CREATING THE RIGHT RETAIL RATE ENVIRONMENT FOR ENERGY CONSERVATION AND ENERGY EFFICIENCY

Marty Blake

"We're in the business to sell electricity." And sell it we do.

For many years, energy consumption has been good for business. The more energy we sell, the greater our revenues. So for many years, energy consumption has been encouraged, with low fixed "customer charges" and energy rates that included "declining blocks." The more electricity a member used, the cheaper it got.

In addition, for the past thirty years, growth, both in the number of customers and in usage per customer, has been a good friend to most cooperatives. The old maxims that "Growth is good for business" and "There are few problems that you can't grow your way out of" proved to have a great deal of validity. When cooperatives are growing, retail rates that don't properly reflect cost causation and that deviate from accepted ratemaking principles still may recover enough of the cooperative's fixed cost and margin to meet the cooperative's financial obligations and avoid financial difficulties.

But what if cooperatives stop growing? What if usage per customer begins to decline and the decline is sufficiently large that it offsets any growth in the number of customers, so that the cooperative's overall growth rate is negative? Are there rate designs that cooperatives can adopt that would protect their finances and treat customers fairly regardless of whether growth was positive or negative? These are important questions that cooperatives must consider as the business environment that they face begins to change.

The "Perfect Storm"

Increases in the cost of constructing new generation plant, the adoption of state and federal renewable portfolio standards, transmission line expansion to accommodate renewable energy, the implementation of carbon cap and trade legislation and fuel price increases are creating, in many areas of the country, a "perfect storm" that is significantly increasing wholesale and, as a consequence, retail electric prices. Customer reaction to these price increases is fairly predictable. Customers w energy as efficiently as possible as Indeed, in response to a national call for energy conservation, many customers are responding, not just because of increasing prices, but also because they hear the message that conservation is "the right thing to do." Add to this the energy efficiency standards that are being considered in both state and federal legislation and reduced usage per customer is headed our way. And these retail electric price increases and efficiency standards are not the only factors providing an incentive for customers to conserve and use energy more efficiently. Customers today are facing price increases for medical care, food, gasoline and a host of other products that they use, which put pressure on their budgets and put them in a frame of mind to save money wherever they can, including on their electric service.

Customer reaction to these price increases is fairly predictable. Customers want to conserve and use electric energy as efficiently as possible as the price of electricity increases.

Cooperatives have the opportunity to anticipate these significant changes and proactively respond to them in ways that help their members reduce their energy bills while maintaining the financial strength of the organization. Rate design can play a big role in this response by creating the proper retail rate environment for energy efficiency and conservation, and by providing incentives for customers to take actions that will make them less costly for

the cooperative to serve, while avoiding negative impacts on the cooperative's finances.

One of the major challenges that cooperatives face is how to effectively manage and recover a cooperative's "fixed costs."

One of the major challenges that cooperatives face is how to effectively manage and recover a cooperative's "fixed costs." These are the costs that are present due to the fact that a customer is being served, and they do not increase or decrease based upon how much energy a customer uses or doesn't use. These "fixed costs" include poles and wires, cooperative buildings, transformers and everything else a cooperative needs to serve its members, no matter how much energy that customer uses. A significant portion of the costs for both G&T and distribution cooperatives are fixed. For a G&T cooperative, almost all of the costs of its generation and transmission plant are fixed costs. For a distribution cooperative, almost all of the cost of its distribution facilities is a fixed cost.

For years, many cooperatives did not pay specific attention to fixed cost recovery in rates. So long as the cooperative was recovering all of its costs in some way, that was sufficient. Indeed, they may have wanted the "customer charge" to remain low because they perceived that members favored it. This approach may not have been harmful when cooperatives were experiencing growth in both the number of customers and in usage per customer. However, in today's new environment, this longstanding practice can have a significant negative financial impact on cooperatives when usage per customer is falling because of factors such as energy efficiency, conservation and customer-owned generation.

