

Goods Movement

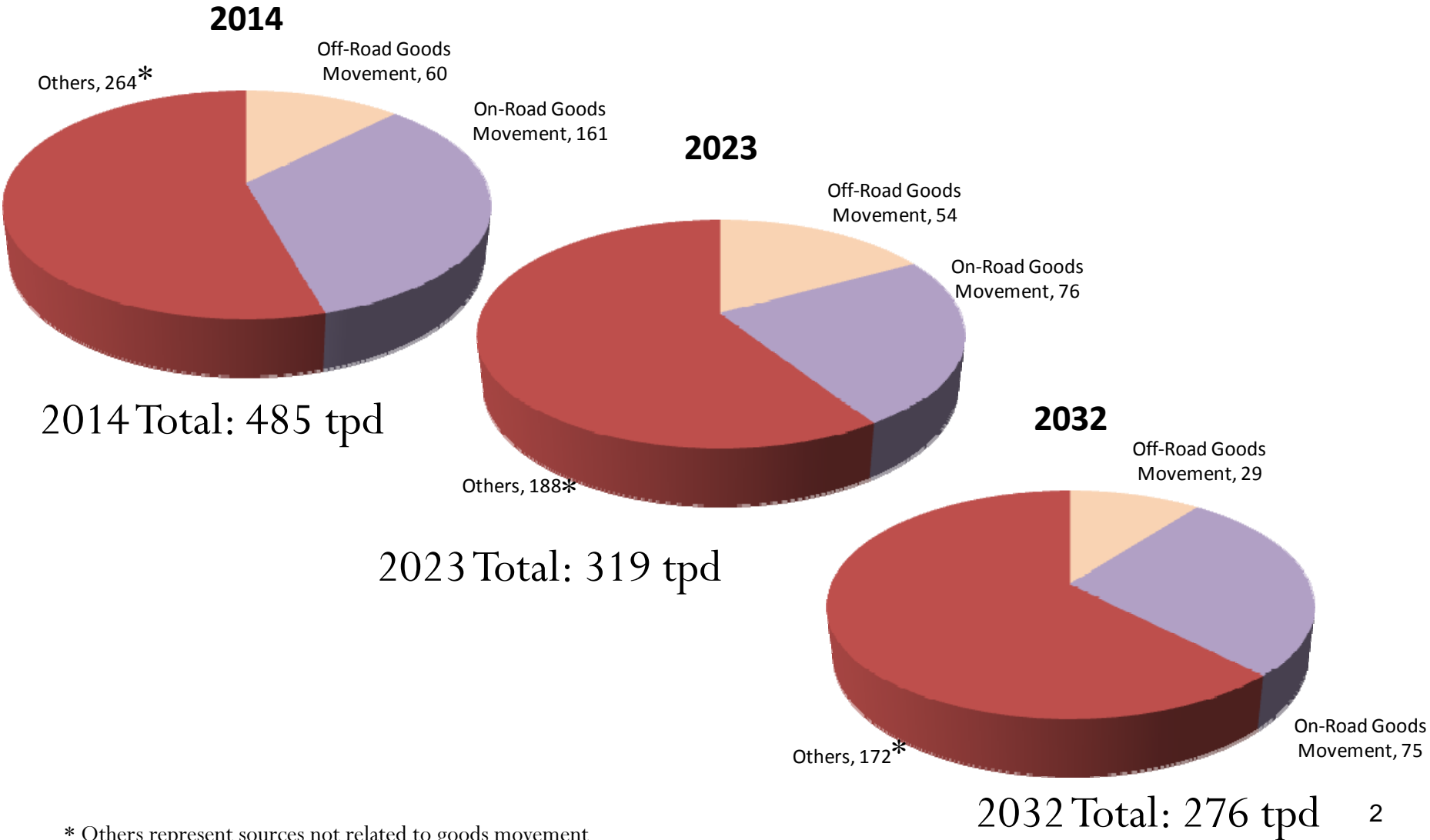
2012 AQMP Emission Inventory

Agenda No. 2



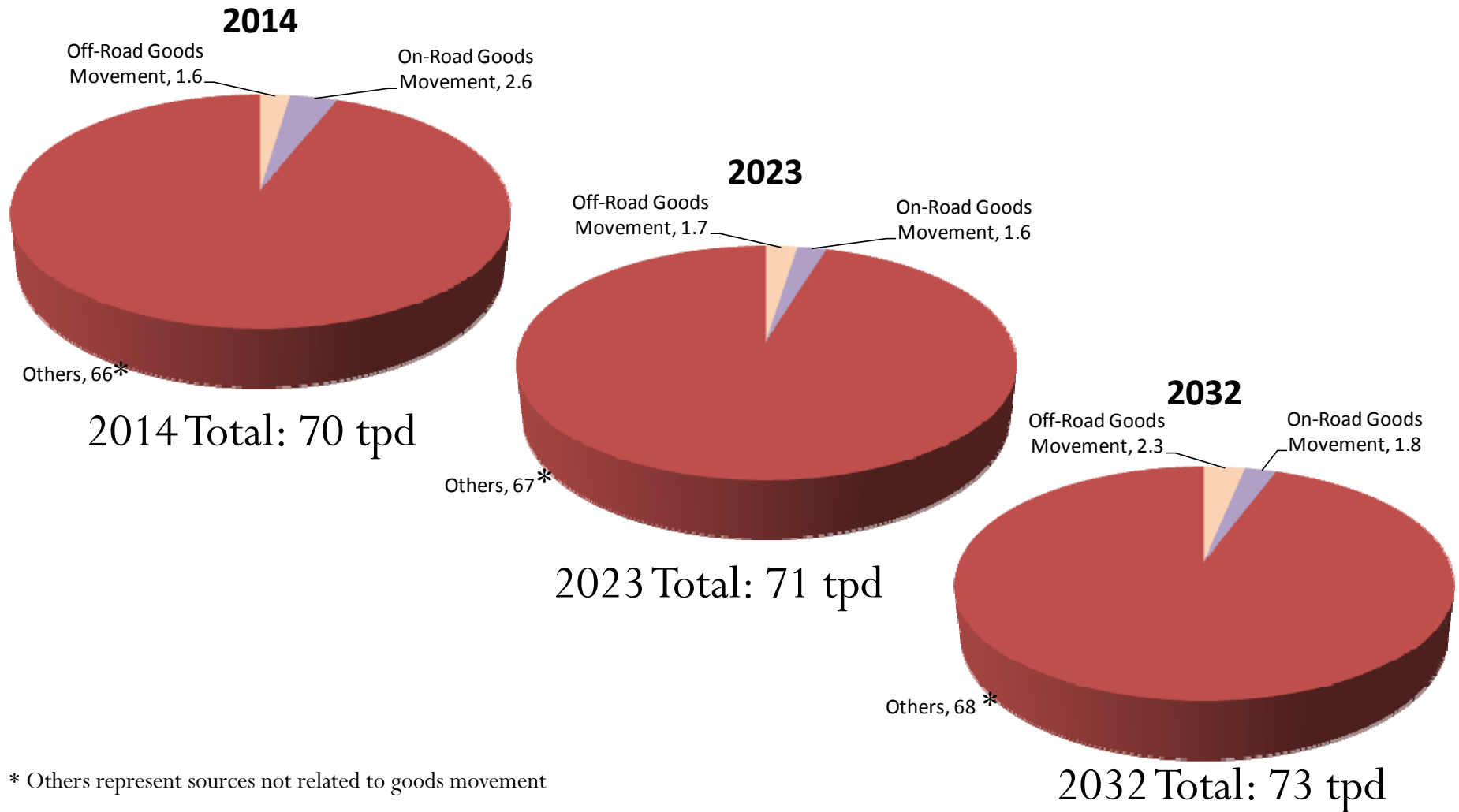
Goods Movement White Paper
Working Group Meeting
August 5, 2014

Goods Movement Sector Emission Contribution to Total NOx (tpd)



