramanian 2023). See Appendix C for an overview of income-based programs in the region.

- **PIPPs** – PIPPs, or percentage of income payment plans, limit energy costs based on customer income and help alleviate financial stress for low-income customers who are energy burdened. PIPPs can be based on annual income or monthly income, based on electric bill only or electric and gas bill combined, and/or include a tiered percent discount based on income and household size. The goal of PIPPs is to keep energy bills affordable, regardless of increases in utility rates or usage (Yim and Subramanian 2023). New Jersey runs a Universal Service Fund, a PIPP program for energy bills, that ensures eligible customers pay no more than 6 percent of their annual income for both natural gas and electric bills (New Jersey BPU b). The program provides a monthly credit on customers' utility bills. Bill credits are capped at $200 per month (New Jersey DCA).
- **Discount Rates** – Discount rates provide discounts on electricity rates based on income. These can be flat percentage discounts for all customers that are income-eligible or tiered discounts based on income levels. Both the tiered and flat versions of the discount rate reduce the total utility bill as opposed to PIPPs, which limit individual customer spending. One example is Green Mountain Power in Vermont, which offers a discount rate through their Energy Assistance Program. This provides a 25 percent discount on monthly bills and may be paired with one-time arrearage forgiveness (Green Mountain Power b). In Massachusetts, National Grid offers a tiered discount rate that ranges from 32 to 71 percent based on customer incomes (National Grid d).
- **Budget Billing** – Budget billing, also called levelized billing or average billing, estimates a customer's total annual bill based on historic usage and uses this estimate to bill evenly across the year. The goal of budget billing is to make energy bills more predictable. Some customers might not want to enroll in this sort of billing because they wish to see their energy usage from month to month (Yim and Subramanian 2023). FirstEnergy offers a form of budget billing in Ohio, Pennsylvania, New Jersey, and New York that allows customers to pay the same amount each month based on estimates of their annual electricity bill (FirstEnergy 2023). At the end of each year, there is a true-up at which time the customer will owe the remaining balance of their actual bill or will be given a bill credit. Customers' bills include the actual charges for the month, the equal payment plan owed, and the difference between the two.

Design and Implementation Considerations

These rate-adjacent programs can have limitations if there is a maximum annual subsidy or usage after which the customer will no longer be eligible for the discount, a complex enrollment process, and/or minimal engagement and advertising of rates (Dimitry 2023). A maximum annual subsidy amount can constrain the impact of these programs, especially as rates are rising, as funding can run out sooner than anticipated (Hansen 2018). If an annual cap is used, it is important to consider if it can be adjusted to accommodate rising energy costs during the year and how it can be updated yearly to better fit the needs of the customers. Also, there are advantages for choosing a PIPP over a discount rate when looking to combat energy burden because PIPPs are directly tied to individual income while discount rates apply the same discount across all eligible customers, unless tiered. As rates rise, so will the amount paid under a discount rate; while under a PIPP, if prices rise, the amount paid remains the same because it is tied to income.

Additionally, it can be difficult for utilities to enroll customers in programs because it can be complex to verify customer eligibility (Yim and Subramanian 2023). Some utilities partner with state agencies to verify and automatically enroll customers that might participate in other state-run programs. Additionally, engagement and education of customers is important to ensure participation and enrollment. A PIPP in Colorado had low participation rates because of the lack of awareness of the program and confusions around branding and terminology (Yim and Subramanian 2023).

These programs promote affordability and address broad social policy goals of energy access and security for low-income households. However, they fail to tackle the underlying policy issue that energy bills are regressive in nature because low-income customers have to pay much more of their total income to utility bills than other ratepayers (California Public Advocates Office, TURN, and NRDC 2024). These strategies are also partial solutions because they do not look at the core issues of high energy rates, nor do they look to tackle high energy usage through energy efficiency (Yim and Subramanian 2023).

SECTION 3: CURRENT LANDSCAPE OF RATE DESIGN IN THE NORTHEAST

This section provides an overview of the current landscape of rate design in the NEEP region. It starts with summaries of rates that are implemented in different utility territories and outlines some key themes for what rates are implemented and how current rate design could improve. The second part highlights unique characteristics of the Northeast that are important to consider as regulators, utilities, and other stakeholders consider implementing different types of rate designs.

Landscape of Rate Design

States in the Northeast already implement several modern rates that reflect varying priorities, including affordability, energy efficiency, efficient or beneficial electrification, and demand flexibility. While most states have some form of advanced rates, these rates are mainly adopted as opt-in rates with limited customer participation. Opportunities remain to modernize rates to better align with grid needs and technology adoption. Table 3 provides an overview of modern rates in 12 states and Washington, D.C. This review covers all major investor-owned utilities (IOUs) in these jurisdictions in recent years and SMECO because they participate in state energy-efficiency programs in Maryland. It does not include public power utilities. While most states have TOU rates, it is important to note that these rates are opt-in with limited uptake. Additionally, a majority of states have technology-specific rates tied to EVs, while heat pump rates exist in only a handful of states, and all states have some form of affordability programs that look to lower energy burden. The table is followed by key themes and takeaways on why these rates have been adopted in the region.

Table 3. Summary of available rates and programs in the Northeast region.
(See Appendix A for detailed breakdown of rates by utility territory.)

State	Seasonal Only Rates	Daily Time Varying Rates	Technology- Specific Rates	Rebates	Affordability Programs
CT	None	Eversource (with variable peak pricing), United Illuminating	Eversource	Eversource, United Illuminating	Eversource, United Illuminating, State Agency
DC	None	None	Pepco	None	Pepco, State Agency
DE	None	Delmarva Power	Delmarva Power	Delmarva Power*	Delmarva Power, State Agency
ME	None	CMP, Versant	CMP, Versant	None	CMP, Versant, State Agency
MD	None	BGE, Delmarva Power, Pepco, SMECO	BGE, Delmarva Power, Pepco, Potomac Edison, SMECO	BGE, Delmarva Power,* Pepco, SMECO	BGE, Delmarva Power, Pepco, Potomac Edison, SMECO, State Agency, Fuel Fund of MD, MD General Assembly
MA	None	None	Eversource , National Grid, Unitil	Eversource, National Grid	Eversource, National Grid, Unitil, State Agency
NH	None	Eversource, Liberty, Unitil	Eversource, Liberty, Unitil	Eversource, Liberty	Eversource, Liberty, Unitil, State Agency

NJ	JCP&L, PSE&G, RECO	JCP&L, PSE&G, RECO	ACE, JCP&L, PSE&G, RECO	ACE, PSE&G, RECO	ACE, JCP&L, PSE&G, RECO, State Agencies
NY	ConEd, PSE&G Long Island	Central Hudson, ConEd, National Grid, NYSEG, Orange and Rockland, PSE&G Long Island.* RG&E	Central Hudson, National Grid, Orange and Rockland, PSE&G Long Island	Central Hudson, ConEd, National Grid, NYSEG, Orange and Rockland, PSE&G Long Island, RG&E	Central Hudson, ConEd, National Grid, NYSEG, Orange and Rockland, PSE&G Long Island, RG&E, State Agency, Orange County Fuel Fund Program
PA	None	Duquesne, First Energy Utilities, PECO, PPL	Duquesne, PECO	Duquesne	Duquesne, First Energy Utilites, PPL, PECO, State Agency
RI	None	None	None	None	Rhode Island Energy, State Agency
VT	None	GMP (with Critical Peak Pricing)	GMP	GMP	GMP, State Agency
WV	Appalachian Power and Wheeling Power	Appalachian Power and Wheeling Power	Appalachian Power and Wheeling Power	Appalachian Power and Wheeling Power	Appalachian Power and Wheeling Power, Mon Power and Potomac Edison, State Agency

Notes:
*** indicates the rate is opt-out**
See Table 2 for a summary of tech-specific rates and rebates only.
See Table 4 for a summary of affordability programs only.

High Adoption of TOU Rates for Electric Vehicles to Manage Grid Peak

Electric vehicle (EV) rates are plentiful in the Northeast and Mid-Atlantic. This aligns with regional trends as USA Today ranked the Northeast as the most EV-ready region in the nation in 2025 (Sergent 2025). Currently, there are 19 different EV rates across nine states and the District of Columbia: nine EV off-peak rebate programs across four states, and three EV peak time rebate programs across three states throughout the NEEP region. See Appendix A for a detailed synopsis of the EV rate and rate-adjacent rebate programs. Additionally, unlike other opt-in rates in the region, EV rates are seeing high numbers of participants. In Vermont, customer participation in EV-specific rates was 29 percent of EV owners in 2024, which is higher than the standard findings for opt-in rate programs (Vermont PUC 2025). The adoption of these rates is in large part due to the impact charging can have on the grid and costs of charging for customers.

Policies and programs to increase adoption of EVs have grown in states with climate goals, which leads to much higher electric usage for customers who adopt EVs. However, EVs can help any state as rates that look to manage charging can lower overall system costs. A national study found that managed charging for EVs can decrease distribution grid investment needs by 30 percent through shifting the time of charging and strategically locating charging stations (NREL et al. 2024). EV time of use (TOU) rates accomplish this through lowering electric rates at times when there is less demand on the grid, encouraging customers to charge during off-peak hours (NREL et al. 2024). EV TOU rates can also benefit ratepayers, as they increase electricity usage, which has been shown to lower costs for all ratepayers as it spreads the fixed system costs over a larger volume of sales (Nadel 2024; Shenstone-Harris et al. 2024).

Adoption of Low-Income Rate Programs

Almost all states in the Northeast have some form of an income-based rate-adjacent program, which usually takes the form of a discount rate, a percentage of income payment plan, a budget billing program, and/or arrearage forgiveness. These programs are especially important in the Northeast and Mid-Atlantic, which has some of the highest energy burden in the country (U.S. DOE b). They provide an opportunity to lower energy burden for low-income families, which is particularly needed as rates are increasing around the region (Wiser et al. 2025).

Some programs, such as the Green Mountain Power (GMP) Energy Assistance Program, pair one-time arrearage forgiveness with another program type, like a discount rate in the case of GMP (Green Mountain Power b). Some states, including Connecticut, Maine, and Pennsylvania require a form of rates affordability program either through regulations by the PUC or law (Nishi, Hernandez, and Gerrard 2023). It is important to note that these programs do not guarantee that customers have the ability to pay; instead these programs look to provide some form of financial relief. Some low-income programs have annual maximum usage or subsidy caps imposed by the legislator or regulators (Hansen 2018). This means that once a customer hits their cap or funding runs out, the customer must pay the full price of their bills and no longer has access to these discounts. For more information on these programs, see Appendix C.

Table 4. Summary of low-income programs in the Northeastern region. (See Appendix C for detailed breakdown of rates by utility territory.)

State	Discounts	PIPP	Budget Billing	Arrearage Management Program	Customer Relief
CT	Eversource, United Illuminating	None	United Illuminating	Eversource	Eversource, United Illuminating, DSS
DC	DOEE, DC PSC	None	Pepco	None	Pepco, DOEE
DE	None	None	Delmarva Power	None	Delmarva Power, DSSC
ME	None	None	Versant	CMP, Versant	CMP, Versant, Maine Housing
MD	None	None	BGE, Delmarva Power, Pepco, Potomac Edison, SMECO	OHEP	BGE, Delmarva Power, Pepco, Potomac Edison, OHEP, Fuel Fund of MD, MD General Assembly
MA	Eversource, National Grid, Unitil	None	Eversource, National Grid, Unitil	Eversource, National Grid, Unitil	Eversource, National Grid, Unitil, EOHLC
NH	None	None	Eversource, Liberty, Unitil	Eversource	Eversource, Liberty, Unitil, NH DOE
NJ	None	DCA	ACE, JCP&L, PSE&G, RECO	None	ACE, DCA, NJ DAS, NJ SHARES

NY	Central Hudson, PSE&G Long Island	None	Central Hudson, ConEd, National Grid, NYSEG, Orange and Rockland, PSE&G Long Island, RG&E	None	Central Hudson, ConEd, NYSEG, Orange and Rockland, RG&E, OTDA, Orange County Fuel Fund Program
PA	None	Duquesne, First Energy Utilities, PECO	Duquesne, First Energy Utilities, PPL, PECO	None	Duquesne, First Energy Utilities, PPL, PECO, DHS
RI	Rhode Island Energy	None	Rhode Island Energy	Rhode Island Energy	Rhode Island Energy, OHHS
VT	DCF	None	Green Mountain Power	None	None
WV	DHS	None	Mon Power, Potomac Edison	None	Appalachian Power and Wheeling Power, Mon Power, Potomac Edison, DHS

Opt-In TOU Rates have Lower Customer Adoption

Opt-in rates are those that require customers to take action to enroll in the rate. Opt-out rates, in contrast, automatically enroll customers. Customers must take action to remove themselves from this rate structure. Apart from Maine and Massachusetts, which are currently considering implementing TOU rates as the standard offer, and PSE&G Long Island, most advanced rates in the Northeast and Mid-Atlantic are opt-in rates (Massachusetts Interagency Rates Working Group 2025).

Studies have shown that opt-in rates have much lower adoption than opt-out rates, reducing their impact. In California, the Sacramento Municipal Utility District's (SMUD) Consumer Behavior Study saw 98 percent participation in their opt-out rate test group versus 19.5 percent participation in their opt-in rate test group. This study shows that opt-out rates are much more effective at driving customer adoption of advanced rates, provided they are implemented with a good outreach campaign. When adopting an opt-in program, it is important to consider how to drive rate adoption as these programs have much lower participation. Opt-out programs also must use informational and engagement campaigns to prepare their customers for the switch to the new rate.

Information is sparse on customer adoption levels of time-varying rates and incentive programs. Table 5 shows examples of 17 programs in the Northeast and beyond. Most of these programs (16) are opt-in rates. Of those, most (12) show low enrollment rates, less than 10 percent. A few opt-in programs achieve higher participation levels of 20–30 percent, and only one peak time rebate, the BGE Energy Savings Days Program, reaches most customers with 63 percent participation. The sole opt-out program shown in Table 5, the Delmarva Power Critical Peak Rebate, reaches nearly all customers (93 percent).

