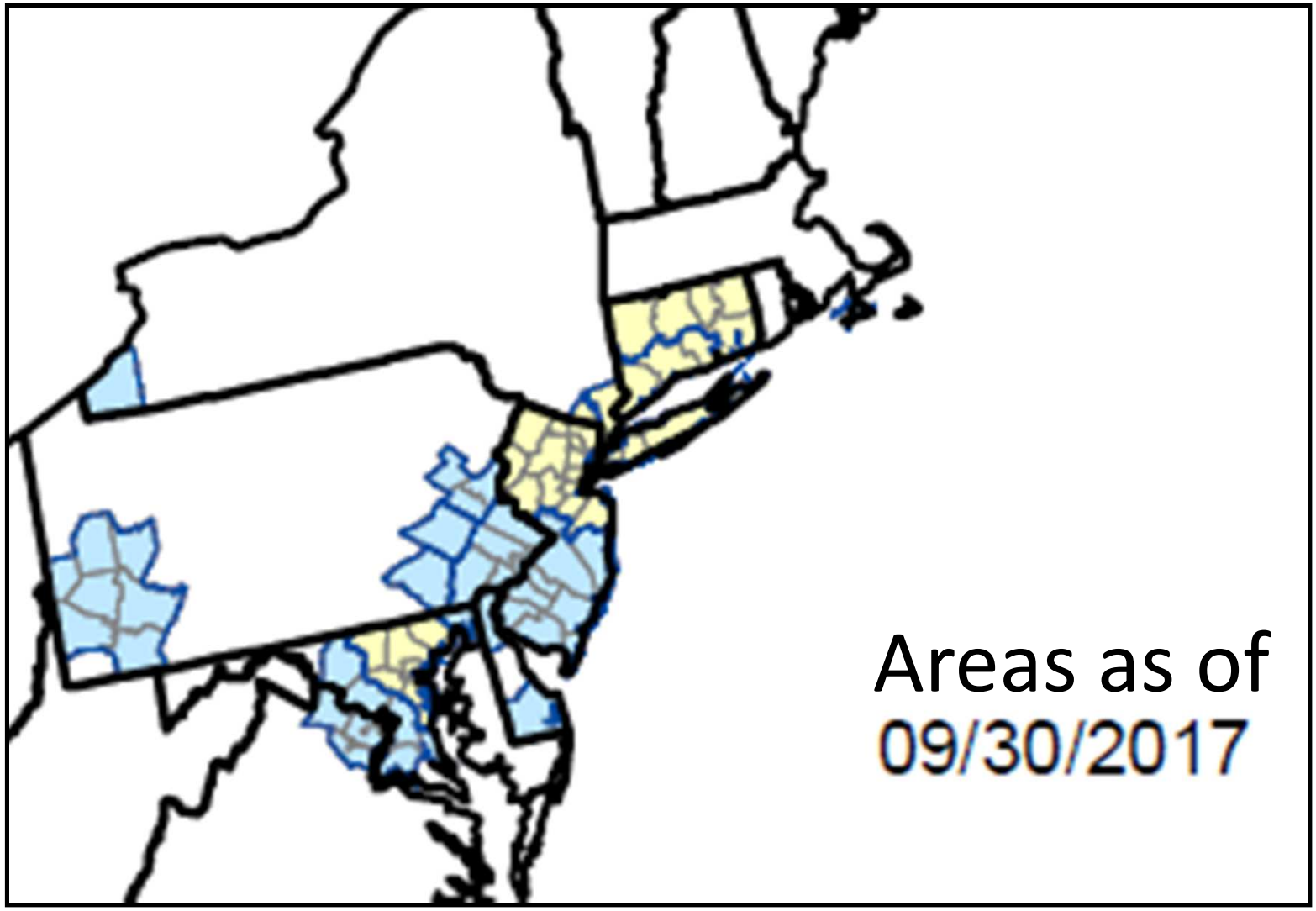
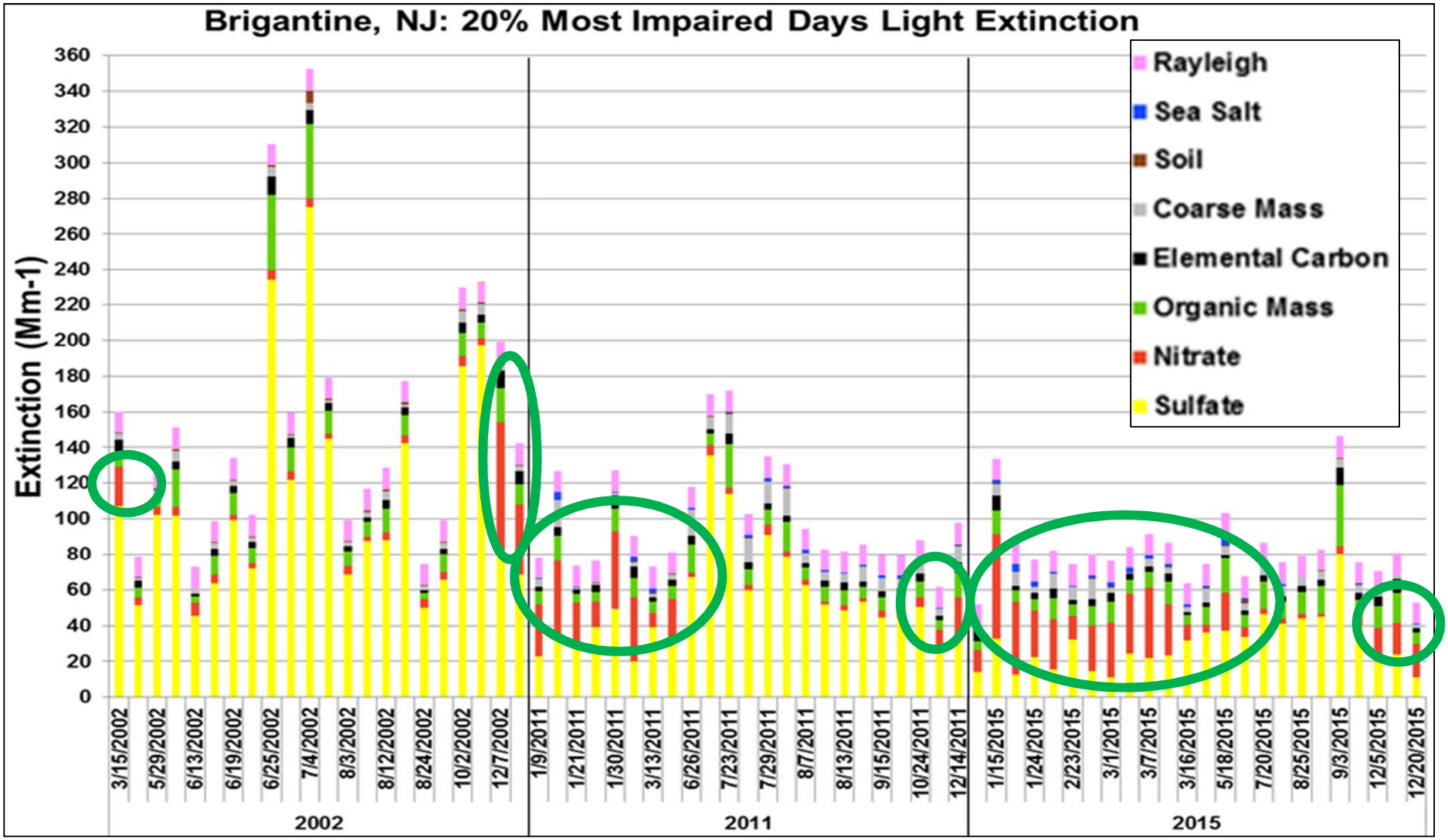
Northeast Ozone Nonattainment Areas
2008 8-hr NAAQS 0.075 ppm



