

Final Report

**Survey of Emissions, Emission Regulations, and
Control Technology Cost Effectiveness for Large Industrial NO_x Sources
in Eastern Texas and Eight Surrounding States
HARC Project H36**

Prepared for

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EXECUTIVE SUMMARY

In a previous study carried out for the Houston Advanced Research Center (HARC Project H-35), it was found that NO_x sources in seven states, Texas, and the Gulf of Mexico exceeded EPA's initial screening criteria as potentially significant contributors to 8-hour ozone levels above 85 ppb in one or more non-attainment areas (NAAs) in Texas. The most significant out-of-state impacts were from Louisiana and Arkansas with additional potentially significant contributions from Alabama, Kentucky, Mississippi, Oklahoma and Tennessee. Extending the transport analysis to include near – NAAs at an ozone threshold of 75 ppb resulted in the addition of an eighth state, (Missouri) to the list of potentially significant contributing states.

Based on the findings of the H-35 study, and the impending 8-hour ozone State Implementation Plan (SIP) requirements in several major areas of Texas, this study looked more specifically at regulations, emissions, control strategies, and specific sources in the eight states identified in H-35 to determine whether additional controls might be considered to improve air quality in those states as well as assist Texas in attaining the health standards in a more cost-effective and efficient manner.

A technical assessment of emissions and stringency of regulation in the eight “upwind” states was prepared along with a comparison of these regulations to those adopted in Texas. Information was gathered on NO_x emissions, major point sources of NO_x, control methods, and applicable regulations in the eight states. Based on existing published cost information for control equipment, a cost comparison of appropriate control technologies was made. Also included was a review of pending interstate regulations and legislation that might impact the study area, primarily the Clean Air Interstate Rule (CAIR) and the Clear Skies proposed legislation. Finally, additional areas for study were identified should Texas decide to pursue these findings with greater detail and documentation. By comparing emission levels between the current National Emission Inventory (NEI) and the CAIR-projected 2010 emissions on a point source basis, specific point sources with potential for further examination for additional NO_x controls were identified.

Major individual point sources and Standard Industrial Classification (SIC) categories that proportionally contribute significantly to statewide NO_x emissions were examined. Limited resources did not allow for examination of specific sources and their emission unit controls in detail (“bottom-up approach”), but any readily available information on current controls, such as Selective Catalytic Retrofits (SCR) on Electrical Generating Units (EGUs) are included.

The end product of this study is a presentation each state's current control limits by equipment type, expected emission reductions, and cost-effectiveness as compared with regulation of similar equipment in Texas. Texas rules are subdivided into two categories – “typical” regulatory requirements for areas such as the Tyler-Longview-Marshall near nonattainment area (NNAA) and for the most stringent rules, generally those in the Houston-Galveston NAA.

Taken together, results of this and the H-35 study, while subject to future refinement and a number of key caveats described in the report, provide support for the conclusion that opportunities exist for additional NO_x emission reductions in a number of upwind states which would result in air quality improvements in the ozone nonattainment and near-nonattainment areas of eastern Texas. Additional, more detailed analyses will be needed to pinpoint the

specific NO_x sources representing the best opportunities for emission reductions and to quantify the expected air quality benefits and costs associated with any such reductions.

This study involved considerable research and analysis of various data sources and provides a good screening of the various emission trends, specific point sources, current and future regulations and control strategies, and potential cost-effectiveness of additional control measures. While the limited resources for this study did not provide the source-by-source analysis necessary to pinpoint specific emission reductions that might occur from applying Texas-level controls to each of the eight states in our study area, we believe that sufficient information has been developed here to conclude that significant emission reductions can be achieved in at least some neighboring states.

While this report indicates important potential for emissions reductions of NO_x, it also is intended to serve as a point of departure for a further, more exhaustive assessment, and not as a comprehensive feasibility assessment for specific sources or source categories. If the state of Texas should decide, based on the screening analysis in this report and other important policy considerations, to pursue a specific strategy to “encourage” adjacent states to tighten their regulations as a part of a region-wide effort to lower ozone levels, a more specific and focused study will need to be conducted. Such a study would build upon selected findings from this report. Several areas of necessary research in this regard are recommended.