Table 5. Adoption rates of select time-varying rates and rebate/incentive rate programs.[4]

Utility + Rate	State	Opt-in/ Opt-out	Customer Enrollment Information	Year
Eversource TOU	CT	Opt-in	0.05% of total customers	2020
United Illuminating TOU	CT	Opt-in	35% of total customers (was previously mandatory)	2020
ComEd Hourly Pricing	IL	Opt-in	38,591 customers (approximately 1% of total customers)	2023
Central Maine Power TOU	ME	Opt-in	0.77% of total customers	2025
Versant Power-Bangor Hydro District Home Eco TOU	ME	Opt-in	591	2025
Versant Power Home Eco TOU with Bonus Meter	ME	Opt-in	20	2025
BGE EVsmart (EV-only TOU rate)	MD	Opt-in	3,421 customers	2025
BGE TOU Rate	MD	Opt-in	6.5% of total customers	2025
Pepco TOU Rate	MD	Opt-in	9.4% of total customers	2025
Delmarva Power TOU Rate	MD	Opt-in	505 customers	2025
Eversource TOU	NH	Opt-in	0.01% of total customers	2020
ConEd SC1 Rate IV Demand Charge Rate	NY	Opt-in	776 customers	2025
Duke Energy TOU Rate	OH	Opt-in	18 customers	2017
OGE VPP	OK	Opt-in	20% of total customers	2020
EV TOUs throughout Vermont	VT	Opt-in	29% of registered EVs in the state	2024
Other Rebate/Incentive Programs				
DPL Critical Peak Rebate	DE	Opt-out	93%	2023
BGE Smart Energy Rewards (PTR Program)	MD	Opt-in	77%	2024

Implementation Considerations for Modern Rate Design in the Northeast

This section looks at characteristics of Northeast states that can impact rate design. While these topics might not directly relate to adoption of modern rate design, they each impact rates through impacting energy usage, what parts of the rates can be modified, technology available to deploy rates, and current energy costs outside of rates. Each of these sections highlights a unique characteristic of Northeast rates regulations. This section provides a summary of trends in customer rate design for the Northeast and Mid-Atlantic.

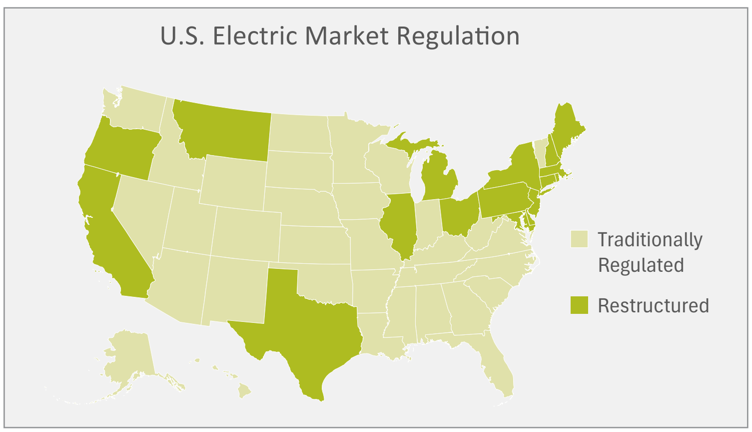
[4] Based on NEEP's review of Report to the Vermont State Legislature: Act 55: 2025 Report on Electric Rates for Electric Vehicles (Vermont PUC 2025); Personal communication, Con Edison (Levine 2025); Maryland Public Service Commission Case 9478 (Maryland PSC 2025b); Electric Choice: Monthly Enrollment Reports (Maryland PSC 2025c); Maryland Public Service Commission Case 9761 (Maryland PSC 2025a); RMI_Better_Rate_Design_2018.pdf (Cross-Call et al. 2018); Maine PUC Case No. 2025-00152: Overall Customer Statistics (Maine PUC 2025b); Maine PUC Case No. 2024-00231: Response to ODR-001-006 (Maine PUC 2025c); Time-Varying Rates in New England: Opportunities for Reform (Littell and Sliger 2020); Moving Ahead with TVR: US and Global Perspectives (Faruqui 2021); Commonwealth Edison Company's Hourly Pricing: 2023 Annual Report (Elevate 2024); BGE Energy Savings Days (BGE a); Annual Electric Power Industry Report, Form EIA-861 detailed data files (EIA 2025a). Notes: Customer enrollment data is taken from various sources. Enrollment rates are calculated by dividing participating customers by total number of customers served by that utility. Data on numbers of customers served from EIA Form 861.

Majority of States Are Restructured, Creating Barriers to Aligning Rates and Adoption

The Northeast has the highest concentration of restructured electric markets in the country (Cappers et al. 2016). All jurisdictions except the District of Columbia, Vermont, and West Virginia have restructured retail electricity markets. Restructured markets can make it more difficult to modernize rate design because of difficulties in coordination with competitive energy providers (CEPs) and wholesale deregulation (van Benthem et al. 2024). CEPs are independent of utility regulators and determine their own pricing. Additionally, since utilities in restructured markets do not set supply rates, any regulator that wants to integrate modern rate structures into supply rates must do so through a separate regulatory process (Lazar 2016b). Therefore, any new rate designs will likely not apply to the supply portion of a customer's bill. This can limit the impact of new rate design.

States in the Northeast have taken different approaches to integrating supply and distribution rates to create more impactful rate structures. As part of a Maine Public Utilities Commission investigation into implementing TOU rates, a report to the Maine General Assembly concluded that supply and distribution TOU rates have the potential to create meaningful shifts in electricity usage and reduce peaks and costs for ratepayers. Yet, this is unlikely to happen due to the barriers in modernizing rates offered by CEPs including costs, current billing structures, and limited opportunities for customer engagement (Maine PUC 2023; Exeter Associates 2025). Similarly, in Maryland, the Public Service Commission proposed a TOU pilot that would have provided a pathway for CEPs to develop and implement a supply TOU rate, but CEPs were concerned they would not be able to recover costs related to the rate change and that a new rate would limit their ability to attract customers (Sergici et al. 2020).

Figure 8. ***Deregulated states across the US.***



Adoption of Advanced Metering Infrastructure (AMI)

Whether a state has AMI or AMR capabilities can determine which types of rates can be implemented. Advanced metering infrastructure (AMI) allows utilities to read customer data remotely at set, short intervals (5–60 minutes) enabling the implementation of more advanced TOU rates and reducing the administrative burden in establishing these advanced rates. AMI also provides customers with greater control over their energy usage and capability to adjust energy usage (Gold, Waters, and York 2020).

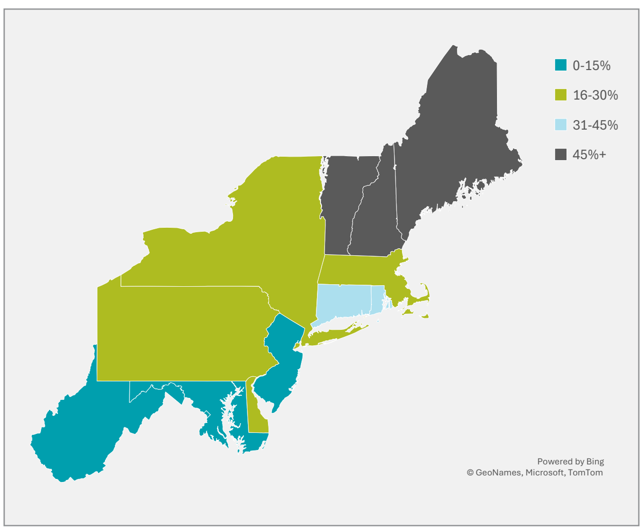
AMR meters—sometimes called dual-register meters—have less capabilities than AMI meters but can be used to implement seasonal rates and some simpler TOU rates. This is because AMR meters cannot distinguish between days of the week and must use preset peak and off-peak windows, which creates more of an administrative burden (Gold, Waters, and York 2020). Not all rates need to use AMI or AMR meters to be implemented. Some technologies like smart thermostats and EV chargers can connect to wifi, which can allow for the utility and homeowner to adjust and monitor energy usage (Gold, Waters, and York 2020).

Table 6. ***AMI and AMR statewide status***

State	AMR Status Statewide*	AMI Status Statewide*
CT	80.95%	19.05%
DC	0.00%	99.68%
DE	0.00%	100.00%
ME	0.01%	99.52%
MD	2.85%	88.07%
MA	96.93%	1.56%
NH	88.50%	11.41%
NJ	0.08%	92.01%
NY	16.08%	75.22%
PA	1.12%	98.87%
RI	99.81%	0.01%
VT	0.00%	96.75%
WV	13.95%	44.41%

*Only considering IOUs, except in Maryland, which includes SMECO.

Figure 9. ***Regional delivered fuels penetration for the Northeast.*** Source: EIA RECS 2020



The Northeast and Mid-Atlantic had a relatively slow uptake of AMI, and it is still incomplete throughout the region. States like Delaware, Maine, New Jersey, Pennsylvania, and Vermont all have AMI adoption rates over 90%. In remaining states, AMI adoption is generally low where AMR is already in place. This is likely due to the high upfront costs of AMI and longer-term benefits that are hard to quantify and require enactment of programs and investment in additional technology (Caputo 2017). Additionally, because of the high penetration of AMR meters, there was less incentive for states to install AMI because AMR eliminates the need for manual meter reading, which is one of the principal arguments to deploy AMI (Buxton 2013). See Appendix D for a full regional synopsis of AMI status by utility.

High Penetration of Delivered Fuels

Many Northeast households use delivered fuels to heat homes (propane, kerosene, and heating oil) (Reeg et al. 2025). According to Atlas Public Policy, New England has the highest reliance on fuel oil and kerosene for home heating of any region in the U.S. Figure 9 shows states in the region by the percent of households using delivered fuels. The state with the highest usage of delivered fuels is Maine, with 65 percent of households using delivered fuels. New Hampshire and Vermont are close behind with 59 percent in Vermont and 55 percent in New Hampshire.

Research has shown that homes with delivered fuels are disproportionately single-family, rural, and inhabited by older residents who stand to benefit the most from a reduction in energy costs (Booth et al. 2024). Additionally, such conversions can save customers an average of $700–$1,000 and up to $1,300 in annual heating costs. Not only do delivered fuels have higher prices but these homes also experience more price volatility compared to heating with gas or electricity placing additional strain on customers. Additionally, limiting the use of delivered fuels keeps money in the local economy. As implementing efficient electric heating eliminates the need for delivered fuels and lowers household heating costs. In New Hampshire, a study estimates that 80 percent of each dollar spent on delivered fuels leaves the state of New Hampshire (EIA 2024). This is true to a similar degree for any state that uses these fuels. These conditions are one of the many reasons efficient electric heating has become increasingly more adopted in the region. The shift from delivered fuels to electric heating creates new usage patterns and demand on the grid.

Electrification Is Forecasted to Increase the Winter Peak

Currently, electric grids in the Northeast and Mid-Atlantic are summer-peaking systems (Bernard et al. 2024; PJM 2025b; NYISO 2025). This means that the highest peak demand, measured in megawatts (MW), in the summer is larger than the highest peak demand in the winter. In the near term, this means that increases in winter load, such as adoption of efficient electric heating or heat pumps, can be accommodated by the current infrastructure on the grid. In the long term, it means that due to the increasing adoption of efficient electric heating technology, winter loads will increase. Electrification of transportation through EV adoption will also increase both summer and winter peak demands and is factored into forecasts. Electrification is projected to shift the northern portions of the region from summer peaks to winter peaks in the next 10–20 years.[5]

This potential shift to winter-peaking means that winter electric loads could be the driving force behind increases in transmission and distribution costs. Therefore, while in the short-term lowering winter transmission and distribution rates align ratepayer costs with grid costs, regulators and utilities must track how summer and winter peak loads change each year. Regulators may need to adjust rates if the grid becomes winter-peaking and there is a need for additional infrastructure buildout (Bernard et al. 2024; NYISO 2025).

Growth of Data Centers

This explosion of growth and speculative future growth in data centers impacts the cost of electricity for all ratepayers, including residential customers. Nationally, data centers are expected to contribute to rising electricity costs with their share of the electric market expected to grow from 4 percent in 2023 to 6.7–12 percent in 2028 (Nadel 2025). However, forecasting data center load growth is difficult because projects are speculative. Some experts estimate that only 10–20 percent of proposed data centers will be built.

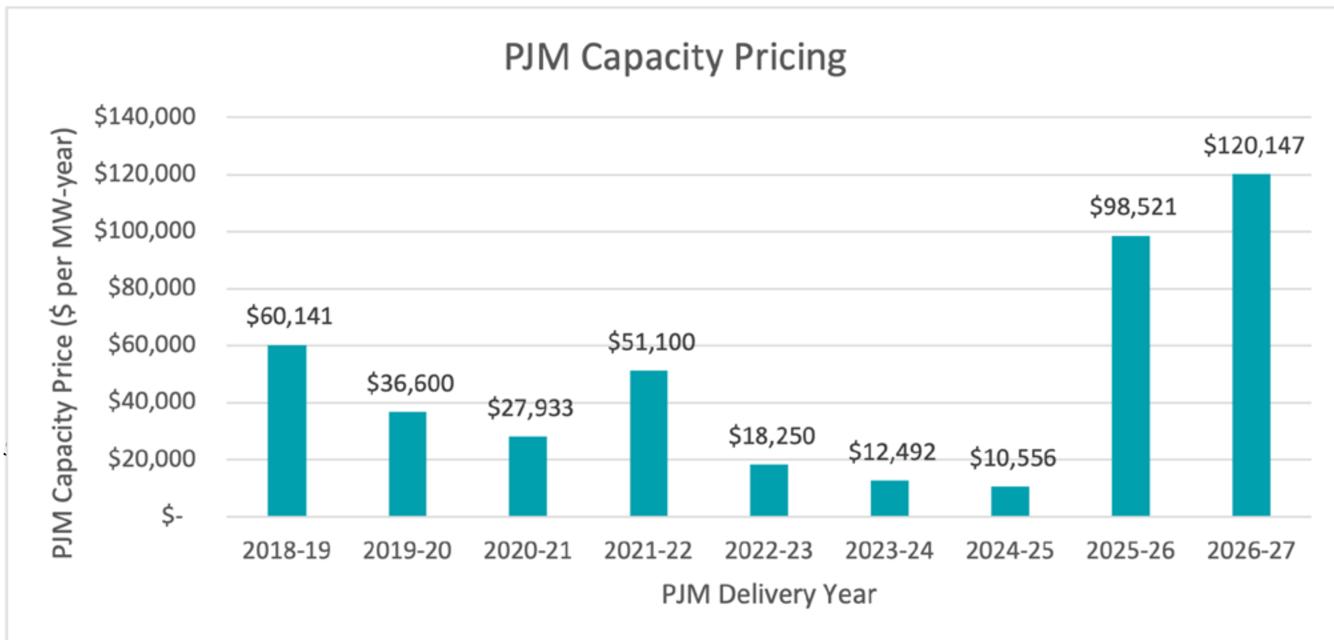
In the Northeast, data centers have already started to put upward pressure on rates in the PJM region.[6] Figure 10 shows PJM capacity prices over the past decade. A spike in PJM capacity prices in the 2025/2026 auction caused rates to rise and led to an agreement to set minimum and maximum price caps for the next two auctions covering 2026–2029 (Monitoring Analytics 2025). During this first-ever auction with price caps, the 2026/2027 auction in July 2025, prices already reached the maximum cap (Donohue 2025). The independent market monitor for PJM finds that this cost would have been 20 percent higher without the price cap (Monitoring Analytics 2025).

