

Addressing the Level of Florida's Electricity Prices

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September 28, 2011

¹ Director of Energy Studies. I wish to thank Sandy Berg, Mary Galligan, Lynne Holt, Colin Knapp, and Mark Jamison for their helpful comments and suggestions. All errors are my own.

Introduction

During his campaign for Governor, Rick Scott outlined his plan for Florida titled *7 Steps. 700,000 Jobs. 7 Years*. The third step in the plan, addressing Regulatory Reform, states that “Reducing unnecessary costs that Tallahassee places on Florida businesses will result in creating 240,000 jobs.” One tenet of this step of the plan is to “address Florida’s relatively expensive electricity costs so businesses could save approximately \$3.25 billion”. This statement raises two questions: (1) Are Florida’s electricity costs to customers relatively higher than those in neighboring states; and (2) If they are higher, what are the causes? Looking at this question in a historical context, the relative rank of electricity prices by state changes over time due to a number of factors:

- Investment decisions for capacity are made over a period of years, often many years before a plant begins to produce electricity;
- Electric utilities that make prudent investments are typically allowed to recover those investments from ratepayers;
- Electric utilities also buy on the spot market and prices can fluctuate quickly when such transactions occur;
- Florida, compared to other states in the region, relies greatly on natural gas which has been more prone to price fluctuations than coal, which is typically purchased under longer-term contracts, or nuclear, which has high capital (construction) costs but low operating costs;
- Once a plant is operating, if decisions are changed in midstream to lower rates on, say, industrial customers, other consumers will need to pay more.

Comparison of Electricity Costs

The answer to the first question depends on what is meant by “costs.” One way of answering that question would be to directly compare prices that utilities charge across the states. Such a comparison would be simple to read, but it would provide confusing information because each customer pays several prices and so no one price tells very much of the story.

Another way of answering the question about costs is to compare customers’ bills. The Edison Electric Institute’s (EEI’s) well-known bill comparison study provides such a comparison.² This study computes total costs for hypothetical customers, such as a residential customer consuming 750 kilowatt hours (kWh) per month, a small business consuming 1000 kWh per month, or a large business consuming 180,000 kWh per month. EEI’s study indicates for example that customers of some Florida utilities have bills that are lower than bills for comparable customers in neighboring states. This comparison calls into question the validity of the governor’s concerns at least for these utilities.

But a bill comparison does not aggregate costs across utilities in a state, which is the level of aggregation the governor seems to consider. Indeed, even though the EEI bill comparison shows some Florida utilities with price levels that compare favorably with major utilities in neighboring states, rates for

² Edison Electric Institute, “Typical Bills and Average Rates Report.” The report is reproduced on a regular basis.

Florida's 56 electric utilities vary greatly. According to Florida Public Service Commission data³, the monthly bill for a residential customer consuming 1000 kWh per month ranged from \$81.48 to \$205.00 in 2010, depending upon the utility.

In this study we compare Florida as a whole to other states in terms of the total cost of electricity to the customer. Our approach is similar to the bill comparison approach in that we include all of the prices that customers pay, but different in that we consider the state as a whole and not individual utilities. As such our approach considers averages: Some utilities would have lower costs for customers than our results and some utilities will have higher costs for customers.

In this study, we focus on the total amounts that different types of customers in Florida pay for electricity as reported by the U.S. Department of Energy.⁴ We divide these total payments by the number of kWhs consumed so that we can compare across states.⁵ Figure 1 shows the average residential electricity cost expressed per kWh for the state of Florida and six other southeastern states for 1990 through 2008. From 1990 through 2002, Florida's electricity costs were comparable to the other states' costs. Beginning in 2003, the residential cost of electricity in Florida grew faster than costs in the other states and is now about 10% higher than the next highest state, Alabama. Figure 2 shows the average cost to commercial customers, while Figure 3 shows the costs to industrial customers. From 1990-2000, commercial customers in Florida enjoyed costs at the lower end of the range of the region, but now even though they experience costs at the higher end of the region, the costs for commercial customers do not stand out in the same way as the residential costs do. Industrial costs, for Florida customers have always been high relative to other southeastern states and show similar disparities to the residential rates over the last 5 years.

³ "Comparative Rate Statistics", Florida Public Service Commission, December 2010.

⁴ "State Energy Data System", U.S. Department of Energy's Energy Information Administration. Accessed September 2011.

