



## Texas Competitive Power Advocates

701 Brazos, Suite 970 • Austin Texas 78701 • (512) 320-5953  
Marianne Carroll, Executive Director • mcarroll@carrollgross.com

### **Why North Texas Needs a Nodal Electricity Market: Cleaner Air, Reliable Power and Economic Development**

North Texas leaders face challenging issues in the months and years ahead. In the next couple of years, the Dallas/Fort Worth region may come under sanctions if air quality is not improved. And the region suffers from a lack of locally-generated power and overloaded transmission lines that make it difficult to bring more power in. Both issues, if not addressed, will have a negative impact on the long-term economic viability of the region.

There is good news on the horizon, however. The Public Utility Commission of Texas, which oversees the state's power grid, the Electric Reliability Council of Texas (ERCOT), has recommended moving to a new wholesale electricity market design for ERCOT that has been successful in other markets around the nation and world.

This new market design, called a "nodal market," will change the way wholesale electricity prices are calculated so they are more accurate and transparent to all participants in the market. This, in turn, will focus power generation and transmission improvements where they are needed and lead to more economic dispatch of generation resources. As a result, ERCOT would be able to dispatch more efficient, cleaner plants more frequently than happens right now. For example, suppose that one gas-fired power plant that produces 250 megawatts of electricity was displaced by a combined cycle unit for 2,000 hours per year (or about 3 months). Based on current gas prices, the fuel cost savings from displacing production from just that one plant for just a small amount of time would be \$7.5 million per year.

*(Source: Ross Baldick, Ph.D., The University of Texas at Austin, Department of Electrical Engineering)*

A nodal market would reduce nitrogen oxide (NOx) emissions statewide by 32,700 tons over 10 years as some output of steam turbine gas-fired generators is replaced with the output of more efficient combined cycle plants.

*(Source: "Market Restructuring Cost Benefit Analysis," Tabor Caramanis & Associates and KEMA Consulting Inc., 11/30/04)*

### **THE CURRENT WHOLESALE MARKET DESIGN HURTS DALLAS/FORT WORTH**

Currently, the Dallas/Fort Worth area is the source of the state's worst local power congestion problems. For years, needed investments have not been made to upgrade power plants and transmission lines, even as the area's population has grown. Although DFW (including Dallas, Tarrant, Denton and Collin counties) has an estimated 18,000 MW of electricity demand, the area has only 5,400 MW of local generation capacity, most of it from old, inefficient power plants that produce significant air pollution. In fact, North Central Texas has the state's highest concentration of power plants that are more than 50 years old.

*(Source: ERCOT, "Report on Existing and Potential Electric System Constraints and Needs Within the ERCOT Region," 10/1/04)*

DFW also suffers from transmission bottlenecks that make it difficult to import the power this area needs from other regions. To ensure reliability, ERCOT frequently must intervene, calling upon some plants to produce more power and others to produce less to keep electricity flowing into Dallas/Fort Worth. Market-wide congestion costs and ERCOT's reliability actions are expensive -- to the tune of almost \$400 million over a 12-month period, driving up the price of electricity for most Texans.

*(Source: ERCOT, "Report on Existing and Potential Electric System Constraints and Needs Within the ERCOT Region," 10/1/04)*

Unfortunately, the current market design will not solve these problems. In fact, it contributes to them, by:

- Perpetuating DFW's dependence on old, inefficient power plants that contribute to air quality problems
- Allowing companies to create congestion without paying for it
- Masking the true cost of generating electricity in specific parts of the state, artificially reducing the price for some consumers and raising it for others
- Not providing accurate price signals, thus discouraging companies from building new power plants where they are needed and making it difficult to properly prioritize transmission projects

If nothing is done, these problems will likely continue to escalate in the coming years, making them more difficult to solve and threatening to cost North Texans both money and jobs.

## **A NODAL MARKET MEANS LONG-TERM BENEFITS FOR DALLAS/FORT WORTH**

- **The nodal market will lead to cleaner air in North Texas.**

ERCOT will begin economically dispatching power generators so that newer, more efficient, cleaner power plants are called upon more often. In time, the older polluting plants will shut down because they are expensive to operate and are not being used.