[5] ISO-New England has projected that its grid will be shift to a winter peak in the next decade, and NYISO has projected that this shift will occur in New York in the next 10 to 15 years. PJM does not project that its system will flip to winter-peaking within the next 20 years (Bernard et al. 2024; PJM 2025b; NYISO 2025). The NYISO and ISO-NE regions do not currently have significant data center load growth but could in the future.

[6] Currently NY-ISO and ISO-NE do not have similar growth in data centers but could in the future.

As a result of these sudden increases, PJM is considering adjusting its load forecasting procedures to predict data center growth more accurately in the region. Issues arise in trying to predict load from data centers though, as long-term growth of the industry is less certain. Some projections have data centers increasing U.S. electric generation costs by 8 percent with the potential for up to 25 percent in states with higher adoption potential, such as Virginia (Nadel 2025). The growth of data centers has the potential to increase rates for all customers. As regulators and utilities look to modernize rates, it will be important to consider this unprecedented change and identify ways to mitigate these costs for ratepayers (Nadel 2025).

Figure 10. ***PJM capacity pricing since 2018*.**



SECTION 4: ALIGNING RATES WITH POLICY AND GRID NEEDS

With the recent increases in electricity prices, and the increased adoption of efficient electric and grid-interactive technology, there is an opportunity for regulators and utilities to modernize rates to benefit customers. Through modern rate design, regulators and utilities can use rates to encourage energy efficiency, accommodate the use of energy efficient electric technology, minimize grid costs at times of high system usage, and focus on equitable electricity affordability. Modernizing rate design can better reflect costs to the grid and provide benefits to customers through reducing bills. Aligning rates to update usage patterns and policy goals can be a difficult task. Different types of rates can achieve some goals while disincentivizing others. Additionally, there is no right answer and there can be many different ways to design rates, including stacking different rate structures together, to achieve a state's priority. Additionally, regulators, policymakers, and utilities might have multiple, competing objectives.

This section of the paper examines how regulators, utilities, and other stakeholders can implement rates that continue to prioritize efficiency, accommodate new, efficient electric heating, enable demand flexibility especially at peak times, and prioritize equity and affordability. Along with each policy, we include rate design options to consider to better reflect that policy goal. Given that states might be implementing modern rates for multiple goals, we hope states can use the guidance provided to identify what rate design best fits their objectives.

Prioritizing Energy Efficiency in Rates

Energy efficiency is a low-cost resource to meet electrical demand on the grid because the average cost of investing in energy efficiency to lower consumption is less than the cost to produce electricity (LBNL 2021). Efficiency is not only important to lower bills for customers but can lower grid costs for utilities as it decreases the need for additional infrastructure build-out through lowering overall consumption (Baatz 2017). Regulators and utilities can prioritize energy efficiency in rate design through aligning customer usage with volumetric charges, so that increased usage leads to higher bills (IEA 2025).

Efficiency has long been a core principle of rate design, as most utilities utilize a standard two-part tariff that aligns customer usage with volumetric charges and keeps fixed charges relatively low. Aligning customer usage with volumetric charges ensures that customers generally understand that if they use less energy, they will pay a lower bill. Higher fixed customer charges can create a disincentive for energy efficiency, as they lower volumetric charges and break the connection between energy usage and high energy bills (Salkowski 2024). If customers receive a flat rate electric bill every month there will be no incentive to reduce their energy usage. While these price signals currently exist, regulators and utilities can do more to embed efficiency signals into rates. While most volumetric charges are a flat rate, block rates enable volumetric charges to increase with usage and TOU rates can increase volumetric charges at times when grid is at peak demand.

Rates are not the only policy tool to drive efficiency. If efficiency is a priority, it will be important to consider rate design alongside other programs. For new construction and equipment purchases, building energy codes and appliance standards protect customers by requiring a minimum level of energy efficiency. Energy-efficiency programs enable customers to install measures that go beyond codes and standards and that help retrofit buildings, such as high-efficiency appliances, smart technologies, and weatherization measures (Baatz 2017).

How Rate Design Options Impact Energy Efficiency

Figure 11. Rate options and energy efficiency.

Rates That Deter Energy Efficiency	Rates That Lower the Energy Efficiency Signal	Rates That Encourage Energy Efficiency
• Declining Block Rates	• Demand Charges • High Customer Fixed Charges	• Inclining Block Rates • Standard Two-Part Tariff • Daily Time Varying Rates (TOU & RTP) • Annual Time Varying Rates (Seasonal Rates)

Rates That Encourage Energy Efficiency

Rates that encourage energy efficiency rely on volumetric charges over fixed charges. These rates can utilize fixed volumetric charges or may change with usage, by time of day, or by season. Bills that continue to rely primarily on energy consumption will send price signals to customers that drive energy efficiency:

- **Inclining Block Rates**: Inclining block rates include a volumetric charge that will increase with higher usage, which deters residents from using more energy overall.
- **Standard Two-Part Tariff**: Standard two-part tariff rate design enables volumetric rates to be a larger portion of the bill and increase the price signal to customers to conserve energy.
- **Daily and Hourly Time Varying Rates (TOU & RTP)**: Daily and hourly time varying rates are volumetric and continue to send proper price signals to customers to lower usage. While their goal is to encourage customers to shift their load, studies have shown they can lead to lower consumption overall (Sergici et al. 2020; Baatz 2017).
- **Annual Time Varying Rates (Seasonal Rates)**: Like daily and hourly time-varying rates, seasonal rates maintain the volumetric price signal and better align the retail price of electricity with the cost of delivery for certain seasons.

Rates That Lower the Energy Efficiency Signal

Rates that have no ties to volumetric use mean customers pay a flat or fixed fee for their energy. Because bills are always the same, customers have no incentive to reduce their energy usage and are less likely to invest in energy efficiency technologies (Baatz 2017).

- **Demand Charges**: Research has shown that this demand charge can have little impact on lowering overall customer consumption (Baatz 2017).
- **High Customer Fixed Charges**: Increasing fixed charges decreases the amount collected through volumetric charges and makes it so that customer bills are more like a flat fee. This breaks the connection between energy usage and rates and can remove a customer’s incentive to conserve energy.

Rates That Deter Energy Efficiency

These rates lower energy costs as energy usage increases.

- **Declining Block Rates**: Declining block rates charge lower prices for higher energy usage; they deter efficient use of electricity.

Modernizing Rates for Adoption of Efficient Electric Heating

Rate designs for efficient electric heating seek to align ratepayer bills with costs to the grid. In recent years, many states in the Northeast have seen an increase in adoption of heat pumps. From 2013 to 2021, the New York and New England region saw a nearly 400 percent increase in heat pump sales (Luoma 2025). Various market influences have driven this growth, including technological improvements, increased customer and contractor awareness, expansion of energy-efficiency programs, and shifts in state-level energy and climate policies. Finally, heat pumps can lower costs for homes heated with electric resistance heat and delivered fuels, making them popular in the Northeast (Marin 2015; Reeg et al. 2025). A study from ACEEE found that heat pumps will be the biggest factor in increasing electricity consumption and bills in electrified homes (Malinowski et al. 2025). Studies have shown that if action is not taken to adjust the standard two-part tariff rate design, heat pump customers could be overcharged on their electric bill (NYSERDA 2019; Dammel et al. 2025). Similar to how EV rates were adopted to avoid charging during peak load, it is important to consider rates for heat pumps that ensure customers are paying their fair share into the grid.

Heat pump customers are being overcharged because traditional rates (a standard two-part tariff) include fixed costs in volumetric charges and are priced to cover the costs of a summer-peaking grid. Because the grid is summer-peaking it can take on additional demand in the winter without requiring any infrastructure buildout (Massachusetts Interagency Rates Working Group 2025). Additionally, because there are fixed costs embedded in volumetric charges, customers are paying more than it costs the utility to supply additional energy (Massachusetts Interagency Rates Working Group 2025; NYSERDA 2019). This results in heat pump customers being overcharged (Murray and Velez 2025; NYSERDA 2019). Massachusetts found that heat pump customers pay 23 percent more than their fair share of the electricity system's costs per heating season (Murray and Velez 2025). In New York, a report found that single-family heat pump customers overpay by an estimated $549 per year on average (NYSERDA 2019).

States have sought to implement rates for efficient electric heating through three tools: seasonal rates, TOU rates, and demand charges. Seasonal rates can lower winter volumetric charges to better reflect actual costs to serve customers. TOU rates reduce volumetric charges at times when there is lower demand on the grid. Demand charges reallocate some fixed costs based on a customer's demand. These rate designs ensure that economic principles of the real costs of providing reliable electric service remain a key part of ratemaking (Abal et al. 2021). In the largely restructured market of the Northeast, these rates will often modify only the transmission and distribution components of volumetric rates as utilities do not have the ability to adjust supply charges.

There are implementation considerations when deciding to enact rates for heat pump users, if the rate applies just to the technology and how to enroll customers. While heat pump rates are technology specific, in implementation, regulators and utilities typically apply them to the whole home because it is challenging to distinguish heat pump usage from other appliances without the appropriate technology (Massachusetts DPU 2025b). Additionally, if applied to the whole home, these rates can benefit heat pump users with other electrification technologies, such as heat pump water heaters and induction stoves. Another implementation consideration is how to identify and enroll customers. States with these rates have used customer attestation as a form of enrollment or automatically enrolled ratepayers that participated in energy-efficiency programs (Massachusetts DPU 2025a).

Finally, it is important to recognize that these rates may be temporary. Some estimates show that the New England ISO grid will shift to winter-peaking in the mid-2030s, which can change the rational for implementing these rates as the costs to serve customers in the winter will likely increase (Bernard et al. 2024). Regulators should reevaluate heat pump rates within the next five to 10 years to ensure that the rates are still accurately pricing electricity for these customers. In Massachusetts, the DPU has adopted these rates for all major electric utilities and requires the utilities to file annual reports on progress and evaluate impacts (Massachusetts DPU 2025a).

How Rate Design Options Impact Efficient Electric Heating Technology

Figure 12. Rate options and efficient electric heating.

Negatively Impacts Customers With Higher Winter Usage	Neutral Impact With Higher Volume Usage	Aligns Consumer Pricing With New Energy Demand
• Inclining Block Rates • Standard Two-Part Tariff	• Daily and Hourly Time Varying Rates (TOU & RTP)	• Annual Time Varying Rates (Seasonal Rates) • Demand Charges • Declining Block Rates

Aligns Consumer Pricing With New Energy Demand

These rates work to ensure that heat pump users are paying equitably into the grid and that rates are more reflective of the actual cost to serve these customers. Rates that appropriately reflect these costs do not need to be technology-specific, but they should aim to lower volumetric costs in the winter months. These rates include:

- **Annual Time Varying Rates (Seasonal Rates)**: Seasonal rates can incentivize the use of heat pumps because seasonal rates more accurately reflect the difference in the cost of service for heat pump customers in the winter months.
- **Demand Charges**: Demand charges can lower overall volumetric rates and charge customers for high energy demand at specific times. Research has shown that demand charges can lead to lower bills for heat pump users (Sergici et al. 2023).
- **Declining Block Rate**s: Declining block rates enable customers with higher overall kWh usage to pay

lower volumetric rates for any further consumption in each billing period after a certain usage threshold is surpassed, which can enable customers to electrify cost-effectively as costs go down with increased usage.

Neutral Impact With Higher Volume Usage

The rate structures in this category are usually designed to facilitate policy goals other than heat pump adoption, such as demand flexibility or energy efficiency. Research has shown that their impact on customers who have heat pumps is neutral and can be beneficial in some cases. Rates that will have minimal impact are:

- **Daily and Hourly Time Varying Rates (TOU & RTP)**: Because heat pumps operate at consistently lower levels of energy, time-based pricing, such as TOU rates, will generally not have a major impact (Sergici et al. 2023). However, there is potential for customers with heat pumps to shift their load or lower their usage during certain hours, potentially resulting in bill savings (Baatz 2017).

Rates That Deter Heat Pump Adoption

These rates will continue to disproportionately overcharge customers who use heat pumps and could deter electrification overall. They have inequitable impacts on customers and fail to account for changes to the grid resulting from this technology. Because of this, these rate structures create higher volumetric charges, which do not reflect the actual costs of serving heat pump customers (NYSERDA 2019; Murray and Velez 2025).

- **Inclining Block Rates**: Inclining block rates impose a higher volumetric rate after certain kWh usage thresholds in a billing period, leading to higher bills for customers who use more kWh, such as heat pump users. Utilizing this rate structure could continue to perpetuate the issue of heat pump users paying more than their fair share into the grid.
- **Standard Two-Part Tariffs**: Standard two-part tariff rates overcharge customers on the volumetric portions of electric bills, causing them to pay more than their fair share due to their increased electricity usage occurring more in the winter.

Rates to Enable Demand Flexibility

Rates that enable demand flexibility drive down energy usage at peak times, improve system reliability, and lower investments in new infrastructure. These rate designs encourage customers to lower peak demand through behavioral changes. Customers can change their usage of large appliances, adopt smart technologies that respond to events called by utilities, and install batteries or solar photovoltaics (PVs) which can provide additional power back to the grid (Baatz 2017). When done at scale, these rates can lower demand at peak times, reducing reliance on peaker plants and saving utilities from having to build out infrastructure (U.S. GAO 2024). Avoiding investment in utility infrastructure lowers system costs, which can suppress rates for all ratepayers (Lazar and Gonzalez 2015). As the grid becomes more bi-directional, utilities will be able to call on distributed energy resources that will automatically respond through lowering energy usage or providing additional power to the grid (Colgan et al. 2017).