Key Principles of Utility Ratemaking

One of the bedrock principles of rate design is to recover fixed costs through fixed charges (the "customer charge") and variable costs through variable charges (the "energy charge" or "per kWh" charges). Following this fundamental rate design principle helps to assure that all of a cooperative's customers are treated fairly and that one group of customers does not "subsidize" another group. Indeed, it is also a fundamental principle of sound rate design that cross subsidies among customers should be avoided.

In order to be as fair as possible to all customers and avoid cross-subsidization, the fixed cost of a cooperative's distribution system is divided into two components: 1) customer-related costs and 2) demand-related costs. The portion classified as "customer-related cost" is the portion of the fixed costs of the distribution system that is size invariant. The portion classified as demand-related cost is the portion of the fixed costs of the distribution system that varies with the load carrying capability of the distribution facilities; that is, the size of the demand that the customer places on the system.

Customer-related costs that do not vary with the load carrying capability of the distribution facilities are fixed costs that exist irrespective of what size of facility is installed. These costs are present due to the fact that a customer is being served and will not increase or decrease with the load requirements of that customer. These fixed costs that do not vary with size are best allocated on the basis of customer months because they are caused by the existence of a customer, not by the size of the demand that the customer places on the system. Customer-related costs reflect the minimum amount of equipment that any customer must have in order to access the electric grid. Once this minimum system is determined, every customer needs at least this minimum system, and the cost of this minimum system is reflected in the monthly customer charge. However, some customers will not be able to get by with just a minimum system and will need equipment that is larger than the minimum system as well.

Customer-related costs reflect the minimum amount of equipment that any customer must have in order to access the electric grid.

The portion of the cost of distribution facilities that is related to the size of the customer is classified as "demand-related", and is recovered through a "demand charge." This demand charge is assessed to customers with watt-hour meters as a charge per kWh and is assessed to customers with demand meters as a charge per kW of monthly billing demand.

The ratemaking principle that fixed costs should be recovered through fixed charges (such as the customer charge and demand charge) and variable costs should be recovered through variable charges (such as the energy charge and the wholesale power cost

adjustment charge) helps to eliminate cross subsidies among customers. If fixed costs are recovered through variable charges, each kWh contains a component of fixed costs and customers using more energy than the average customer in the class are paying more than their fair share of the cooperative's fixed costs and margins, while customers using less energy than the average customer in the class are paying less than their fair share of fixed costs and margins. The collection of fixed costs through variable charges, such as the energy charge, typically results in customers with above-average usage subsidizing customers with below-average usage. Similarly, the collection of variable costs through fixed charges also results in subsidies among customers, with customers with below-average usage subsidizing customers with above-average usage. In order to eliminate these subsidies among customers, it is necessary to adhere to the principle of collecting fixed costs through fixed charges and variable costs through variable charges.

The collection of fixed costs through variable charges typically results in customers with above-average usage subsidizing customers with below-average usage.

When fixed costs are recovered through variable charges, such as an energy charge per kWh, a cooperative's fixed cost recovery is at the mercy of sales fluctuations due to weather, energy efficiency, conservation or self-generation. If fixed costs and margins are loaded in every kWh that the cooperative sells, then reduced sales mean reduced fixed cost and margin recovery by the cooperative. These unrecovered fixed costs and margins are a self inflicted wound that need not occur if the cooperative had followed the principle of recovering fixed cost and margin through fixed charges, such as the customer charge. Recovering fixed costs through fixed charges aligns the interests of customers and distribution cooperatives by allowing the cooperative to recover its fixed costs and margins regardless of sales, thus freeing the cooperative to work closely with its customers in reducing the costs that the cooperative pays to its supplier and reducing customer energy bills.

For a typical distribution cooperative, about 65% to 75% of its cost structure is purchased power from its supplier, which is a variable cost, while the remaining 25% to 35% represents

distribution system costs, which are fixed costs. If a cooperative is assured of recovering its distribution system costs, which are not related to the volume that it sells, through a fixed charge, then it can work cooperatively with customers in reducing the 65% to 75% of the bill that goes to the cooperative's supplier, which benefits both the cooperative and its customers through lower energy bills. Thus, recovering these non-volumetric fixed costs through a fixed charge creates the right environment for the cooperative to pursue energy efficiency, conservation and customer-owned generation to help customers reduce their energy bills with no financial harm to the distribution cooperative.

