ENERGY RESEARCH COUNCIL

RESEARCH BRIEF

Polar vortex effect on electricity prices

The polar vortex triggered two extreme weather events in the U.S. in January 2014, which caused many electricity customers to experience costly bills. Although winter 2014 is officially over, the collateral economics will be felt for months to come. To ensure grid and transmission reliability during extreme temperatures, many regional transmission organizations (RTOs) incurred dramatically high "ancillary" costs. PJM—the RTO that coordinates the movement of electricity in 13 states—passed these costs to electricity suppliers. Suppliers serving the PJM territory are now faced with the decision to either absorb the ancillary costs or pass through the costs to customers as a one-time-only line item on a future electricity bill.

Many supplier contracts have "pass-through" provisions, which can affect a customer's electricity bill.

Peak Demand

On January 6, 2014, temperatures in key consuming regions of the U.S. dropped to an average of -10 °F, with a wind chill of -33 °F. On January 7, 2014, record-breaking temperatures in the PJM territory dropped to 4 °F in Philadelphia, 10 °F in Richmond, and -16 °F in Chicago. Record-breaking levels of energy demand and consumption were also recorded in January 2014. On January 7, PJM recorded its highest winter peak ever—141,396 megawatts. Eight of the 10 highest winter demand levels for electricity ever recorded by PJM occurred in January 2014. PJM called an emergency load response event on January 7, and again on January 23. In contrast, PJM called only one emergency load response event in all of 2013, and that event occurred in September during extreme heat. Four other RTOs also reported record-breaking winter peak demand.

Cold weather burdened all types of power generation, including gas, coal, and nuclear power plants. Some generators experienced extended run times, resulting in unplanned shutdowns. In the Electricity Reliability Council of Texas (ERCOT) territory, two power plants tripped offline on January 6, and wholesale prices reached $5,000/megawatt hour (MWh) for the first time ever. Average electricity prices were greater than $1,300/MWh in ERCOT territory, which is 40 times higher than average. During all of 2013, the average cost for PJM to ensure reliable power delivery was $53/MWh; in January 2014, the average cost was $150/MWh.

Pass-through costs

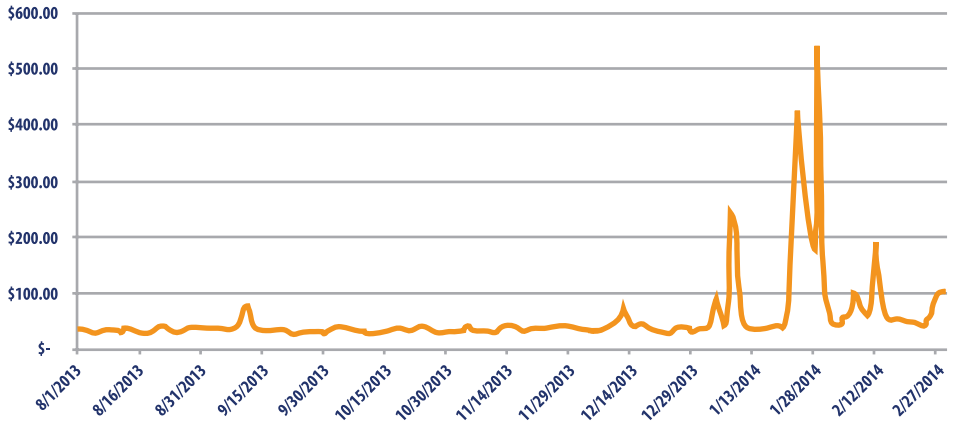
To avoid brownouts and blackouts in January 2014, PJM appealed to the Federal Energy Regulatory Commission (FERC) to lift a $1,000/MWh cap. FERC approved the request, allowing PJM to recover costs above $1,000/MWh. Consequently, PJM passed these costs to suppliers.

More than 100 competitive electricity suppliers serve customers across the U.S. Suppliers serving the PJM territory are now faced with the decision to either absorb or pass through these increased costs to customers. Many supplier contracts have "pass-through" or "change-in-law" provisions, which can affect a customer's electricity bill. FERC's lift of the PJM cap may be considered a "change in law." Therefore, suppliers have the option to pass through the costs to customers as a one-time-only line item on their electricity bill.

A 2013 Energy Research Council (ERC) survey of approximately 1,300 mid-size business managers found that the majority (49%) don't know if their current electricity supplier contract has a change-in-law provision. Of those survey respondents that do have a change-in-law clause, 32% believe no pass-through fees are associated with it.

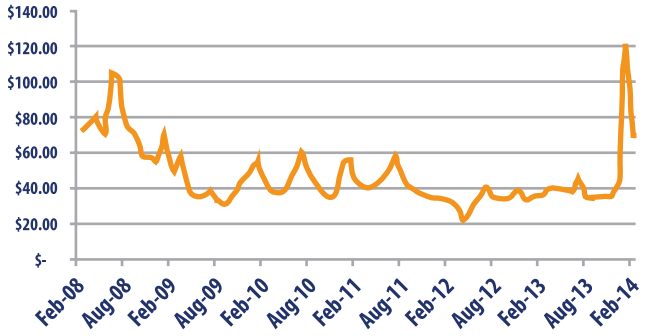
One supplier that decided to pass through ancillary costs to commercial and industrial customers is basing the charge on each customer's actual usage for January 2014. The charge is anticipated to be 1% to 3% of each customer's total annual spend on electric supply. Depending on whether customers are billed by their utility or by this specific supplier, customers will see the one-time-only line item on their bill in April or June 2014.

Day-Ahead Electricity Prices ($/MWh)



Source: PIM Day-Ahead Averages

Electricity Prices ($/MWh) 2008 -2014



Source: PIM Day-Ahead Averages

Example

For a medium-size business that is locked into a fixed price of $0.07/kilowatt hour (kWh), with annual usage of 1,000,000 kWh, a 3% pass-through charge would be approximately $2,100. That customer's electricity bill would have been approximately $5,830/month in 2013, and would be approximately $7,900 for one month when the pass-through charge is applied in 2014.

Volatile electricity prices

In addition to exposure to high pass-through charges, customers that were paying variable or index prices for electricity supply in January 2014 will see even greater expenses. The month-to-month increase in day-ahead average electricity prices in January 2014 was dramatically high. Some electricity suppliers quadrupled the variable price billed to customers. Market-based index prices in January 2014 were significantly higher than fixed prices.

January's events are examples of how unforeseen and uncontrollable circumstances can greatly affect electricity prices that impact RTOs, suppliers, and customers. The weather patterns that occurred in January 2014 could happen again. Energy industry experts are now considering the concept that extreme weather, and resulting electricity price volatility, could become the new norm.

Resources are available by request. For more information about electricity prices or the Energy Research Council, please contact 410-749-5519 or www.energyresearchcouncil.com/contact-us.