Rates to enable demand flexibility align with economic efficiency principles of rate design, as these rates provide price signals that reflect the real-time costs of energy and drive consumers to change their behavior to benefit the grid (van Benthem et al. 2024). For example, EV rates provide price signals to customers to ensure charging does not increase demand at peak times and to avoid unnecessary infrastructure upgrades (APPA and MPR Associates 2024). Using EV rates to shift demand offsets potential infrastructure investments, lowering costs for all ratepayers (APPA and MPR Associates 2024). One study found that, on average, critical peak pricing, time of use, and peak time rebates could lower overall grid peak demand by 23 percent (Baatz 2017).

For restructured markets, implementation of rates for demand flexibility should also include considerations of how to coordinate these rates with competitive energy providers (CEPs). Without coordination of CEPs, these rates could have limited impact on demand flexibility. But coordination with CEPs is challenging, as regulators do not have any authority over CEPs, and CEPs do not need to follow any orders or implementation mandates. Additionally, CEPs may be reluctant to participate as they have minimal control over what appears on customers' bills, could risk losing customers due to implementing more complicated rates, and are not guaranteed a return on any costs invested in implementing these rates (Maine PUC 2023).

There are key implementation considerations for rates that drive demand flexibility, as successful implementation will require communication and engagement with ratepayers, special consideration for individuals who may not be able to shift their load, and protections for low-income customers. Regulators and utilities should include a communication and education campaign so that all ratepayers know how to change their energy usage and when to shift their load. For customers who may not be able to shift or curtail their energy usage, rates that charge more for using energy at peak times, such as demand charges or TOU rates, could increase their electric bills. These customers could include households with children under 5 years old, households with durable medical equipment (i.e., ventilators), and customers with irregular work schedules (Massachusetts Interagency Rates Working Group 2025). For low-income customers, barriers can arise if technology is needed to participate in the rate, such as smart thermostats and programmable appliances, due to costs (Norton et al. 2021; Massachusetts Interagency Rates Working Group 2025). Finally, there is no clear evidence whether grid flexibility rates will harm or help low-income customers. While some programs have seen benefits flow to low-income customers, other states have seen an increase in rates for low-income customers (Sergici et al. 2020). Regulators and utilities can consider exemptions or billing protections for low-income customers and those unable to shift their energy usage. This is explored more in Section 5.

How Rate Design Options Impact Grid Flexibility

Figure 13. Rate options and grid flexibility.

Rates That Have Neutral Impact on Demand Flexibility	Rates That Encourage and Enable Demand Flexibility
• Standard Two-Part Tariff • Block Rates (Inclining & Declining)	• Daily and Hourly Time Varying Rates (TOU & RTP) • Annual Time Varying Rates (Seasonal Rates) • Off-Peak Rebates, Critical Peak Pricing, Peak Time Rebates • Demand Charges

Rates that Encourage and Enable Demand Flexibility

Rate designs that promote an interactive, flexible grid charge more during time periods when it is beneficial to conserve energy or pay customers to not use energy at certain times. These rates can be tied to the whole home or certain technology, such as EV charges. Additionally, they can operate through customer energy usage modification or utility control of grid-interactive technology. The following rate types are effective in creating an interactive, flexible grid:

- **Daily and Hourly Time Varying Rates (TOU & RTP)**: Daily and hourly time varying rates promote load shifting away from peak hours during the day and incentivize the deployment of distributed energy resources during peak times.
- **Annual Time Varying Rates (Seasonal Rates)**: Seasonal rates align customer rates with utility costs to provide electricity. For example, in the Northeast, there is a higher demand in the summer than in the winter, so lower winter rates are reflective of the costs of service in the winter.
- **Off-Peak Rebates, Critical Peak Pricing, Peak Time Rebates**: Rebates incentivize load shifting behavior. These rebates offer peak load reduction incentives and can be layered with other rate design components.
- **Demand Charge**s: Demand charges are based on customer peak demand. For demand charges to lower demand on the grid at the appropriate times utilities must align them with periods of peak demand, as research has found that without those mandates, demand charges could have no impact on peak demand (Baatz 2017).

Rates that have a Neutral Impact on Demand Flexibility

These types of rates do not drive peak reductions or pay customers to provide energy but still aim to make energy usage more energy efficient. Therefore, they might have less or no impact on lowering peak demand.

- **Standard Two-Part Tariff**: Standard two-part tariff uses a flat volumetric rate that does not change. Therefore, while this rate design drives customers to lower their total usage, it is agnostic about the time at which energy is used. This can lead to undercharging customers for energy used at peak times and overcharging them for energy used when grid demand is low.
- **Block Rates (Inclining & Declining)**: Inclining and declining block rates do not seek to shift customer energy usage. Instead, declining block rates enable customers to increase their total usage with lower costs, and inclining block rates encourage customers to lower their overall energy usage. These rates do not enable demand flexibility because they do not account for the time energy is used.

Prioritizing Equity and Affordability in Rate Design

Low-income residents are more likely to face energy insecurity and high energy burdens (IU Energy Justice Lab). Yet current rate-adjacent programs do not tackle core issues of high energy costs and the regressive nature of energy bills, which causes low-income customers to pay more of their total income to utility infrastructure costs than others (California Public Advocates Office et al. 2024). These factors not only put low-income ratepayers at risk for missing payments on energy bills and experiencing utility disconnections but also force households to engage in unsafe coping mechanisms such as relying on risky or unsafe heating methods or postponing the use of heating or cooling (Carley et al. 2025). As outlined in Section 3, utilities do often offer discount programs, but policymakers design these programs outside of rate design processes. Further, these programs can include budget limits, barriers to participation, and have limited funding (Dimitry 2023). The rate designs in this section allow for affordability concerns to be part of the initial rate design discussion (Krasniqi et al. 2025).

While equity has traditionally not been a core component of rate design policy, states have started to recognize the need to consider equity and have mandated that regulators include equity as part of their policy design and implementation process. Maine requires that all agencies incorporate equity into decision-making, and Massachusetts requires that the DPU meet GHG goals in a way that prioritizes equity, safety, security, reliability, and affordability (Shumway et al. 2024). While not all states might have equity mandates, equity and affordability can still be a key part of rate design through designing rates that consider the income level of ratepayers (Shumway et al. 2024). This creates a more progressive rate structure, where wealthier households pay more, to ensure low-income households are not disproportionately burdened. This aligns with how other societal necessities are collected nationally through income taxes (Chhabra et al. 2024).

Prioritizing equity in modern rate design ensures alignment with several key principles of rate design, such as fairness, customer acceptability, and bill predictability. Additionally, regulators and utilities can layer rate structures that prioritize equity and affordability with other rate modernization efforts, such as rates for efficient electric heating and demand flexibility. This can enable regulators and utilities to create more equitable energy bills for customers from the design and avoid the need to create PIPPS or discount rates that layer on after the fact and require distinct funding sources (Chhabra et al. 2024).

There are additional implementation considerations to be mindful of when implementing rates for equity and affordability. Like rate assistance programs, implementing a rate design that prioritizes affordability and equity will require some form of income verification for enrollment. Utilities can partner with state agencies to identify customers who are part of other low-income programs who are also eligible. This is discussed more in Section 5. Additionally, it is important for regulators and utilities to be mindful that there are limits to how rates can tackle issues of equity. In addition to rate design modifications, regulators and utilities can consider other parts of the utility regulatory process and the broader energy system to identify ways to lower energy costs, such as grid planning and investments. Through enrollment in these rates, the state could identify homes that would benefit from efficiency programs, such as the Weatherization Assistance Program (WAP).

Rates to Prioritize Equity and Tackle Energy Burden

Figure 14. Rate options and affordability.

Income Graduated Fixed Charges	Low-Income Rate Class
Adjusting fixed charge to reflect income. This reallocates some fixed charges to higher-income customers, attempting to remedy the disproportionately higher percentage of income that lower-income customers pay into the grid.	Creating a rate class for low-income customers, which allows for lower rates for those with higher energy burden. Households in this class would receive their own cost allocation to ensure their rates better reflect their ability to pay.

Rates That Prioritize Equity and Tackle Energy Burden

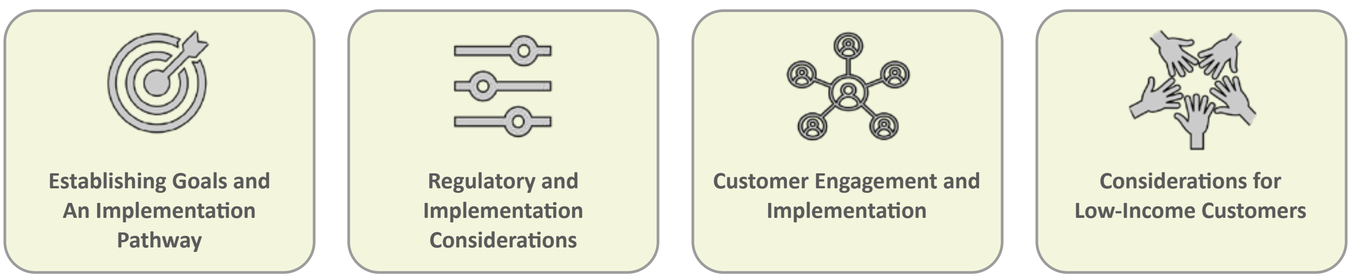
The rate designs identified in this section look to highlight ways that equity and affordability can be embedded in the rate design process. This section does not discuss affordability programs such as percentage of income payment plans (PIPPs), budget billing, or discount rates that are applied after a customer is billed at the standard residential rate. Instead, these rate designs look to adjust the initial bill amount to better align rates with affordability and equity priorities for a state or utility during rate design and not after the fact. Similar to the affordability programs previously described in this paper, regulators and utilities can implement these rates alongside other modern rate designs, such as seasonal and time of use rates, as well as rates that are technology specific.

- **Establishing a Low-Income Rate Class**: Establishing a low-income rate class ensures that equity starts at the beginning of the rate design process. Instead of having a universal residential rate, regulators create a separate low-income rate that can include both fixed and volumetric charges. For example, regulators and utilities could establish a rate that represents 6 percent of the income threshold for the federal poverty rate or state median income (Dimitry 2023). Additional costs are then allocated among other rate classes.
- **Income Graduated Fixed Charges**: Establishing an income-graduated fixed charge bases the fixed charge of consumers' bills on their income. This makes bills more equitable by reallocating a portion of short-term fixed costs—those are recovered in customer fixed charges—based on income level, attempting to remedy the disproportionately higher percentage of income that lower-income customers pay into the grid (Chhabra et al. 2024). California has implemented this rate design with three tiers: low, moderate, and higher income. This helped the state lower volumetric rates across all classes and progressively distribute system costs (Chhabra et al. 2024).

SECTION 5: IMPLEMENTING SUCCESSFUL RATE MODERNIZATION

Designing and implementing modern rate design depends on the goals of regulators, state energy offices, consumer advocates, and utility planners, as well as key considerations throughout the design, regulatory, and implementation process. As regulators and utilities look to modernize their rates, they should think through four components of implementation: establishing goals, regulatory considerations, best practices for customer engagement, and considerations for low-income customers. Each of these components of the rate process have specific key considerations for designing and implementing a new rate that aligns with state priorities, benefits most consumers, identifies any negative consequences, and includes proper consumer education and engagement in the implementation, especially with low-income and vulnerable customers.

Figure 15. Steps to implementing modern rates.



Establishing Goals and An Implementation Pathway

This section outlines key considerations for regulators, state energy offices, consumer advocates, and utilities when they first begin the rate design process. These considerations include identifying goals, engagement with key stakeholders, and establishing a regulatory proceeding. Implementing these steps when starting the rate design process ensures there are clear objectives and builds consensus between key stakeholders. These considerations will help regulators and utilities ensure that they enact rates that can be implemented and align with other policy goals, such as affordability and promoting the adoption of new technologies.

Establish Goals

Rate design is a key tool in the utility regulatory process as it looks to balance customer affordability with grid reliability and investment. Often, other goals will initiate a rate making process, such as transition to new electric technology or the goals to drive down demand at peak times to alleviate strain on the grid. At the beginning of the rate design process, it is important that regulators and utilities clearly articulate the reason for examining rates to help identify what rate types are most appropriate for the state to consider (Cross-Call et al. 2018). Sometimes these goals are established in existing state policy, such as state energy or climate plans, enacted through legislation, or through a regulatory order.

Engage With Regulators, Utilities, Consumer Advocates, and Other Stakeholders

Modernizing rates can be a complex process that involves many different entities, including state energy offices, utilities, regulators, manufacturers, ratepayer advocates, and consumers. Creating a stakeholder process or working group can ensure that these parties are collaborating and listening to one another from the beginning of the rate design process. It is important to establish a way for these groups to collaborate from the beginning to identify common goals, expectations, and highlight any barriers that might appear from development to rollout and engagement (Yim and Subramanian 2023; Cross-Call et al. 2018). Starting off with an inclusive stakeholder engagement process through the design and deployment of these rates can ensure that rate design and rollout incorporate the goals of the rates, customers' expectations, and capabilities of the grid and utility infrastructure. The Massachusetts Interagency Rates Working Group is a notable example of this effort (Massachusetts DOER). Maine and Maryland also have separate working group processes to identify common rate design goals (Exeter Associates 2025; Maryland PSC 2025a).

Type of Regulatory Proceeding

Regulators should consider whether a rate will be implemented in a general rate case or through another avenue. Rate cases present a formal process to examine and adjust rates to ensure they are just and reasonable (Lazar 2016b). Yet they occur somewhat infrequently, usually every two to five years, with some utilities waiting as long as 10 years between rate cases. Because rate cases usually only occur when utilities bring them or on a predetermined schedule, some regulatory commissions have adjusted rates through other means, such as establishing a docket to examine a certain rate or through proceedings that look to implement AMI. In Massachusetts, the Department of Public Utilities (DPU) directed Eversource and National Grid to create a heat pump rate through a regulatory order establishing a proceeding focused only on the implementation of heat pump rates (Massachusetts DPU 2025b). Because the heat pump rate was designed to be revenue neutral, it could be implemented without additional cost of service studies typically involved in a full distribution rate case (Massachusetts DPU 2025a). Rates that could fall into this category are seasonal rates, technology-specific rates, and time-varying rates.

Regulatory and Implementation Considerations

The regulatory environment determines how modern rates will be adopted and establishes guidelines for how the new rate will be implemented. This section outlines considerations for regulators, utilities, and other stakeholders when designing a new rate structure, including identifying new technology investments, if rates should be opt-in or opt-out, considerations for implementing rates in a restructured market, and ensuring this is a mechanism to evaluate rates and adjust them over time. Considering these implications during the rate design process can help with implementation as they can identify any issues that might arise.

