**STATE OF FLORIDA**
**FLORIDA PUBLIC SERVICE COMMISSION**

**Pre-filed Direct Testimony of**
**Michael T. O'Sheasy**
**On behalf of the Commercial Group**

**IN RE: PETITION FOR RATE INCREASE OF**
**PROGRESS ENERGY FLORIDA, INC.**

**Docket No. 050078-EI**

**July 13, 2005**

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND OCCUPATION.**

**A.** Michael T. O'Sheasy, 5001 Kingswood Drive, Roswell, Georgia 30075. I am a Vice-President with Christensen Associates Energy Consulting, LLC.

**Q. STATE BRIEFLY YOUR EDUCATION BACKGROUND AND EXPERIENCE.**

**A.** I received a Bachelors degree in Industrial Engineering from the Georgia Institute of Technology in 1970. In 1974, I earned a Masters degree in Business Administration from Georgia State University. From 1971 to 1975, I was employed by the John W. Eshelman Company – a division of the Carnation Company – as a plant superintendent in their Chamblee, Georgia operation. From 1975 to 1980, I worked for the John Harland Corporation, initially as an assistant plant manager, and then as a plant manager in their Jacksonville, Florida plant, and finally as their plant manager in Miami, Florida. I joined Southern Company Services in 1980 as an engineering cost analyst and progressed through various positions to the position of supervisor, during which time I began serving as an expert witness in costing. I have testified as Gulf Power Company's cost of service witness and have provided other support to Gulf in matters before the Florida Public Service Commission. In 1990, I became Manager of Product Design for Georgia Power Company, and I have testified before the Georgia Public Service Commission as an expert witness on rate design and pricing. I retired from Georgia Power Company on May 1, 2001, and became a consultant with Christensen Associates.

**Q. ON WHOSE BEHALF ARE YOU TESTIFYING**

**A.** The Commercial Group.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

A. The purpose of my testimony is to explain Real Time Pricing (RTP), its overall benefits, and how it can be used as an efficient pricing mechanism for large commercial customers. It is my belief that, when designed correctly, an RTP tariff can benefit the utility, participants, and even non-participants.

**Q. WERE YOU THE ORIGINAL WITNESS FOR GEORGIA POWER COMPANY'S REQUEST FOR TARIFF APPROVAL OF REAL TIME PRICING?**

A. Yes, along with Jon Kubler.

**Q. DO YOU HAVE ANY EXHIBITS?**

A. Yes, CG Exhibit No. ___ (MTO-1) reveals RTP price responses of various commercial customers.

**Q. WHAT EXACTLY IS REAL TIME PRICING?**

A. Real Time Pricing (RTP) is an electricity rate structure in which retail energy prices change very frequently, usually hourly, and with short notice, usually day-ahead. These hourly prices are designed to reflect the supplier's expected hourly marginal cost of providing incremental load. These hourly cost can also reflect market costs. RTP is the most efficient means to price electricity to retail customers.

**Q. WHAT DO YOU MEAN BY EFFICIENT?**

A. RTP does the best job of signaling to retail users what is the utility's actual marginal cost of providing incremental load. It enables the customer to make an efficient usage decision based upon the true cost of providing energy. RTP also recognizes and allows for the fact that energy value is specific to each user and dynamic. Additionally, large system benefits can be achieved by offering RTP to customers. A few customers on RTP can provide large benefits to the utility and the entire system as RTP price response becomes a system resource. RTP will inherently reorder customers into cooperative teammates producing win-win solutions. One participant voluntarily forgoes consumption while another eagerly consumes a kWh.

**Q. CAN YOU ELABORATE ON THESE BENEFITS OF RTP?**

A. Through RTP price response, the overall system reliability can be improved. Retail consumers can now back-off usage when wholesale prices are high ultimately providing a dampening effect upon a run-up in wholesale prices. The utility will become less dependent upon outside power purchases. RTP customers are often able to lower their cost of energy but in a manner that is beneficial to the utility. Customer satisfaction of RTP participants improves. Participants have an incentive to innovate with economic energy efficiency programs and devices. RTP should, in the long run, be the least expensive pricing product that a utility can offer.

**Q. WHY SHOULD RTP BE LESS COSTLY THAN A STANDARD EMBEDDED TARIFF?**

A. Electricity is the most volatile publicly traded commodity in the world. Hourly unit cost can change by a multiple of 100 within a 24-hour period. This volatility is driven in large part by electricity's unique characteristics:

1) It cannot be stored to any great degree. It must be produced when demanded.
2) It is not easily transported over great distances.
3) Most customers expect the product to be available whenever requested. A busy signal is unacceptable; in fact, the physics of the product would not permit it.
4) It is ubiquitous. It is woven into the fabric of nearly every aspect of our lives.