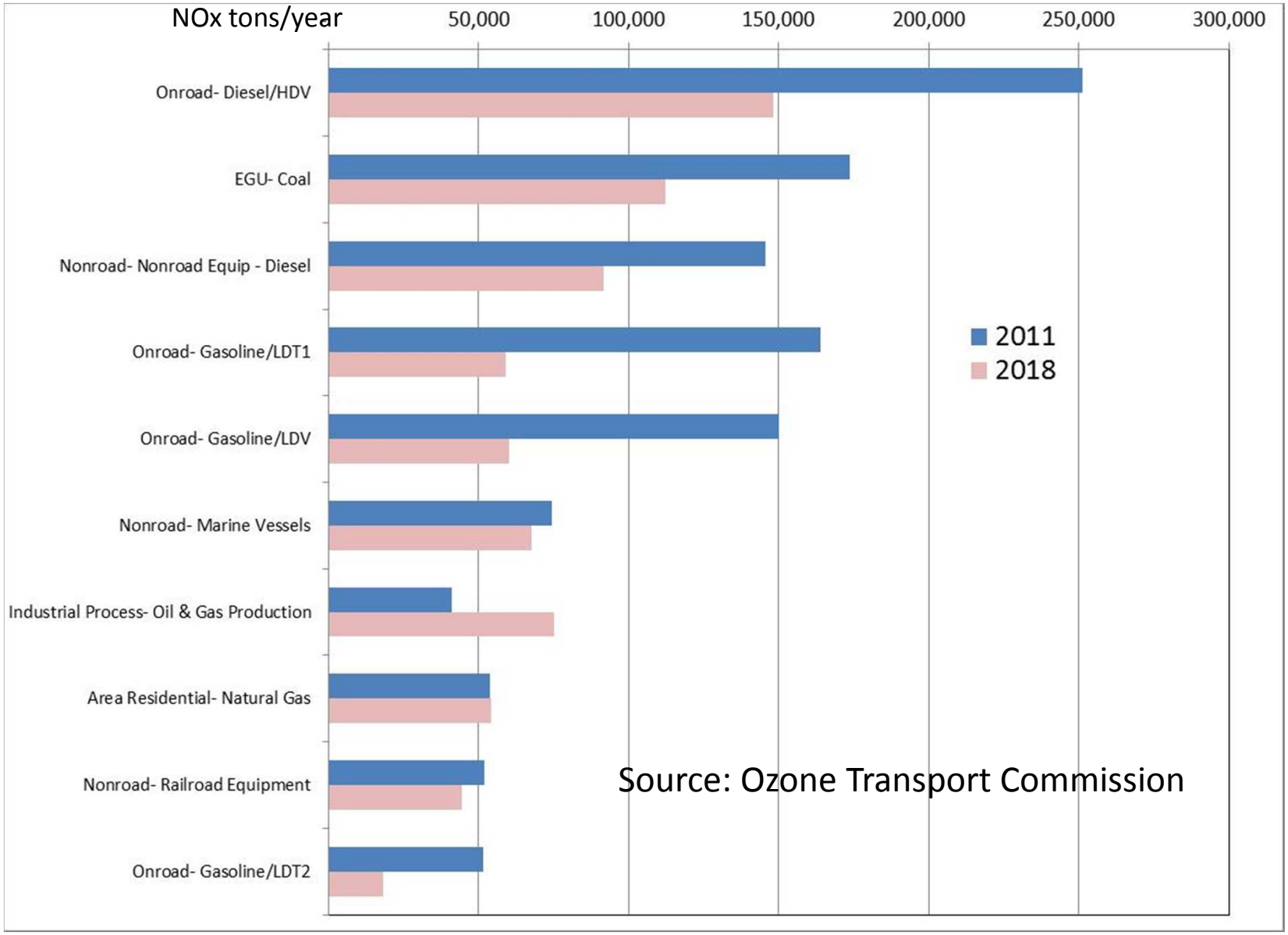
Nitrate PM replacing Sulfate PM



Nitrate particulate matter formed from NOx emitted by fuel combustion.

