REDUCING GINNING ELECTRIC COSTS BY AVOIDING THE ERCOT SUMMER COINCIDENT PEAK

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Abstract

The Texas retail electric market changed from a regulated, vertically integrated utility market in 2001 to a mostly deregulated, competitive electric market in January 2002. Customers in the investor owned electric utility areas of Texas in the Electric Reliability Council of Texas (ERCOT) were forced to make decisions that directly affected their electric costs. Some of the decisions were easy, but many required education and understanding of a very complex electric market. Today I will be discussing the ERCOT system peak demand in the summer months and how larger customers can reduce their regulated transmission and distribution costs by avoiding the ERCOT summer coincident peak.

Introduction

First of all, let me explain briefly what ERCOT does. ERCOT is one of eight electric reliability and control regions in the United States. Electric control areas are responsible for coordinating generation scheduling and transmission dispatching between all the electric utilities in the control area. Texas has four electric control areas within its borders; however, ERCOT controls 85% of the Texas electric market and is the only electric control area that has been deregulated.

ERCOT is responsible for ensuring transmission reliability and wholesale open access as well as scheduling power generation and centrally dispatching power throughout the transmission grid. ERCOT's Independent System Operator (ISO) manages the financial settlement of the wholesale and retail electric market in Texas.

The competitive electric market was initially open to customers in the areas that were served by the investor owned electric utilities prior to 2002. Municipals and rural electric cooperatives were not required to participate; however, they were given the choice to opt in if they so desired. Nueces Electric Cooperative is the only municipal or electric cooperative to opt in the competitive electric market since 2002.

Prior to 2002 and electric deregulation, investor owned electric utilities were required to have their electric rates and tariffs approved by the Texas Public Utilities Commission (PUCT). These tariffs included generation, transmission, distribution and retail sales costs for all customers. Fuel costs were a pass through charge, but still had to be approved by the PUCT.

After the Texas electric market was deregulated in 2002, investor owned utilities were required to break up their vertically integrated market and divide into separate entities. Generation and retail sales were required to become competitive organizations, while the transmission and distribution areas were allowed to remain regulated by the PUCT. Customers could enter into competitive contracts with Retail Electric Providers (REP's) for their energy use and lock in pricing that would not change for the duration of their contract. Transmission and distribution costs were passed through by the REP's on the customer's electric bill with no markup by the REP's.

The regulated transmission and distribution costs still closely resembled pre-deregulated tariffs; however, more of the components of the tariffs were broken out. A typical regulated transmission and distribution tariff consisted of customer charges, metering charges, distribution system charges, transmission system charges, system benefit fund charges, nuclear decommissioning charges, rate case surcharges, transition charges and transmission cost recovery factor charges. Distribution system charges are calculated using non-coincident peak (NCP) kW demands that the customer set during the monthly electric use billing period. The NCP peak demand kW is the highest kW demand that the customer sets at any 15 minute demand interval period during the month. The transmission system charge and the transmission cost recovery factor charge are calculated using the ERCOT coincident peak average (4CP) set by the customer during the summer months of June, July, August and September. The 4CP is a bit more complex to calculate when compared to the NCP.

ERCOT's peak system demand is set during the months of June, July, August and September, the hottest months of the year and typically the peak air conditioning times of the year in Texas. In order to assess transmission system costs fairly to customers on the ERCOT grid, transmission and distribution delivery companies charge their customers for the portion of their load that is running at the same time that ERCOT sets its peak system load for each of the four summer months. The 4CP is calculated by adding the customer's registered load at the time of each monthly ERCOT coincident peak period and dividing the sum by four. The result is the average of the four coincident peak demands set by the customer during June, July, August and September. This number is set aside and used as the multiplier for transmission system and transmission cost recover factor charges beginning with the following years' monthly billing, January through December.

So, if a cotton ginner can determine when the monthly ERCOT coincident peak will be during their ginning season and shut down their gin, then they can effectively reduce their transmission system costs and transmission recovery factor costs considerably. For a typical cotton gin located in central and south Texas that normally operate during the ERCOT 4CP season, they could save approximately $14,000 over a one year period. Large gins would realize even greater savings. The biggest hurdle that cotton gins face is commitment to the program. If the ginner does not follow through with shutting down their gin as directed, then the savings will not materialize.

Materials and Methods

The key to avoiding the ERCOT coincident peak is close monitoring of the ERCOT load and watching ERCOT system trends and projections. Thomas Engineering has studied the historical ERCOT system peak demands that have been set over the past seven years. By using current weather predictions and ERCOT load projections, Thomas Engineering can accurately predict when the ERCOT system demand will be set. It is not an exact science and may mean that the customer shut down several times during the month to avoid the potential ERCOT system peak.

Thomas Engineering uses a time tested approach to notifying customers of potential ERCOT 4CP days. Each customer receives an email every weekday morning before 9 a.m. that includes the day's projected ERCOT system load and the potential of that day's load being the coincident peak for the month. The customer is told whether they should prepare their gin for shutting down that day with the shut down window clearly communicated. If that day is a potential ERCOT coincident peak day, then Thomas Engineering will communicate this with the customer and will give the shut down window. Thomas Engineering will then monitor the ERCOT system load during the day and will give updates to the customer via email or phone call. Weather conditions can greatly affect the ERCOT system load during the day. Hot days that turn cooler or cool days that turn hotter can affect the ERCOT system load dramatically. Constant monitoring of the ERCOT system load is essential in giving customers valid data.

Results and Discussion

Since 2006, Thomas Engineering has assisted twenty two (22) gins located in Central and South Texas in avoiding the ERCOT coincident peak. Historical ERCOT coincident peaks have always occurred on a weekday and have mostly occurred between 4:00 p.m. and 5:00 p.m. Only once has the ERCOT coincident peak been set before 4:00 p.m.

Cotton ginners that wish to participate in the ERCOT 4CP avoidance program must be willing to shut down their ginning operations for one to two hours several times per month and must have communication channels for notification formalized and followed. Thomas Engineering estimates that it has helped its ginning customers save over $700,000 in avoided 4CP related costs over the past three years.

Summary

In the competitive retail electric market in Texas, reducing electric costs can be done if the customer is aware of how regulated transmission and distribution costs are calculated. If the ginner is willing to implement new ways of operating their cotton gin during the hot summer months and can consistently predict the ERCOT system coincident demand peak during the summer months, then real electric cost savings can be realized.