Appendix A: Additional Guidance on Removing the Throughput Incentive

The National Action Plan for Energy Efficiency provides policy recommendations and options to support a strong commitment to cost-effective energy efficiency in the United States. One policy that receives a great deal of attention is reducing or eliminating the financial incentive for a utility to sell more energy—the throughput incentive. Options exist to address the throughput incentive, as discussed in more detail in this appendix.

Overview

In order to eliminate the conflict between the public service objectives of least-cost service on the one hand, and a utility's profitability objectives on the other hand, it is necessary to remove the throughput incentive. Some options for removing the throughput incentive are generally called decoupling because these options "decouple" profits from sales volume. In its simplest form, decoupling is accomplished by periodically adjusting tariff prices so that the utility's revenues (and hence its profits) are, on a total company basis, held relatively constant in the face of changes in customer consumption.

This appendix explains options to address the throughput incentive by changing regulations and the way utilities make money, to ensure that utility net income and coverage of fixed costs are not affected solely by sales volume.

Types of Decoupling

Utilities and regulators have implemented a variety of different approaches to remove the throughput incentive. Regardless of which approach is used, a frame of reference is created, and used to compare with actual results. Periodic tariff price adjustments true up actual results to the expected results and are critical to the decoupling approach.

- *Average revenue-per-customer.* This approach is often considered for utilities, where their underlying costs during the period between rate adjustments do not vary with consumption. Such can be the case for a wires-only distribution company, where the majority of investments are in the wires and transformers used to deliver the commodity.

- *Forecast revenues over a period of time and use a balancing account.* This approach is often considered for utilities where a significant portion of the costs (primarily fuel) vary with consumption. For these cases, it might be best to use a price-based decoupling mechanism for the commodity portion of electric service (which gives the utility the incentive to reduce fuel and other variable costs), while using a revenue-per-customer approach for the "wires" costs. Alternatively, regulators can use traditional tariffs for the commodity portion and apply decoupling only to the wires portion of the business.

Sample Approach to Removing the Throughput Incentive[1]

Implementing decoupling normally begins with a traditional revenue requirement rate case. Decoupling can also be overlaid on existing tariffs where there is a high confidence that those tariffs continue to represent the utility's underlying revenue requirements.

Under traditional rate of return regulation:

Price (Rates) = Revenue Requirement/Sales
(test year or forecasted)

[1] In this section, the revenue per customer approach is discussed, but can be easily adapted to a revenue forecast approach.

The revenue requirement as found in the rate case will not change again until the next rate case. Note that the revenue requirement contains an allowance for profit and debt coverage. Despite all the effort in the rate case to calculate the revenue requirement, what really matters after the rate case is the price the consumer pays for electricity.

After the rate case:

Actual revenues = Price * Actual Sales

And

Actual Profit = Actual Revenue – Actual Costs

Based on the rate case "test year" data, an average revenue-per-customer value can then be calculated for each rate class.

$$\text{Revenue Requirement } t_0 \text{ /number of customers } t_0 = \text{revenue per customer (RPC)}$$

Thus, at time "zero"(t_0), the company's revenues equal its number of customers multiplied by the revenues per customer, while the prices paid by customers equal the revenues to be collected divided by customers' consumption units (usually expressed as $/kW for metered demand and $/kWh for metered energy). Looking forward, as the number of customers changes, the revenue to be collected changes.

$$\text{Revenue Requirement } t_n = \text{RPC} * \text{number of customers } t_n$$

For each future period (t_1, t_2…, t_n), the new revenue to be collected is then divided by the expected consumption to periodically derive a new price, the true-up.

$$\text{Price (Rates) } t_n = \text{Revenue Requirement } t_n \text{ / Sales } t_n$$

$$\text{True up} = \text{Price } t_n - \text{Price } t_0$$

Prices can also be trued-up based on deviations between revenue and cost forecasts and actual results, where a forecast approach is used. Note that no redesign of rates is necessary as part of decoupling. Rate redesign might be desirable for other reasons (for more information on changes that promote energy efficiency, see Chapter 5: Rate Design), and decoupling does not interfere with those reasons.

The process can be augmented by various features that, for example, explicitly factor in utility productivity, exogenous events (events of financial significance, out of control of the utility), or factors that might change RPC over time.

Timing of Adjustments

Rates can be adjusted monthly, quarterly, or annually (magnitude of any t_n). By making the adjustments more often, the magnitude of any price change is minimized. However, frequent adjustments will impose some additional administrative expense. A plan that distinguishes commodity cost from other costs could have more frequent adjustments for more volatile commodities (if these are not already being dealt with by an adjustment clause). Because the inputs used for these adjustments are relatively straight-forward, coming directly from the utility's billing information, each filing should be largely administrative and not subject to a significant controversy or litigation. This process can be further streamlined through the use of "deadbands," which allow for small changes in either direction in revenue or profits with no adjustment in rates.

