Utility Rate Design Principles

Advancing a Consumer-Friendly Energy System

June 2015

Acadia Center

Advancing the Clean Energy Future

Principles for Consumer-Friendly Electric Rate Design

- Electricity rates should preserve the consumer incentive to use electricity wisely and invest in energy efficiency by continuing to collect transmission and distribution costs primarily through variable rates instead of moving toward higher fixed monthly charges.
- Electricity rates should be designed in a way that maximizes consumer choice and control and also protects vulnerable consumers.
- Utilities should be fairly compensated for the services they provide to consumers, and consumers should be fairly compensated for the services they provide to the grid.

Concerns with High Fixed Charges and Minimum Bills

Residents and businesses want control over high electricity costs; high fixed charges or minimum monthly bills for electric service will decrease that control. A fixed charge is an automatic monthly fee that applies regardless of how much electricity the consumer actually uses. Consumers must pay it to obtain access to electricity. A minimum monthly bill is a fee for low-usage that kicks in when a customer's energy consumption drops below a certain level.

While fixed charges and minimum bills increase the certainty of the timing of revenue collections for utilities, they reduce consumer control over energy bills, undermine our rate design principles and the broader clean energy future, and often conflict with efficiency and clean energy policies. High fixed charges and minimum bills reduce economic incentives for consumers to invest in energy efficiency. In a revenue-neutral scenario increasing the fixed portion of the bill means that less revenue needs to be collected through variable rates and those rates go down (see example from Rhode Island in Table 1, below). Our electric bills should preserve marginal incentives to use energy wisely and reduce system costs.

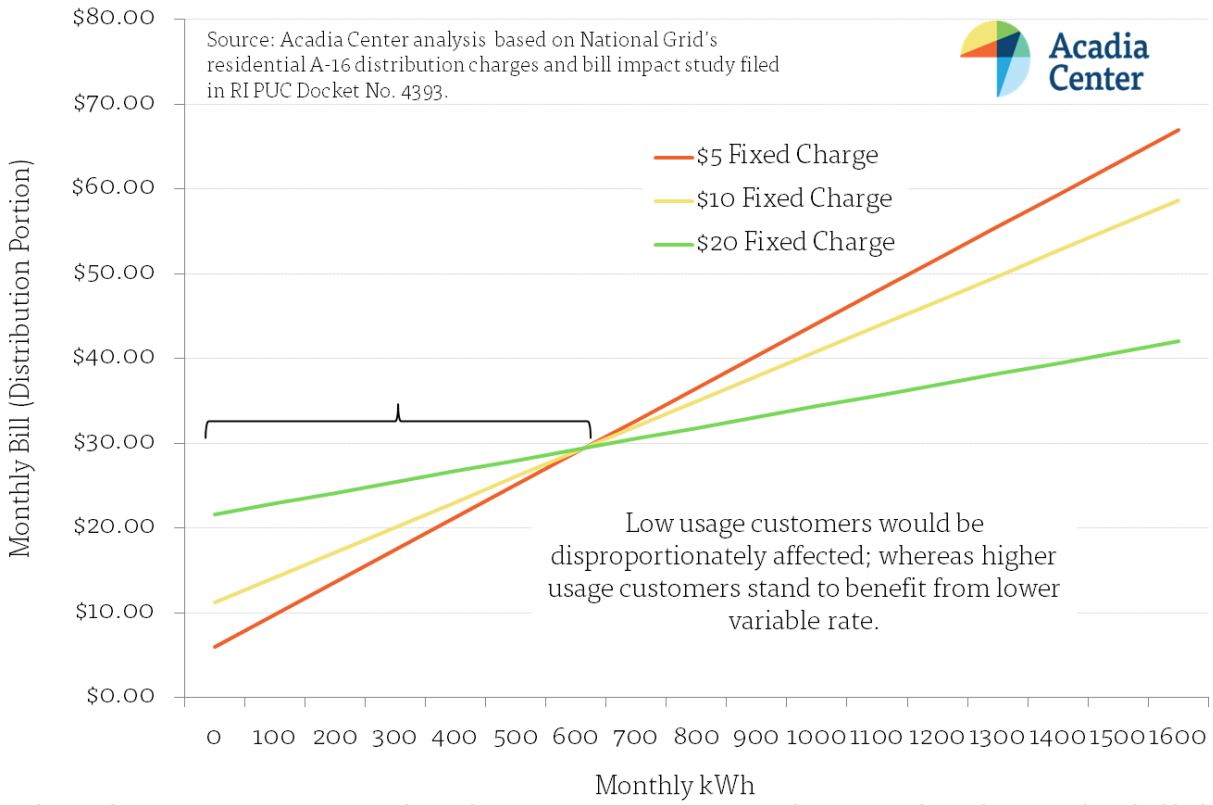
Table 1: Percent Change in Variable Rates Compared to the Current $5 Fixed Customer Charge and Revenue Requirement for Residential Customers in Rhode Island