* Others represent sources not related to goods movement

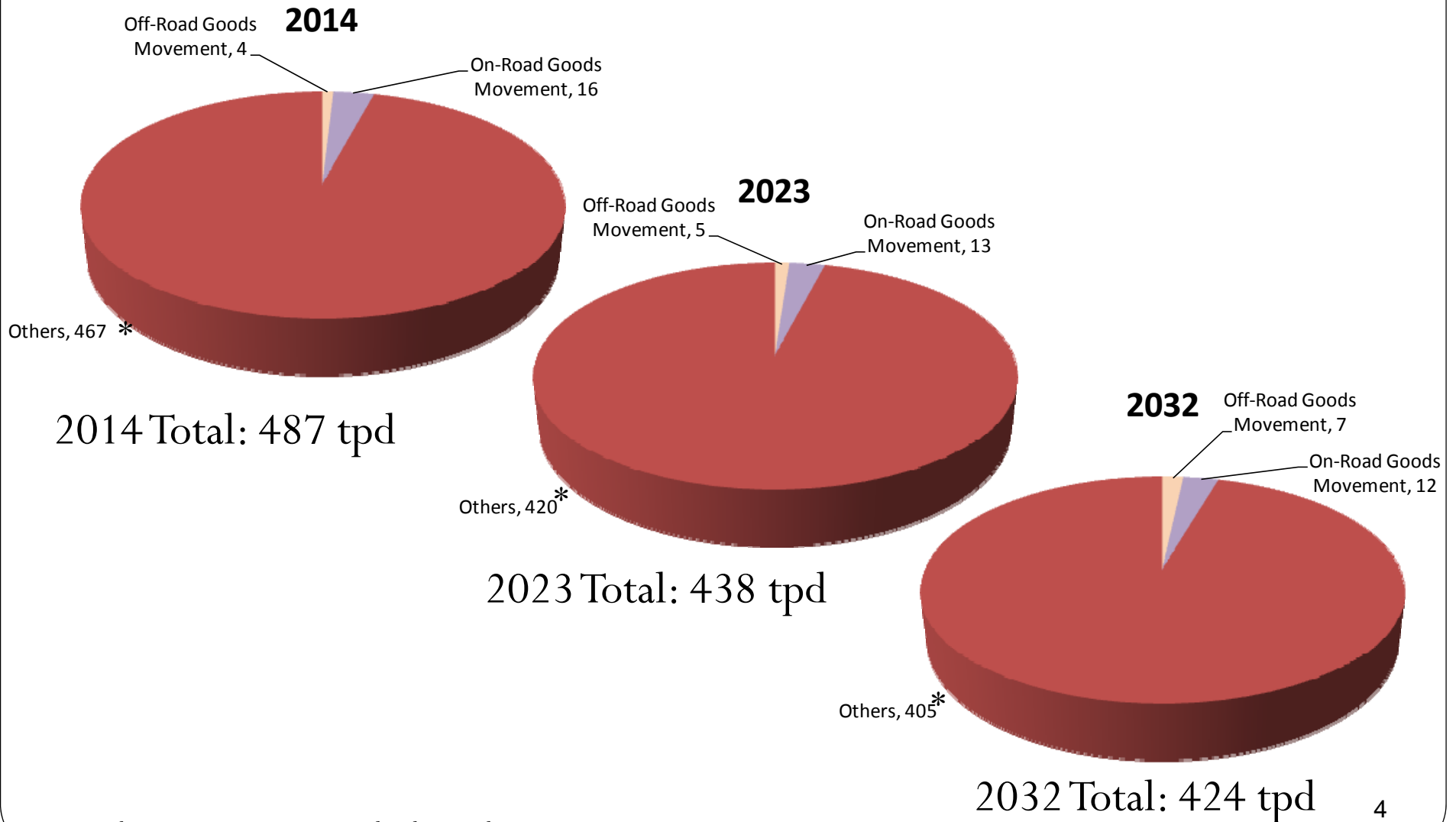
Goods Movement Sector Emission Contributions – PM (tpd)



* Others represent sources not related to goods movement

Note: Mobile source related re-entrained road dust included in the Total

Goods Movement Sector Emission Contributions – VOC (tpd)



