Puts? Calls? Energy Hedges? Complicated Choices

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ABSTRACT

Facility owners and managers as well as other energy consumers face many choices in purchasing energy in deregulated markets. The primary choice is whether to remain with the retail energy affiliate of the incumbent utility supplier or not. In either case, it is important for you to know how the supplier purchases its energy since it could affect your rates. Even staying with the incumbent energy provider has its risks. Witness the two largest utilities in California, where many consumers are getting retail power at fixed rates, but market rates have fluctuated widely. This article is designed to give you more insight into energy commodity markets and recommended action steps.

PRICE VOLATILITY

In contrast to the days of monopoly power providers, retail choice brings the possibility of great price volatility. There has always been some price variation in the wholesale market. Power supplied by peaking units that run a few hours in the summer costs more than electricity supplied by baseload units that run virtually all the time.

Before deregulation when most utilities were vertically integrated, planners forecast demands months and years in advance to build or buy sufficient capacity. With deregulation utilities have sold their power plants or set up companies separating the wholesale and

retail business. This has made planning for new capacity more difficult, particularly during current times of transition between regulated and unregulated energy markets.

As we all know electricity cannot be stored to any significant extant. Thus imbalances of supply and demand where capacity reserves are tight create conditions for huge cost increases for retail energy providers that must meet customer needs as has been seen in California. Where reserves are sufficient, wholesale prices remain reasonable as may be observed in other parts of the country.

One of the key ingredients for price stability is long term contracts. Energy can be bought and sold through power exchanges for various periods of time. Purchasers can enter what are called spot markets and buy energy the next hour or the next day. Or purchasers can enter what are called forward markets and buy energy months and years in advance.

It is tempting to use the spot market when prices are low and the purchaser may be successful for some time. In fact, the California utilities succeeded in buying wholesale power to sell to their retail customers for the first couple of years under deregulation. But to paraphrase an old saying: "If you live by the spot market, be prepared to die by the spot market." Long term contracts in the forward market can bring down high prices.

CHOOSING A PROVIDER

There are two main functions in getting energy to your door and different states use different names for these organizations. The first function is the purchase of energy and second is the delivery. Organizations purchasing the energy in the wholesale market and selling to consumers are now called energy service provider (ESP), electric generation supplier (EGS), or retail energy provider (REP). Under retail choice your agreement is with a provider. Once you have an agreement with a provider, it makes arrangements to get those electrons to your business with the utility distribution company (UDC) or local distribution company (LDC).

The two main types of providers include unregulated affiliates of utilities and power marketers operating independently of incumbent utilities. Customers that do not choose a provider may stay with

the incumbent utility where rates are regulated by the state public service commission. This is the most common practice since the majority of customers have not switched where a choice was available. Even where choices were made to switch, providers can send their customers back to the incumbent utility, which has been an all too common practice this past year. Thus the utility becomes the provider of last resort with its own acronym of POLR.

Why would a provider want to get rid of customers? Because the wholesale market prices were too high and too volatile compared to the rates of the incumbent utility kept low by regulation. However, these regulated rates cannot last. The main reason is that utilities have been allowed to collect transition charges to recover a large portion of their sunk costs in generation facilities like nuclear power plants. Once these sunk costs have been recovered, regulated rates for electric supply can be removed.

The competitive transition charges have been recovered from customers of San Diego Gas and Electric. While many expected SDG&E monthly bills to fall last year without the burden of collecting transition charges, the opposite happened. Because the utility had to compete in the wholesale spot market to purchase power for its customers, SDG&E passed the high prices on through, since electricity rates were no longer regulated once the transition charges were eliminated. The good news is that San Diego has avoided rotating blackouts, in part because it can buy power from generators that believe they will be paid. The bad news is that commercial and industrial customers have been burdened with high electric rates and higher bills, even where they have conserved on usage.

Thus a key to gaining lower rates and improved price stability is through long term contracts. When dealing with providers or incumbent utilities like SDG&E where rates are not regulated, it is important to understand more about how they buy their power.

FORWARD CONTRACTS and FUTURES CONTRACTS

There are two types of long term contracts—forward contracts and futures contracts. If one has an agreement with a provider it is typically a forward contract. The forward contract specifies an

amount of energy to be consumed by month and may even be defined by day and hour. It also sets prices which may be fixed or may change based on time, energy price indexes or some other factor. While one may find options from a provider to supply some or all of the energy needs on the spot market, this is not a common or recommended practice.

If one is dealing with a provider, that organization has typically developed forward contracts to supply the customer's forecast load. Of course the provider has aggregated other loads to gain more bargaining power in negotiating long term contracts with power generators. The length of terms do not need to overlap. Thus the provider may have signed a three year retail contract with one customer, but wholesale forward contracts for just one year. The provider has a "naked contract" to the extent it is exposed to higher prices than contained in your agreement.

The principal advantages of forward contracts are the flexibility in terms and the gaining of a measure of price stability during the term. Common contract terms are in 12 month increments.

Watch out for agreements with 8 and 20 month terms. Providers are more willing to negotiate agreements for the 8 months of October through May when electric prices tend to be lower and return the customer to the incumbent utility for June through September when prices tend to be higher and more volatile. Incumbent utilities, which must be the providers of last resort (POLR), are learning to deal with this flip flop behavior by requiring customers to remain for a year when they return.

A second type of long term contract used by a provider is the futures contract. These are standard agreements for a fixed amount of power where the only variables are the price and month of delivery. They are further defined in terms of a geographical region where the transmission system is managed as an integrated electrical grid. For example, the futures contract specification for the Pennsylvania Jersey Maryland (PJM) interconnection is defined as the fixed quantity of 736 megawatt-hours consumed at the rate of 2 megawatts an hour for 16 hours of use between 6 a.m. and 10 p.m. for the number of business days in the particular month.