⁵ We could use other denominators, such as numbers of customers, which would give us an average customer bill. We choose kWhs because this is a standard practice and is easily understood. Any denominator we would use would give results that are affected by variations in customers across states.

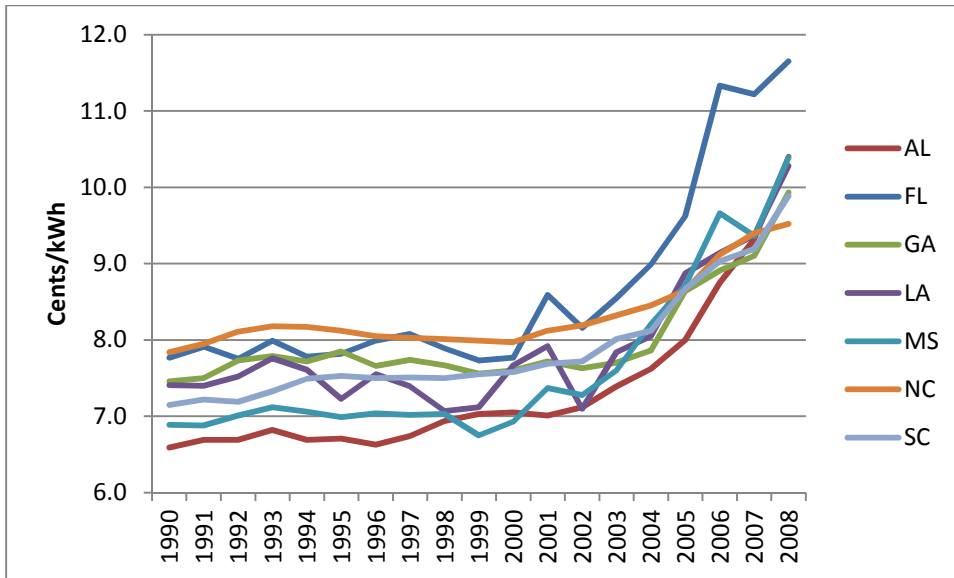


Figure 1. Nominal residential electricity costs per kWh 1990-2008

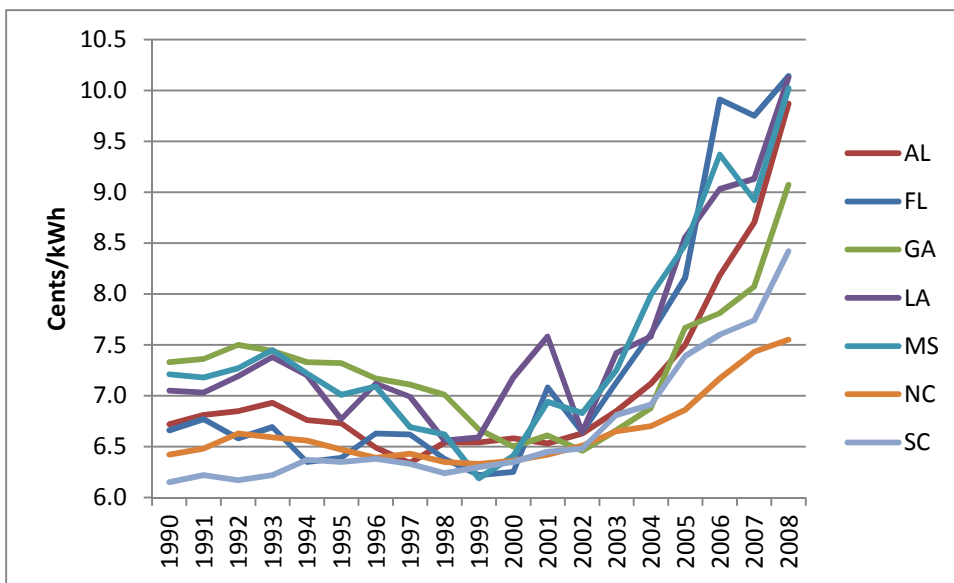


Figure 2. Nominal commercial electricity costs per kWh 1990-2008

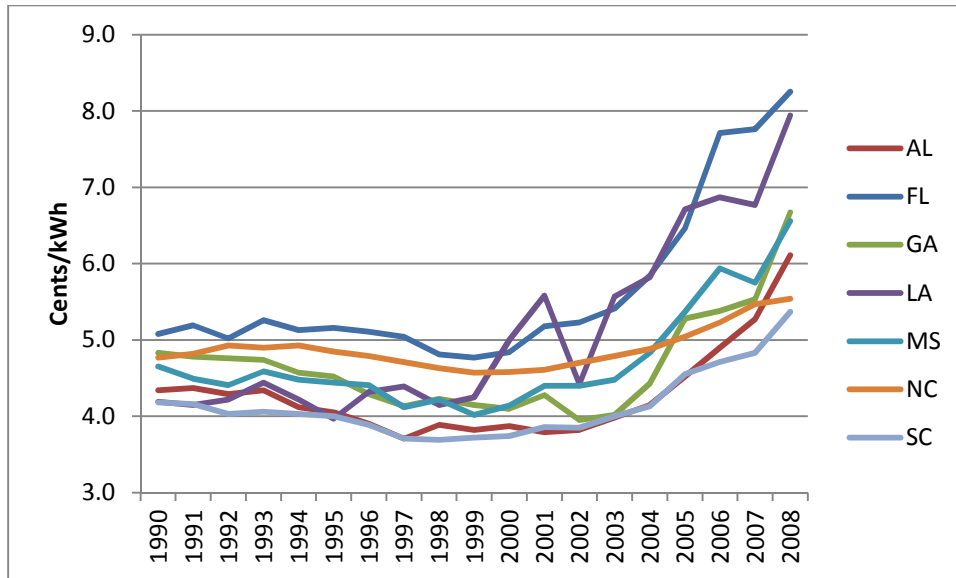


Figure 3. Nominal industrial electricity costs per kWh 1990-2008

Based on Figures 1-3, it appears that Florida’s electricity costs are higher on average than those in neighboring states. But for clarity it is important to repeat that this does not compare customers’ bills, nor compare individual utilities. But the finding that costs on average appear higher in Florida and have risen in recent years raises our second question: Why are Florida’s costs higher? Or more directly, is it reasonable that Florida’s costs are higher?

Costs for Producing Electricity

Determining the source of the cost differences for customers is important and complicated. Because utilities are regulated so that their revenues are based on their costs, analyzing differences in costs for customers is really about analyzing differences in utility. Which utility costs are most important? Figure 4 shows the percentage of the operating expenses of U.S. investor-owned electric utilities in 2009 by broad expense categories.^{6,7} This shows that 55% of operating expenses are related to production of electricity, and 9% are related to depreciation. While not all of the depreciation expenses are related to electricity generating plants, it is clear that a significant portion of the utility’s costs are related to the costs of the electric generators themselves and the fuels used.

⁶ The investor-owned electric utilities in Florida include FPL, Gulf Power, TECO, Progress Energy, and Florida Public Utilities Company.

⁷ Florida has a large number of municipally-owned utilities and electric cooperatives, but comparable data is not available for those utilities.

