

ENERGY EFFICIENCY REGULATORY STRUCTURES

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The Need for Appropriate Regulatory Structures to Encourage Sustainable Energy Efficiency Investments

Overview and Observations

The region of the country served by Southern Company is undergoing significant growth, driven by population increases and a growing economy. Southern Company believes that energy efficiency should play a role in helping offset some of the energy growth that will accompany this increased population and economic growth. Each of the retail operating companies that are part of the Southern Company system will need to determine the specific role that energy efficiency plays in offsetting growth within the service area covered by that company. This determination will need to be made within the context of the laws, rules and regulations governing electric utility operations in that state, and in collaboration with the local body that regulates utility operations.

In order for energy efficiency investments to play a significant role and be sustainable over time, they must create win -- win situations. Both utility customers and utility shareholders must benefit to produce the atmosphere for sustained investments in energy efficiency.

Under traditional utility regulatory structures significant investments in energy efficiency can create reductions in shareholder value as a result of regulatory lag and lower rates of growth in earnings and earnings per share. Southern Company has been exploring different regulatory structures that may help reduce this impact. Some of the concepts the company has been exploring include decoupling, fixed-variable pricing and selected shareholder incentives plans to reduce the long-term impacts of energy efficiency investments on utility shareholder value.

The complete and timely recovery of energy efficiency program costs is absolutely necessary if energy efficiency investments are to be sustained. This concept is important no matter what the regulatory structure. Recovery of these costs through some type of rider mechanism would be the most desirable as that would allow more frequent changes in response to different program activity levels and adoption rates by customers. There are several methods for mitigating the effects of the lost contribution towards fixed costs that results from increased energy efficiency. Fixed variable pricing is a method which may have the effect of reducing the lost contribution towards fixed costs associated with energy efficiency and also provide more appropriate price signals to customers. The decoupling of utility revenues from energy sales is a concept that has found some favor in natural gas regulation and is beginning to be used by electric utilities in some states. Decoupling may be desirable in some situations where utilities are unable to adjust rates for significant periods of time, where usage per customer is flat or declining or where energy sales are volatile. Finally, there is a need for special regulatory considerations for energy efficiency investments to ensure that utility shareholders are not unfairly disadvantaged by large investments in energy efficiency as an alternative to supply-side investments.

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Southern Company operates in four different states: Alabama, Georgia, Florida and Mississippi. The company's retail operations are regulated by state utility regulatory authorities in each of these states, and the regulatory process and structure varies significantly. Therefore, all of the energy efficiency regulatory concepts discussed in this report may not be needed or desirable in each of these states. Because of the different regulatory structures among states, it is possible that no single energy efficiency regulatory structure or concept will be appropriate and beneficial for all Southern Company retail subsidiaries.

Introduction and Context

The United States Census Bureau estimates that between the years 2000 and 2030, some 50% of the population growth in United States will occur in the region that the Census Bureau defines as the South, reaching from the mid-Atlantic to Texas. The Southeast and the Southern Company's territory will enjoy its share of that population growth. In fact, the latest customer forecast predicted that Southern Company's retail customer count will grow from just more than 4 million today, to almost 6 million by 2030. To support this population growth, and the increased economic activity that will come with the population growth, Southern Company will need to be prepared for significant increases in electricity demands in the areas it serves.

To accommodate this significant growth in electricity demand, Southern Company believes that a balanced, diverse portfolio of resource alternatives will be needed. Energy efficiency and demand control will be at the forefront of those resource alternatives. Southern Company is a part of the Leadership Group for the National Action Plan for Energy Efficiency and has committed to the following recommendations included in the plan:

- Recognize energy efficiency as a high-priority resource.
- Make a strong, long-term commitment to implement cost-effective energy efficiency as a resource.
- Broadly communicate the benefits of and opportunities for energy efficiency.
- Promote sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective.
- Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.

The company also will pursue those renewable energy opportunities available here in the Southeast. The region does not have the abundant wind energy opportunity that is prevalent in the middle and upper portions of the U.S. The Southeast also doesn't have geothermal resources such as those in the Far West. But Southern Company will pursue those opportunities that have potential here to produce cost effective renewable energy for its customers.

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Even with additional energy efficiency investments and with the renewable opportunities available, Southern Company will still need to make significant investments in conventional supply-side generation technologies such as natural gas peaking and combined cycle generation, clean coal technology and new nuclear generation.

