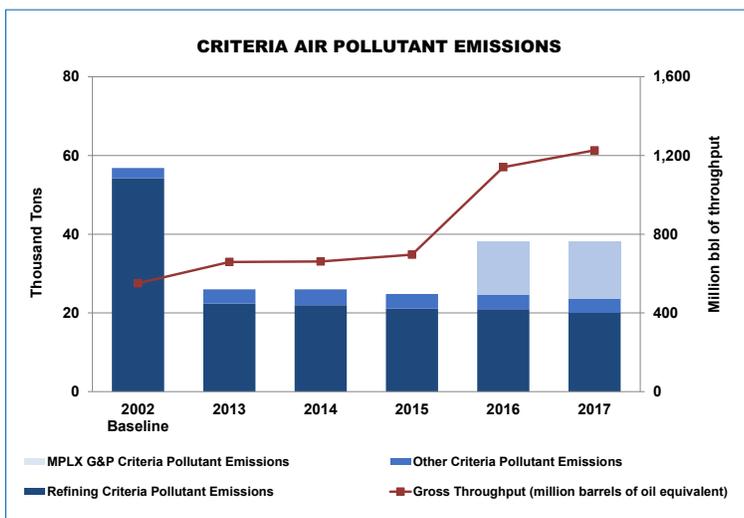
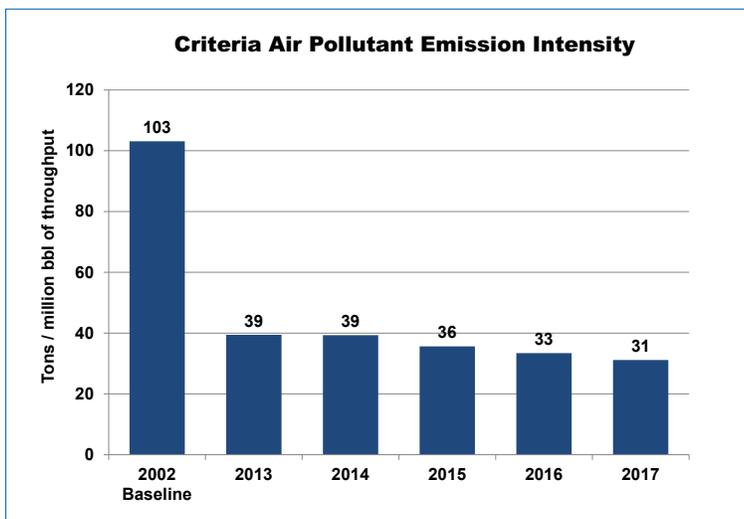


## CRITERIA POLLUTANT EMISSIONS<sup>15</sup>

MPC works to minimize and reduce criteria pollutant emissions aided by the energy efficiency and flare reduction programs described previously. The success of these efforts is demonstrated in the graphs to the right. Just one example is at our Galveston Bay refinery, where we are replacing existing heaters with new ones equipped with state-of-the-art emissions controls. By investing in new heaters, we expect to reduce nitrogen oxide emissions by over 370 tons per year.

From 2002 to 2017, we have reduced our criteria pollutant emissions per common barrel of throughput by roughly 70 percent. Such improvements in emissions intensity are not achieved without significant expense. We have invested over \$700 million to achieve these dramatic results.

As described on Page 28, we are making ongoing improvements within our gathering and processing operations designed to further reduce fugitive emissions.



<sup>15</sup>The Clean Air Act includes six pollutants designated as criteria pollutants: particulate matter (PM), ground-level ozone (O<sub>3</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>) and lead. Volatile organic compounds (VOCs) are a precursor to ground-level ozone, and as such are regulated by the EPA. MPC operations typically emit and report on SO<sub>2</sub>, NO<sub>x</sub>, VOCs, CO and PM. The 2002 baseline data includes reported emissions for the Galveston Bay refinery prior to MPC ownership. All operating assets are included. Emissions from MPLX G&P, acquired Dec. 4, 2015, are included in 2016 and 2017, which accounts for the increase.