Most customers cannot accept the hourly cost risk of electricity. Therefore, utilities have historically absorbed this cost risk themselves and have offered relatively stable rates with inherent premiums. If, however, this cost risk can be passed along to customers who are willing to absorb it, the corresponding price offered to these customers can be less.

This is what Real Time Pricing (RTP) is all about: transferring the underlying cost risk onto a willing customer at what is normally an otherwise cheaper rate on an expected basis. I mentioned normally because there can be certain times whereby the RTP prices average more than traditional tariffs, in which the utility absorbs the risk. But, over the course of time, RTP should be cheaper.

RTP is not a traditional tariff. It does not signal to customers the cost of electricity based upon embedded revenue requirements. It bases the price signal upon marginal cost so that the customer can make a "real-time" decision as to whether his value of using a kWh is greater than the actual "real-time" cost of a kWh. More efficient consumption decisions are therefore made than had the price signal been based upon embedded, and therefore fixed cost.

However, the utility has also incurred costs in the past that are not reflected in RTP prices. Examples of these costs include overheads, certain distribution costs and regulatory assets. These costs, too, must be compensated with commensurate revenue. With traditional tariffs, these cost components are rolled into the bundled prices. But with a two-part RTP tariff, they are collected through a "standard bill" based upon a customer baseline load (CBL) and a traditional tariff.

The RTP tariff contains two parts. The first part uses a CBL to collect fixed costs and the second part, with changes in usage subject to incremental RTP prices, covers the cost of marginal load.

**Q. CAN YOU EXPAND ON A CBL AND ITS PURPOSE.**

A. A CBL is a customer specific hourly load responsibility that is used along with the utility's standard embedded tariff for the customer in order to develop the "standard bill" portion for the RTP customer. This standard bill is the first part of the customer's two-part RTP bill.

**Q. PLEASE ELABORATE ON THE PURPOSE OF THE "STANDARD BILL."**

**A.** Its meaning can be explained by the Georgia Public Service Commission's Letter Order in Docket No. 4147-U approving RTP-DA-1 as a permanent tariff. It states:

> In addition to the hourly energy charges, each RTP customer will pay a customer-specific standard bill based on that customer's previous rates and load pattern. The standard bill based on that customer's previous rates and load pattern. The standard is designed such that the customer's total bill under Rate Schedule RTP-DA-1 would approximate its bill under the Company's conventional tariffs if the customer did not change its pattern of electricity usage. The standard bill is based on the customer's previous rates and load pattern. It is designed so that the customer's bill under Rate Schedule RTP-DA-1 would approximate his bill under the Company's conventional firm tariffs if he did not change his pattern of electricity usage. The standard bill component minimizes the potential for revenue erosion. The hourly energy prices reflect the Company's marginal cost of producing and delivering electric power during a given hour.

So, as you can see, the standard bill enables RTP customers to be revenue neutral for this CBL load whether they are on RTP or a standard tariff. It enables the utility to recover its fixed cost, which the standard tariff is designed to cover. The standard bill also provides the customer with price assurance for its CBL load since it is priced through a standard tariff.

**Q. HOW IS THE CBL DEVELOPED?**

**A.** A CBL for a given customer is based on their previous year's electric usage, divided into hourly increments.

**Q. SHOULD A CBL EVER CHANGE?**

**A.** With rare exceptions, the answer is no. In general, once a customer's CBL is established, it does not change over time. The only possible exception is in cases where there is a permanent and documented change in a customer's operation, such as

addition of conservation features. Changes to a customer's CBL should be mutually agreed upon by the customer and the Company.

**Q. LET'S RETURN TO THE ISSUE OF SETTING A CBL. IN THE ABSENCE OF LOAD HISTORY, FOR INSTANCE, IN THE CASE OF A NEW CUSTOMER, WHAT IS THE PHILOSOPHY FOR SETTING A CBL?**

A. In order to deal with new customers with no load history, a technique for establishing the amount of fixed cost responsibility for these customers must be developed. There are many different ways in which this could be done, including: a) requiring the new customer to demonstrate his firm load requirement; b) trying to simulate a load level; c) negotiations between utility and customer; d) requiring that the new customer wait a year before going on RTP; and e) a certain agreed to percentage. The desired technique needs to be administratively simple and workable for both the utility and the customer. It should be reasonable and logical.