Futures contracts trade for 18 consecutive months into the future. This allows the provider to lock in on future prices and therefore hedge a one year forward contract for customers.

ENERGY OPTIONS

Providers need not gamble that your facilities will to use the precise amounts of energy contained in a customer agreement and purchased with futures contracts. Energy usage will vary from past patterns due to numerous factors including changes in number of occupants, hours of use, production levels, and, of course, weather.

Since facilities are typically paying for energy demands to be met regardless of the exact amount planned, the provider must be prepared to buy or sell more energy than expected. They accomplish this through options.

An option is a right, but not an obligation, to take an action within a certain period of time for a specific price. There are two kinds of energy options: a put option and a call option. Puts and calls are based on futures contracts and extend up to 12 months.

Put Options

A put option for electricity is the right, but not the obligation, to sell power at a predetermined price by a specific point in time. The provider pays for the put option at a fraction of its face value.

To think about the advantage of a put option, assume the summer is cooler than normal. As a result less energy is required for air conditioning in the region and prices are below expectations, say $40 per megawatt-hour or $0.04 per kilowatt-hour. Yet the provider has contracts to purchase power assuming normal weather. If delivery on future contracts had to be taken but could not be used, the provider would have to sell into the spot market and probably take a financial loss.

To protect against this type of loss, assume the provider some months earlier paid $3 for a put option to sell power in July at $60 per megawatt-hour or $0.06 per kilowatt-hour. If usage remains sufficient and prices do not fall below the option strike price of $60, the power marketer has no obligation to sell and can supply his customers. But if usage falls due to warmer than normal weather, the provider does not have take delivery and puts it to the other party.

Call Options

A call option hedges risks in the opposite direction. An electricity call option is the right, but not the obligation, to purchase power for a specified price within a certain period of time.

A provider may buy a call option to hedge against a particularly hot summer where more power may be needed than purchased under futures contracts. If energy use exceeds expectations and price rises, the provider could be buying spot market power at costs higher than the price being charged the customer. A call option reduces that risk by allowing the power marketer to buy a fixed amount of power when the strike price specified in the option is exceeded. If the strike price is not exceeded the option may expire with only a modest cost to the power marketer.

Of course the options have a cost and must be reflected in the price charged by the provider to the consumer for energy purchases. In addition the price charged by the provider needs to reflect their administrative, sales and other expenses. But compared to naked contracts where the provider may have to price your energy at high levels to cover risks, hedged contracts with put and call options can be cheaper to the customer and more reliable.

MERGING PEAK LOAD MANAGEMENT AND HEDGING

Several innovative utilities are offering hedging strategies for peak load management to large commercial and industrial accounts. Programs are designed to share savings with the customer by avoiding paying for the high costs of power during a few peak hours.

One utility has established a peak load management call option. The call option is for the customer to curtail load at the request of the utility. The utility has the right but not the obligation to call for load curtailments. When called, the customer has a responsibility to provide the curtailment for a specified number of megawatts for 8 hours per call and up to 16 calls in the season.

Under the peak load management call option, the customer receives a credit regardless of whether the option is exercised. The option may be called by the utility when the market strike price is realized, say $300 per megawatt-hour. The customer then receives an additional payment based on the strike price amount and the number of hours curtailed.

Several utilities have established a voluntary curtailment program based on market prices. Through Internet based trading exchanges, fa-

cility managers can view prices for energy a day ahead or a week ahead. If it is worthwhile, they can agree to shed load including shutting down operations and sell the energy they would otherwise have used into the market to a willing provider. In one sophisticated system the prices vary within the region to reflect congestion on the transmission system. This allows a location specific call for load curtailments for which the customer receives credits tied to market prices.

Such strategies allow customers to hedge their energy budgets when usage increases due to extreme weather and bills increase accordingly. By getting credits for curtailments, negative budget variances may be reduced and even reversed.

ACTION STEPS FOR FACILITY MANAGERS

Facility managers should consider the following action items. **First**, get informed about deregulation and what is happening in your state and with your utility. Even if you are not in a state with deregulation or served by a utility subject to deregulation, your rates may still reflect high and volatile prices in neighboring states. While deregulation may be some years off, your utility may want to lock you into a long term contract now.

So the **second** thing to learn about are the details such as when competitive transition charges may expire and what happens to rates at that point. Are they allowed to float with the market or are they still capped by regulators?

Next learn about the retail energy providers acting as power marketers. Check out the incumbent utility and learn about its unregulated affiliate business strategies. Consider working with brokers or agents who do not own power but know markets and can help make decisions about providers.

When you get serious about choosing a provider, **be sure to find out** how they purchase power and what hedging strategies they use to manage risks. Otherwise you may sign an agreement with them and in a few months they could be out of business because they did not properly hedge against price spikes or valleys. It even happens to the biggest players as seen with Enron.

Another consideration in dealing with providers is to see how closely they are affiliated with generation companies. If the provider has

"iron in the ground" generation plants, they are more likely to be able to meet their power supply obligations.

Finally, if you choose an provider, understand under what conditions you may be returned to the incumbent utility. To avoid being returned in the summer when prices are higher than you have budgeted, agree only to terms that minimize this possibility.

In summary, adopt a strategy to hedge your strategies as well.

ABOUT THE AUTHOR

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Prior to establishing his consulting practice in 1989, Mr. Barrett served for more than 10 years as the manager of Energy Management Programs for the Potomac Electric Power Company. Experience with the utility and since has encompassed residential, commercial, and industrial programs for energy efficiency and marketing including energy service companies.

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