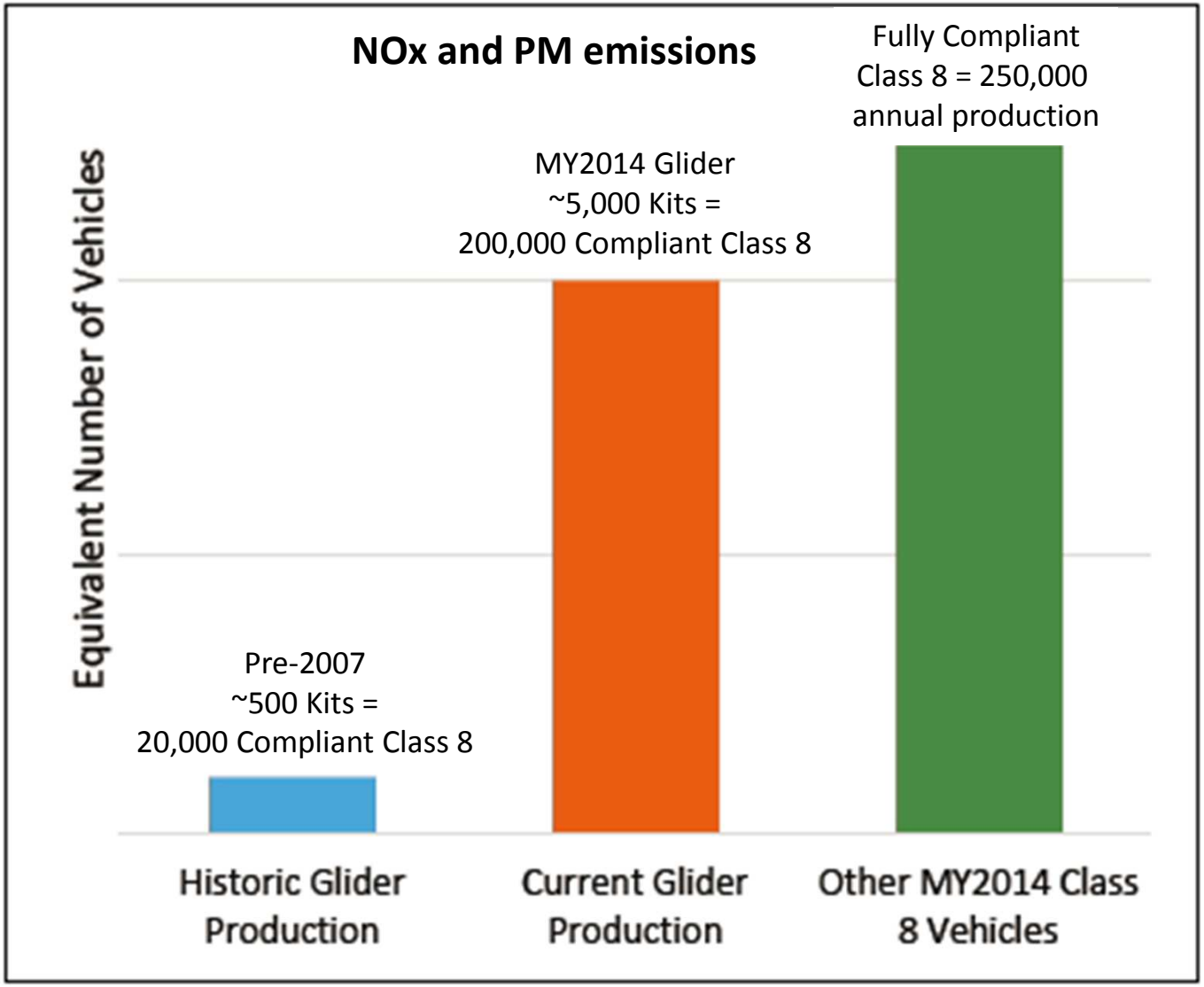
Source: MANE-VU

Onroad Diesel Vehicles Largest NOx Source Sector in Northeast/Mid-Atlantic (DC to Maine)



“Pre-Emission” Glider Kit Production Expanding

Glider vehicles with pre-2001 engines have 20x to 40x higher NOx & PM emissions than fully compliant modern truck



US EPA, FAQ Gliders
EPA-420-F-15-904
July 2015

Glider Vehicle NOx in Context

VW NOx Excess[a] (tons per year in 2015)	**CSAPR Update Power Plant NOx Cap**[b] (tons per ozone season starting 2018)	**Fleetwide Glider Vehicle NOx above Control Levels**[c] (tons per year in 2040)
11,200	313,626	318,615

[a]S.R.H. Barrett et al., Envtl. Res. Lett. **10** (2015) doi:10.1088/1748-9326/10/11/114005
[b]Fed. Reg. Vol. 81, 74504-74650 (Oct. 26, 2016), Table 1.B-1
[c]US EPA, Response to Comments (Aug. 2016) EPA-420-R-16-901, Appendix A to Section 14, p. 1962

Compensating for NOx Emissions Elsewhere Will Be More Costly

Source	Cost Effectiveness ($/ton NOx)
ICI Boilers (area & point sources)	$750 - $7,500 (Low NOx Burners) $1,300 - $3,700 (SNCR) $2,000 - $14,000 (SCR)
Combustion Turbines – SCR	$2,010 - $19,120
Tier 2 Light-duty Vehicle Emissions & Gasoline Sulfur	$2,100*
10 ppm Sulfur Gasoline	$4,500**
MY2012+ Heavy-HDV engine control technology	**$672*** **

*Based on EPA RIA, Tier 2 Motor Vehicle Standards and Gasoline Sulfur, Dec. 1999, Table VI-8, uncredited, NOx tons only.
**Based on 0.89 cents/gal EPA estimate and NESCAUM projected 2017 NOx reductions from gasoline on-road vehicles.
***Based on EPA RIA , HDV engine and diesel fuel standards, Dec. 2000, p. V-7 (NOx tons only from Table VI.C-1) using variable and operating costs of control technology. Low sulfur fuel cost assumed same for gliders.

Lifetime NOx and PM Emissions Increases (tons) for Model Year 2017 Glider Vehicles and Associated Benefits[a]

Increased Lifetime NOx Emissions per 1,000 Glider Vehicles	41,500 Tons
Increased Lifetime $PM_{2.5}$ Emissions per 1,000 Glider Vehicles	680 Tons
Premature Mortalities per 1,000 Glider Vehicles	70-160 Persons
Monetized $PM_{2.5}$-related Benefits Associated with Reducing Glider Production by 1,000 Vehicles	$0.3-1.1 Billion

[a]US EPA, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2, Response to Comments for Joint Rulemaking, August 2016