UT Electrical Engineering Professor Ross Baldick estimates that replacing old gas-fired power plants with new combined cycle power plants will reduce by 30 percent the amount of natural gas needed to produce the same amount of electricity and reduce emissions per unit of fuel between 50 percent and 90 percent. This calculates to a 65 percent or greater reduction in air emissions!

(Source: Prof. Ross Baldick, Testimony to Senate Business & Commerce Committee, 4/27/04)

Newer power plants also use significantly less water than their older counterparts, saving this valuable resource as well.

- **The nodal market will improve planning for reliability and future growth.**

Subsidies built into today's market design artificially lower wholesale prices to such an extent that companies have little or no chance to recoup the hundreds of millions of dollars it costs to build a new power plant. In addition, because the current market is not designed to dispatch the most efficient units, there is no assurance that a new power plant would even operate. (Several new, state-of-the-art plants in Texas already have closed down because they were run so infrequently.) Even though some companies currently possess sufficient emissions reduction credits to construct 2,000 MW of electricity – enough new generation to power about 2 million households in Dallas/Fort Worth – they cannot receive financing to do so if there is little chance of recouping their investment.

The nodal market would change that. As the market begins to send accurate, transparent price signals, companies will be able and willing to invest in areas such as Dallas/Fort Worth that lack generation capacity. As that new generation comes online, it not only will provide more power for the Dallas/Fort Worth region, it eventually will displace many of the old power plants, reducing air emissions and producing additional emissions reduction credits to enable even more new, clean generation to be constructed.

And as new generation is added in Dallas/Fort Worth, it will help alleviate power congestion problems that currently plague the area and reduce the need to construct huge new power lines that cut through neighborhoods.

Building enough generation in Dallas/Fort Worth, much of which can be done on the sites of existing plants, will ensure that this region can depend on reliable, affordable, cleaner electricity for the long term. This scenario bodes well for the area's economic development efforts and growth.

- **A nodal market will lower power generation costs while ensuring long-term price stability, cost savings and other benefits.**

The cost of serving electric consumers would be reduced in all ERCOT zones, with customers in the North Zone (which includes the Dallas-Fort Worth area) enjoying significant savings under a nodal market design.

The overall cost of providing electricity in the North Zone could be immediately reduced by \$148 million under a nodal market design, and \$1.6 billion could be saved over a 10-year period. An additional \$1.2 billion a year could be saved in electricity production costs statewide by using more efficient plants to generate electricity in a nodal market. A third of that \$1.2 billion would occur in the North Zone.

*(Source: "Market Restructuring Cost Benefit Analysis," Tabor Caramanis & Associates and KEMA Consulting Inc., 11/30/04)*

Within a few years, the nodal market will have stimulated the construction of new, lower fuel-cost generation in the right places in and around DFW.

*(Source: Prof. Ross Baldick, testimony to House Regulated Industries subcommittee on Interim Charge #3, 9/24/04)*

Customers in other parts of the country that have adopted a nodal market design have saved hundreds of millions of dollars. From 2002 to 2003, electricity prices dropped 9.5 percent in the mid-Atlantic region and 6 percent in the New England market (when adjusted for fuel costs).

*(Sources: 2003 State of the Market reports for PJM and ISO-New England, respectively)*

## **NOW IS THE TIME TO MAKE THE CHANGE**

Economists, electricity experts and the ERCOT operations staff that is responsible for ensuring power grid reliability agree – a nodal market would improve the efficiency and simplify the operations of the ERCOT market.

Based on the experience of other nodal markets, Texas Competitive Power Advocates believes the resulting system improvements will lower electricity bills for customers across the state, reduce pollution, ensure long-term electric reliability and enable North Texas to better predict and plan for future electricity needs.

Given the looming environmental challenges facing North Texas, it makes sense to embrace this opportunity to implement nodal and solve many of the region's power problems ... before they become even more difficult and expensive to resolve.