



**Review of the Potential Impacts of Proposed Environmental
Regulations on the ERCOT System**

May 11, 2011

Executive Summary

On December 15, 2010, the Chairman of the Public Utility Commission of Texas (PUCT) requested that ERCOT evaluate the potential impacts of proposed environmental regulations on generation facilities in ERCOT. The Chairman described four potential rule changes:

- Clean Water Act – Section 316(b), regarding new requirements for cooling-water intake structures;
- Clean Air Act – new emission limits for Hazardous Air Pollutants (HAP);
- Clean Air Transport Rule (CATR); and,
- Coal Combustion Residuals (CCR) Disposal regulations.

In order to assess the potential impacts of these regulatory changes, ERCOT reviewed published studies of the nation-wide impacts of these proposed regulations, and ERCOT met with environmental experts from several of the generating entities in the ERCOT region. Using information obtained from this review, ERCOT developed scenarios based on likely compliance requirements and future market conditions and evaluated the economic value of affected generating units. Following a rules-based approach, units that did not have sufficient market value under assumed market conditions in each scenario were assumed to be retired. These retirement decisions were based solely on market economics; a requirement to maintain adequate generation (plus a reserve margin) to serve forecasted peak loads in the ERCOT region was not imposed on the analysis, and an evaluation of the market potential for generation expansion was not included in the scope of this study.

This scenario analysis indicates that coal generation in ERCOT maintains sufficient market value to justify investment in additional environmental control technologies. It is unlikely that a significant amount of coal-fired generation will be retired unless several factors, such as low natural gas prices and carbon emission fees, combine to significantly reduce the economic viability of these units.

Older gas steam units that are subject to retrofit requirements are more likely to be retired. In many cases, this generation is less efficient and less flexible than new quick-start gas-fired generation, and many of these generating units are nearing the end of their useful life. Any requirement to upgrade these old inefficient units is likely to cause unit retirements; generation owners are much more likely to invest capital in new, more efficient generation. Based on the analysis included in this study, the imposition of closed-loop cooling tower requirements as part of the changes to Section 316(b) of the Clean Water Act is likely to result in the retirement of over 8,000 MW of gas-fired generation, with a majority of these units being located in or near the urban centers of Dallas/Fort Worth and Houston. Without additional replacement generation (the analysis of which was not included in the scope of this study) the retirement of this gas-fired generation would reduce generation reserve margins to below 2% in 2015.

The amount of replacement generation developed by private investors will depend on the market viability of new capacity, as determined by individual generation developers. As the gas-fired generation identified in this study to be at risk is being dispatched to provide peaking capacity, it would seem reasonable for replacement generation to serve the same role. Yet development of new gas-fired peaking capacity will require sufficient hours of scarcity pricing to justify new investment. As another consideration, if there is sufficient market interest in new generation capacity, there may be a system reliability need should the timing of the new regulatory requirements not allow sufficient lead-time for favorable market conditions to develop and new generation to become operational.