**Q. IF AN EXISTING CUSTOMER IS CONSIDERED TO BE REVENUE NEUTRAL FOR THEIR HISTORICAL LOAD (I.E. – CBL) AND THE TRADITIONAL TARIFF BILL AMOUNT, IS A NEW CUSTOMER "REVENUE NEUTRAL"?**

A. Since there is, by definition, no history for a new customer, there is nothing with which to be revenue neutral.

**Q. IF AN EXISTING CUSTOMER MIGRATES TO RTP WITH A HIGH CBL, CAN HE DERIVE ANY BENEFIT FROM BEING ON RTP?**

A. This type of customer could realize substantial benefits through price responding. Price responding below the CBL during hours of high RTP prices will result in credits which will lower his overall cents/kWh. Early in the RTP program, this feature became clear to many customers who then migrated to RTP. For example, imagine a year in which RTP prices averaged 3 cents/kWh for 8660 hours and 30 cents/kWh for 100 hours. Also, imagine a customer with a 100 percent CBL at a price of 4 cents/kWh. For a constant strip of CBL load, by price responding during the 30 cents/kWh hours, the customer's overall cents/kWh would be reduced from 4 cents/kWh to a little less than 3.7 cents/kWh, a drop of nearly 9 percent.

**Q. IS RTP DESIGNED TO "FAVOR" CERTAIN CUSTOMERS WITH DISCOUNTED RATES?**

A. No. The purpose of RTP is to expose customers willing to take on price risk to the utility's marginal cost and enable the customers to make efficient energy usage decisions. The premise behind RTP is that customer and Company resources will be used more efficiently if the price charged to customers reflects the marginal costs of serving them in each hour. This premise has been validated by the results of other utilities. Results have indicated that under real time pricing, customers will often reduce their usage in high cost, on-peak hours and increase usage in low cost, off-peak hours. Regardless of how their usage pattern changes, however, such customers will pay for incremental usage at a rate that closely reflects the utility's cost of producing or purchasing that electricity. Similarly, any reductions in usage by those

customers below their normal load patterns will reduce their bills by amounts that reflect the saving in cost to the utility.

The standard bill based upon the CBL would collect the utility's fixed cost obligations from the RTP customer, thereby preventing the utility from having to recover these costs through other customers . So, by covering his fixed cost obligations and paying his marginal cost responsibility for his marginal load, the RTP customer covers all of his cost, thereby benefiting all. This overall benefit includes existing RTP and non-RTP customers by keeping revenue requirements down.

**Q. CAN LARGE COMMERCIAL CUSTOMERS BENEFIT FROM RTP?**

A. Yes, in a couple of ways. First, they can grow their business in low-price, off-peak times at lower energy prices than they could traditionally do under standard, embedded rates. Secondly they can lower usage during high price periods or shift it to off-peak periods. The two-part RTP tariff will lower the cost of energy as the commercial customer makes the changes in usage and will do so in a manner that helps, not harms, the utility. For example if the utility's marginal cost of providing the next kWh is 75 cents/kWh, the standard embedded rate might merely send a price signal of 10 cents/kWh but RTP will signal 75 cents/kWh. If the RTP commercial customer's value of electricity is 50 cents/kWh, they will curtail or shift usage into a lower price period when the RTP price is less than their value of energy.

**Q. DO LARGE COMMERCIAL CUSTOMERS REALLY CURTAIL OR SHIFT USAGE?**

A. Yes, many do so. The key is to provide them an incentive to do so. Two-part RTP is that incentive. Given an economic incentive, many customers who previously considered themselves to be inflexible with their energy usage will now devise various ways to price respond. These include lighting changes and retrofits, pre-cooling, use of back-up generation, enhanced air handling including use of fans, and many others. I've provided in my exhibit MTO-2 displays of how various commercial accounts have price responded. Some are big responders, some are not. But, regardless of whether they price respond or not, because they're paying the utility's marginal cost of providing energy, the utility is not only indifferent to the RTP commercial customer's usage decision but actually better-off.

**Q. HOW IS THE RTP PROGRAM PROCEEDING AT GEORGIA POWER COMPANY?**

A. It continues as the most successful program in the nation. There are over 1600 RTP customers of which over ½ are commercial accounts. RTP price response is included as a part of Georgia Power's Integrated Resource Plan enabling price response to supplant generating units and purchase power. Very few customers who have ever volunteered for RTP in Georgia have ever left the program.

**A. WHY HASN'T RTP BEEN MORE WIDESPREAD IN USE?**

Q. There are several reasons, I believe, and I've written an article mentioned in exhibit MTO-1 which goes into more detail. Bottom line though, I believe the major reasons are: 1) a problem with the original design of many RTP tariffs, 2) absence of additional products enabling the RTP customer to manage their price risk, 3) the timing of a utility's embedded cost versus their marginal cost, 4) a tendency to remain

with traditional embedded tariffs rather than innovate with RTP, and 5) a reluctance to incur the administrative set-up costs of RTP. Obviously I feel that all of these obstacles are surmountable and inconsequential when one considers the enormous overall benefits of RTP.