Consider Existing Technology Landscape and Costs of Implementation

Prior to discussions on what rate design to adopt, it is also important to consider the existing technology available for implementation and costs of implementing modern, more complex rates. Utilities incur administrative costs when developing new rates. These costs arise from research, design, marketing, and implementation processes. For example, utilities may need to update billing and metering software before a rate can be implemented (Maine PUC 2025c; Maryland PSC 2025a). There is also a likelihood that as part of this process, utilities and ratepayers might need to adopt new technology, such as demand response technologies, investment in AMI, and ability to integrate artificial intelligence. For example, a wider presence of internet-connected appliances can help with implementation of TOU rates through sending signals to that technology. Additionally, AMI can allow the utility and regulators to see usage patterns of homes and businesses, enabling the implementation of TOU, demand charges, and other time-based rebates.

However, the lack of a certain technology, such as an AMI meter or interconnected device, does not mean states cannot implement modern rate design. For example, states or utility territories with AMR can implement seasonal rates and some TOU rates, provided the meters are preset with peak and off-peak periods (Gold, Waters, and York 2020). See Appendix D for an overview of AMI and AMR meter rollout throughout the region. Additionally, technology-based rates can apply to the whole home. Massachusetts heat pump rates require customers to verify that they have a heat pump but then apply the rate to the whole home which removes the need to disaggregate energy usage data (Murray and Velez 2025).

Choose Opt-In or Opt-Out Enrollment

Implementation of new rate design can either automatically enroll customers and allow them to opt-out or enable customers to opt-in. There are pros and cons to both approaches. For example, opt-in rates have a considerably lower rate of adoption compared to opt-out rates and often only attract customers that are more engaged (Gold, Waters, and York 2020). A study from the Lawrence Berkley National Laboratory demonstrates the significant differences this can cause; in one case, a utility saw 13 percent adoption for an opt-in rate and 74 percent adoption for an opt-out version of the same rate (Carvallo and Schwartz 2023). This can lead to less effective rates, as the benefits that could be realized by the customers and the grid do not materialize. Yet, opt-in programs are sometimes favored because they can offer greater protection and choice to vulnerable customers (Farley et al. 2021).

Opt-out rates will enroll all customers but give them an option to opt out of the rate and exemptions (Massachusetts DOER 2025). Programs implemented with opt-out rates have been shown to result in higher enrollment and additional net benefits (Gold, Waters, and York 2020). When considering an opt-out structure, it is important to consider certain groups that may need to be proactively excluded due to inability to shift their load such as households with children under 5 years old and households with durable medical equipment (i.e., ventilators) (Massachusetts Interagency Rates Working Group 2025).

Identify Opportunities for Coordination in Restructured Markets

In restructured markets, only certain parts of the utility bill fall under regulatory authority: transmission and distribution. This limits the intended impact of rates and creates competition for regulated utilities who implement new rates designs. In states with electric restructuring, it is important to consider how to align transmission, distribution, and supply rates when implementing new rate designs. Regulators and utilities can implement these rates for transmission and distribution costs but need to identify ways to coordinate with competitive electricity providers (CEPs) to align all parts of the system. Without this alignment, rates may have less impact, especially if designing TOU rates. In Maryland and Maine, regulators found that TOU rates without a supply component have less impact on grid flexibility (Exeter Associates 2025; Maryland PSC 2025a). It will be important to consider how supply rates can align with any changes in distribution rates as early as possible in the rate design process. This allows for coordination with CEPs and for the adopted rate structure to have a greater impact for the grid and customers.

Study Rate Impacts Prior to Implementation to Identify Any Vulnerable Customers

It is important that part of the regulatory process in designing and implementing rates should consider the impacts rates will have on various customers through pre-implementation studies (Exeter Associates 2025). This is especially important for opt-out or default rates that will automatically apply to all customers. Conducting studies on the impacts of rates prior to implementation can ensure that any groups that might be negatively impacted are identified before potential issues arise. With this knowledge, regulators can adjust rates to insulate customers from adverse impacts and lead to the best possible outcomes for the whole rate base (Faruqui 2019). Some customers that could fall into this category include customers who exhibit energy-limiting behaviors, customers with high energy burdens, fixed-income customers, customers with chronic late bill payment and/or chronic disconnection, households with children 5 and under, and senior citizens (Massachusetts Interagency Rates Working Group 2025). If the state has AMI meters, data can be used to identify these vulnerable low-income customers and the potential benefits or impacts that might result from a certain rate design (Massachusetts Interagency Rates Working Group 2025). Analyses of projected rate impacts before rollout can provide both helpful knowledge for regulators and utilities as well as educational tools for customers to show which rates may benefit them the most.

Continuous Feedback and Learning

Rates should be evaluated continuously and modified to align with customer energy usage and experience. Currently, rate proceedings mostly occur when a utility comes in for revenue collection adjustments. However, states could enact a predictable process whereby every couple of years rates are examined to ensure they align with usage, consumer trends, technology adoption, and state policy priorities, such as affordability and emissions reductions. In Massachusetts, heat pump rates have been adopted as an interim measure before the completion of AMI deployment in the state, with the intention to implement TOU rates in the coming years (Massachusetts Interagency Rates Working Group 2025). Regulators may choose to implement a temporary rate design as was done in Massachusetts, which would require an evaluation every few years. Additionally, or as an alternative, a review of the rate designs can ensure that it still aligns with peak load and is reflective of grid needs through examining customer usage patterns and grid needs. For example, research suggests that many states in the Northeast will shift to a winter-peaking grid instead of a summer-peaking grid (Schwarting 2024; NYISO 2025). This may make seasonal heat pump rates a short-term policy solution.

Customer Engagement and Implementation

When designing a new rate structure, educating customers is a crucial step to ensuring that the rate achieves its goals and is accepted by customers. This concept is particularly relevant for rates like TOU rates that rely on customers modifying their existing behaviors to reduce peak demand, shift their consumption, and drive bill savings. There have been many examples of rate structures designed to address peak demand or implement TOU rates that fall short of achieving their goals due to low customer engagement and enrollment. Some utilities have seen participation below one percent as a result of limited customer engagement (Maine PUC 2025b). Through mechanisms like personalized communications and shadow billing, regulators and utilities can offer more helpful information to customers that will allow them to take advantage of the potential benefits from modern rate designs.

Educate Customers on New Rates, Including Tips for Lowering Bills Prior to and During Implementation

Utilities should provide communication that is clear and understandable to customers on a regular basis when a new rate design is enacted. It is helpful to begin rate engagement prior to enrollment, continue after enrollment (e.g., a welcome report), and follow up regularly afterwards. The better customers understand how a rate works, the greater the participation and benefits (Exeter Associates 2025). Implementation of past rate design has shown that without proper communication, there is a risk that customers will not participate in the rate. In fact, a recent study on one utility's heat pump rates found that less than one percent of heat pump customers were enrolled in the rate due to lack of customer education and awareness.[7] Additionally, in jurisdictions with widespread AMI, customer communications can be tailored based on their energy usage. This can also increase enrollment in the program. In one case study, a utility saw 30 percent of customers pre-enroll in a TOU rate with self-service online tools because of personalized insights available to them (Friedman 2024).

Pre-enrollment educational materials can show benefits in ways that customers can easily understand, such as savings in dollars per bill rather than cents per kilowatt hour. Post-enrollment communications can include weekly progress updates, post-bill comparisons that show how the new rate affects their projected bill, or seasonal updates. In Michigan, DTE's Shift and Save pilot program used clear messaging to encourage customers to shift usage out of the 3:00–7:00 p.m. peak window. Communications also offered advice on how to shift electricity usage (e.g., planning when to run large appliances and installing smart thermostats) (DTE). An online resource center can also provide information on enrollment and tips on how to save money on energy bills with the new rates. In California, the CPUC prioritized clear communication and instituted a multi-year communication process to overcome low customer engagement, encourage customers to change their behaviors to fit the new rates and create messaging that better connected with customer needs (California PUC 2018; California PUC 2019). The messaging was disbursed at the state level as well as through direct outreach to customers with personalized information on how the rates would impact them.

[7] A recent study found that less than one percent of the 43,000 ConEd customers who installed heat pumps through ConEd's heat pump incentive program were enrolled in the utility's advanced rate that benefits heat pump users. The study attributes this large gap to a lack of customer education. (Rewiring America 2025)

Co-Market Energy Efficiency and Demand Response Programs to Unlock Further Bill Reductions

Rates are not the only tool to help affordability. Energy efficiency and demand response programs complement rate design because they lower customers' overall energy usage and can drive down usage at peak times. States and utilities across the Northeast offer energy-efficiency programs that provide weatherization and rebates on technologies, such as programmable thermostats and heat pumps. As rates are designed and implemented, there are opportunities for synergies between programs. For example, when a Massachusetts electric customer installs a heat pump through the Mass Save program, they are automatically enrolled in the new heat pump rate (Massachusetts DPU 2025c). In addition to helping with customer enrollment, utilities could also benefit from the real-time adjustments that incentivized smart devices could enable, leading to quick demand reductions and effective peak management unlocking more potential for leveraging existing grid resources, such as virtual power plants (Colgan et al. 2017). Some utilities are looking at inclusive utility investment or pay as you save (PAYS) programs, like the one used in Missouri, which incentivizes the installation of cost-effective measures (Evergy). These programs remove the need for high initial upfront costs as utilities invest in technology and recover their costs from customers via a tariff tied to the meter, ensuring a monthly payment for the utility (Muspratt et al. 2024).

Utilize Shadow Billing to Show Benefits to Customers

As illustrated in Figure 16, shadow billing is the practice of showing customers what their bill would be under a new rate structure before they switch to the new rate (Massachusetts Interagency Rates Working Group 2025). This shows customers the benefits of a new rate design and informs the customers and utilities if there will be any increase in bills as a result. In Washington, Puget Sound Energy used shadow billing to support customer participation in their 2023 Time Varying Rate (TVR) Pilot. Customers received personalized Rate Education Reports and had access to online Rate Advisor tools, which included shadow billing and "what-if" scenario analysis to illustrate potential bill impacts of the TVR pilot rate according to their electricity usage patterns. In this pilot, 94 percent of participating customers reported taking action to reduce energy usage during winter peak periods (GridX).

Figure 16. An example of a shadow bill.

SAMPLE ELECTRIC BILL		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Transmission Charge:	700 kWh x 0.0300	$ 21.00
Distribution Charge:	700 kWh x 0.0400	$ 28.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 139.50**

SHADOW BILL- YOUR BILL ON THE TOU ELECTRIC RATE		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Delivery Charge *(transmission and distribution)*:		
On-peak (weekdays, 4 - 8 pm):	200 kWh x 0.1000	$ 20.00
Off-peak (all other hours):	500 kWh x 0.0500	$ 25.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 135.50**

Considerations for Low-Income Customers

As regulators and utilities implement modern rates, it is important to adopt strategies and methods that enable affordability and lower energy burden, especially for low-income customers. Primarily, regulators should consider tools that offer tangible benefits for low-income customers, such as discount rates and enhanced incentives to purchase new technologies that would allow these customers to better take advantage of new rates. In addition, there are steps regulators can take before implementing a new rate structure, such as offering resources to low-income customers with high energy usage and improving income verification and data sharing procedures.

Layer on an Affordability Program or Discount Rate

As described in Section 2, a PIPP, discount rate, arrearage management program, budget billing structure, and customer relief program can be included in any modern rate as an additional layer. If regulators and utilities are implementing rates that do not create a separate low-income class or income-graduated fixed charges, they can look to include affordability programs, such as discount rates to lower energy burdens. For example, Massachusetts is enacting seasonal heat pump rates with the existing low-income discount rate to ensure equitable rate design and address affordability concerns. Analysis showed that, with full participation in the Massachusetts discount rate, 44 percent of low-income customers would spend less than 6 percent of their incomes on winter energy bills, and this percentage would increase to 70 percent of low-income customers with full adoption of heat pumps and heat pump rates (Murray and Velez 2025). But these rates can have limitations, as there can be a pre-determined annual cash assistance amount or cap, restriction on energy usage, and barriers to enrollment. These limitations lower a customer's ability to participate, and the level of discount or assistance received (Dimitry 2023).

Establish Standards for Data Sharing and Automatic Enrollment Procedures

When creating a rate structure that considers customer income, policymakers must acknowledge the potential challenge of obtaining customer income data to verify enrollment. Research shows that embedding income considerations into utility rates can create administrative challenges due to the requirement of income verification (Yim and Subramanian 2023). Utilities do not have access to income information, so data sharing procedures and systems will need to be established. In the absence of a partnership with an entity that has databases of customer income information, the data collection and verification process could be burdensome for both the utility and customers. Some jurisdictions address this through partnerships with state agencies, such as health and human services agencies or housing authorities, or other means-tested programs (such as Federal LIHEAP) that already collect and verify income information from low-income households (Krasniqi et. al. 2025).

California and Massachusetts have data sharing procedures in place. In California, to enable automatic enrollment in the income-graduated fixed charge, customers who are already a part of low-income energy discount programs and households in deed-restricted affordable housing are automatically enrolled (Chhabra et al. 2024). Massachusetts established automatic enrollment for their Low-Income Discount Rate (LIDR) program for electric utility customers in 2003 (Massachusetts DPU 2013). Customers are automatically eligible for the LIDR based on participation in programs such as the Heating Energy Assistance Program (HEAP). This process involves data matching and coordination between utilities and the Executive Office of Health and Human Services.

