

LINKAGES – A NEED FOR LEADERSHIP

The world has witnessed the environmental realities of biosphere relationships. A volcanic eruption on a Pacific island can produce climate changes in North America and loss of a species of birds on an island that is 2000 miles away.

Closer to home, we are currently witnessing an eruption in electricity prices throughout the Western Systems Coordinating Council, which are primarily related to a restructuring experiment in California that has “stumbled.”

Wholesale market prices on the Mid-Columbia have exceeded \$3,000 per MWh, or \$3 per kWh. Supply seems to have dried up. Seasonal exchanges between regions are not working as intended. It isn't just Californians that are being affected by deregulation.

Consumers are experiencing rate increases or at least the threat of rate increases but few, if any, have received a bill based on \$3 per kWh. Wholesale costs and retail prices are unlinked. In the Northwest, the pricing structure used by the Bonneville Power Administration does not include a real-time or even a time-of-use element other than monthly variations in energy charges. In California, customers selecting Direct Access (choice of energy supplier) with demands of more than 20 kW have real-time meters but are less likely to have their bills reflect real-time consumption. Smaller Direct Access customers are charged based on the load profile of their customer class. Unless they are very large, most customers do not even have the means to track real-time wholesale prices, even if their charges are directly indexed to these prices. Only the most sophisticated energy managers actually track energy prices and manage their operations to minimize their electricity bills.

It's not that we don't have the technology. In the United Kingdom, they have been so successful in linking cost to usage patterns that they have been able to shift system peaks to night-time hours. In California, effective conservation and demand management are being thwarted by freezing retail prices below wholesale prices and by legislation that purposely insulates residential and small commercial customers from any kind of price signal. In the Northwest, electricity costs have been so low for so long that even the most rudimentary load management systems are rarely employed.

As long as we continue with the initiative to develop an unregulated electricity supply system, we can expect to experience wholesale price volatility. We will see diurnal swings that follow normal daily load patterns. Seasonal variations will track weather cycles. We can also expect long-term cyclic price changes that occur because of the time it will take for investors to respond to changes in load caused by changing economies and technology. We are likely to experience prolonged periods of three- to five-year swings of over- and under-supply.

If we agree that wholesale prices are likely to continue their recent pattern of significant variation, then we should also be able to agree that economic efficiency mandates a much closer linkage to real-time prices. This means not only real-time metering, but real-time price signals to customers. We used to be able to define high-price periods by season and time of day. We set prices by expected load patterns. Even that linkage has failed as prices in off-peak load periods have occasionally exceeded prices during peak load periods. Fall months, when loads are down, experienced wholesale prices that were on average triple the highest average prices from the summer of the previous year. So what do we need?

We need real-time retail price signals, two-way communications with customers, and we need standardized real-time metering protocols. Most importantly, we need the leadership to bring this about. Let's look at each of these.

Real-Time Price Signals

Real-time price signals should track hour-ahead or day-ahead markets in the customer's pricing zone. They should reflect any transmission congestion charges and ancillary service costs that will eventually be passed on to the customer. These real-time price signals should translate directly to the customer's bill and should be available to the customer as part of the metering system. This will allow the customer to manage loads in accordance with the economics of their homes or businesses.

Two-Way Communications

Two-way communications are essential to provide the price linkage between supply and demand. The customer will use the price information to manage their utility bills. The energy supplier will use the customer information for billing, to better schedule power supply in the short term, and to strengthen their resource planning in the long term.

Standardized Metering and Protocols

Standardized metering and protocols will facilitate changes in energy service providers and strengthen consumer confidence that their energy bills are accurate. When the customer can no longer multiply monthly consumption by a single energy price to verify their bill, they will need assurance that hourly consumption is being accurately collected and matched against the price in that hour. If they change energy service providers, they will not want the expense of changing out their meters. Energy billing service providers will emerge that provide centralized consumption and price data collection, translation, and billing. All of these considerations lead to the conclusion that standardized meters, communication formats, and protocols will be necessary for efficient linkage of real-time supply and demand.

Need for Leadership

The unbundling of the electricity industry is leading to less rather than more coordination. No single player has the incentive to create the infrastructure that will facilitate cost-effective, real-time retail pricing. At the same time, many distribution utilities are investing in fiber optic communications systems and others are developing alliances with communications companies. Public power agencies are still bundled and are not only providing integrated electricity services but they are beginning to offer telecommunications and high-speed data access services. Some are providing the final link to customers' premises. These same utilities are often working in partnership through joint action agencies, joint ownership of generation and transmission facilities, or are cooperating in state associations or through federal power marketing agencies.

Together the synergy of federal power marketing agencies, public power agencies, and particularly those with telecommunications or data transmission ventures could work together, set an agenda, and provide the leadership necessary to strengthen the linkages between wholesale and retail prices and, therefore, between supply and demand. Without this

linkage, the costs and trauma associated with electric industry restructuring will be unlikely to bear the economic fruits that have been promised.

Conclusions

We need a much stronger linkage between wholesale and retail pricing and between supply and demand. We need leadership to assure that the infrastructure to provide this linkage is standardized, is worthy of consumer confidence, and is economic. We need synergy between the electric and communications industries. These needs can all be met by coordinated action by federal power marketing agencies and their publicly-owned utility customers. The stage has been set. If there is any chance that electric industry restructuring is to provide ultimate benefits to consumers, those in public power should accept a leadership role, convene a conference, and use their combined strength to rebuild and strengthen the linkage between the cost and price of electricity in wholesale and retail markets.