

contained in this proposal (both the 500 ppm requirement in 2008 and the 15 ppm requirement in 2010) because while we do believe PNA content will be reduced, we are not predicting it will achieve the near-zero level experienced in California.

We expect that this proposal would have no negative impacts on other fuels, such as jet fuel or heating oil. We do expect that the sulfur levels of heating oil would decrease because of this proposal. Beginning in mid-2007, we expect that controlling NRLM diesel fuel to 500 ppm would lead many pipelines to discontinue carrying high sulfur heating oil as a separate grade. In areas served by these pipelines, heating oil users would likely switch to 500 ppm diesel fuel. This would reduce emissions of sulfur dioxide and sulfate PM from furnaces and boilers fueled with heating oil. The primary exception to this would likely be the Northeast and some areas of the Pacific Northwest, where a distinct higher sulfur heating oil would still be distributed as a separate fuel. Also, we expect that a small volume of high sulfur distillate fuel would be created during distribution from the mixing of low sulfur diesel fuels and higher sulfur fuels, such as jet fuel in the pipeline interface. Such high sulfur distillate would likely be sold by the terminal as high sulfur heating oil or reprocessed by transmix processors.

H. Refinery Air Permitting

Prior to making diesel desulfurization changes, some refineries may be required to obtain a preconstruction permit, under the New Source Review (NSR) program, from the applicable state/local air pollution control agency.²⁷⁰ We believe that the proposed program provides sufficient lead time for refiners to obtain any necessary NSR permits well in advance of the compliance date.

Given that today's diesel sulfur program would provide roughly three years of lead time before the 500 ppm standard would take effect, we believe refiners would have time to obtain any necessary preconstruction permits. Nevertheless, we believe it is reasonable to continue our efforts under the Tier 2 and highway diesel fuel programs, to help states in facilitating the issuance of permits under the NRLM diesel sulfur program. For example, the guidance on

Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) control technology that was developed for the gasoline sulfur program should have application for diesel desulfurization (highway and NRLM) projects as well. Similarly, we believe the concept of EPA permit teams for gasoline sulfur projects could readily be extended to permits related to diesel projects as well. These teams, as needed, would track the overall progress of permit issuance and would be available to assist state/local permitting authorities, refineries and the public upon request to resolve site-specific permitting questions. In addition, these teams would be available, as necessary, to assist in resolving case specific issues to ensure timely issuance of permits. Finally, to facilitate the processing of permits, we encourage refineries to begin discussions with permitting agencies and to submit permit applications as early as possible.

V. Program Costs and Benefits

In this section, we present the projected cost impacts and cost effectiveness of the proposed nonroad Tier 4 emission standards and low-sulfur fuel requirement. We also present a benefit-cost analysis and an economic impact analysis. The benefit-cost analysis explores the net yearly economic benefits to society of the reduction in mobile source emissions likely to be achieved by this rulemaking. The economic impact analysis explores how the costs of the rule will likely be shared across the manufacturers and users of the engines, equipment and fuel that would be affected by the standards.

The results detailed below show that this rule would be highly beneficial to society, with net present value benefits through 2030 of \$550 billion, compared to a net present value of social cost of only about \$16.5 billion (net present values in the year 2004). The impact of these costs on society should be minimal, with the prices of goods and services produced using equipment and fuel affected by the proposal being expected to increase about 0.02 percent.

Further information on these and other aspects of the economic impacts of our proposal are summarized in the following sections and are presented in more detail in the Draft RIA for this rulemaking. We invite the reader to

comment on all aspects of these analyses, including our methodology and the assumptions and data that underlie our analysis.

A. Refining and Distribution Costs

As described above, the fuel-related requirements associated with this proposed rule would be implemented in two steps. Nonroad, locomotive and marine diesel fuel would be subject to a 500 ppm sulfur cap beginning June 1, 2007, while nonroad diesel fuel would be subject to a 15 ppm sulfur cap beginning June 1, 2010. Meeting these standards would generally require refiners adding hydrotreating equipment and possibly new or expanded hydrogen and sulfur plants in their refineries for desulfurizing their nonroad diesel fuel and dispensing of the removed sulfur. Using information provided by vendors of desulfurization equipment and through discussions with distributors of nonroad diesel fuel, we estimated the desulfurization and associated distribution and additive cost for complying with this two step desulfurization program. Except for the costs presented at the end of this section, the costs below reflect a fully phased in fuels program without the proposed small refiner exemption. Costs are in 2002 dollars. We request comment on the cost estimates presented below and the methodologies used to develop them. You can refer to the Draft RIA for details.

The cost to provide nonroad, locomotive and marine diesel fuel under the proposed fuel program is summarized in Table V-A-1 below. The costs shown (and all of the costs described in the rest of this section) only apply to the roughly 65 percent of current nonroad, locomotive and marine diesel fuel that contains more than 500 ppm sulfur (hereafter referred to as the affected volume). We estimate that the other 35 percent of this fuel is actually fuel certified to the highway diesel fuel standards and project that this will continue. Thus, the proposed fuel program would not affect this fuel and no additional costs would be incurred by its refiners or distributors. The costs and benefits of desulfurizing this highway fuel which spills over into the non-highway markets was already included in EPA's 2007 highway diesel fuel rule.

²⁷⁰ Hydrotreating diesel fuel involves the use of process heaters, which have the potential to emit pollutants associated with combustion, such as NO_x, PM, CO and SO₂. In addition, reconfiguring refinery processes to add desulfurization equipment

could increase fugitive VOC emissions. The emissions increases associated with diesel desulfurization would vary widely from refinery to refinery, depending on many source-specific factors, such as crude oil supply, refinery

configuration, type of desulfurization technology, amount of diesel fuel produced, and type of fuel used to fire the process heaters.