$10 Fixed Charge	-22%	$10 Minimum Bill	-6%
$15 Fixed Charge	-44%	$15 Minimum Bill	-17%
$20 Fixed Charge	-67%	$20 Minimum Bill	-36%
$25 Fixed Charge	-89%	$25 Minimum Bill	-60%

High fixed charges and minimum bills also risk adversely impacting low-income consumers, who tend to use less energy and are disadvantaged disproportionately by loss of control over a fixed portion of bills. As shown in Figure 1, a significant number of Rhode Island customers, using less per month than the average level of usage, would see an increase in their electricity bill if fixed charges were increased above the current $5/month; whereas,

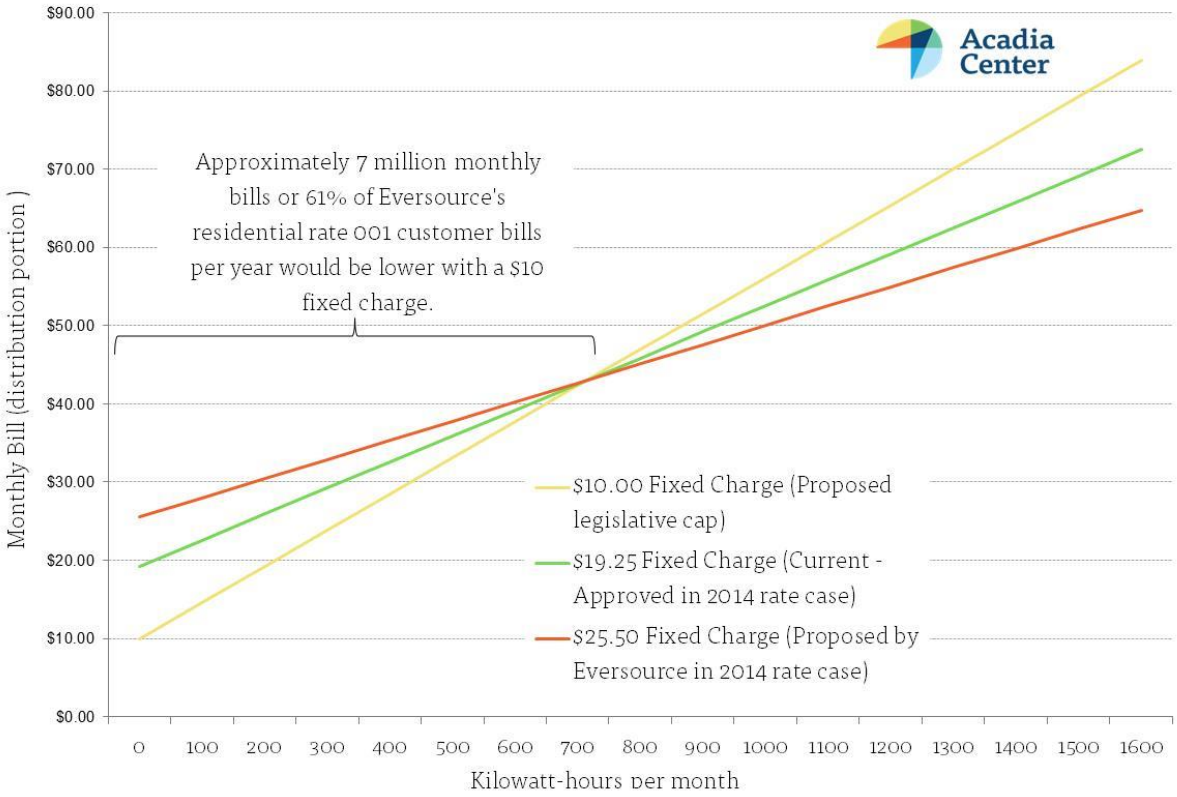
higher usage customers' bills would go down due to the lower variable rate. Minimum bills would have less of an impact, but the negative effects on low-usage customers and reduction in the variable rate remain.

Figure 1: Impact of Higher Fixed Charges by Monthly Usage Level Compared to the Current $5 Customer Charge and Revenue Requirement for Residential Customers in Rhode Island



Analysis of Eversource Energy's residential customers in Connecticut shows significantly more than half of residential customers' monthly bills would decrease if the fixed cap is lowered from $19.25, the existing amount, to $10. A majority- 61 percent- of residential monthly bills in Eversource Energy's Connecticut service territory fall below the average of 730 kilowatt hours per month, and increasing the residential fixed charge to $25.50 per month- the amount sought by Eversource in its rate case- would increase monthly bills for all customers that use less electricity than the average. Figure 2 (below) shows the monthly billing impact of three fixed charge scenarios on Eversource's residential customers. The three customers are: (1) leaving the fixed charge at its current amount of $19.25 per month; (2) reducing it to $10 per month; and (3) increasing it to $25.50 per month, the amount sought by Eversource in its 2014 rate case. The results show that high fixed charges are more regressive than low fixed charges because the billing impact on low-use customers increases as the fixed charge increases.