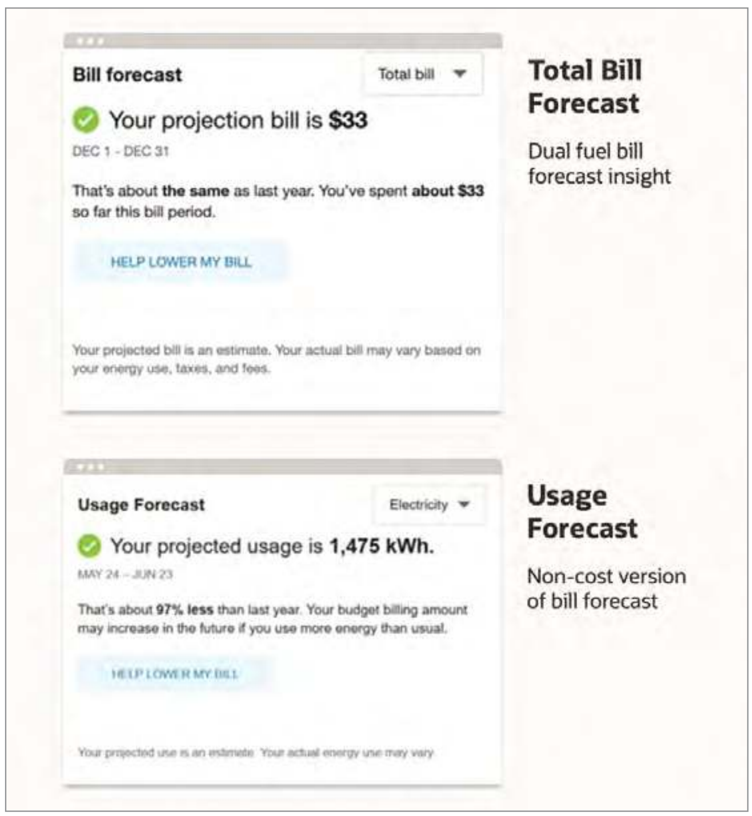
Include Incentives and Programs to Low-Income Customers for Enabling Technologies

Some low-income customers might be barred from participating in technology-specific rates, both seasonal and TOU, due to high upfront costs, repairs or maintenance needed on their residence, and renting instead of owning their residence (Norton et al. 2021). Programs that offer reduced-cost or free appliances can enable lower-income individuals to participate in these rates by offering free or heavily discounted technology, such as programmable thermostats, dishwashers, or laundry machines, which can help these customers shift their usage with less effort and grant them greater ongoing benefits (Efficiency Maine 2025). In Massachusetts, the Connected Solutions program offers customers programmable thermostats and pays them for shifting their load throughout the year (Mass Save). Additionally, states have increased incentives for technologies like heat pumps and heat pump water heaters, so there are low or no upfront costs for low-income customers (Mass Save 2025). Such programs center affordability, leading to equitable outcomes where low-income customers have the same access to the benefits from the implementation of new technologies and modernized rate structures.

Provide Resources for Customers With High Energy Usage

In addition to providing discount rates to low-income customers, states can provide resources for customers who have high energy bills through direct technical assistance, creating programs that include high bill alerts so customers can know when there is a risk that their bill will increase, and identifying customers whose usage patterns show that they can benefit from enrollment in a new rate (see example in Figure 17). These resources can complement other discounts or exemptions and provide an additional layer of bill protection for energy burdened customers.

Figure 17. Examples of high bill alerts. *Source*: OPower



In Vermont, Efficiency Vermont's Targeted High Use (THU) program offers comprehensive energy-efficiency upgrades for households that use over 10,000 kWh per year and have energy burdens over 6 percent (Efficiency Vermont 2025). This type of offering allows a program administrator to assist customers who need it most and present large opportunities for energy usage reductions. Additionally, this type of program can be coupled with outreach on rates available to low-income customers, like a PIPP or discount rate program, to maximize the potential benefit to these customers. Using data to identify high users can also help with proactive engagement and enrollment. One of the key barriers to participation is lack of awareness and leveraging proactive communication can help alleviate this barrier. Past NEEP research has shown that targeted engagement can increase rate enrollment (Caputo and Cosgrove 2024). It is important to remember that not all households that are most in need of this support are obvious from their energy usage. Households can engage in energy-limiting behavior that artificially lowers their consumption (Carley et al. 2025). It will be important to deploy other types of strategies to ensure programs reach all customers who need assistance with their bills.

Provide Bill Protection for Vulnerable Customers

Regulators can embed bill protections into modern rate designs to protect ratepayers from seeing any rate hikes that might be a result of new rates (Folks and Hathaway 2020). Regulators and utilities can do this through implementing bill protections or a practice called hold harmless billing. Bill protections limit the amount a customer pays under a new rate structure to the amount the customer would have paid on their previous rate structure. These protections often take the form of true-up payments or bill credits to customers at a fixed interval. For example, California included bill protection as a priority when they implemented statewide default TOU rates. Utilities offered 12 months of bill protection to customers on the default TOU rate. Bills would be trued up over the course of a year, and customers would receive an annual bill credit if they paid more on the TOU rate (than on the previous non-TOU rate) (California PUC 2019). Another form of this type of protection is "hold harmless" billing. Under this mechanism, customers are enrolled in both their standard two-part rate and an optional advanced rate (such as a time-varying rate). They are billed at whichever of the two rates provides a lower bill each month (Farley et al. 2021). Figure 18 below shows an example of how a hold harmless bill may look.

Figure 18. ***An example of a hold harmless bill.***

STANDARD TWO-PART BILL		
Supply		Total
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Transmission Charge:	700 kWh x 0.0300	$ 21.00
Distribution Charge:	700 kWh x 0.0400	$ 28.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 139.50**

TOU BILL		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Delivery Charge *(transmission and distribution)*:		
On-peak (weekdays, 4 - 8 pm):	200 kWh x 0.1000	$ 20.00
Off-peak (all other hours):	500 kWh x 0.0500	$ 25.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 135.50**

Conclusion

Rising electricity prices affect an increasing number of customers' ability to pay their bills, and they increase energy burdens. With many competing policy priorities, the evolution of technology, and affordability concerns, now is the time for regulators and utilities to modernize rates and ensure customers' bills reflect the true costs of the energy system and provide incentives to lower consumption as well as reduce peak demand. Traditional standard two-part tariff rates are still widespread across the Northeast, and without intervention, will continue to be the status quo. Modern rate design can work in combination with other policies to use the existing electric grid in the most energy efficient way, while minimizing the need for investment in costly new infrastructure.

States have many options to implement modern rate design to address policy goals around driving energy efficiency; adopting more efficient electric technology; enabling demand and grid flexibility; and prioritizing equity and affordability. Many components of rates can be adjusted to align with policy goals, including fixed charges, time-varying variable charges, and demand charges, targeting certain customers (technology specific or low-income), and providing rebates or incentives. Additionally, rate design can be a crucial element of a state's overall approach to managing energy burdens by promoting energy efficiency and offering opportunities to equitably distribute grid investment costs with vulnerable customers in mind.

While rate design can be a complex process, when planned thoughtfully, regulators and utilities can drive highly effective outcomes with targeted rate adjustments provided they are done with clear goals, considerations for affordability and impacts on customers, as well as educational campaigns to engage and inform all ratepayers.

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APPENDIX A: RATES ADOPTED IN THE NORTHEAST AND MID-ATLANTIC

State	Utility	Seasonal Only Rates	Daily Time Varying Rates	Technology-Specific Rates	Rebates (CPP, OPR, PTR)	Other programs
CT	**Eversource**	None	TOU - with variable peak pricing	Electric heating service (no new customers)	PTR	Battery DR
					EV OPR	None
	United Illuminating	None	TOU	No	PTR	None
DC	**Pepco**	None	None	Whole-home EV TOU	None	None
DE	**Delmarva Power**	None	Seasonal TOU	EV charging TOU	PTR (opt-out)	None
ME	**CMP**	None	TOU	Seasonal heat pump pilot (concluding at the end of 2025)	None	None
				Intermittent use electric technology		
	Versant	None	Seasonal TOU	Electric water heating (no new customers)	None	None
				Seasonal inclining block for electric heating and water heating		
				Seasonal TOU for thermal energy storage devices, electric battery storage devices, and/or vehicle chargers		

MD	**BGE**	None	Seasonal TOU	Seasonal EV TOU TOU for central electric heating and cooling	EV OPR PTR	None
	Delmarva Power	None	Seasonal TOU	Seasonal EV TOU	PTR (opt-out)	None
	Pepco	None	Seasonal TOU	Seasonal EV TOU	PTR	None
	Potomac Edison	None	None	Seasonal multifamily EV charging EV TOU	None	None
	SMECO	None	Seasonal TOU	EV charging	PTR EV OPR	None
MA	**Eversource**	None	None	Seasonal heat pump	PTR	Battery DR
	National Grid	None	None	Seasonal heat pump	PTR	Battery DR
	Unitil	None	None	EV TOU Seasonal heat pump	None	None
NH	**Eversource**	None	TOU	Water heating (no new customers) Electric space heating	PTR	Battery DR
	Liberty	None	TOU	Battery storage pilot with seasonal TOU Electric water heater demand response Off-peak electric water heating EV TOU	PTR	None
	Unitil	None	TOU	EV TOU	None	None

NJ	**ACE**	None	None	EV seasonal multifamily inclining block	EV OPR PTR - Summer PTR - Winter pilot	None
	JCP&L	Seasonal inclining block rate	Seasonal TOU	Off-peak water heating Controlled water heating Seasonal heat pump and geothermal systems TOU	None	None
	PSE&G	Seasonal inclining block rate (summer only)	Seasonal TOU	Seasonal electric heating inclining block rate in summer, declining block rate in winter (no new customers)	EV OPR PTR	None
	RECO	Seasonal inclining block rate (summer only)	Seasonal TOU	EV TOU Seasonal electric water and space heating TOU	PTR	None
NY	**Central Hudson**	None	TOU	EV TOU	EV OPR PTR	None
	ConEd	None	Seasonal TOU	Seasonal EV TOU	PTR	Select Pricing Plan (Demand Charge)
	National Grid	None	TOU	None	PTR	Battery DR
	NYSEG	None	Seasonal TOU for high energy users (35000 kWh annually) TOU for above-average energy users (1000 kWh monthly)	None	EV OPR PTR	None
	Orange and Rockland	None	Seasonal TOU	Seasonal EV TOU	PTR EV OPR EV PTR	None
	PSE&G Long Island	Seasonal inclining block rate (summer only)	TOU (Opt-Out) TOU - with super off-peak	Seasonal electric heating inclining block rate in summer, declining block rate in winter	PTR	None None
	RG&E	None	Seasonal TOU for above-average energy users (1000 kWh monthly)	None	EV OPR PTR	None

PA	**Duquesne**	None	TOU Pilot	EV TOU Pilot Heating with add-on heat pump (no new customers)	PTR EV PTR	None
PA	**First Energy Utilities - Met-Ed, Penelec, Penn Power, West Penn Power**	None	TOU	None	None	None
PA	**PECO**	None	TOU	Seasonal electric heating	None	None
PA	**PPL**	None	Seasonal TOU	None	None	None
RI	**RI Energy**	None	None	None	None	None
VT	**GMP**	None	TOU TOU + CPP Seasonal TOU	EV TOU Off-peak water heating	CPP EV PTR	Battery DR
WV	**Appalachian Power / Wheeling Power**	Seasonal declining block	TOU (with demand charge)	Water heating TOU Battery Storage TOU EV TOU	PTR	None
WV	**First Energy - Mon Power, Potomac Edison**	None	None	None	None	None

APPENDIX B: SAMPLE BILLS

SAMPLE ELECTRIC BILL		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Transmission Charge:	700 kWh x 0.0300	$ 21.00
Distribution Charge:	700 kWh x 0.0400	$ 28.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 139.50**

SAMPLE TOU ELECTRIC BILL		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Delivery Charge *(transmission and distribution)*:		
On-peak (weekdays, 4 - 8 pm): Off-peak (all other hours):	200 kWh x 0.1000 500 kWh x 0.0500	$ 20.00 $ 25.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 135.50**

Appendix B: Sample Bills

SAMPLE SEASONAL ELECTRIC BILL- SUMMER		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Transmission Charge:	700 kWh x 0.0350	$ 24.50
Distribution Charge:	700 kWh x 0.0500	$ 35.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 150.00**

SAMPLE SEASONAL ELECTRIC BILL- WINTER		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Transmission Charge:	700 kWh x 0.0250	$ 17.50
Distribution Charge:	700 kWh x 0.0300	$ 21.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 129.00**

Appendix B: Sample Bills

SAMPLE ELECTRIC BILL- DECLINING BLOCK		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Delivery Charge *(transmission and distribution)*:		
First 400 kWh or less: Usage beyond 400 kWh:	400 kWh x 0.0800 300 kWh x 0.0600	$ 32.00 $ 18.00
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 140.50**

SAMPLE ELECTRIC BILL- DEMAND CHARGE		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$ 77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$ 10.00
Transmission Charge:	700 kWh x 0.0300	$ 21.00
Distribution Charge:	700 kWh x 0.0200	$ 14.00
Demand Charge:	3.1 kW x $3.00	$ 9.30
Energy Efficiency Charge:	700 kWh x 0.0050	$ 3.50
TOTAL:		**$ 134.80**

Appendix B: Sample Bills

SAMPLE ELECTRIC BILL				SHADOW BILL- YOUR BILL ON THE TOU ELECTRIC RATE		
Supply		**Total**		**Supply**		**Total**
Generation service charge:	700 kWh x 0.1100	$77.00		Generation service charge:	700 kWh x 0.1100	$77.00
Transmission and Distribution				**Transmission and Distribution**		
Customer Charge:	$10 / month	$10.00		Customer Charge:	$10 / month	$10.00
Transmission Charge:	700 kWh x 0.0300	$21.00		Delivery Charge (*transmission and distribution*):		
Distribution Charge:	700 kWh x 0.0400	$28.00		On-peak (weekdays, 4 - 8 pm):	200 kWh x 0.1000	$20.00
				Off-peak (all other hours):	500 kWh x 0.0500	$25.00
Energy Efficiency Charge:	700 kWh x 0.0050	$3.50		Energy Efficiency Charge:	700 kWh x 0.0050	$3.50
Total:		**$139.50**		**Total:**		**$135.50**

Appendix B: Sample Bills

STANDARD TWO-PART BILL		
Supply		**Total**
Generation service charge	700 kWh x 0.1100	$77.00
Transmission and Distribution		
Customer Charge	$10 / month	$10.00
Transmission Charge:	700 kWh x 0.0300	$21.00
Distribution Charge:	700 kWh x 0.0400	$28.00
Energy Efficiency Charge:	700 kWh x 0.0050	$3.50
Total:		**$139.50**

TOU BILL		
Supply		**Total**
Generation service charge:	700 kWh x 0.1100	$77.00
Transmission and Distribution		
Customer Charge:	$10 / month	$10.00
Delivery Charge (*transmission and distribution*):		
On-peak (weekdays, 4 - 8 pm):	200 kWh x 0.1000	$20.00
Off-peak (all other hours):	500 kWh x 0.0500	$25.00
Energy Efficiency Charge:	700 kWh x 0.0050	$3.50
Total		**$135.50**
YOU PAY the lesser of the two bills:		**$135.50**