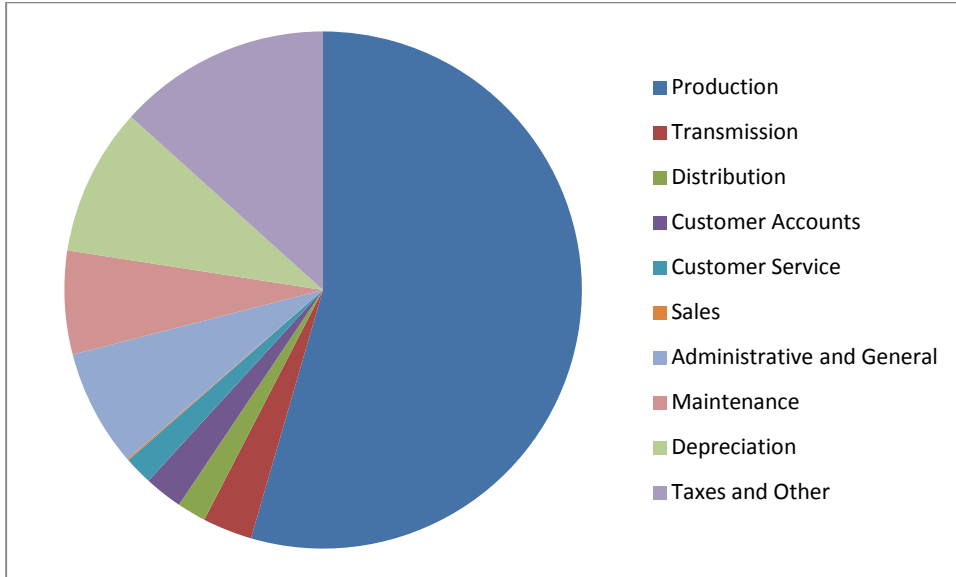
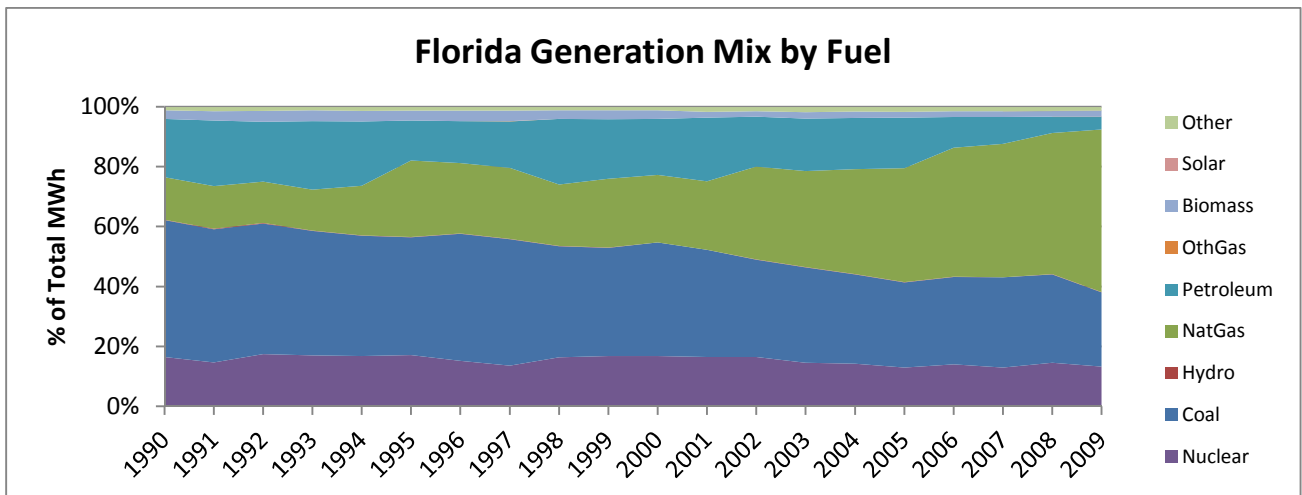


Figure 4. Electric utility operating expenses by function for major U.S. investor-owned utilities

Figure 5 shows the percentage of electricity generated by various fuels for the states of Florida, Georgia, and Alabama since 1990. In 1990, Florida generated approximately 60% of its electricity with uranium and coal. That percentage has since fallen to about 40%, with this decline offset by an increased reliance on natural gas. In contrast, the neighboring states of Alabama and Georgia generated 66% and 78%, respectively, from coal and nuclear energy. By 2009, Florida generated over 50% of its electricity from natural gas. This shift to natural gas has diversified the generation portfolio of the state of Florida, but also occurred at a time when natural gas prices in the region began to increase.



