

processes) and 45 800 tonnes/year NO_x (4 400 from refining processes, 41 400 from combustion processes). These emissions result from refinery process heaters and boilers, sulphur recovery plants, fluid catalytic cracking units, incinerators and flares.

Available technologies could be installed to substantially reduce SO_2 emissions from fluid catalytic cracking (FCC) regenerators and sulphur plants on existing plants. Emissions could also be reduced significantly if the refineries switched to low-sulphur fuels in the refinery fuel system.

This industry sector is not presently being rigorously addressed. However, as strategy options are developed, several major metropolitan areas that contain refineries could be involved, necessitating a further assessment of this sector.

B.4.2 United States Petroleum Refineries

In terms of total mass emissions of SO_x and NO_x , petroleum refineries contribute a relatively small percentage of the total U.S. emissions of these pollutants. Specifically, refineries contribute 3.9% of the SO_x emissions and 0.85% of the NO_x emissions. Geographically, a majority of the U.S. refinery capacity is in the Gulf Coast and West Coast areas of the United States, but a significant portion is in the north central (2.4×10^6 BPD, 14%) and northeastern (1.8×10^6 BPD, 10%) parts of the country. Existing fuel gas and sulfur plant regulations, anticipated regulations for sulfur oxides from FCC units and anticipated regulations for industrial boilers indicate that any increased refinery capacity will have the minimum emissions of SO_x and NO_x .

No detailed assessment has been published on the contributions of SO_x and NO_x emissions resulting from refinery fuels used in process heaters and boilers.

No grass-roots refinery capacity is expected to be added in the near future. However, an indeterminate amount of refinery upgrading which includes FCC capacity is expected to be added over the next few years. This upgrading may increase or decrease SO_x and NO_x emissions depending on the extent to which new controlled processes replace old uncontrolled ones. There is no study available at this time that predicts what refinery emissions will be as a result of the anticipated upgrading.