**Q. CAN YOU SUMMARIZE YOUR TESTIMONY?**

**A.** Many large commercial customers possess on-site usage flexibility and can obtain flexibility which they are willing to employ if provided the right pricing signal from their utility. Large commercial customers can and will respond to RTP price signals. RTP is an efficient pricing methodology and should be offered in every utility's pricing portfolio for large business customers.

**Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

**A.** Yes.

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**ATTACHMENT A**

**Michael (Mike) T. O'Sheasy**
Vice President, Retail Pricing and Solutions
Laurits R. Christensen Associates, Inc.

Mike O'Sheasy is a Vice President of Christensen Associates of Madison, Wisconsin. He retired from Georgia Power Company, an operating company in the Southern Company system, as the Manager of Product Design. His responsibilities include pricing strategy development and future rate planning; rate research, design, and evaluation; and the preparation and filing of retail rates.

Mike was the architect of the Real Time Pricing program at Georgia Power which is the largest program in the United States. Other leading edge innovation championed by Mike include: Flat Bill, Price Protection Products, Multiple Load Management, Interruptible Exchange Service, Multiple Account Management, and Daily Energy Credits. He has consulted with many utilities including Public Service of Oklahoma, Duke Power Company, Salt River Project, Kansas City Power & Light, PP&L, Ohio Edison, Illinois Power, Wisconsin Electric Power Company, South Carolina Electric and Gas and others on pricing issues.

Mike joined Southern Company Services in 1980 as an engineering cost analyst and progressed throughout various positions in the Marketing and Regulatory Support Department, specializing in allocated cost of service studies. While at SCS, he was selected for the Southern's Superlative Award. He has testified before various Commissions as an expert witness on both costing and pricing. Mike has received industry awards, including EPRI Innovator Awards and the Product Champion Award. He has published numerous articles on pricing in national magazines including the *TAPPI Journal, Public Utilities Fortnightly, Electric Perspectives, EPRI Journal, Energy Pulse, Energy Customer Management,* and the *Electricity Journal.* He has a national reputation for pricing innovation and has been interviewed in *USA Today,* the front page of the *Wall Street Journal, Newsweek,* National Public Radio and CNN FN. His reputation internationally has earned him consulting projects on four continents.

## Professional Papers:

"Is Real-Time Pricing a Panacea? If So, Why Isn't It More Widespread?" *The Electricity Journal*, December 2002.

"Flat Prices for Peak Hedging," *Public Utilities Fortnightly*, November 1, 2002.

"RTP Customer Demand Response – Empirical Evidence on How Much Can You Expect," in *Electricity Pricing in the Transition* A. Faruqui and K. Eakin, eds., Kluwer Academic Publishers, 2002 (with Michael O'Sheasy).

"Flat Bills, Peak Satisfaction," Energy Customer Management, January/February, 2002.

"The New Pricing Organization," EPRI International Pricing Conference, co-authored with Robert Camfield, 2000.

"Roll the Dice, Set a Price," *Public Utilities Fortnightly*, May 15, 1999.

"5-cent Sundays...The Future of Electricity Prices?" *Electric Perspectives*, January/February 1999.

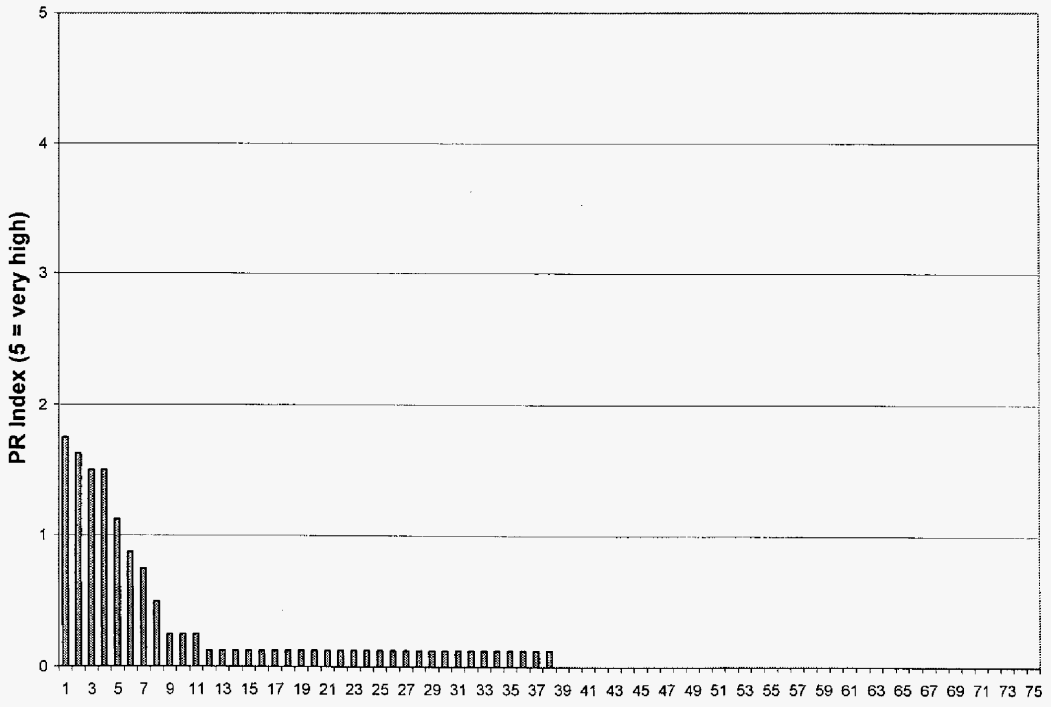
"Real-Time Pricing – Supplanted by Price-Risk Derivatives," *Public Utilities Fortnightly*, March 1, 1997.