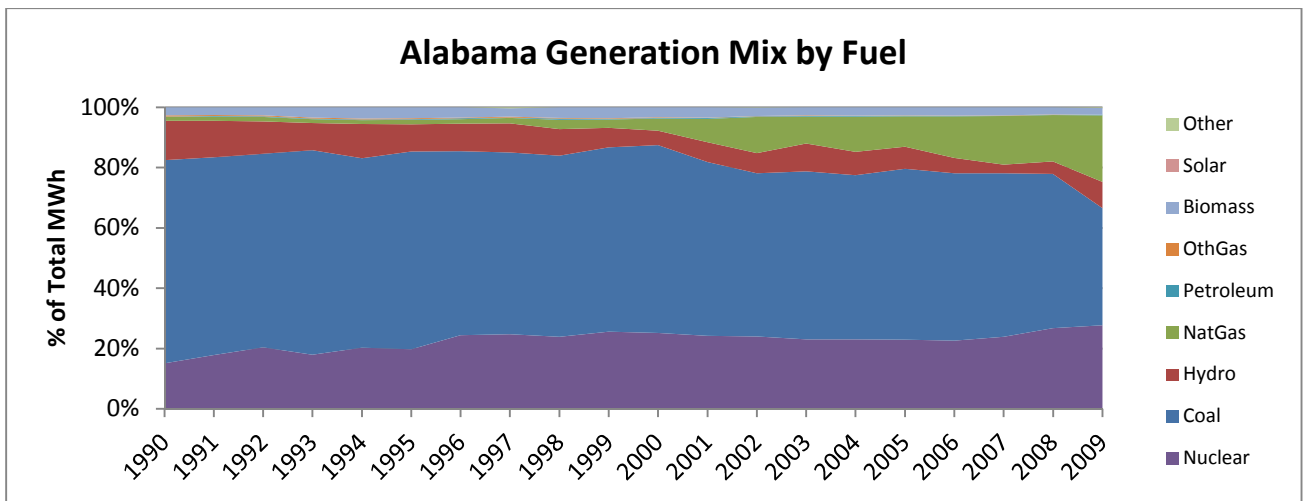
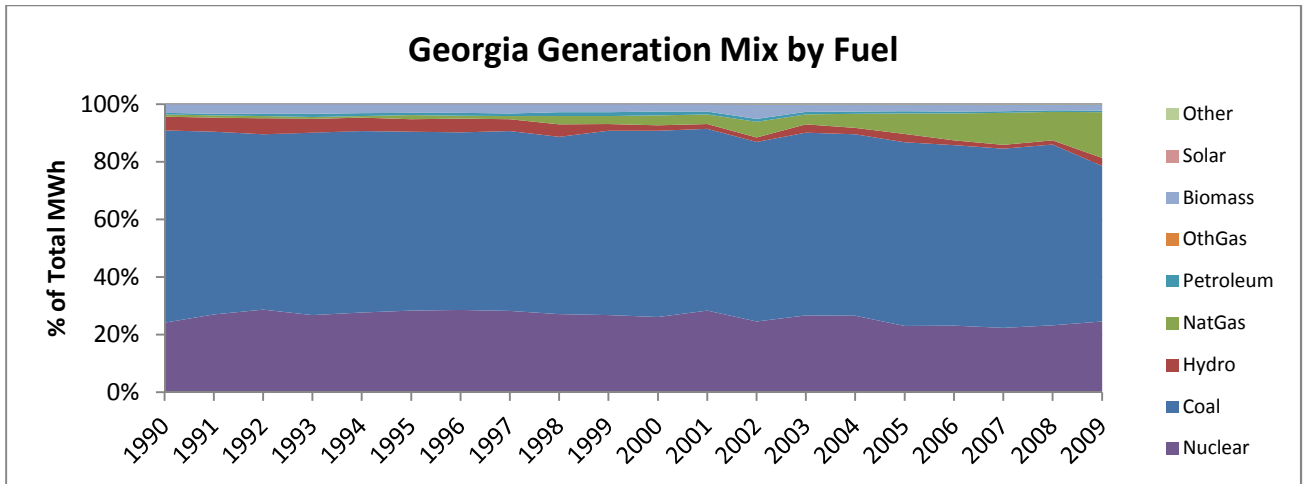


Figure 5. Electric generation by Fuel since 1990 for Florida, Georgia, and Alabama