Southern Company's Emphasis in Demand Control and Energy Efficiency

Southern Company is a national leader in the demand control area. Data gathered as a part of the Federal Energy Regulatory Commission's (FERC) 2006 Survey on Demand Response showed that Southern Company's demand response programs delivered one of the largest potential peak reductions of any utility surveyed. The company has a variety of programs, targeting residential commercial and industrial customers. These programs provide incentives for customers to reduce their energy use during peak demand periods. Southern Company conducts one of the largest and most innovative real-time (hourly) pricing programs in the country, with more than 2,000 commercial and industrial customers involved. Southern Company's Gulf Power subsidiary has an innovative critical peak pricing program targeting residential customers. This program utilizes technology to enable the customers to reduce their home electricity demand during peak periods in response to variable pricing. In 2007, Southern Company spent almost \$80 million on a combination of energy efficiency and demand control programs. The combined impact of the company's programs is a reduction in retail electricity demand during peak demand periods by almost 3,000 megawatts.

The company is entering a period where it may be desirable to implement new energy efficiency programs targeting reductions in load not only at peak times, but also throughout the year. The addition of investments in programs targeting year-round energy reductions is indicated as Southern Company moves into an era where more base load capacity -- power plants built to operate around the clock throughout the year -- is needed. These programs targeting energy reductions throughout the year also will provide tools for the company's customers as it helps them deal with the price increases that have been unavoidable as fuel costs increase and as Southern Company implements significant new environmental controls on its power plants in compliance with federal and state environmental rules.

Impacts of Aggressive Energy Efficiency Programs on Shareholders and Customers

Energy efficiency programs targeting larger energy reductions create customer issues and regulatory issues that need to be addressed. If investments in energy efficiency are to be successful, they need to benefit both customers and utility shareholders. Customers need to see a positive benefit from lower bills or lower prices as a result of the programs. Programs targeting large energy reductions are likely to force electricity prices to rise faster than they would have under a traditional supply-side generation strategy. Those customers who are able to take advantage of these energy efficiency programs may see lower electricity bills even though their prices rise. This is because the reductions in their

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energy consumption are sufficient to overcome the increase in price. However, customers who are unable to take advantage of these programs see higher prices and higher electricity bills. If all customers are able to take advantage of the energy efficiency programs offered by the utility, then all customers would benefit. But that is typically not the case. Therefore, there must be an effective balancing of the total "average bill" reductions that can result from energy efficiency programs with the potential for higher bills and higher prices for customers who are unable to participate.

A significant contribution to the increase in prices occurs because energy efficiency programs tend to lower energy sales and revenues in a greater proportion than the cost avoided by not producing the energy. This creates the potential negative impact on non-participating customers that is mentioned in the previous paragraph. Since the reduction in revenues is larger than the reduction in cost, there is the potential for under recovery of the company's fixed costs unless prices can be adjusted in a timely manner. Under conventional regulation, such a price adjustment would occur during a utility "rate case." Between rate cases, utilities rely on growth in revenues (driven by growth in energy sales) to support earnings as additional investments are made to serve growth and to maintain reliability. Significant investments in energy efficiency are likely to reduce this growth in energy sales and therefore revenue growth between rate cases. If the time between adjustments in prices is significant, the utility will see erosion in returns and an under-recovery of its costs.

Also, under conventional utility regulatory structures, utility earnings and earnings per share growth are related to the return on assets that are invested to serve existing and new customers. When a utility shifts its strategy from one of investing in capital supply-side resources, to one that focuses more on large energy efficiency expenditures, then earnings growth and earnings per share growth slows. Since a utility's stock value is heavily influenced by its earnings per share growth, this shift in strategy has the potential to reduce the value of a shareholder's investment in the utility.

A Sampling of Energy Efficiency Regulatory Structures

There are a number of different regulatory structures that are being used around the country to deal with the issues associated with energy efficiency programs. Those structures can be categorized into two broad groupings. The first grouping is composed of regulatory structures designed to deal with the lost contribution towards fixed costs that occurs between rate cases. The second grouping is composed of regulatory plans (shareholder incentives) designed to deal with the negative impact of large energy efficiency programs on utility shareholders. This report does not try to deal comprehensively with all the potential structures within these two groupings, but discuss the ones that Southern Company has chosen to examine in some detail.