"Customers Can Buy Low, Sell High," *The Electricity Journal*, February 1998.

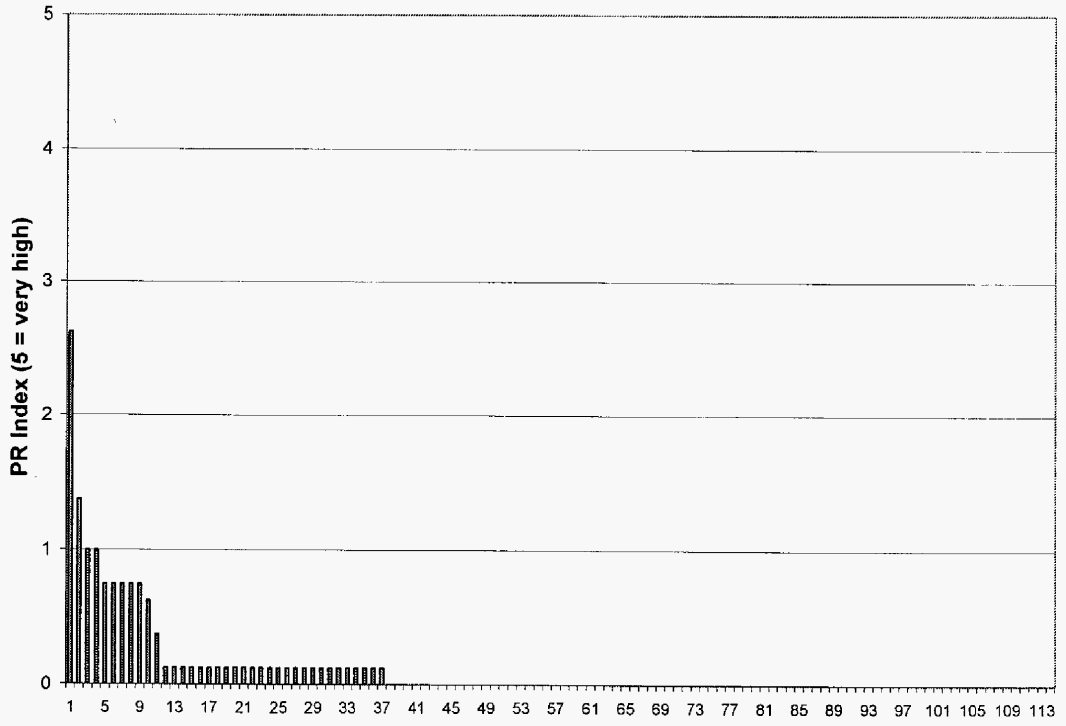
"Real-Time Pricing for Purchased Electricity: An Innovative Pricing Option for Electricity as Used by the Pulp and Paper Industry", TAPPI Journal, April 1996.

"Reaping the Benefits of RTP: Georgia Power's RTP Evaluation Case Study," Volumes 1 and 2, Electric Power Research Institute (EPRI), December 1995.