Successfully Making The Shift

Eliminating Declining Block Rates

The declining block rates that many cooperatives have in place were developed to recover the fixed costs and margins that were not being collected through the customer charge up front through the cooperative's initial kWh sales to its members, with the energy charge declining in later usage blocks after a sufficient amount of fixed costs and margins were recovered. These declining block rates are considered by many as encouraging consumption, while the real reason was to correct a problem of insufficient fixed cost and margin recovery through the customer charge. If the customer charge recovers a cooperative's fixed cost and margin, this correction is no longer necessary and declining block rate structures can be eliminated. With fixed costs collected through the customer charge, a cooperative can eliminate declining block rates and make the shift to encouraging conservation with little fear of negative financial consequences.

Low-Income Members

One key concern of cooperative managers and board members in evaluating whether, and how, to make the move towards better rate design is the impact of such a shift on low income and fixed income members. How will they be impacted?

For low income and fixed income customers to benefit from a low customer charge with the unrecovered fixed costs and margins included in the energy charge, they would have to use less electric

energy than the average customer. Generally, this is not the case for low income customers. Studies reveal that the housing stock in which many low income customers are living is relatively inefficient from an energy usage standpoint, so their energy usage is frequently above the class average. The inefficient energy usage of the dwelling in which they live has typically resulted in the price of the dwelling being discounted to a level that low income customers can afford.

Studies reveal that the housing stock in which many low income customers are living is relatively inefficient from an energy usage standpoint.

This was demonstrated in a recent cooperative rate case in Virginia where Northern Neck Electric Cooperative collected load research data on customers who meet the state standards for participating in low income energy assistance programs and found that the average annual usage for all its residential customers was 13,969 kWh per year, while the annual average usage for customers meeting low income energy assistance standards was 14,871 kWh per year. With usage above the average, the typical low income customer actually would benefit from a rate design that had a higher customer charge and a lower energy charge. Similarly, fixed income customers typically have a stock of appliances similar to other customers and are frequently home all day with usage levels generally in the neighborhood of the class average, and they also would not be significantly affected by such a change.

Since low income customers generally have usage levels above the average and do not typically benefit from a low customer charge, who are the low usage customers that do benefit from a low customer charge? For most rural electric cooperatives, their low-usage customers are loads like boat docks, garages, electric fences, stock tanks, vacation homes, hunting camps, fishing camps and services run to barns in case they might be needed. All of these loads typically consume very few kilowatt hours during the course of a year and the usage is sporadic. However, the cooperative often incurs significant fixed costs in installing the minimum system requirements necessary to serve these loads. Furthermore, these loads usually are not located near roads and existing distribution lines. A rate design with a low customer charge and with a

significant portion of fixed cost and margins recovered through the energy charge would result in revenue that was insufficient to support the investment necessary to serve loads such as vacation homes, barns, stock tanks, electric fences, and hunting cabins. Such a rate design would result in these customers being subsidized by other cooperative customers who have above-average usage. A rate design with a low access charge and with a significant portion of the cooperative's fixed cost and margins recovered through the energy charge sends incorrect economic signals to customers. It sends a signal that it is relatively inexpensive to provide the minimum amount of physical equipment necessary to provide service to customers, and this is definitely not the case in rural areas.

Another concern that some cooperative managers and board members have about increasing the customer charge and reducing the energy charge is that a lower energy charge may encourage increased usage rather than conservation and efficiency. This ignores the pressure that customer budgets are under from a host of other price increases, which provides a strong incentive to conserve and cut costs wherever possible, including energy. In spite of this pressure to cut costs, conservation advocates frequently argue in favor of higher energy charges and lower service charges as a way to encourage conservation. The problem with recovering fixed costs through the variable energy charge is that whenever customers take measures to conserve energy, they reduce the cooperative's recovery of the fixed costs embedded in the energy charge. The result is a win/lose situation, with customers achieving reduced energy usage and lower energy bills through conservation efforts and the utility losing through the reduced recovery of fixed cost and margin. However, none of the cooperative's fixed costs have been avoided or reduced. With a reduction in fixed cost recovery as a result of customers using less energy, it is difficult for a cooperative to enthusiastically promote energy conservation and energy efficiency.

