

# Sustainable Rate Design

## Near-Term Consumer-Friendly Reforms for a Clean Energy Future

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### Tensions in the Status Quo Due to Electricity Rate Design

Electricity bills for residential customers in many states often combine a low fixed monthly charge with flat rates for electricity consumed and delivered charged on a per-kilowatt hour basis. Traditionally, this structure has worked for utilities by providing a simple mechanism to recover enough revenue to build, maintain, and operate the grid. This rate structure also promotes investments in energy efficiency and protects low-income customers. More recently, retail rate net metering and credit rollover has become a simple and popular method for compensating customers with clean distributed generation.

This existing rate design for residential customers has many positive features, but is a blunt and inefficient instrument in many respects. Changes in electricity rate design can help address a number of different issues, but rate design reforms may be necessary to address two issues in particular: (1) inadequate incentives for customers to help manage the cost of infrastructure driven by local and regional peak electricity demand and (2) potential under-recovery of distribution system costs from customers with distributed generation who typically still use the grid for deliveries at many times during the month.<sup>1</sup> The latter challenge, which requires utility-by-utility analysis, will likely grow over time as more and more consumers invest in low-cost, clean distributed generation.

### Transitioning to Sustainable Rate Design

Acadia Center's [UtilityVision](#) outlines comprehensive long-term rate reforms to align the way consumers pay for delivered power and how consumers get credited for power and services that they provide to the grid. These reforms would improve incentives for energy efficiency and distributed generation, preserve equitable access to clean energy, maintain protection of low-income ratepayers, and reflect equitable recovery of costs for use of the distribution grid. However, implementation of these long-term reforms will require advanced metering, energy management technology that is affordable for small customers, and significant customer education efforts.

In the shorter term, simpler steps can be taken but they must be consistent with three principles:

- Monthly customer charges should be no higher than the cost of keeping a customer connected to the grid and related customer service;
- Other components of electricity rates can be reformed to align customer incentives with cost drivers and the value customers can provide to the electric system; and
- Ratepayers must be able to understand significant reforms and have a basis on which to respond and manage bills.

These modern rate design principles are in addition to traditional rate design principles that include:

- Simplicity, understandability, and feasibility;
- Effectiveness at yielding revenue requirements, revenue stability, and rate stability;
- Fairness in apportionment of costs and avoidance of undue discrimination; and
- Efficiency in discouraging wasteful use.

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<sup>1</sup> Concerns about cross-subsidies to DG customers must take into account the full range of costs and benefits.

## Five Point Plan for Near-Term Reforms

Acadia Center proposes the following five-point plan to achieve the above described objectives and principles for residential customers:

- 1. Limit reliance on fixed monthly customer charges.
  - Fixed customer charges should be capped at cost of connecting the customer to the distribution system (typically around \$5-10 per month<sup>2</sup>), including metering, billing, service drop and elements of customer service.
  - The full costs of advanced metering infrastructure (AMI) should not be included in fixed customer charges because AMI provides energy services beyond the cost of connecting a customer.
- 2. Implement Acadia Center's Distribution Reliability Charge ("DRC") and other components of rates would continue to be charged on traditional per-kWh basis as default.
  - The Distribution Reliability Charge would begin to account for distribution system costs that cannot be avoided by distributed energy resources. Details in separate DRC piece.
- 3. Offer opt-in time-of-use rates for energy supply.
  - Higher costs of consumption for on-peak periods and cost of capacity should be recovered from limited time periods, either seasonally or year-round.
  - Net metering credits for energy supply should be set equal to the time-varying rates, since they will be set at the value of the generation.
- 4. Enable or maintain virtual net metering for community distributed generation, with a robust low-income component.
  - Virtual net metering (also referred to as remote net metering or net metering credit allocation) is the key mechanism to enable community distributed generation.
  - These policies are critical to equitably sharing the benefits of renewables policies with low-income ratepayers and customers who cannot site DG at their home or business.
- 5. Begin to align net metering credits with ratepayer value and remove caps on net metering.
  - Acadia Center's Next Generation Solar Framework provides specific short-term recommendations for administratively adjusting net metering credit values to reflect the costs and benefits of solar and other non-dispatchable DG.
  - Value-based frameworks address ratepayer concerns about cross-subsidies and eliminate the need for net metering caps.
  - Monetary crediting (defined in dollars), instead of volumetric crediting (defined in kWh), is necessary to implement value-based approaches.
  - New structures can be phased in over time and existing projects can be grandfathered under current frameworks.

## Next Steps

Many elements of the above five-point plan require further refinements and scoping of impacts on ratepayers and overall incentives for energy efficiency and clean local generation. Implementation will further require high-quality regulatory-grade analysis, with robust processes for stakeholder review and feedback.

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<sup>2</sup> Lazar, J. and Gonzalez, W. (2015). *Smart Rate Design for a Smart Future*, p. 36. Montpelier, VT: Regulatory Assistance Project. Available at: <http://www.raponline.org/document/download/id/7680>

## Frequently Asked Questions

### What are the goals and impacts of these reforms?

As discussed on page one, this package of proposals is designed to simultaneously meet all of the rate design principles while also achieving a wide range of public policy goals. In addition to these principles and goals, we expect that the combined package would have the following effects:

- DG customers make an additional contribution to the embedded costs of the distribution system based on their imports. When combined with opt-in time-of-use energy supply rates, this begins to provide incentives for these customers to install energy storage and manage imports and exports;
- Customers with flexible loads (such as electric vehicles) have incentives to adopt time-of-use rates and consume less electricity at expensive peak times and more at times when there is extra capacity in the system;
- These reforms jointly promote equity by maintaining structures that are friendly to low-income and other low-usage ratepayers and increasing the benefits that low-income ratepayers receive from programs to promote local energy; and
- The compensation provided by local clean generation starts to become aligned more granularly with the underlying economics of the energy system, thus reducing any cross-subsidies and promoting efficient use of the system.

### How do these reforms advance Acadia Center's long-term vision?

In the long term, advanced metering, more advanced energy management technology, and significant consumer education will make it possible to accurately charge and credit customers with distributed generation for the grid services they use and provide. Until these innovations are widespread, regulators should take incremental steps that advance this future. Acadia Center's five point plan is a move towards an improved cost causation basis for rates and net metering credits. These reforms also avoid traps like minimum bills that may address short-term issues, but do not reflect differences between customers and reflect an expansive view of fixed system costs

### What needs to be done to achieve these reforms across the region?

No state in the region has all five of these reforms in place, but nearly every component has been implemented in at least one state. In many cases, these reforms do not require additional legislation and can be implemented by each state's public utility commission. However, issues related to net metering (the removal of any caps, authorization of community DG, and new net metering credit structures) typically do require legislation. Legislation can also encourage or require reforms to be undertaken by state agencies, even if they already have existing authority.

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