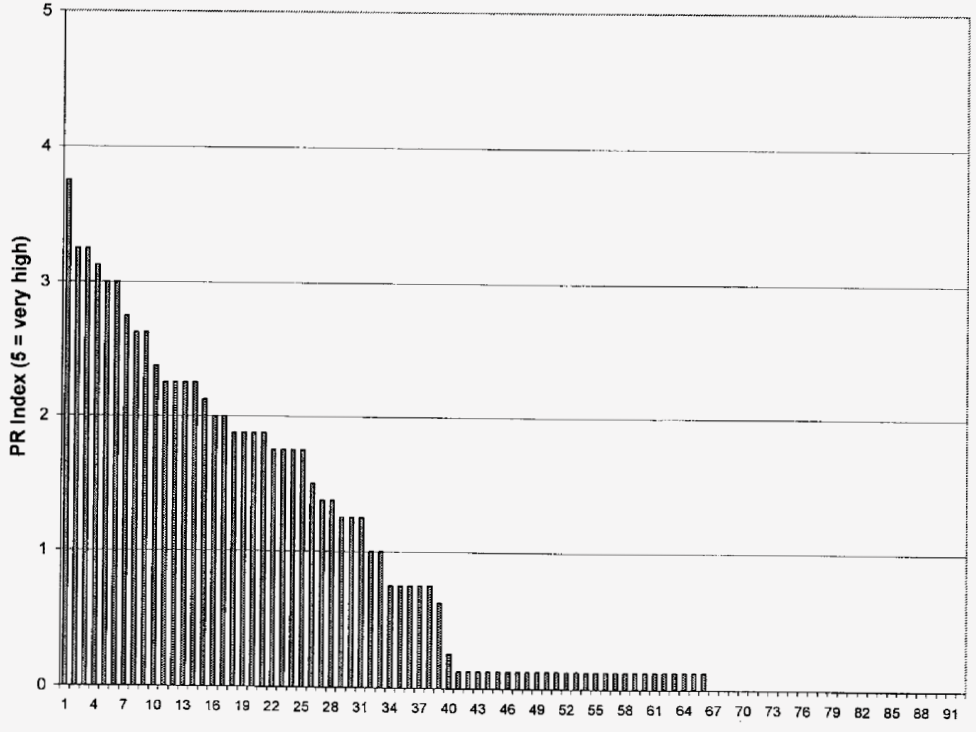
# Distribution of RTP Price Responsiveness
## *SIC 52-53 Bldg. Materials and Dept. Stores*



