vol% and ethanol to 10 vol%. Blending MTBE at 15 vol% adds approximately 2.7% oxygen. However, due to variations in the density of gasoline, it is possible that when trying to achieve an oxygen content of 2.7%, the addition of 15 vol% MTBE or 7.8 vol% ethanol may result in an oxygen content as high as 3.2% (see section VIII below for further explanation). As a consequence, EPA is proposing that if a governor requests to lower the oxygen cap from 3.5%, the maximum oxygen content in that state would be lowered to a level equivalent to a nominal 2.7% but not to exceed 3.2%.

As discussed in detail below in section VI.D, EPA believes it is very unlikely that a NOx increase will occur for any one batch of reformulated gasoline, and that the potential NO_x increase, if any, would be small. A "worst case" scenario would involve the expected increase in E200, but with no other dilution effects that would reduce NO_x , offsetting the increase in E200. Under such a scenario, NO_x emissions for a batch of reformulated gasoline would increase by about 0.12% for an oxygen content change from 2.7 to 3.5 wt%. However, there are several reasons why such a scenario is speculative and unlikely to occur. First, the toxics standards for reformulated gasoline should lead to reduced aromatics levels even without the addition of oxygenates, and this will lead to reduced NO_x emissions. Second, the addition of oxygenates would normally lead to all of the additional dilution effects noted above, and not just to the increase in E200. It is unlikely that a refiner would intentionally offset the dilution effects for sulfur, olefins, and aromatics, allowing only E200 to increase. It appears that the antidumping provisions which affect conventional gasoline, combined with the limits on fuel parameters governed by each refiner's 1990 baseline operating levels limit the ability of refiners to adjust refinery operations to that degree. Thus while there is no specific provision in the Simple Model requiring that individual batches of gasoline containing more than 2.7 wt% oxygen have sulfur, olefin, aromatic, and E200 levels that do not increase NO_x emissions, an increase is unlikely and if it should occur it would be small. EPA believes it is likely that batches of reformulated gasoline will exhibit the dilution effects. Thus, on average across all of the reformulated gasoline sold by all refiners in an area, a NO_x reduction, or at least no increase in NO_x, is likely to occur. The Agency requests comments on these conclusions,

particularly on the likely reaction of refiners to the ability to blend higher levels of oxygenate in VOC-controlled reformulated gasoline and how dilution effects may be anticipated in the production of reformulated gasoline.

Given the small likelihood of NO_X increases under the Simple Model for individual batches of reformulated gasoline (from increases in E200, without corresponding NO_X reductions from reductions in other parameters), the likelihood that overall reformulated gasoline should lead to NO_X reductions on average, and the benefits of increased oxygenate use, EPA now believes it is appropriate to revise the oxygen content cap under the Simple Model by raising it to the limit allowed under section 211(f) of the Act. This would remove what appears to be an unnecessary limitation on oxygenate use under the current regulations. While neither the Complex Model nor other basic facts have changed since the oxygen cap was promulgated in December 1993, EPA has reevaluated the need for such a cap and is now proposing to make revisions in light of this reevaluation.

In raising the cap, the Agency believes that it will make it easier for higher levels of oxygen to be used in VOCcontrolled reformulated gasoline (this will primarily affect the use of ethanol, since at present ethanol is the only oxygenate which legally can be blended at levels in excess of 2.7 wt% oxygen). This proposed action, however, will retain the initiative at the state level to restrict higher oxygen levels in reformulated gasoline, consistent with respect to how this issue was handled for non-VOC-controlled ("wintertime") reformulated gasoline. Although as explained in section VI below the Agency believes that this action will have no significant environmental impact, by leaving this initiative with the states this action accommodates those states which are particularly concerned about potential local air quality impacts of increased ethanol use.

EPA proposes that any decrease in the maximum allowed oxygen content (at the request of a state), be effective 30 days after EPA publishes notice in the Federal Register of such change. This would provide reasonable notice of the change to all affected parties. EPA also proposes that, if today's proposal is finalized, the higher maximum oxygen content would become effective 60 days after publication of the final regulations in the Federal Register. If states do not want reformulated gasoline with the higher oxygen content to be sold in their state beginning with this effective date, they must notify the Administrator prior to the that date. After the proposed regulations took effect, states may request to lower the maximum oxygen content at any time.

EPA requests comments on all aspects of this proposed action.

V. Economic Impacts

The largest part of the cost associated with Phase I (1995-1999) reformulated gasoline is the oxygen content required by the Act. Since ethanol generally costs less than MTBE per gallon (due largely to the pro-rated tax credit available to ethanol blenders in both the federal and some state tax codes) and contains almost twice as much oxygen per gallon, it has a considerable economic advantage as an oxygenate. However, this cost advantage varies by geographic market and can also be offset by the incremental costs for distribution and segregation of ethanol blends, which are much higher than for MTBE blends. Production and distribution costs for the oxygenates plays a major role in determining market share.

Refiners must also consider a variety of other operating costs when selecting an oxygenate for reformulated gasoline (or any other fuel). One of the costs associated with reformulated gasoline under the Simple Model is the cost associated with control of Reid vapor pressure (RVP). Most of the required reductions of VOC emissions are obtained in reformulated gasoline through reductions in RVP. The cost per finished gallon of reformulated gasoline for producing the sub-RVP blendstock to be blended with ethanol is lower on average by about 0.04-0.05 cents per gallon when the ethanol is blended at the maximum concentration possible instead of lower concentrations. Hence, it is slightly more economically attractive to use ethanol at 10 vol% (roughly 3.5-4.0 wt% oxygen) than at 7.8 vol% (2.7 wt%).

The small economic advantage provided by lifting the oxygen cap may be sufficient enough to allow some refiners to use ethanol during the ozone season when otherwise they would not do so. While the overall impact of this is expected to be marginal, it should contribute toward an increase in the total volume of ethanol produced in this country during the summer. It is not expected to affect the overall production capacity of ethanol, however, due to the much greater demand during the winter, and the fact that any additional benefits of this action to the ethanol industry will be short-lived, since the oxygen cap provisions only affect reformulated gasoline sold through the year 1997.

There is also some potential that today's proposal will result in a change