APPENDIX C: LOW-INCOME RATES IN THE NORTHEAST

State	Implementer	Discounts	Percentage of Income Payment Plans	Budget Billing	Arrearage Management Program	Customer Relief
CT	**Eversource**	Electric Discount Rate	None	None	New Start Program	Good Neighbor Energy Fund
	United Illuminating	Low-Income Discount Rate	None	Budget Billing	None	Matching Payment Program (match with CEAP)
	Department of Social Services	None	None	None	None	Connecticut Energy Assistance Program (CEAP)
DC	**Pepco**	None	None	Budget Billing	None	Customer Relief Fund (Pepco + Salvation Army)
	DOEE	Residential Aid Discount Program	None	None	None	Low Income Home Energy Assistance Program (LIHEAP)
	DC PSC	Senior Citizens and Disabled Resident Credit	None	None	None	None
DE	**Delmarva Power**	None	None	Budget Billing	None	Customer Relief Fund (Delmarva Power + DESEU); Good Neighbor Energy Fund (Delmarva Power + Salvation Army)
	Division of State Service Centers	None	None	None	None	Delaware Energy Assistance Program
ME	**CMP**	None	None	None	Arrearage Management Program	Electricity Lifeline Program, Oxygen Pump/Ventilator Assistance Program
	Versant	None	None	Budget Billing	Arrearage Management Program	Oxygen Pump Benefit Program
	Maine Housing	None	None	None	None	Low-Income Assistance Program (LIAP), Home Energy Assistance Program (HEAP)

MD	**BGE**	None	None	Budget Billing	None	Customer Relief Fund (BGE + United Way)
	Delmarva Power	None	None	Budget Billing	None	Delmarva Power Customer Relief Fund (Delmarva Power + Hartford Community Action Center, Salvation Army, Shore UP!, United Way), Good Neighbor Energy Fund
	Pepco	None	None	Budget Billing	None	Pepco Customer Relief Fund (Pepco + Salvation Army)
	Potomac Edison	None	None	Average Payment Plan	None	Community Energy Fund
	SMECO	None	None	Budget Plan	None	None
	Office of Home Energy Programs (MD DHS)	None	None	None	Arrearage Retirement Assistance	Electric Universal Service Program Maryland Energy Assistance Program (MEAP)
	Fuel Fund of Maryland	None	None	None	None	Fuel Fund Financial Assistance
	Maryland General Assembly	None	None	None	None	Legislative Energy Relief Fund
MA	**Eversource**	Residential Discount Rate	None	Budget Billing	New Start Program	Good Neighbor Energy Fund (MA utilities + Salvation Army)
	National Grid	Residential Discount Rate	None	Budget Plan	Arrears Management Program	Massachusetts Good Neighbor Energy Fund (MA utilities + Salvation Army), Residential Assistance to Families in Transition
	Unitil	Residential Discount Rate	None	Budget Billing	Arrearage Management Program	Good Neighbor Energy Fund (MA utilities + Salvation Army)
	Executive Office of Housing and Livable Communities	None	None	None	None	Home Energy Assistance Program (HEAP)

NH	**Eversource**	None	None	Budget Billing	New Start Program	Neighbor Helping Neighbor
	Liberty	None	None	Budget Billing	None	Neighbor Helping Neighbor
	Unitil	None	None	Budget Billing	None	Neighbor Helping Neighbor
	NH DOE	None	None	None	None	Electric Assistance Program
NJ	**ACE**	None	None	Budget Billing	None	ACE Customer Relief Fund (ACE + SHARES)
	JCP&L	None	None	Equal Payment Plan	None	None
	PSE&G	None	None	Equal Payment Plan	None	None
	RECO	None	None	Budget Billing	None	None
	DCA	None	Universal Service Fund Program	None	None	Low-Income Home Energy Assistance Program (LIHEAP)
	NJ Division of Aging Services	None	None	None	None	Lifeline Credit Program
	NJ SHARES	None	None	None	None	Payment Assistance for Gas and Electric (PAGE), NJ SHARES
NY	**Central Hudson**	Bill Discount Program	None	Budget Billing	None	Good Neighbor Fund
	ConEd	None	None	Budget Billing	None	Emergency/Temporary Assistance, Care&Share
	National Grid	None	None	Budget Plan	None	None
	NYSEG	None	None	Budget Billing	None	Project SHARE
	Orange and Rockland	None	None	Budget Billing	None	The Neighbor Fund
	PSE&G Long Island	Household Assistance Program	None	Balanced Billing	None	None
	RG&E	None	None	Budget Billing	None	Project SHARE
	Office of Temporary and Disability Assistance	None	None	None	None	Home Energy Assistance Program (HEAP)
	Orange County Fuel Fund Program	None	None	None	None	Orange County Fuel Fund

PA	**Duquesne**	None	Customer Assistance Program	Budget Billing	None	Dollar Energy Fund
	First Energy Utilities - Met-Ed, Penelec, Penn Power, West Penn Power	None	Customer Assistance Program	Equal Payment Plan	None	Dollar Energy Fund
	PPL	None	None	Budget Billing	None	Operation HELP
	PECO	None	Customer Assistance Program	Budget Billing	None	Customer Relief Fund, Matching Energy Assistance Fund
	Department of Human Services	None	None	None	None	Low-Income Home Energy Assistance Program (LIHEAP)
RI	**Rhode Island Energy**	Discount Rate Program	None	Budget Billing	Forgiveness Program	Good Neighbor Energy Fund
	Office of Health and Human Services	None	None	None	None	Low-Income Home Energy Assistance Program (LIHEAP)
VT	**Green Mountain Power**	None	None	Budget Billing	None	None
	Department for Children and Families	Energy Assistance Program (EAP)	None	None	None	None
WV	**Appalachian Power / Wheeling Power**	None	None	None	None	Dollar Energy Fund
	First Energy - Mon Power, Potomac Edison	None	None	Average Payment Plan	None	Dollar Energy Fund
	Department of Human Services	20% Discount Program	None	None	None	Low-Income Energy Assistance Program (LIEAP)

APPENDIX D: AMI AND AMR ADOPTION RATES IN THE NORTHEAST

Source: EIA Form 861 2024 Data

State	Utility	AMI Rollout Status	AMR Rollout Status
CT	Eversource	0%	100%
	United Illuminating	91.45%	8.55%
DC	Pepco	99.68%	0%
DE	Delmarva	100%	0%
ME	CMP	99.47%	0%
	Versant	99.75%	0.35%
MD	BGE	98%	2%
	Delmarva	99.65%	0%
	Pepco	99.75%	0%
	Potomac Edison	0%	16.75%
	SMECO	99.80%	0.12%
MA	Eversource	0%	99.92%
	National Grid	1.02%	96.01%
	Unitil	100%	0%
NH	Eversource	0%	99.98%
	Liberty	0.26%	98.61%
	Unitil	100%	0%
NJ	ACE	98.61%	0%
	JCP&L	82.62%	0.30%
	PSE&G	94.98%	0%
	RECO	99.02%	0%

State	Utility	AMI Rollout Status	AMR Rollout Status
NY	Central Hudson	0.40%	56.37%
	ConEd	99.23%	0.19%
	National Grid	35.22%	64.76%
	NYSEG	51.90%	0%
	Orange and Rockland	99.30%	0%
	PSE&G Long Island	99.23%	0.01%
	RG&E	71.29%	0%
PA	Duquesne	99.99%	0%
	First Energy Utilities - Met-Ed, Penelec, Penn Power, West Penn Power	100%	0%
	PECO	100%	0%
	PPL	100%	0%
RI	RI Energy	0.01%	99.81%
VT	GMP	96.75%	0%
WV	Appalachian Power	99.95%	0.04%
	Mon Power	0%	26.52%
	Potomac Edison	0%	19.64%
	Wheeling Power	99.77%	0%

APPENDIX E: TABLE A.1. REFERENCE SOURCES FOR UTILITY RATES (Appendix A) and Low-Income Programs (Appendix C)

State	Utility	Citation
CT	**Eversource**	Eversource, Rates and Tariffs. Available at: https://www.eversource.com/residential/account-billing/manage-bill/about-your-bill/rates-tariffs
		Eversource, Residential Time-of-Day Electric Service Rate 7. (September 2025) Available at: https://www.eversource.com/docs/default-source/rates-tariffs/ct-electric/rate-7-ct.pdf?sfvrsn=8b3bb93f_17
		Eversource, Electric Vehicle Home Charger. Available at: https://www.eversource.com/residential/save-money-energy/energy-efficiency-programs/demand-response/smart-thermostat-demand-response
		Eversource, Electric Vehicle Home Charger. Available at: https://www.eversource.com/residential/save-money-energy/clean-energy-options/electric-vehicles/ev-charger-managed-charging
		Eversource, Home Battery Storage and Rewards. Available at: https://www.eversource.com/residential/save-money-energy/clean-energy-options/energy-storage-solutions
		Eversource, Connecticut Payment Plans and Assistance. Available at: https://www.eversource.com/residential/account-billing/payment-assistance
	United Illuminating	United Illuminating, Pricing. Available at: https://www.uinet.com/account/understandyourbill/pricing
		United Illuminating, Time-of-Use Rate RT. Available at: https://www.uinet.com/account/understandyourbill/pricing/time-of-day-rate-rt
		United Illuminating, Smart Savers Rewards Thermostat Program. Available at: https://www.uinet.com/smartenergy/rebatesandprograms/ui-smart-savings-rewards
		United Illuminating, Help With Bill. Available at: https://www.uinet.com/account/waystopay/help-with-bill
		United Illuminating, Budget Billing. Available at: https://www.uinet.com/account/billingoptions/budget-billing
	Department of Social Services	Department of Social Services, Connecticut Energy Assistance Program. Available at: https://portal.ct.gov/heatinghelp/connecticut-energy-assistance-program-ceap?language=en_US
DC	**Pepco**	Pepco, For Electric Service in the District of Columbia. (November 2025). Available at: https://www.pepco.com/cdn/assets/v3/assets/bltbb7c204688a1a6a8/blt1592c0ff5185f738/690a342cfe9682294aae2e78/Current_DC_PIV_Green_Rider_Eff_11.1.2025_-Fi_.pdf?branch=prod_alias
		Pepco, Residential Time-of-Use Rate. Available at: https://www.pepco.com/smart-energy/innovation-technology/dc/electric-vehicles/residential-time-of-use-rate
		Department of Energy & Environment, Receive Discounts on Your Utility Bills. Available at: https://doee.dc.gov/udp
		Department of Energy & Environment, Receive Assistance With Your Utility Bills (LIHEAP). Available at: https://doee.dc.gov/liheap
		DC Public Service Commission, Senior Citizens and Disabled Resident Credit. Available at: https://dcpsc.org/senioranddisabledresidentscredit
		Pepco, Assistance Programs (DC). Available at: https://www.pepco.com/my-account/customer-support/assistance-programs-dc

DE	**Delmarva Power**	Delmarva Power, The Delaware Tariff Page. (September 2025). Available at: https://www.delmarva.com/my-account/my-dashboard/rates-tariffs/delaware-electric/current-tariffs
		Delmarva Power, How Our Plug-In Vehicle Time of Use Rate Works in Delaware. Available at: https://delmarva.upgrade.guide/ev/de-benefits-section/tou/
		Delmarva Power, Peak Energy Savings Credit. Available at: https://www.delmarva.com/ways-to-save/for-your-home/delaware/peak-energy-savings-credit
		Delmarva Power, Assistance Programs (Delaware). Available at: https://www.delmarva.com/my-account/customer-support/assistance-programs-de
		Division of State Service Centers, Delaware Energy Assistance Program (DEAP). Available at: https://dhss.delaware.gov/dss/liheap/
ME	**Central Maine Power Company**	Central Maine Power Company, Residential Service - Time-of-Use. (October, 2025) Available at: https://www.cmpco.com/documents/d/cmp/atou
		Central Maine Power Company, Pricing. Available at: https://www.cmpco.com/account/understandyourbill/pricing
		Central Maine Power Company, Seasonal Heat Pump Rate. Available at: https://www.cmpco.com/account/understandyourbill/newseasonalheatpumprate
		Central Maine Power Company, Residential Service - Electric Technology Rate. Available at: https://www.cmpco.com/documents/40117/115962041/aelectech.pdf/830eb363-8d95-25a2-d329-e7450f0048b1?t=1735612836621
		Central Maine Power Company, Help With Your Bill. Available at: https://www.cmpco.com/account/waystopay/help-with-bill
	Versant	Versant Power, Residential Rate Schedules. Available at: https://www.versantpower.com/rates/rate-schedules
		Versant Power, Home Eco-Rate: Time-Of-Use. Available at: https://www.versantpower.com/docs/default-source/rates/october-25/rate_a4_restou.pdf?sfvrsn=e8902aec_1
		Versant, Residence Water Heating Rate. Available at: https://www.versantpower.com/docs/default-source/rates/october-25/rate_a2_reswaterheat.pdf?sfvrsn=35bceca6_1
		Versant, Home Eco Rate with Bonus Meter: Time-Of-Use. Available at: https://www.versantpower.com/docs/default-source/rates/october-25/rate_a1_resets.pdf?sfvrsn=5fe3d168_1
		Versant, Programs. Available at: https://www.versantpower.com/programs
	Maine Housing	Maine Housing, Home Energy Assistance Program. Available at: https://www.mainehousing.org/programs-services/energy/energydetails/liheap
		Maine Housing, Low-Income Assistance Program. Available at: https://www.mainehousing.org/programs-services/energy/energydetails/low-income-assistance-program