# Distribution of RTP Price Responsiveness
## *SIC 54 Grocery Stores*

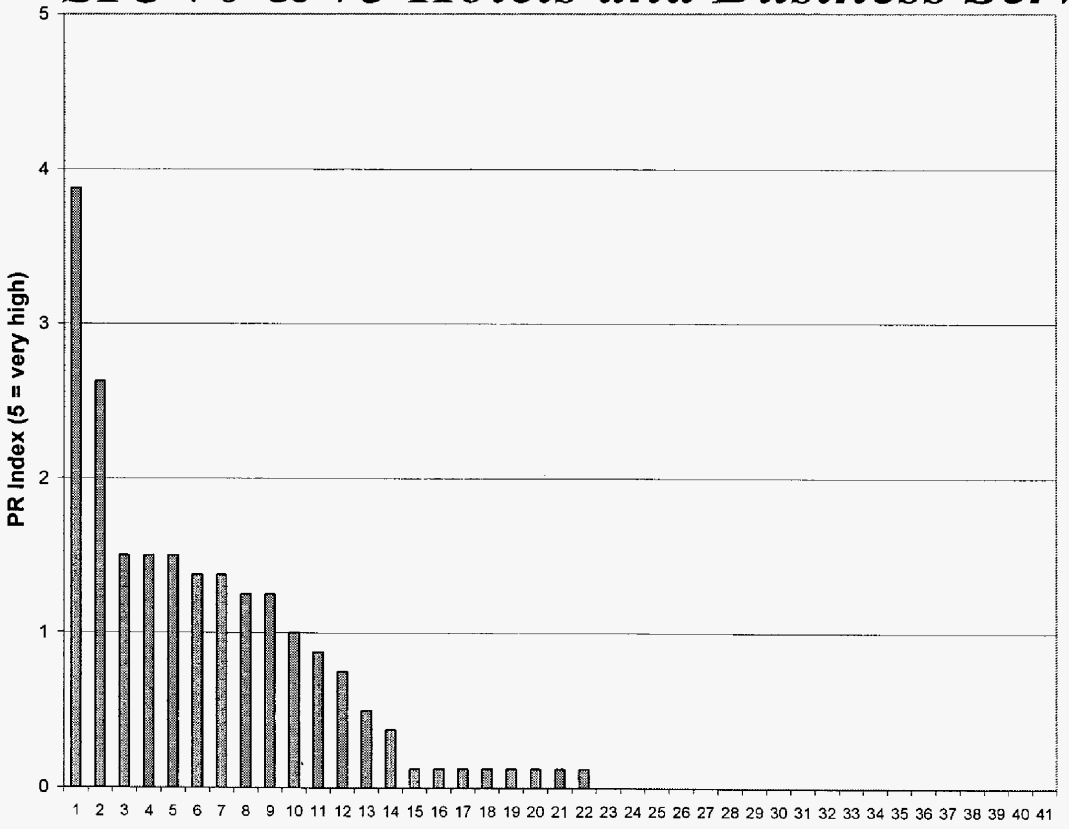


# Distribution of RTP Price Responsiveness
## *SIC 65 Office Buildings*

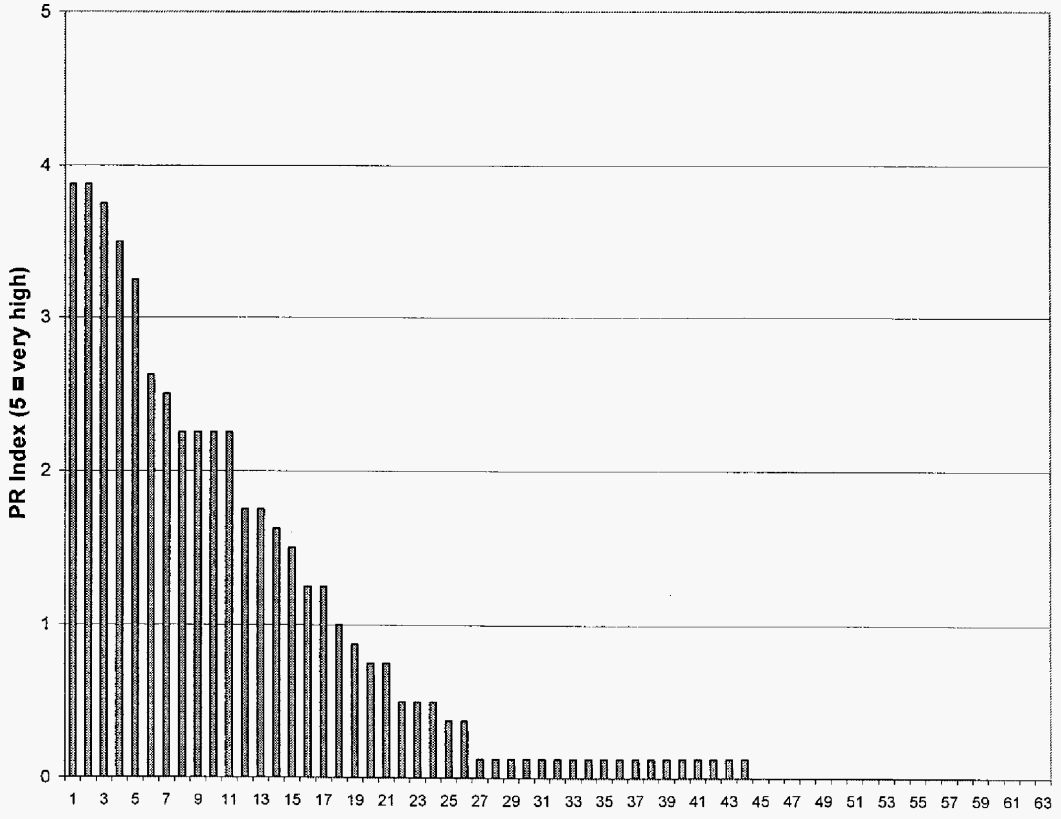


# Distribution of RTP Price Responsiveness

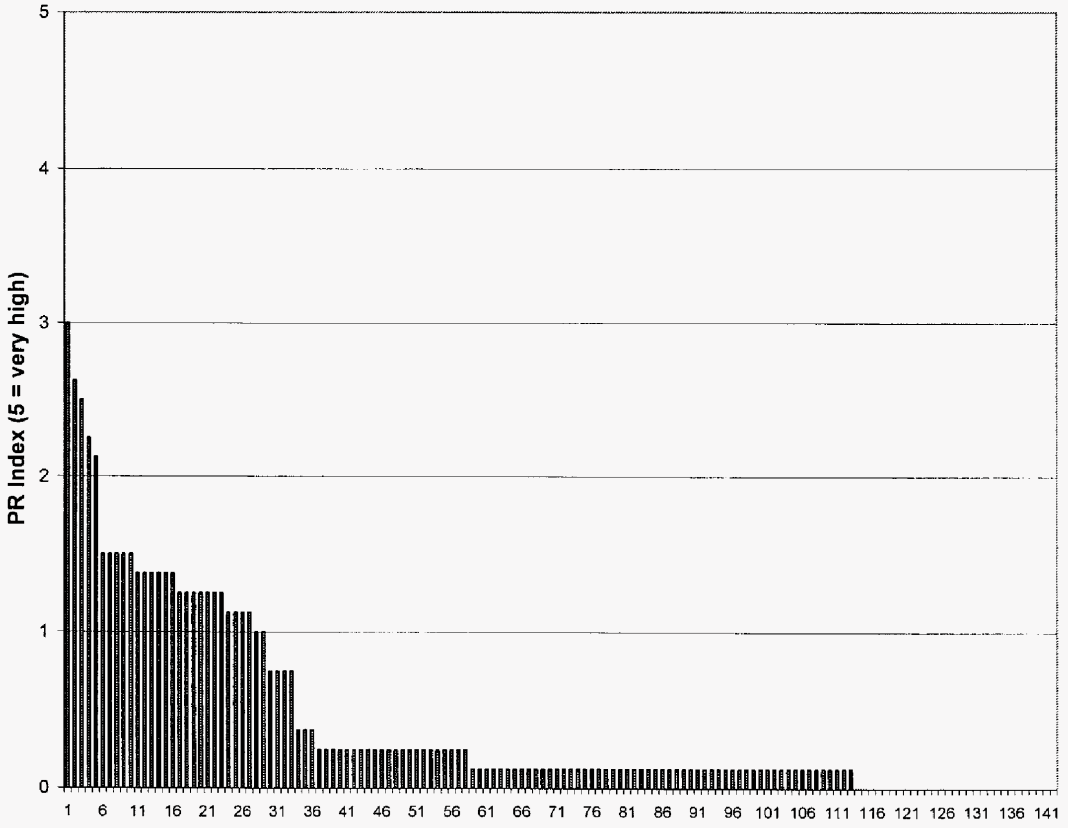
## *SIC 70 & 73 Hotels and Business Services*



