Ratemaking for Electric Generation

Zagreb, Croatia
June 26-29, 2007

by: Mark Reeder
New York State Department of Public Service

OVERVIEW

1. Major Components of Generation Cost
2. Fuel Adjustment Clause (FAC) – traditional, 1970's
3. Incentive FAC – 1980's and 1990's
4. Purchasing at Market Prices – 1999 to present

Major Components of Generation Cost

- Rate Base (generation plant)
  - forecasted rate year, depreciation expense, and return on capital
- Non-fuel Operation and Maintenance Expenses
  - labor
  - materials
  - insurance
  - property taxes
  - forecasted rate year
  - incentive on property tax relief
- Fuel and Purchase Power Costs
  - Fuel burned in utility's generators
  - Cost of purchased electricity
  - Profits obtained from surplus electricity that is sold at wholesale to other utilities

Traditional Fuel Adjustment Clause (FAC), 1970's

- Fuel Costs
  - nearly impossible to forecast
  - beyond the control of utility, for the most part
  - too large for the utility to tolerate large forecast errors
- Utility allowed to recover actual cost of fuel, 1970's
- Monthly mechanism
  - January's actual fuel costs
  - Calculated during February
  - Collected from customers in March
- Base cost of fuel ($ per MWH) is forecasted for one year. Deviations of actual cost from base cost are collected each month. Example:

	Base Cost of Fuel ($ per MWH)	Actual Cost of Fuel	Deviation	Month of collection
January	40	44	4	March
February	40	47	7	April
March	40	39	-1	May
April	40	38	- 2	June

Incentive Problems of Traditional FAC

- Little or no incentive to control fuel costs.
- Prudence investigations apply to fuel costs, and do provide some incentives.
- Utility does have significant control
  - Does not control market PRICE of oil and gas
  - Maintenance procedures affect performance of generators, both heat rates and forced outage rates
  - Can seek price discounts, especially NY City
  - Negotiates rail transportation costs for coal
- Worse, incentives can be perverse. Example:
  - outage at a baseload generator
  - overtime maintenance is very expensive, utility bears 100% of added labor expense.

    Delta cost = $0.1 million
  - yet, added cost, per day, of replacement power expense is $0.3 million, none of which is borne by utility
  - ratemaking treatment “penalizes” the utility $0.1 million for doing the right thing and paying overtime to quickly get generator back running

Incentive FAC

- Instituted to improve utility's incentive to control fuel costs, 1980's and 1990's.
- Same as regular FAC except utility can collect from ratepayers only 80% of deviation of actual from forecast. Sometimes called "Partial Pass Through FAC".
- Stated another way, utility bears 20% of all cost overruns; is allowed to keep, as profit, 20% of all savings.
- Forecast now becomes a very big ratemaking issue. It wasn't before.
- Requires an annual regulatory process to forecast fuel costs.
- Includes purchase power costs and profits on wholesale sales of excess electricity to other utilities.

Incentive FAC - Problems

- Risk to utility must be constrained, even with a 20% exposure to unexpectedly high fuel costs.
  - limits on the utility's FAC losses or gains was set at 50 basis points per year
- Limits caused the "incentive switch" to be turned off whenever cumulative annual reward or penalty was outside the limits. This occurred often because of highly volatile fuel markets.
- Most of the time, the result was a utility benefit. In other words, forecast of fuel cost turned out to be too high. Consumer advocates were not pleased.
- Utilities complained that the biggest variable in the equation – the market price of fuel – was beyond their control and that this gave managers a confused incentive signal.

Incentive FAC - Solutions

- Fuel cost forecast was indexed to market fuel prices. Multiple fuel cost forecasts were made each year, based on multiple fuel price forecasts of both gas and oil.

  Each forecast was for 12 separate months.

  – In implementing the FAC each month, the forecast used in the calculation was indexed to the actual market price of fuel for that month (only oil and gas).

  – This greatly reduced the size of the deviations between actual and forecast. It focused the incentive on actions the utility could control, like heat rates and outage rates.

  – Disadvantage: very complicated, required a complex computer model, highly trained staff at both utility and regulatory agency.

- Limits on utility exposure were altered, so that the exposure was graduated: 20% exposure for first 25 basis points, 10% for next 25 basis points, 0% beyond.

  – This widened the area in which the incentive switch was turned on.

Purchasing at Market Prices – 1999 to present

- Generation owners are not subject to price regulation. Market prices are the norm.
- Regulated utilities' "fuel" costs are now 100% comprised of purchased power costs.
- Utilities act as intermediary, simply pass on their purchased power costs to their customers. This is equivalent to a traditional FAC.
- Market provides the incentive for generation owners to perform well in terms of low heat rates and low forced outages.
- New York PSC recently issued a policy statement encouraging utilities to provide their customers a hedge against volatile electricity market by purchasing a portfolio of short-term, medium term and long-term electricity.

“Utility Purchasing Practices”

- Utility procures electricity from the wholesale market:
  - real-time energy market purchases
  - day-ahead energy market purchases
  - week-ahead, month-ahead, and so on
- No specific parameters for mix of purchases. Utilities meant to determine the hedging needs of their customers, and to meet those needs.
- Prudence review of purchasing activities is still a regulatory tool, in theory.
- Utilities are generally thought to be reluctant to buy using long-term contracts (5 years or more) because of a fear of unsymmetric regulatory response as some contracts prove to be good deals, others bad, when compared to future actual spot prices.
- New proceeding has just been initiated at the NYPSC to examine policies for utility purchasing using long-term contracts.