Changes to Utility Incentives

With decoupling in place, a prudently managed utility will receive revenue from customers that will cover its fixed costs, including profits. If routine costs go up, the utility will absorb those costs. A reduction in costs produces the opportunity for additional earnings. The primary driver for profitability growth, however, will be the addition of new customers, and the greatest contribution to profits will be from customers who are more efficient—that is, whose incremental costs are the lowest.

An effective decoupling plan should lower utility risk to some degree. Reduced risk should be reflected in the cost of capital and, for investor-owned utilities, can be realized through either an increase in the debt/equity ratio, or a decrease in the return on equity investment. For all utilities, these changes will flow through to debt ratings and credit requirements.

In addition, decoupling can be combined with performance indicators to ensure that service quality is maintained, and that cost reductions are the result of gains in efficiency and not a decline in the level of service. Other exogenous factors, such as inflation, taxes, and economic conditions, can also be combined with decoupling; however, these factors do not address the primary purpose of removing the disincentive to efficiency. Also, if there is a distinct productivity for the electric utility as compared with the general economy, a factor accounting for it can be woven into the revenue per customer calculations over time.

Allocation of Weather Risk

One specific factor that is implicit in any regulatory approach (whether it be traditional regulation or decoupling) is the allocation of weather risk between utilities and their customers. Depending on the policy position of the regulatory agency, the risk of weather changes can be allocated to either customers or the utility. This decision is inherent to the rate structure, even if the regulatory body makes no cognizant choice.

Under traditional regulation, weather risk is usually largely borne by the utility, which means that the utility can suffer shortfalls if the weather is milder than normal. At the same time, it can enjoy windfalls if the weather is more extreme than normal. These scenarios result because, while revenues will change with weather, the underlying cost structure typically does not. These situations translate directly into greater earnings variability, which implies a higher required cost of capital. In order to allocate the weather risk to the utility, the "test year" information used to compute the base revenue-per-customer values should be weather normalized. Thereafter, with each adjustment to prices, the consumption data would weather normalize as well.

Potential Triggers and Special Considerations in Decoupling Mechanisms

Because decoupling is a different way of doing business for regulators and utilities, it is prudent to consider off-ramps or triggers that can avoid unpleasant surprises. The following are some of the approaches that might be appropriate to consider:

- *Banding of rate adjustments.* To minimize the magnitude of adjustments, the decoupling mechanism could be premised on a "dead band" within which no adjustment would be made. The effect would be to reduce the number of tariff changes and possibly, but not necessarily, the associated periodic filings.

  The plan can also cap the amount of any single rate adjustment. To the extent it is based on reasonable costs otherwise recoverable under the plan, the excess could be set aside in a regulatory account for later recovery.

- *Banding of earnings.* To control the profit level of the regulated entity within some bounds, earnings greater and/or less than certain limits can be shared with customers. For example, consider a scenario in which the earnings band is 1 percent on return on equity (either way) compared to the allowed return found in the most recent rate case. If the plan would share results outside the band 50-50, then if the utility earns +1.5 percent of the target, an amount equal to 0.25 percent of earnings (half the excess) is returned to consumers through a price adjustment. If the utility earns -1.3 percent of the target, however, an amount equal 0.15 percent of earnings (half the deficiency) is added to the price. Designing this band should leave the utility with ample incentive to make and benefit from process engineering improvements during the plan, recognizing that a subsequent rate case might result in the benefits accruing in the long run to consumers. While the illustration is "symmetrical," in practice, the band can be asymmetrical in size and sharing proportion to assure the proper balance between consumer and utility interests.

- *Course corrections for customer count changes, major changes for unique major customers, and large changes in revenues-per-customer.* Industrial consumers might experience more volatility in average use per customer calculations because there are typically a small number of these customers and they can be quite varied. For example, the addition or deletion of one large customer (or of a work shift for a large customer) might make a significant difference in the revenue per customer values for that class, or result in appropriate shifting of revenues among customers. To address this problem, some trigger or off-ramp might be appropriate to review such unexpected and significant changes, and to modify the decoupling calculation to account for them. In some cases, a new rate case might be warranted from such a change.

- *Accounting for utilities whose marginal revenues per customer are significantly different than their embedded average revenue per customer.* If a utility's revenue per customer has been changing rapidly over time, imposition of a revenue-per-customer decoupling mechanism will have the effect of changing its profit growth path. For example, if incremental revenues per customer are growing rapidly, decoupling will have the effect of lowering future earnings, although not necessarily below the company's allowed rate of return. On the other hand, if incremental revenues per customer are declining, decoupling will have the effect of increasing future earnings. Where these trends are strong and there is a desire to make decoupling "earnings neutral," vis-à-vis the status quo earning path, the revenue-per-customer value can be tied to an upward or downward growth rate. This type of adjustment is more oriented toward maintaining neutrality than reflecting any underlying economic principle. Care should be taken to exclude recent growth in revenues per customer that are driven by inefficient consumption (usually tied to the utility having a pro-consumption marketing program).