# Distribution of RTP Price Responsiveness
## *SIC 80 Hospitals*

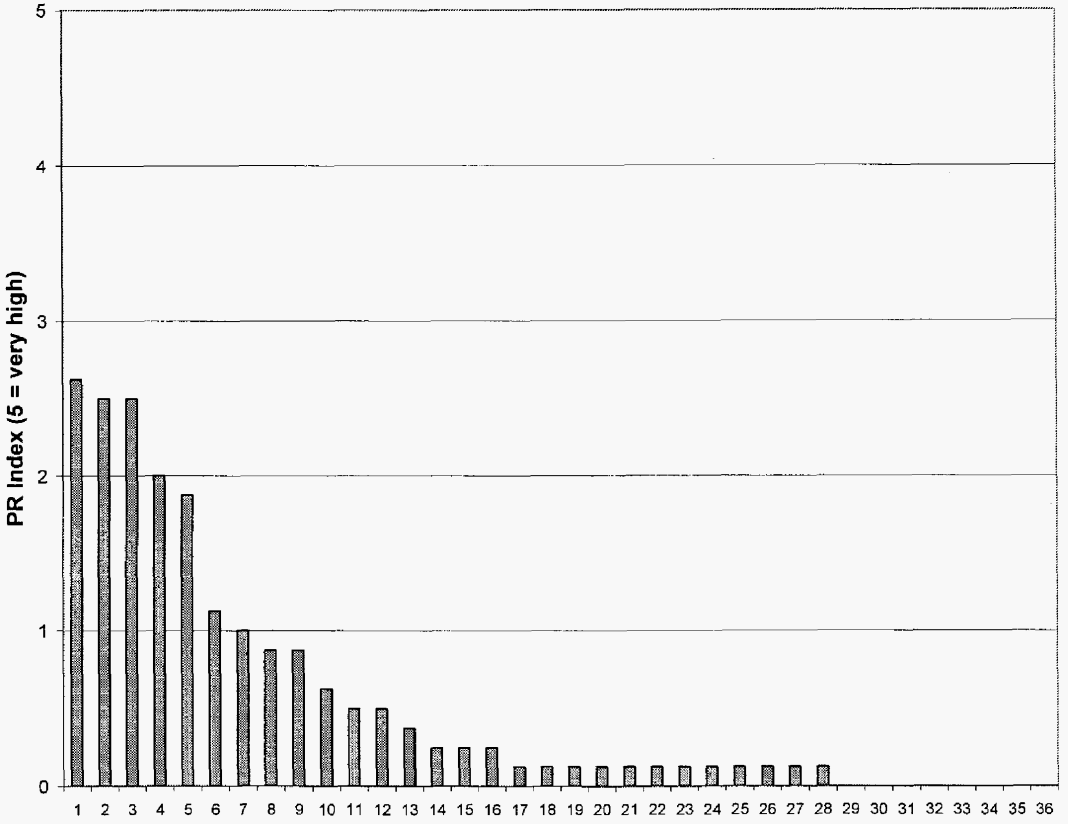


# Distribution of RTP Price Responsiveness
## *SIC 82 Schools & Universities*



# Distribution of RTP Price Responsiveness

## *SIC 91 - 96 Government (Non-military)*



# Distribution of RTP Price Responsiveness

## *SIC 50-51 Wholesale trade*