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Structures Dealing with Lost Contribution towards Fixed Costs

Decoupling utility revenues from energy sales is one concept that has been proposed to deal with lost contribution towards fixed costs between rate cases and the resulting erosion on utilities' earnings. Decoupling breaks the tie between energy sales and revenues and therefore profits. It does this through a mechanism that automatically adjusts the utility's allowed revenues between rate cases based on some parameter other than its electricity sales. A "balancing account" is then used to ensure that the utility does not over or under recover allowed revenues over time. Customers' prices are adjusted on a regular basis, usually yearly, using an additional energy charge on the bill. The adjustment in allowed revenue requirements can be based on the number of customers served by the utility or some other factor such as a consumer price index. The balancing account mentioned earlier is established to capture any under recovery or over recovery of allowed revenue requirements during this period. In each successive time period, customers' prices are adjusted. The adjustment would be downward to refund over-recoveries or upward to collect any under-recoveries. More than a dozen states have approved some type of decoupling plan. However, these plans are covering primarily natural gas distribution companies. Average gas use per gas customer has been declining over time in the natural gas industry and decoupling is one method to deal with that decline. There are only a few instances where decoupling has been approved for electric utilities. California has had a form of decoupling for a number of years. A few other states have acted recently to implement this type of mechanism for electric utilities. California, Idaho and Maryland are examples of states that have used decoupling with electric utilities. In California, allowed revenue requirements are adjusted based on an inflation index. In Idaho and Maryland, allowed revenue requirements are adjusted based on the number of customers served by the utility.

While decoupling can, in some cases, reduce or eliminate the regulatory lag issues associated with energy efficiency, it does not improve pricing signals to customers or deal with the long-term negative impacts that large energy efficiency investments can have on shareholders.

Fixed variable pricing is another method of dealing with the potential loss of contribution towards fixed costs associated with significant energy efficiency investments. Fixed variable pricing is a pricing structure for sending pricing signals to a utility's customers. Under fixed variable pricing, the part of the customer's price that applies to energy usage is adjusted to be closer to or approximately equal to the marginal cost associated with providing that usage. Southern Company subsidiary Georgia Power's real-time pricing rate for large commercial and industrial customers is an example of a pricing program that closely ties the marginal price for additional usage to the marginal cost of providing that usage. One advantage of fixed variable pricing is that it provides the proper economic price signals to customers. A customer who reduces usage sees the same economic benefit as the utility for the reduction in usage. Fixed variable pricing also

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helps reduce the energy price increases associated with large energy efficiency programs targeting energy reductions. There are downsides that can come with this type of pricing structure if it is not implemented properly. In implementing this type of structure, care needs to be taken so larger customers -- those with larger homes and facilities -- are not unfairly advantaged at the expense of smaller customers.

Like decoupling, fixed variable pricing can be an effective method of dealing with the potential for lost contribution towards fixed costs between rate cases associated with energy efficiency programs. But also like decoupling, this pricing concept does not address the long-term negative impacts that large energy efficiency programs can have on shareholders.

Shareholder Incentive Structures

A number of states allow shareholder incentives as part of their energy efficiency regulatory structure. Examples are Arizona, California, Connecticut, Massachusetts, Minnesota, Nevada, New Hampshire, Rhode Island, Vermont and Wisconsin. This report discusses three types of shareholder incentive structures: shared savings structures, energy efficiency cost capitalization structures and a new non-traditional "virtual power plant model," being proposed by Duke Power.

Shared savings structures allow the utility to earn an "additional sum" based on some formula tied to the effectiveness of energy efficiency programs. Georgia Power Company has a shared savings plan that is applicable to one of its energy efficiency programs officially "certified" by the Georgia Public Service Commission. Under this plan Georgia Power can receive 15 percent of the net savings associated with the program. The net savings of a program are calculated by first determining the present value of the cost savings generated over the life of the energy efficiency measures that are installed through program activities for a particular period. Then, the costs of the program activities for that same period are subtracted from the savings to determine the "net savings." Georgia Power then receives 15 percent of this amount as an incentive for efficient program implementation. In order to be eligible for the incentive, the company must achieve certain minimum targets for overall program activities. The shared savings model is a relatively well-known method of providing an incentive to utilities for efficient energy efficiency program implementation, and may be structured to fully or partially mitigate the negative impacts associated with energy efficiency programs. California recently implemented a shared savings plan for utilities in that state.

A second method of providing utility shareholder incentives is to allow the utility to earn a return on energy efficiency program costs. Most costs for an energy efficiency program would be considered operations and maintenance costs, and would only be allowed recovery dollar for dollar -- so long as the costs were prudent. Allowing the utility to place these costs in a "regulatory asset" account and earn a return on them provides some additional earnings opportunity when compared with simply a dollar for dollar recovery.

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The utility earns its allowed return or in some cases may be able to earn a "bonus" return that is higher than its allowed return for other types of rate base assets. The state of Nevada uses a cost capitalization incentive and has allowed a bonus return for energy efficiency investments.

Duke Power has recently developed and filed an innovative regulatory incentive plan for energy efficiency programs. The new plan, sometimes referred to as a "virtual power plant" model, seeks to make demand-side energy efficiency investments financially equal to traditional supply-side investment alternatives. Under this plan, avoided capacity and energy impacts are calculated for each energy efficiency program. The avoided cost savings from these reductions in capacity and energy are computed over the life of the program and then the net present value of these costs is determined. The present value of these annual avoided capacity and energy savings are treated as an equivalent avoided capacity investment: a virtual power plant. Duke Power has proposed that they be allowed to earn a return on a percentage of this equivalent utility investment. This new plan has been filed in some of the states where Duke Power operates.

