DON’T BET ON A HOT SUMMER

By John Wolfram

Utilities desperately hoping for a hot summer or a cold winter in order to reach their annual margin targets have big problems. One obvious problem is that hope is not a plan. The more serious issue is that if a utility requires huge amounts of energy usage in the peak season to make up the bulk of its annual target revenues, then revenues over the rest of the year are insufficient; this means that the utility has a rate problem. In all likelihood, the structure of electric rates for those utilities is flawed, and they should redesign electric rates so that they do not need to bet on weather and “win the weather wager” for the peak season in order to meet annual financial goals.

The Real Problem

Many utilities are facing a drop in residential consumption or at best a high degree of uncertainty about whether they will reach their margin targets. It is possible that the rates are simply too low. More often than not, however, the margins are at risk because the rates include a large portion of fixed costs and margins in the variable charge, and when consumers conserve energy, margins evaporate. Mild weather magnifies this problem, and it can turn from bad to worse very quickly if left unchecked.

To understand the problem, one must examine how utility costs and utility rates are related. Utility costs can be divided into several components. The fixed cost component primarily reflects the cost of building the system, and these costs typically vary in proportion to capacity (the demand, which drives the size of the requisite facilities). For distribution utilities this is the demand component of purchased power from the wholesale provider. The variable cost component is primarily fuel and operating and maintenance costs, and these costs vary in proportion to the energy (the total amount of power used). For distribution utilities this cost is for purchased power energy. A third cost component varies with the number of customers; this includes items like meters, meter reading, billing, services, and customer service.

The problem is that utility rates often do not properly reflect these utility costs. For many utilities, current residential rates only include two components – an energy charge in $/kWh and a fixed monthly service charge (often called a customer charge, facilities charge, or basic service charge) in $/month. This means that the demand, energy and customer cost components are squeezed into the two residential rate components. Often, the demand-related costs, some of the fixed customer costs, and margins are built into the energy charge, so that the cost recovery for these items varies with how much energy the customers actually use. This means that when customers conserve, or when weather is mild, the utility under-recovers its fixed costs and margins. This erosion problem has existed for many years, in part because utilities historically maintained relatively low fixed monthly charges (which they could do decades ago because overall usage was generally increasing each year). In recent years, average energy consumption has leveled off or even declined in some areas, so the revenue erosion risk stemming from this rate design flaw has become more pressing.[1]

Determination of Cost-Based Rates

As a first step, the utility should perform a Cost of Service Study ("COSS"). The COSS identifies the cost to serve each rate class, broken down by function (power supply, transmission, or distribution) and by classification (energy, demand, and customer) in accordance with how the costs vary. These cost components include the following for each rate class:

- Power Supply Energy
- Power Supply Demand
- Transmission Demand
- Distribution Demand
- Distribution Customer

When possible, margins can then be layered on to the demand and/or customer components but ideally should not be layered on to the energy component. The COSS then allows the utility to use these "cost-based rates" (including margins) as a guide for prospective rate design.

Rate Solutions

There are several ways to escape the weather wager trap -- all of which basically include revising rates such that the energy charge better reflects energy costs and includes less of the other costs.

With a two-part rate structure (energy and customer charges), the utility can increase the fixed customer charge and decrease the energy charge to better reflect the actual cost components. The fixed charge should align with the COSS and can include the customer costs and portions of the demand costs. For many utilities, the customer charge is too low and the energy charge is too high relative to cost-based rates. Moving the fixed charge closer to cost of service often results in a reduction to the energy charge. It helps the utility stabilize revenues, reducing exposure to under-recovery (and also over-recovery) of costs during abnormal weather periods.

A disadvantage is that increasing the monthly fixed charge can increase a low user's total bill, supporting the argument that increasing the fixed charge gives a consumer less control over the monthly bill. Critics argue that higher fixed charges harm many customers (especially those with lower incomes who live in smaller homes or apartments, and those with lower electric demands). This can create challenges for utilities to manage with various customer segments, particularly if the existing fixed charge is relatively low.

[1] See annual electricity consumption data at http://www.eia.gov

With a three-part rate structure (energy, customer and demand charges), the utility can decrease the energy charge and reset the demand and customer charges so that they align more closely with cost-based rates. Some utilities have offered the residential three-part rate for many years and with the proliferation of advanced "smart" metering, this alternative is becoming more viable than ever before. Utilities have applied three-part rates to industrial and large commercial customer classes for decades, so the new aspect of this design is its application to the residential class. The extent to which utilities fully embrace this option is yet to be seen.

Either of these approaches can be implemented over a longer period of time, or in increments over several years, as long as the cost of service does not measurably change during that time.

As noted earlier, where possible margins should be incorporated into the demand and/or customer charges but ideally should not be built into the energy charges. This makes the utility indifferent to consumption levels, at least from the standpoint of improving utility margins.

There are other solutions available as well, but for distribution utilities, for which retail rates should remain aligned with the wholesale rate structure, the option of revising the energy charge to remove fixed costs and adding those fixed costs into customer charges and/or demand charges can be readily accomplished. Doing so sends a better price signal to consumers and reduces the risk that the utility will not recover its fixed costs to provide service to those consumers. Ideally, setting energy rates equal to energy costs makes the utility indifferent to consumer consumption, removing the margin incentive for the utility to hope for the high usage that ordinarily accompanies extreme weather in the peak season.

Conclusion

Utilities counting on a hot summer or a cold winter to boost margins have a real problem. These utilities should take steps to analyze the cost of providing service and adjust their rates so that the energy charges include the variable cost of supplying energy and do not include fixed costs associated with capacity or customer services. This will stabilize margins and make them less dependent upon consumption. While not easy, implementing rates that are more in line with cost-of-service sends a better price signal to consumers and reduces the risk of revenue erosion for the utility.

The best way for utilities to deal with the weather wager is by setting rates in a way that is driven by the actual cost of providing service, so they can avoid having to make that bet in the first place.

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