What’s new about Georgia Power Company’s RTP Program? Why it’s successful and how much price response?

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RTP in the State of Georgia: Year 2005

- Largest RTP program in the world
- > 1600 Customers
  - > 5,000 MW
  - > $1 billion revenue
- IRP resource
- Increasing marginal costs
- Day-Ahead and Hour-Ahead programs
RTP Value in an Open-Access Marketplace

- Competitive cost-based offers:
  - Within-state customer choice in Georgia
  - Customer choice for new load > 250 kW
  - Competition is munis and REAs with low-cost incremental power and little regulation
  - RTP enables GPC win rates of 65-80%; would probably be no more than 50-60% without RTP
What is Real-Time Pricing?

An electricity rate structure in which retail energy prices:

- Vary frequently (e.g., hourly)
- Change with short notice (e.g., hour-ahead or day-ahead)
- Reflect expected hourly costs
- Can mimic an open market and market prices
Benefits from an RTP Program

- Improved system reliability
- Reduced wholesale price volatility
- Less reliance on outside (high-priced) power purchases
Benefits from RTP (2)

- Typical utility will achieve, at least cost, a “virtual generation” asset representing as much as 5% of total system load requirements in critical hours
  (about 20% load response from participants’ total load)
Benefits from RTP (3)

- Customer satisfaction
  - Provides open access to market
  - Two-part structure limits price risk exposure

- RTP customers have incentive to innovate with economic energy efficiency programs/devices
Two-Part RTP Design and What Makes the GPC Engine Go!

- Customer **sells** load at *high* RTP prices
- Customer **buys** load at *low* RTP prices

![Graph showing load management over hours of the day with MWh on the y-axis and Hour of Day on the x-axis.](image-url)
Do Customers Respond to RTP?  
*Summary of Findings*

- Portion of customers found to respond significantly to RTP prices: 60-75%
- Range of flexibility parameters: .01 - .40 (Comparable to negative of own-price elasticity)

*A short-period price spike of 10 to 20 times the typical price can yield load reductions of 10 to 20% (e.g., 150 MW from 1,000 MW of load)*
Typical Load Response

Increased Usage in All Hours

No Response in Low-Price Hours and Decreased Usage in High-Price Hours (Peak Shavings)

Increased Usage in Low-Priced Hours and No Response in High-Price Hours (Hiding behind the Baseline Load)

Increased Usage in Low-Price Hours Decreased Usage in High-Price Hours
Demand Profile

Tuesday

KW DEMAND

CENTS/KWH

Cents/kWh

Actual kW

CBL kW

Cents/kWh

Actual kW

CBL kW
Demand Profile

Monday

KW DEMAND

CENTS/KWH

- Cents/kWh
- Actual kW
- CBL kW
Distribution of RTP Price Elasticities
Commercial Office Buildings

The most price-responsive office buildings used backup generators.
Distribution of RTP Price Elasticities
Schools and Universities
Distribution of RTP Price Elasticities

Supermarkets

Price Responsiveness

Low
RTP-DA Load Response in ’99/’00 -- (Moderate and High-price days)
RTP-HA Load Response in ’99/’00 -- (Moderate and High-price days)

Load at highest prices

Load at moderate prices

Reference Load

Highest prices

Moderate prices

Reference prices

Hour

Normalized Load

Logarithm of P (in $/MWh)
Price Response by Price Level in ‘00 & ‘04: (Hour-ahead customers)

Increasing response at higher prices

Low P  Med P  High P  Very high P  Extreme

Price elasticity value

Low  Medium  High

2000  2004
Price Response by Price Level in ‘00 & ‘04:

*Industrial — No on-site generation (50% of DA load)*

- Low P
- Med P
- High P
- Very high P
- Extreme

Low but increasing response at higher prices
Total DA Load Response in ’04
(4% at highest price in ‘04)
Total HA Load Response in ’04
(11% at highest price in ‘04)
Conclusions

- Overall RTP price response continues and at about the same level in ’04 as ’00, at comparable prices, helping GPC manage supply risk
- Two-Part Design enables price response, risk management, and efficient growth
- RTP remains popular, with > 300 new customers since 2000 and many more in ‘05