MD	**BGE**	BGE, Electric Service Rates and Tariffs. Available at: https://www.bge.com/my-account/my-dashboard/rates-tariffs/electric-service-rates-tariffs
		BGE, Residential Delivery and Energy Time-of-Use Electric Rate RD. Available at: https://www.bge.com/cdn/assets/v3/assets/blt71bfe6e8a1c2d265/bltd9617a8f40ce427f/66fec0664c601d756c50ef85/P3_SCH_RD.pdf?branch=prod_alias
		BGE, EVsmart® Vehicle Charging Time-of-Use (EV-TOU) Rate. Available at: https://www.bge.com/smart-energy/innovation-technology/electric-vehicles/ev-tou-rate
		BGE, Assistance Programs. Available at: https://www.bge.com/my-account/customer-support/assistance-programs
		BGE, Budget Billing. Available at: https://www.bge.com/my-account/my-dashboard/billing-options/budget-billing
	Delmarva Power	Delmarva Power, Maryland Electric Tariff. Available at: https://www.delmarva.com/cdn/assets/v3/assets/blt47b6e332b18fb457/bltefc1a0bec7ba2be7/69039ec3ff80c59698f2e3c7/Sent_2025-09-17_MASTER_MD_DPL_Tariff_Book_1.pdf?branch=prod_alias
		Delmarva Power, Time of Use Rate: How it Works. Available at: https://www.delmarva.com/ways-to-save/for-your-home/maryland/time-of-use-rates
		Delmarva Power, How Our Plug-in Vehicle Time Of Use Rate Works in Maryland. Available at: https://delmarva.upgrade.guide/ev/ev1/tou/
		Delmarva Power, Assistance Programs (Maryland). Available at: https://www.delmarva.com/my-account/customer-support/assistance-programs-md
	Pepco	Pepco, Maryland Electric Tariff. Available at: https://www.pepco.com/cdn/assets/v3/assets/bltbb7c204688a1a6a8/blte8a580e4cc79e2c4/69039b1eff80c50898f2e3b5/Sent_2025-09-17_MASTER_MD_Pepco_Tariff_Book_.pdf?branch=prod_alias
		Pepco, Time of Use Rate: How it Works. Available at: https://www.pepco.com/ways-to-save/for-your-home/maryland/time-of-use-rate
		Pepco, How Our Plug-in Vehicle Time Of Use Rate Works in Maryland. Available at: https://pepco.upgrade.guide/ev/ev1/tou/
		Pepco, Assistance Programs (Maryland). Available at: https://www.pepco.com/my-account/customer-support/assistance-programs-md
	Potomac Edison	The Potomac Edison Company, Electric Service Tariff. Available at: https://www.firstenergycorp.com/content/dam/customer/Customer%20Choice/Files/maryland/tariffs/PotomacEdisonRetailTariff.pdf?_gl=1*hjzr8l*_up*MQ..*_ga*MTk1Njc0MzYwMS4xNzYzNjU4NTY3*_ga_TVQJK7Z44E*czE3NjM2NTg1NjYkbzEkZzAkdDE3NjM2NTg1NjYkajYwJGwwJGgw
		The Potomac Edison Company, EV Driven. Available at: https://potomaced.chooseev.com/tou/
		Potomac Edison, Struggling to Pay Your Electric Bill? We Can Help. Available at: https://www.firstenergycorp.com/help/billingpayments/assistance_serviceprogram/potomac_edison_maryland.html?_gl=1*1y3n38*_up*MQ..*_ga*MTIwNjk0MDYyNC4xNzY0MDAyNDA1*_ga_TVQJK7Z44E*czE3NjQwMDI0MDQkbzEkZzEkdDE3NjQwMDI0NzIkajYwJGwwJGgw
		Potomac Edison, Ways to Pay. Available at: https://www.firstenergycorp.com/help/billingpayments/ways-to-pay.html?_gl=1*484mq7*_up*MQ..*_ga*MTIwNjk0MDYyNC4xNzY0MDAyNDA1*_ga_TVQJK7Z44E*czE3NjQwMDI0MDQkbzEkZzEkdDE3NjQwMDI0MTIkajUyJGwwJGgw#panel-3
	Southern Maryland Electric Cooperative (SMECO)	Southern Maryland Electric Cooperative, Rates & Fees. Available at: https://www.smeco.coop/my-account/general-information/rates-fees/
		Southern Maryland Electric Cooperative, Time-of-Use Rates. Available at: https://www.smeco.coop/my-account/general-information/rates-fees/time-of-use-rates/

MD	**Southern Maryland Electric Cooperative (SMECO)**	Southern Maryland Electric Cooperative, Residential Electric Vehicle Time-of-Use Adjustment. Available at: https://www.smeco.coop/wp-content/uploads/Rider-EV-TOU-Residential-Electric-Vehicle-Time-of-Use-Adjustment-PDF.pdf
		Southern Maryland Electric Cooperative, Bill Assistance. Available at: https://www.smeco.coop/my-account/paying-your-bill/bill-assistance/
		Southern Maryland Electric Cooperative, Budget Plan. Available at: https://www.smeco.coop/my-account/paying-your-bill/budget-plan/
	Office of Home Energy Programs	Maryland Office of Home Energy Programs, Maryland Energy Assistance Program. Available at: https://dhs.maryland.gov/office-of-home-energy-programs/how-do-you-apply/
	Fuel Fund of Maryland	Fuel Fund of Maryland, Fuel Fund. Available at: https://www.bge.com/my-account/customer-support/assistance-programs/fuel-fund
	Maryland General Assembly	Maryland General Assembly, Legislative Energy Relief Fund. Available at: https://www.bge.com/my-account/customer-support/assistance-programs/legislative-energy-relief-refund
MA	**Eversource**	Eversource, Electric Tariffs and Rules. Available at: https://www.eversource.com/residential/account-billing/manage-bill/about-your-bill/rates-tariffs/electric-tariffs-rules
		Eversource, Massachusetts Heat Pump Rate. Available at: https://www.eversource.com/residential/account-billing/manage-bill/about-your-bill/rates-tariffs/heat-pump-rate
		Eversource, Demand Response. Available at: https://www.eversource.com/business/save-money-energy/energy-efficiency-programs/demand-response/wma
		Eversource, Massachusetts Payment Plans and Assistance. Available at: https://www.eversource.com/residential/account-billing/payment-assistance
	National Grid	National Grid, Tariff Provisions. Available at: https://www.nationalgridus.com/MA-Home/Rates/Tariff-Provisions
		National Grid, Heat Pump Rate. Available at: https://www.nationalgridus.com/MA-Home/Rates/Heat-Pump-Rate
		National Grid, Help Making Payments. Available at: https://www.nationalgridus.com/MA-Home/Bill-Help/
	Unitil	Unitil, Tariff. Available at: https://unitil.com/electric-gas-service/pricing-rates/tariffs
		Unitil, Heat Pump Rate. Available at: https://unitil.com/ma-heat-pump-rate
		Unitil, Electric Vehicle Time-of-Use Rate. Available at: https://unitil.com/time-of-use/ev-tou
		Unitil Energy Systems, Financial Assistance. Available at: https://unitil.com/account-billing/billing-payment-options/financial-assistance
	Executive Office of Housing and Liveable Communities	Massachusetts Executive Office of Housing and Liveable Communities, Home Heating and Energy Assistance. Available at: https://www.mass.gov/how-to/apply-for-home-heating-and-energy-assistance

NH	**Eversource**	Eversource, 2025 Summary of Electric Rates. (October 2025) Available at: https://www.eversource.com/docs/default-source/rates-tariffs/nh-summary-rates.pdf?sfvrsn=eefadaef_37
		Eversource, Demand Response Solutions. Available at: https://www.eversource.com/residential/save-money-energy/energy-efficiency-programs/demand-response
		Eversource, New Hampshire Payment Plans and Assistance. Available at: https://www.eversource.com/residential/account-billing/payment-assistance
	Liberty Utilities	Liberty Utilities, Electricity Delivery Service Tariff. (October 2025) Available at: https://www.puc.nh.gov/sites/g/files/ehbemt446/files/inline-documents/sonh/liberty-gse-nhpuc-no-23-electric_1.pdf
		Liberty Utilities, Electric Vehicle Overview. Available at: https://new-hampshire.libertyutilities.com/derry/residential/my-account/my-bill/rates-tariffs/electric-vehicle-charging.html
		Liberty Utilities, Electric Financial Help. Available at: https://new-hampshire.libertyutilities.com/bath/residential/my-account/my-bill/electric-financial-programs.html
		Liberty Utilities, Budget Billing. Available at: https://new-hampshire.libertyutilities.com/bath/residential/my-account/my-bill/billing-options/budget-billing.html
	Unitil	Unitil Energy Systems, Tariff for Electric Delivery Service in the State of New Hampshire. Available at: https://www.puc.nh.gov/sites/g/files/ehbemt446/files/inline-documents/sonh/ues-nhpuc-no-3-electric_3.pdf
		Unitil Energy Systems, Electric Vehicle Time-of-Use Rate. Available at: https://unitil.com/time-of-use/ev-tou
		Unitil Energy Systems, Residential Electric Rates (RH). (January 2024). Available at: https://unitil.com/sites/default/files/2024-01/NH-Residential-Electric-Rates.pdf
		Unitil Energy Systems, Financial Assistance. Available at: https://unitil.com/account-billing/billing-payment-options/financial-assistance
		Unitil Energy Systems, Budget Billing. Available at: https://unitil.com/account-billing/billing-payment-options/budget-billing
	New Hampshire Department of Energy	New Hampshire Department of Energy, Fuel Assistance Program. Available at: https://www.energy.nh.gov/consumers/help-energy-and-utility-bills/fuel-assistance-program
NJ	**Atlantic City Electric**	Atlantic City Electric, Current Tariffs. Available at: https://www.atlanticcityelectric.com/my-account/my-dashboard/rates-tariffs/current-tariffs
		Atlantic City Electric, Electric Vehicle Off-Peak Charging Credit. Available at: https://www.weavegrid.com/atlantic-city-electric/off-peak-charging-credit
		Atlantic City Electric, Assistance Programs. Available at: https://www.atlanticcityelectric.com/my-account/customer-support/assistance-programs

NJ	**Jersey Central Power and Light Company**	Jersey Central Power and Light Company, New Jersey Tariffs. Available at: https://www.firstenergycorp.com/customer_choice/new_jersey/new_jersey_tariffs.html
		Jersey Central Power and Light Company, EV Driven. Available at: https://jerseycentral.chooseev.com/tou/
		Jersey Central Power and Light Company, Tariff for Service Part III. Available at: https://www.firstenergycorp.com/content/dam/customer/Customer%20Choice/Files/New%20Jersey/tariffs/BPU-14-Part-III-Eff-10-1-2025.pdf?_gl=1*12vuwqy*_up*MQ..*_ga*NTA4NTQ3MjcxLjE3NjM2NjczMDQ.*_ga_TVQJK7Z44E*czE3NjM2NjczMDIkbzEkZzAkdDE3NjM2NjczMDIkajYwJGwwJGgw
		Jersey Central Power and Light Company, Ways to Pay. Available at: https://www.firstenergycorp.com/help/billingpayments/ways-to-pay.html?_gl=1*lgwgdr*_up*MQ..*_ga*MTEyNjgxMzUyMC4xNzY0MDE3NTcz*_ga_TVQJK7Z44E*czE3NjQwMTc1NzIkbzEkZzEkdDE3NjQwMTc1ODAkajUyJGwwJGgw#panel-3
		Jersey Central Power and Light Company, Payment Assistance Programs. Available at: https://www.firstenergycorp.com/help/billingpayments/assistance_serviceprogram/jersey_central_powerlight.html?_gl=1*1g867fm*_up*MQ..*_ga*MTEyNjgxMzUyMC4xNzY0MDE3NTcz*_ga_TVQJK7Z44E*czE3NjQwMTc1NzIkbzEkZzEkdDE3NjQwMTc2MjQkajgkbDAkaDA.
	PSE&G	PSE&G, Tariff for Electric Service. (October 2024). Available at: https://nj.pseg.com/-/media/pseg/public-site/documents/current-electric-tariff/electric-tariff-17-usf-effective-20251001.ashx
		PSE&G, EV Residential Charging Program. Available at: https://nj.myaccount.pseg.com/myservicepublic/electricvehicles-residential-program
		PSE&G, Earn rewards for being flexible with your energy use. Available at: https://flexpower.pseg.com/pages/home/landing
		PSE&G, Equal Payment Plan. Available at: https://nj.myaccount.pseg.com/viewmybill/equalpaymentplanpublic
		PSE&G, Customer Resources and Critical Services. Available at: https://nj.pseg.com/saveenergyandmoney/gethelppayingyourbill/additionalresources
	Rockland Electric Company	Rockland Electric Company, Schedule for Electric Service Applicable in the Entire Territory. Available at: https://cdne-dcxprod-sitecore.azureedge.net/-/media/files/oru/documents/rates/new-jersey/schedule-for-electric-service.pdf?rev=87276bbcdd9f467c826e2372a664aeee&hash=2C18112AD53141E898CE1EFE8D6A5929
		Rockland Electric Company, Time-of-Use Rates. Available at: https://www.oru.com/en/accounts-billing/your-bill/time-of-use
		Rockland Electric Company, Electric Vehicle Time-of-Day Rate. Available at: https://www.oru.com/en/our-energy-future/electric-vehicles/new-jersey/residential-ev-drivers/time-of-day-rate
		Rockland Electric Company, Smart Usage Rewards. Available at: https://www.oru.com/en/save-money/rebates-incentives-credits/new-york-customers/incentives-for-business-customers-ny/demand-response-incentives
		Rockland Electric Company, Billing and Payment Plans. Available at: https://www.oru.com/en/accounts-billing/payment-assistance/billing-payment-plans
		Rockland Electric Company, New Jersey Programs. Available at: https://www.oru.com/en/accounts-billing/payment-assistance/new-jersey

NJ	**NJ Department of Community Affairs**	NJ Department of Community Affairs, Energy Assistance. Available at: https://www.nj.gov/dca/dhcr/offices/energy.shtml
	NJ Division of Aging Services	NJ Division of Aging Services, NJSave. Available at: https://nj-dhsas.my.site.com/njsave/quickstart
	NJ SHARES	NJ SHARES, SHARES Assistance Programs. Available at: https://sharesnation.org/
	NJ 211	NJ 211, Electric Payment Assistance. Available at: https://nj211.org/resource-search/Electric%20Service%20Payment%20Assistance?source=guided
NY	**Central Hudson**	Central Hudson, Gas and Electric Supply Prices. Available at: https://www.cenhud.com/en/account-resources/rates/gas--electric-supply-prices/
		Central Hudson, Time-of-Use Billing. Available at: https://www.cenhud.com/en/my-energy/my-energy-options/time-of-use-billing/
		Central Hudson, Electric Vehicles. Available at: https://www.cenhud.com/en/my-energy/electric-vehicles/
		Central Hudson, Peak Perks. Available at: https://cenhudpeakperks.com/
		Central Hudson, Residential Charging Incentives. Available at: https://www.cenhud.com/en/my-energy/electric-vehicles/residential-charging-incentives/
		Central Hudson, Assistance Programs. Available at: https://www.cenhud.com/en/account-resources/assistance-programs/
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