All three of these structures -- shared savings, cost capitalization and the virtual power plant model -- can help support a restoration of earnings-per-share performance for the utility shareholder. Both the shared savings and cost capitalization structures are known and understood. These structures are therefore somewhat familiar to regulators and utilities. The virtual power plant model breaks new ground and as of the writing of this report had not been approved in any regulatory jurisdiction.

These different structures vary in their complexity. The shared savings model and the cost capitalization model are relatively simple in their implementation and already understood by accountants, regulators and utilities. The virtual power plant model is complex when compared with these other structures and requires the utility and its regulator to track each energy efficiency program as a "virtual power plant" with a specific life, cost and verified value.

The structures are also different in their use of "regulatory asset" accounts. The shared savings model allows the utility to earn an incentive on the energy efficiency programs as soon as the impacts of the program can be formally verified. At least one state, California, allows utilities to book a percentage of the expected incentive even before the programs are verified and then true up that incentive once verification is complete. Both the cost capitalization and the virtual power plant model involve the creation of regulatory asset accounts. The utility then earns a return on these accounts similar to the way it would earn a return on a supply-side power plant or other asset. This regulatory asset account is then amortized over a period of time. These regulatory asset accounts may grow significantly over time, especially in the case of the virtual power plant model. These large regulatory asset accounts create additional risk for the utility and its shareholders if the emphasis on energy efficiency changes over time.

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Application of These Concepts to Southern Company

Southern Company operates in four states: Alabama, Florida, Georgia and Mississippi. The company's retail operations are regulated by state utility regulatory authorities in each of these states, and the regulatory process and structure varies significantly among the states.

Alabama Power and Mississippi Power subsidiaries are regulated under structures that can allow more frequent adjustments to energy prices under certain conditions. Therefore, the avoidance of this particular type of regulatory lag issue may be less of an issue than in other states. The same may be true in Georgia where Georgia Power has been operating under regulatory rulings that set rates for a specific period of time and provide for a sharing mechanism between the company and its customers. Gulf Power Company currently operates under a traditional rate case oriented regulatory structure. Under this structure a mechanism to lessen regulatory lag may be required.

A move toward fixed variable pricing is a concept that may be beneficial in all of Southern Company's subsidiaries, though any move toward fixed variable pricing must be thoughtful and consider the potential impacts on low income and other types of customers. The concept of matching price to cost is a sound economic concept no matter the regulatory structure. The added benefits of a reduction in potential lost contribution towards fixed costs between rate cases and a reduction in the price increase associated with large energy efficiency investments may also be beneficial no matter the regulatory structure.

The need for some type of energy efficiency incentive plan to minimize the negative impacts of large investments in energy efficiency on shareholders is a necessity in each of the company's subsidiaries if significant investments in energy efficiency are to be expected and sustained over time. The specific type of incentive plan -- shared savings, cost capitalization or virtual power plant -- may differ with each company and each regulatory body.

Conclusion

In order to create the atmosphere required for energy efficiency to play its proper role in helping meet growing electricity demands in the region, Southern Company believes that the following concepts are essential.

The complete and timely recovery of energy efficiency program costs must form the foundation of any sustainable energy efficiency investment program. This foundation of complete and timely recovery of program costs applies uniformly across all of the retail operating companies within the Southern Company system. Additional measures to deal with the impacts of regulatory lag may be indicated in some cases.

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The two elements reviewed above, complete and timely recovery of costs and a method to deal with lost contributions towards fixed costs where needed, may be necessary for sustainable energy efficiency investments, but they are not sufficient within themselves. The other key element to sustainable energy efficiency investments is an appropriate method to deal with the negative impacts on utility shareholders that can result from a significant shift to energy efficiency strategies. There are several shareholder incentive structures available to help address this issue. While no single structure may be applicable throughout the Southern Company system, a plan similar to the current shared savings plan at Georgia Power may have some advantages over other types of plans. Finally, the impacts of higher electricity prices on customers who can not participate in energy efficiency programs must be considered in all regulatory approaches.

The purpose of this report has been to provide an overview of some of the regulatory issues associated with a major shift toward energy efficiency as an alternative to traditional supply-side investments. Each of the retail operating companies that are part of the Southern Company system will need to determine how to handle these issues within the context of the laws, rules and regulations governing electric utility operations in the particular state where the company operates and in collaboration with the local body that regulates utility operations in that state.