* Others represent sources not related to goods movement

On-Road Emission Inventory

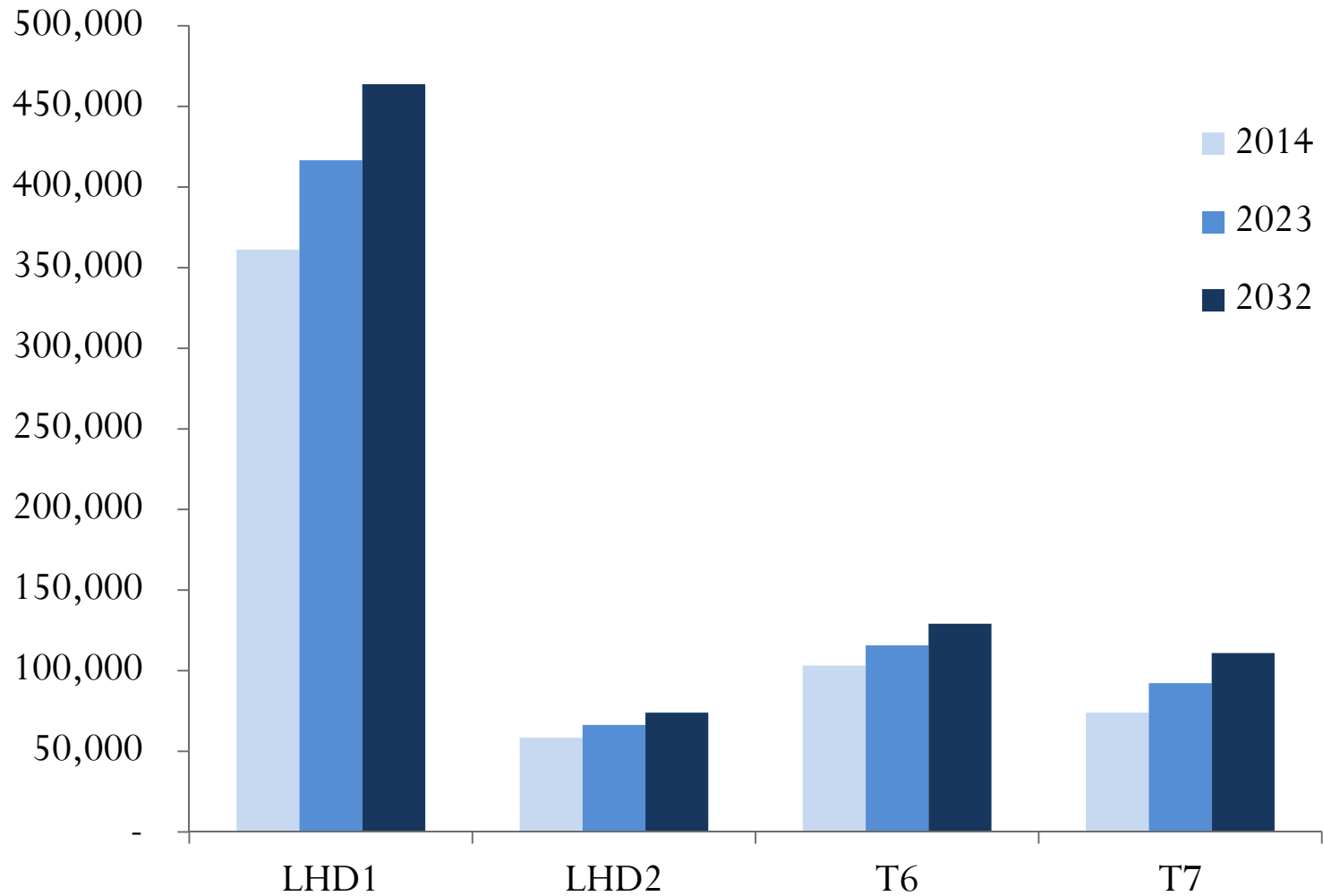
Vehicle Categories

DESCRIPTION	WEIGHT CLASS (LBS.)	
Light-Heavy-Duty Truck 1 (LHD1)	8,501 – 10,000	
Light-Heavy-Duty Truck 2 (LHD2)	10,001 – 14,000	
Medium-Heavy-Duty Truck (T6)	14,001 – 33,000	
Heavy-Heavy-Duty Truck (T7)	33,001 +	

