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Priority Cost of Service, Rate & Regulatory Support

A SERIES OF INCONVENIENT TRUTHS:

Do Cost-Based Rates Reduce the Incentive for Pursuing Energy Efficiency?

By Dr. Martin J. Blake, Principal

One question that frequently comes up in discussions with utility boards and regulatory commissions is whether cost-based rates that increase the customer charge reduce the incentive for retail customers to pursue energy efficiency. Actually, it comes up more as an accusation rather than as a question. In my opinion, this is one of the myths that prevents some utilities and the commissions that regulate them from pursuing cost-based rates.

Fixed vs. Variable Costs

Cost-based rates in the utility's rate design accurately reflect the functional assignment, classification and allocation of costs from a cost of service study. In a cost of service study, a utility's distribution costs are allocated into customer-related and demand-related components. This split is made based on whether the distribution facilities are 'sized' costs to meet the volume of energy that the customer uses or whether the costs are non-volumetric costs that are incurred regardless of the customer's level of energy usage. The non-volumetric costs are comprised of the minimum system that any customer must have in place to receive electric service and includes the meter, service drop, transformer and some minimum amount of poles and wire connecting the customer to the nearest distribution substation. These non-volumetric costs are allocated as customer-related costs in a cost of service study and are converted into a customer charge in the rate design. Once the cost of this minimum system is determined, every customer needs and must pay for at least the minimum system. However, most customers need more than just the minimum system and need some additional size in the equipment that is installed to meet their energy needs. These costs that are related to the size of the equipment above the minimum system are allocated as demand-related costs in a cost of service study. The reason for making this split between demand-related and customer-related costs is so that customers only have to pay for exactly what they are using. All customers need and pay for at least the minimum system plus as much size in the installed distribution equipment as they require to meet their energy needs.

The distribution costs that a utility incurs are almost all fixed costs. Once the necessary distribution equipment has been installed, the cost of this equipment is fixed and does not change with a customer's usage level. For the most part, the cost of operating and maintaining this distribution equipment is also a fixed cost. One problem that many rural utilities have is that they cannot spread the fixed, non-volumetric distribution costs that reflect the minimum system necessary to provide customers with access to the electric grid over very many customers, which

results in monthly customer charges ranging from about \$20 to \$35 depending on customers served per mile of line. Many utilities currently have customer charges much lower than the cost-based rates that would result from a cost of service study, with the fixed costs that are not collected through the monthly customer charge collected instead through a kilowatt-hour charge. A cost-based rate design would increase the monthly customer charge and would reduce the distribution component of the kilowatt-hour charge.

Critics claim that increasing the monthly fixed charge and decreasing the kilowatt-hour charge reduces the incentive for customer energy efficiency. They say that the incentive for energy efficiency is being reduced because the kilowatt-hour charge is reduced in this move toward cost-based rates -- which lowers the "bang for the buck" of energy conservation by the customer. However, it was "variablizing" the fixed distribution demand-related costs into a kilowatt-hour charge that provided an erroneous and inaccurate signal to customers in the first place. By including all of these distribution demand-related costs in a kilowatt-hour charge, customers have been given the mistaken impression that their energy reductions reduced these fixed distribution costs when no such reduction has occurred. Including fixed distribution costs in the kilowatt-hour charge was done to take advantage of the lower cost of kilowatt-hour meters rather than the demand meters that would be required if the distribution demand-related costs were billed as demand charges, as they should in order to be consistent with the ratemaking principle of collecting fixed costs through fixed charges.

A utility that adopts cost-based rates by increasing its monthly customer charge and eliminating "variablized" fixed costs from the kilowatt-hour charge is not reducing an incentive for energy efficiency, but is instead correcting an inaccurate price signal that has been provided to customers for years.

I am a firm believer in the proposition that customers should receive the benefit from any cost reductions that may result from their changes in energy usage. However, there are no distribution cost savings that result from a customer's reduced energy usage due to energy efficiency or energy conservation. The meter, service drop, transformer, poles and wire that were installed to meet the customer's energy needs are still in place and must be adequately maintained to provide the customer with reliable service. A utility that adopts cost-based rates by increasing its monthly customer charge and eliminating "variablized" fixed cost from the kilowatt-hour charge is not reducing an incentive for energy efficiency, but is instead correcting an inaccurate price signal that has been provided to customers for years. Customers still benefit from the cost reductions that they actually help the utility to achieve, namely the production demand and energy charges that the utility would otherwise incur. These costs are generally much larger than the distribution charges included in the customer's bill and provide a strong incentive for energy efficiency and conservation.

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