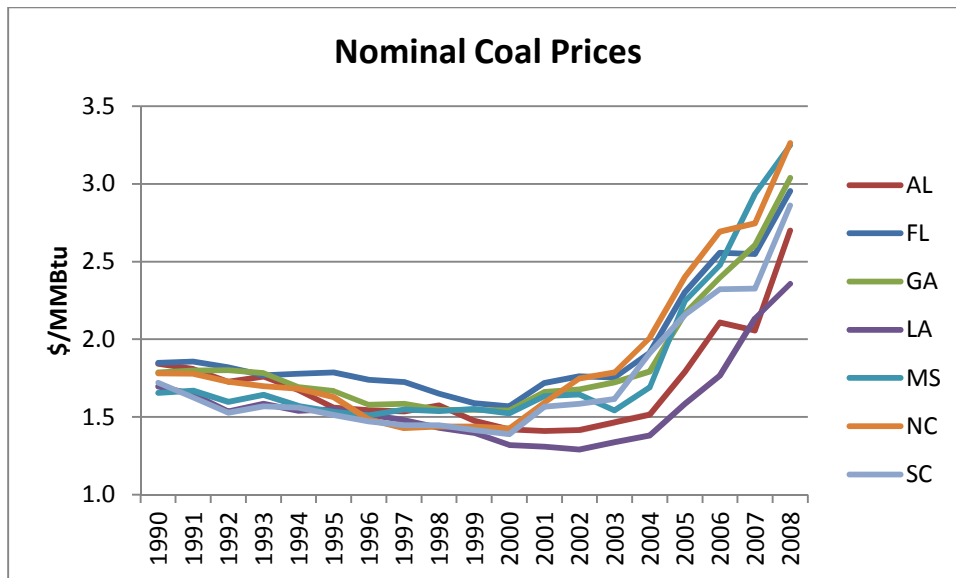
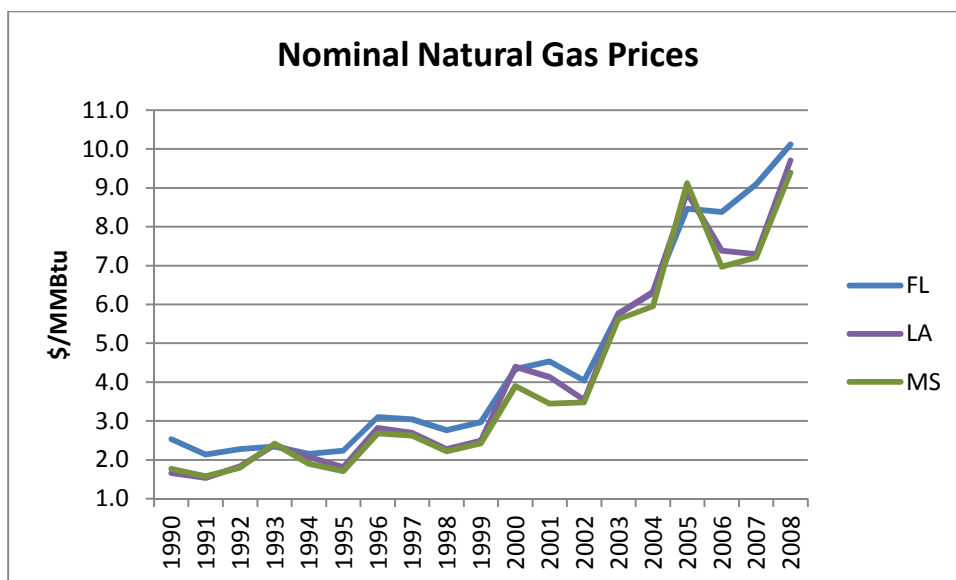


Figure 6. Nominal delivered coal prices since 1990

Figure 6 shows the average nominal coal prices for the southeastern states since 1990. Florida had the highest coal prices in the region from 1993 through 2002, but the state's prices have fallen relative to the rest of the region since, and Florida's prices are closer to the regional average, despite the fact that Florida is on the end of the rail lines used for coal transportation. Figure 7 shows natural gas prices for the three states that are the most significant consumers of natural gas. Florida's prices seem to correspond to the prices in Louisiana and Mississippi, despite the fact that Louisiana and Mississippi are producers of natural gas. The only significant deviation is the period from 2006 through 2008 which followed the rapid increase in natural gas prices from 2002 through 2005.



Overall, it appears that Florida's electricity costs appear high relative to those of neighboring states because Florida uses more natural gas to generate electricity than do the other states. Electricity costs in

the state of Florida are a reflection of the mix of fuels used to generate it. The path of costs for Florida's electric customers since 2002 follow closely costs for customers in Louisiana, another state that relies on natural gas to produce electricity, rather than in Georgia and Alabama, states that rely primarily on nuclear and coal. However, to keep this result in context it is important to realize that the relative standing of a particular state is likely to change over a much shorter period of time than the composition of its generating fleet is able to do. So while it is always important to ask what can be done to provide reliable electric service at reasonable rates to consumers, it is equally important to make sure that those decisions incorporate the uncertainty in the future, recognizing the long-lived nature of the generating assets.

Risks in Choosing Generating Technologies

Concluding that Florida's relatively higher costs results in large part from the choice of using natural gas to generate power begs the question of why Florida uses more natural gas than do other states. Choosing how to generate electricity is complicated and subject to great uncertainty. The generation plants are long-lived, lasting several decades, including the time it takes to construct them. This implies risk because the economic and political landscapes in which utilities operate these assets continually change. Also, a power plant may have the technical capability to produce electricity for thirty years or more, but the period of time that it can produce electricity economically can vary greatly. The price and availability of fuel for the power plants has become more volatile over the past ten years, and the future outlook for fuels is always uncertain. Further, national energy policy regarding a price on the emission of greenhouse gases, if implemented, would change the economics of power production by imposing additional costs on plants fueled by coal and to a lesser extent, natural gas.⁸ Finally, the cost and availability of generation technology will change over time as construction and environmental standards change, regulatory standards evolve, and new technologies are discovered. As a result, the decision regarding a specific type of asset may be prudent at the time the decision is made to construct it, but as realizations of the future differ from the assumptions made at the time, that decision may have an outcome that is not what was expected.