Figure 2: Billing Impact of Fixed Charge Scenarios for Connecticut Residential Customers



Short-Term Recommendations

Avoid reliance on fixed charges and minimum bills, which limit consumer options. These mechanisms make it harder to reduce electric bills by using less power or self-generating electricity. Fixed charges should be limited to the cost of keeping a customer connected to the grid, such as metering, billing, and the service drop. The impacts of public policy considerations should be factored in as well. The components of a cost of service study that are included in the fixed customer charge, and the data, process, and methodology used to determine the components, should be publicly available and easily accessible. Minimum bills do not comport with the energy system of the future, and appropriately valued credits for generation should be applied to any fixed charge, leaving an effective minimum bill of $0.

Reform net metering to better reflect the right values for distributed generation: Output from distributed generation should be credited at prices that fully reflect its grid-wide costs and benefits, including environmental benefits and the value of avoided energy, capacity, transmission and distribution costs, along with time-specific and location value where possible. These values should also reflect the costs of using the grid to consume and export power.

Long-Term Recommendations

Fully reformed retail rates: Time-varying rates for energy supply provide better economic incentives to reduce overall generation costs and create opportunities to save money by taking advantage of low-cost hours. Well-designed demand charges (based on local or system peaks) or time-varying rates are both good options to align rates for transmission and distribution with underlying system costs, while still creating opportunities for

consumers to lower their energy bills. As technology develops, consumers may be able to understand and benefit from more complex and granular options.

Bi-directional rates for Distributed Energy Resources (DERs): Customers with distributed generation or storage could receive a bill with the following components: 1) minimal fixed charge (for metering and billing only); 2) charge for power consumed on a time-varying basis; 3) credit for power exported on a time-varying basis; 4) delivery charges for using the grid to consume and export power to the grid, reflecting the costs and benefits of each.

Frequently Asked Questions

What will the impact on the distribution utility be if higher fixed charges or minimum bills are not implemented?

In states that have implemented electric decoupling, the distribution utility is guaranteed a specified level of annual revenue. If the utility collects more revenue than allowed by the cap, customers get a credit on their bills the next year; if the utility collects less, customers will see a small surcharge. Higher fixed charges and minimum bills benefit utilities by increasing the certainty of the timing of revenue collection and reducing the lag of the decoupling "true-up," but will not change the total revenue collected.

Are minimum bills a good compromise solution?

In a recent summary of economic pricing principles, economist Steve Kihm describes a minimum bill rate design in which all customers would pay at least the "threshold" amount of $20 per month.[1] In this simplified scenario, the volumetric charge is $0.10. A customer using 100 kWh would receive a bill for $20, even though the volumetric charges only total $10. This customer has the incentive to consume an additional 100 kWh for "free." A customer using 500 kWh would receive a bill for $50, because the volumetric charge exceeds $20. Advocates for minimum bills often argue that the impact of this rate design is limited to a very small percentage of total kWh sales (citing a similar scenario, RAP's Jim Lazar suggests that 1% of kWh sales will typically be to those customers using under 150 kWh[2]). Our analysis of Rhode Island customers shows, however, that approximately 9% of residential customers use 100 kWh per month or less, and 17% use 200 kWh or less. While this may represent a small percentage of total kWh sales, it is a significant number of customers. Implementing a minimum bill, even at a low threshold amount, would reduce the ability of these customers to control their energy costs.

Should every consumer have an advanced meter?

Advanced meters can enable rate innovations that better align rates with real cost drivers. We recommend strategic deployment of advanced metering to ensure and enable consumer benefits. Advanced meters should be deployed when and where it is cost-effective. For example, AMI may be geographically targeted based on grid needs; rolled out based on customer size; or installed whenever old meters are retired. New residential rate classes can be created for customers with AMI, or for those who have high energy consumption. All customers could also be allowed to opt-into AMI and new rate structures.

---

[1] Kihm, Steve. "Economic concerns about high fixed charge pricing for electric service." May, 2015.
[2] Lazar, Jim. "Electric Utility Residential Customer Charges and Minimum Bills: Alternative Approaches for Recovering Basic Distribution Costs." Regulatory Assistance Project.

Should time-varying rates be mandatory?

Significant rate innovations, such as time-of-use rates or demand charges, should be implemented on a phased and strategic schedule to ensure maximum consumer benefit and adoption. Consumers should be given time to fully understand the new rate system before it goes into effect. For example, time-varying rates may start as opt-in, transition to opt-out, before finally becoming mandatory. Clear information and education should be provided to allow consumers to understand their electricity bill, what actions they can take to reduce it, and who can help.

For more information:

Mark LeBel, Staff Attorney, mlebel@acadiacenter.org, 617.742.0054 ext.104
Abigail Anthony, Director, Grid Modernization and Utility Reform, aanthony@acadiacenter.org, 401.276.0600