Technical Support Document (TSD)

for the Transport Rule

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Installation Timing for Low NO_X Burners (LNB)

U.S. Environmental Protection Agency

Office of Air and Radiation

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Section IV.D in the preamble to the Transport Rule discusses EPA's proposed approach to quantify upwind state emissions that significantly contribute to nonattainment or interfere with maintenance downwind. That section of the preamble references EPA's assumptions regarding the length of time required to install certain air pollution controls including low NO_X burners (LNB). In this Technical Support Document we explain briefly EPA's assumption that sufficient LNB can be installed by 2012 for the Transport Rule.

EPA analysis in support of the Transport Rule indicates that there may be on the order of about 30 coal-fired boilers for which it might be economic to install low NO_X burners to achieve compliance. These roughly 30 boilers are located in the four states that the proposed Transport Rule would cover but which are not required to reduce emissions under the Clean Air Interstate Rule (CAIR).[1] EPA analyzed only these four states because it is assumed that sources in CAIR states already control NO_X emissions.

EPA anticipates finalizing the Transport Rule by about June 2011. LNB installations, burner modifications, or other NO_X reduction controls would likely have to be installed during fall 2011 or spring 2012 outages in order to achieve significant reductions for 2012. While this schedule is aggressive, industry has shown that it can be met. Limestone Electric Generating Station Unit 2, a 820 MW tangentially fired lignite unit, was retrofitted with Foster Wheeler's Tangential Low NO_X (TLN3) system in less than six months, including engineering, fabrication, delivery and installation.[2] Harlee

[1] The states of Kansas, Nebraska, and Oklahoma are not covered by CAIR but would be covered by the proposed Transport Rule. Minnesota would be covered by the proposed Transport Rule and is included in CAIR, however, EPA stayed the effectiveness of CAIR in Minnesota (74 FR 56,721; November 3, 2009).
[2] R. Pearce, J. Grusha, *Reliant Energy Tangential Low NOx System at Limestone Unit 2 Cuts Texas Lignite, PRB and Pet Coke NOx*, http://www.fwc.com/publications/tech_papers/files/tp_firsys_01_02.pdf

Branch Unit 4, a 535 MW cell-fired unit, was retrofitted with Riley Power's low-NO_X Dual Air Zone CCV burners on a similar schedule.[3]

In addition to LNB retrofits and burner modifications, there are other approaches that can be implemented in a short time frame to achieve significant NO_X reduction. Relatively simple Selective Non-Catalytic Reduction (SNCR) systems can be installed quickly. Likewise, the re-tuning or upgrading of existing combustion control systems can often provide significant NO_X reductions and can be performed quickly.[4]

There are many LNB technology suppliers currently working in the U.S., including Alstom, Babcock Power, Babcock & Wilcox, Combustion Components Associates, Foster Wheeler, Fuel Tech, General Electric, RJM, and Siemens. With the current tailing-off of new coal plant construction and with recent SO_2 scrubber installations winding down, these and other firms in the supply chain have the ability to respond quickly to a large amount of new orders for emission control systems. They are capable of completing LNB retrofits, burner modifications, and other control approaches on at least 30 coal-fired boilers in time to obtain significant NO_X reductions in 2012.[5]

[3] B. Courtemanche, et al, *Reducing NO_X Emissions and Commissioning Time on Southern Company Coal Fired Boilers With Low NO_X Burners and CFD Analysis*, http://www.babcockpower.com/pdf/t-182.pdf
[4] D. Foerter, Institute of Clean Air Companies (personal communication with EPA staff, June 14, 2010)
[5] Ibid