The likelihood that future predictions of the evolution of prices and technologies will not turn out as expected can be characterized by operational risk. There are many practices that can be used to mitigate operational risk such as fuel hedging and the diversification of assets. But these practices don't actually reduce risk, they simply shift risk from one type to another. For example, fuel price hedging may reduce risk in the spot markets in which the fuel is purchased for operational purposes, but they increase the risk from fuel price movements in the futures markets where financial contracts are implemented. As a result, risk mitigation strategies tend to reduce costs when external factors are adversely impacting the utility (i.e. when spot fuel costs are high or when infrastructure is damaged by

⁸ Indeed a study at MIT concluded that a price-based climate policy could make coal uneconomical and drive it from the country's generation base by 2035. See "The Future of Natural Gas: An Interdisciplinary MIT Study," <http://web.mit.edu/mitei/research/studies/natural-gas-2011.shtml> (accessed September 27, 2011).

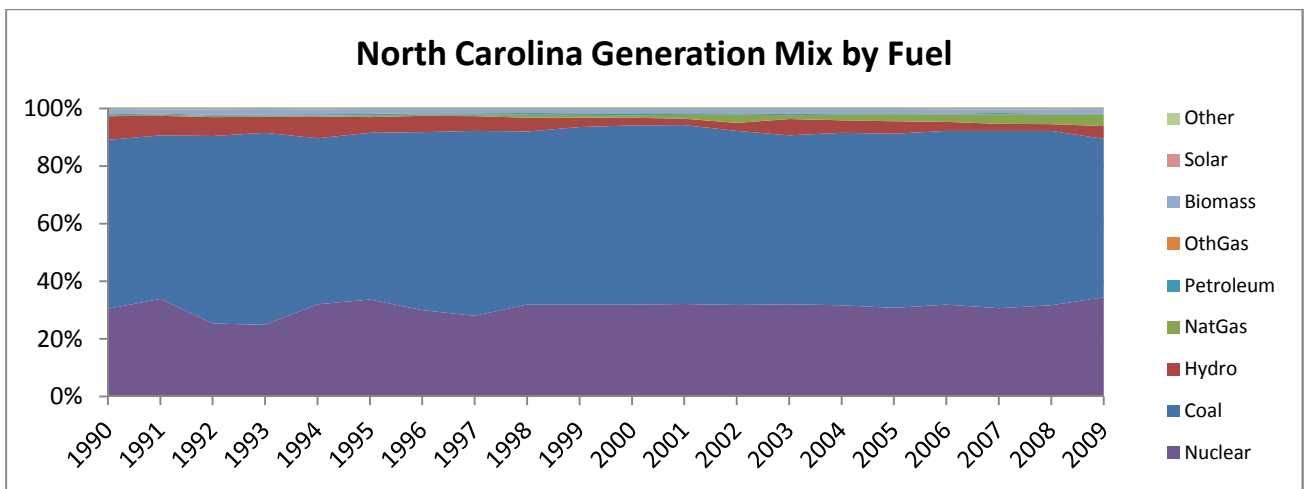
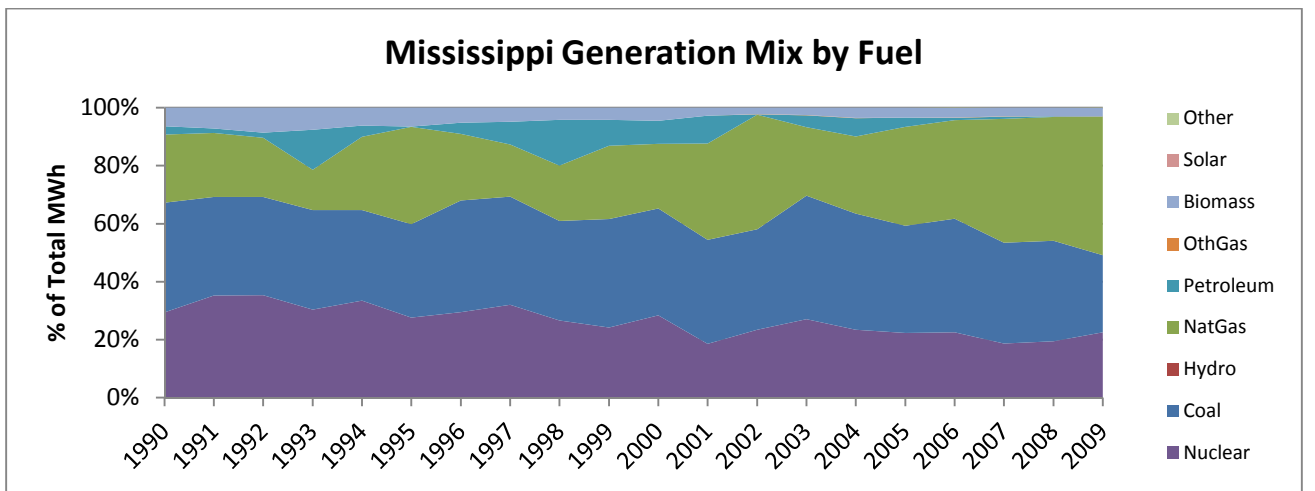
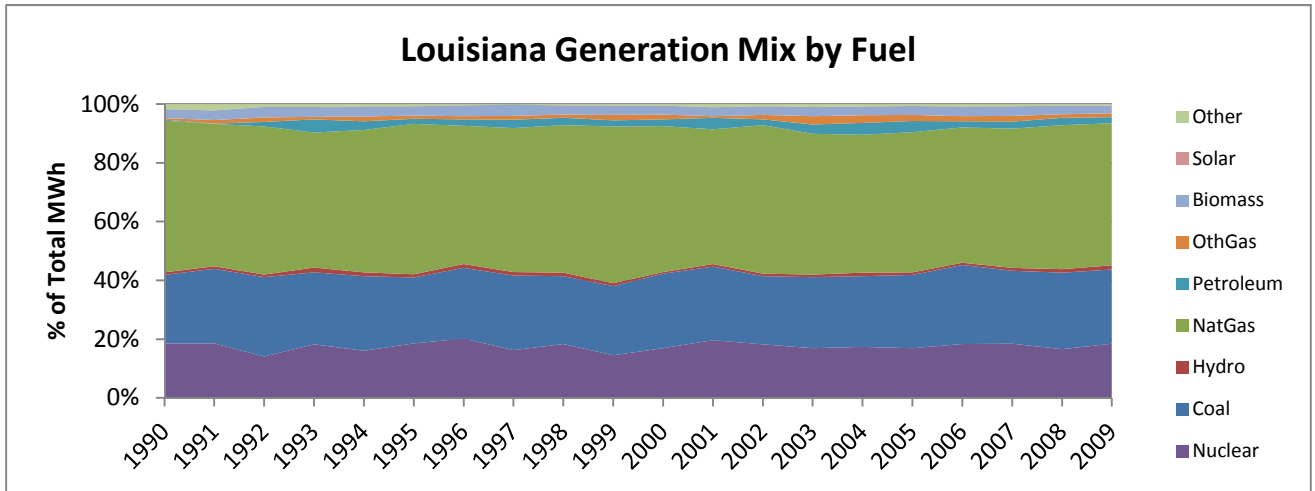
storms), but increase costs when they are not. This increase must be accepted as the cost of insuring against adverse events.

Conclusion

Florida's customers' costs for electricity appear to be higher on average than costs in neighboring states. The difference is most pronounced for residential consumers, but the general pattern holds for business customers as well. This is not to say that all Florida utilities' prices are high relative to their neighbors: Individual utility prices vary greatly in Florida and bill comparison studies highlight that some Florida utilities' rates compare favorably with rates of major utilities in neighboring states.

This relationship between costs in Florida and those in other states began around 2003 when Florida began using relatively more natural gas than neighboring states to generate electricity. That is not to say that the move to natural gas was based on faulty decisions: decisions about how to generate electricity are long term decisions and so have to take into consideration many variables. For example, regulation aimed at assigning a market price to CO₂ emissions would have a greater impact on states that use more coal. Indeed decisions that appeared poor a few years ago may now look brilliant. But utilities cannot change their technology decisions as economic and political conditions change, so they and their customers will sometimes like the outcomes of their decisions and sometimes not.

Appendix



South Carolina Generation Mix by Fuel

