

ERP and those activities which should be subject to case-by-case review.

The case studies also indicate that replacement activities in these industries should not lead to increased emissions at the sources. Based on the case studies, we believe that replacement with identical or functionally equivalent equipment as the rule requires, will result in equivalent or reduced emissions. The decrease in emissions would result from efficiency improvements that reduce the amount of air pollution emitted per product produced in the process unit. Therefore, if operating levels do not change, then total emissions will decrease with such identical or functionally equivalent equipment replacements.

The case studies looked at a wide range of projects. We have concluded based on this analysis that replacement activities do not generally cause changes in operating levels at the process unit. Instead, other factors, like economic downturns or increased demand for the product of the process unit, will cause operating levels to fluctuate. Efficiency changes, even when they lead to increases in product output from the same raw material input will not lead to increases in emissions unless an independent factor like increased demand for the product also occurs. We strongly support efficiency improvements where they can occur as long as the other safeguards in the rule are met.

Our inability to model economy-wide impacts does not mean we cannot characterize the effects of this rule. In qualitative terms, the case studies further support our conclusion that the old case-by-case approach to RMRR is having perverse effects by discouraging projects that would improve efficiency. As noted elsewhere, efficiency improvements necessarily imply less pollution holding everything else constant. For example, the case study on the pulp and paper industry finds that:

"[A]s [safety, reliability and efficiency] activities begin to be reviewed, those that raise * * * questions under the ambiguity of the current rules may be postponed, altered, or simply cancelled. Under the proposed ERP approach, these activities can be tested against a clearer set of criteria, that will allow more activities to be executed.

* * * The new approach provides the regulatory clarity and certainty in making applicability decisions that is completely absent from the current case-by-case approach. Thus, the manner in which mills will handle the processing of equipment replacement activities, with regard to assessing their air permit applicability assessments, will be able to be streamlined. By definition, a "case-by-case" approach is

simply unworkable for a typical pulp and paper mill, which may have thousands of maintenance and repair related work orders involving equipment replacements executed each year, affecting all areas of mill operations. Clearly, only a small subset of these equipment replacement activities can be evaluated using the complicated and vaguely interpreted multi-factor test inherent with the current case-by-case approach.

* * * The proposed ERP approach helps by setting criteria for the routineness determinations. Under the proposed approach, a mill could set up more straightforward guidelines to be followed throughout an organization that would allow quick and defensible determinations to be made regarding individual maintenance activities."

Based on the analytical work performed by the contractor for pulp and paper, we expect that, at such facilities, the power boiler would be the most affected by the ERP, as well as an important or even dominant emissions source. We would anticipate that this would be true for many of the inorganic and organic chemical subsectors. In fact, we did not pursue an analysis of the chlor-alkali sector, in large part because the power boiler was the most obvious process unit to analyze, and the issues raised overlapped with the pulp and paper analysis. Thus, it is logical that the conclusions from the case studies would generalize to many other sectors.

Beyond the case studies, there is also a great deal of research and experience that allows for some robust findings. Previous research, such as the articles cited below, supports the following findings:

- *Enhanced efficiency and less pollution in the short run. Holding everything else constant, when a plant's efficiency increases, pollution must go down.* This nation's growing experience with pollution prevention, efficiency enhancements, voluntary environmental programs, and Environmental Management Systems adoption all reinforce the notion that enhanced plant efficiency translates into less environmental pollution.¹⁰ Further, there is an economic incentive to keep plant efficiency high. Proper maintenance and the resulting efficiency enhancements and pollution prevention reduce resource needs and therefore reduce costs.¹¹ By providing the certainty needed to plan and undertake efficiency investments

¹⁰ By efficiency, we mean unit of input per unit of output, for example, amount of energy needed to produce a specific amount of output. Another example would be the amount of raw material to produce a specific amount of output.

¹¹ A common example illustrates the point well. When one "tunes-up" a car, the automobile gets more miles per gallon, is cleaner burning, and is cheaper to operate.

(economically efficient maintenance) this rule will achieve lower pollution.

- *The rule will allow firms to take advantage of pollution prevention opportunities and new, innovative pollution-reducing technologies.* As technology advances, plants will be able to replace existing components with functionally equivalent components that enhance energy efficiency (and reduce pollution).¹² One example of such an opportunity identified by the EPA contractor in one of the case studies is the replacement of spray guns on a topcoat operation in order to improve the quality of the paint job, while also increasing the transfer efficiency, and decreasing coating and associated solvent usage. This project could be deemed a physical change and have major NSR applicability ramifications if not for the ERP of the RMRR exclusion. Under the current case-by-case approach to RMRR, the facility may forego the change to the newer spray gun design if there is a perceived risk that the determination could be questioned. Under the new ERP approach, the change would proceed more definitively as RMRR, and thus the emission reductions could be realized.

- *While firms can operate existing plants efficiently, the rule preserves powerful incentives within the CAA to adopt "leap-frog" technologies and production processes that further reduce costs, increase efficiencies and reduce pollution.* Because of the CAA requirements and economic gains associated with improved efficiency, producers still have an incentive to invest in these clean technologies to replace older facilities.

In addition, a substantial body of research has explored the consequences of environmental regulation that sets more stringent control requirements for new sources. This research explores how differentiated regulation can affect firm behavior both on theoretical and empirical grounds. A listing of some of this literature is included in the RIA for the final rule. This literature provides further evidence that the NSR can easily distort investment and production decisions against more efficient maintenance and replacement.

Therefore, based on the information evaluated, we affirm the overall conclusion of our analysis—that today's rule has no practical effect on the environmental benefits of major NSR in the future. We have presented

¹² For example, energy efficiency is not a design parameter to determine functional equivalency for defining routine maintenance. Accordingly, a firm could adopt a more efficient "functionally equivalent" technology without fear of triggering NSR provisions.