Another concern that some cooperative managers and board members have is that a lower energy charge may encourage increased usage rather than conservation and efficiency.

Many progressive conservation advocates have realized that a more constructive approach is to create a "win/win" environment for energy conservation and energy efficiency by aligning the interests

of customers and the cooperative. Collecting the non-volumetric portion of a cooperative's fixed distribution costs through a customer charge severs fixed cost recovery from energy usage and creates a "win/win" environment for energy conservation and energy efficiency. With fixed and variable costs properly segregated, the cooperative recovers its fixed costs and margins regardless of how much energy the customer consumes, or perhaps more to the point, does not consume. In this win/win environment, cooperatives can actively promote energy conservation and energy efficiency.

Many progressive conservation advocates have realized that a more constructive approach is to create a "win/win" environment for energy conservation and energy efficiency by aligning the interests of customers and the cooperative.

There is currently an increasing interest in customer-owned renewable generation, such as wind and solar generation. This has resulted in regulatory commissions and state legislatures requiring utilities to offer net metering to customers with renewable generation. With net metering, a customer's production of energy and the customer's energy consumption are measured using a single meter, with the meter running backward when the customer produces more energy than the customer is consuming. When a cooperative sells power to a net metering customer, the Cooperative is providing three services: 1) generation, 2) transmission, and 3) distribution. However, when a net metering customer sells power to the cooperative, the customer is providing only a generation service, as the customer does not own transmission and distribution assets.

When the customer produces more energy than he is consuming and the meter is running backward, the customer receives essentially the full retail energy charge for the excess energy produced. Being paid the full retail energy charge represents a subsidy to the net metering customer, a subsidy paid by other customers of the Cooperative who either choose not to or cannot afford to own their own generators. When the customer charge is low and significant amounts of fixed cost and energy are included in the energy charge, the cooperative is paying out fixed cost and margin rather than recovering it. This financial harm to the cooperative can be mitigated by removing the fixed cost and margin recovery from the energy charge and putting it in the customer charge where it belongs. With a cost-based customer charge, net metering is much less of a problem for a cooperative from a rates perspective.

Finally, some cooperative leaders have voiced concerns over potential "pushback" that they may receive from customers if they restructure rates and increase the customer charge to appropriate levels. To mitigate this problem, the cooperative can communicate to its members that the customer charge is being changed as a matter of fairness. It is fair because customers are only asked to pay for what they are using. All customers need the minimum amount of equipment necessary to access the grid, and all customers are charged for this minimum system through the customer charge. Customers are charged for the size-related portion of the distribution system fixed costs that they require above this minimum system based on their actual usage. The cooperative also can put the new customer charge into perspective by comparing it to the cost for basic telephone service (dial tone), basic cable TV service and basic satellite dish service. All of these are usually about the same as or higher than the proposed customer charge for electric service.

Build the "Win-Win" For Cooperative Members

With the changes to our business environment that are likely to occur in the near future, the time is ripe to revise our retail rates to create the right environment for energy efficiency and conservation and align the cooperative's financial interests with those of our members. We can't do much to change the cards that we are being dealt but we do have responsibility for how we play the hand. Let's play this hand in a way that we can actively and aggressively promote energy conservation and energy efficiency for the benefit of both our cooperatives and our customers.

Marty Blake is a Principal of The Prime Group, LLC that provides marketing, strategic planning, training, rate, and regulatory support services for energy industry clients. Prior to joining The Prime Group, Marty was the Director of Marketing, Planning and Regulatory Affairs at LG&E, and also served a four-year term as Commissioner and Chairman on the New Mexico Public Service Commission. He received a Master of Arts degree in Economics and a Ph.D. in Agricultural Economics from the University of Missouri.