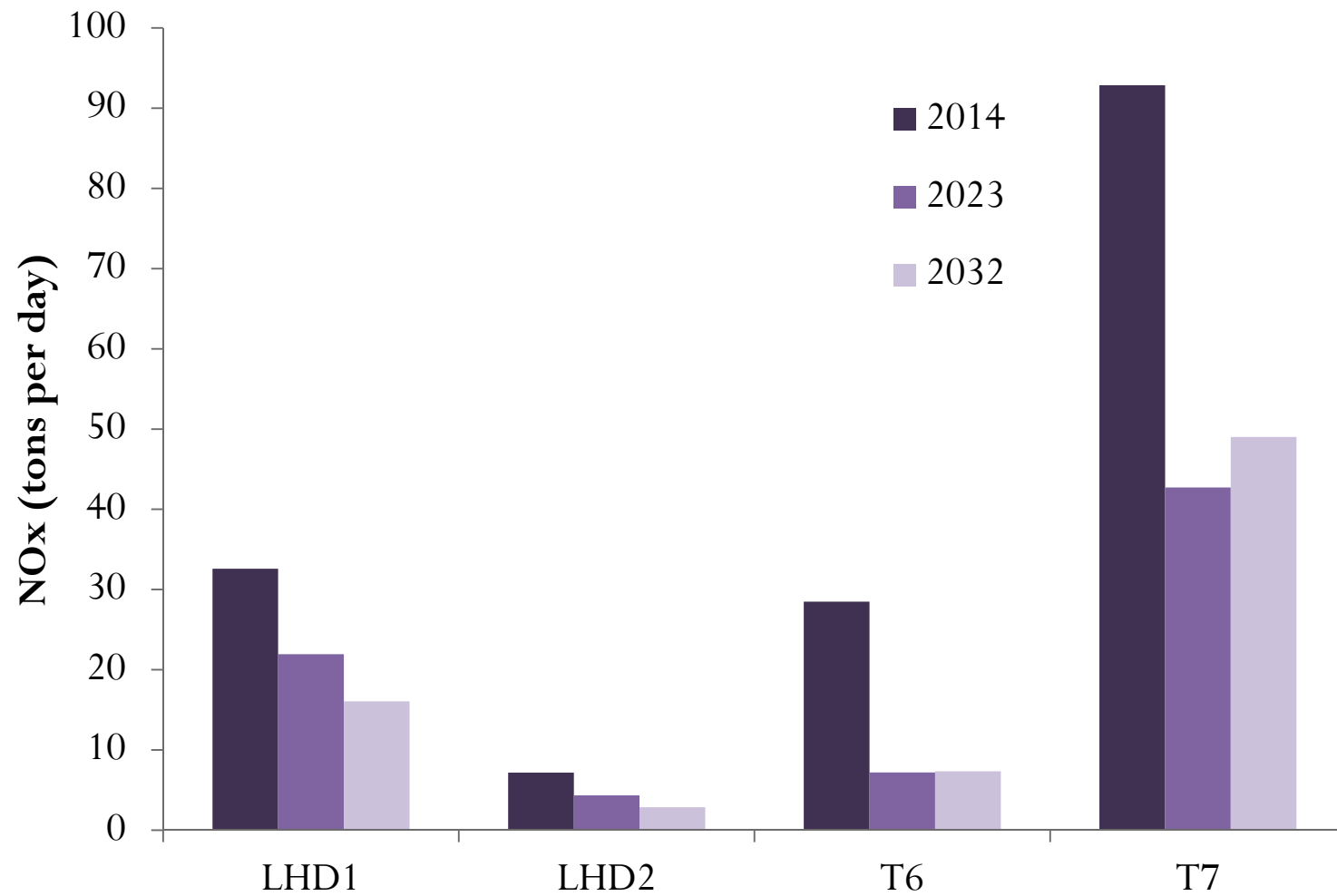
On-Road Emission Inventory

- Estimates Based on:
 - Vehicle Activity (Vehicle Miles Travelled, Trips)
 - Emission Standards
- Types of Emissions:
 - Exhaust (Running, Idling, Start)
 - Evaporative (Diurnal, Hot Soak, Running Loss, Rest Loss) – Gasoline Only

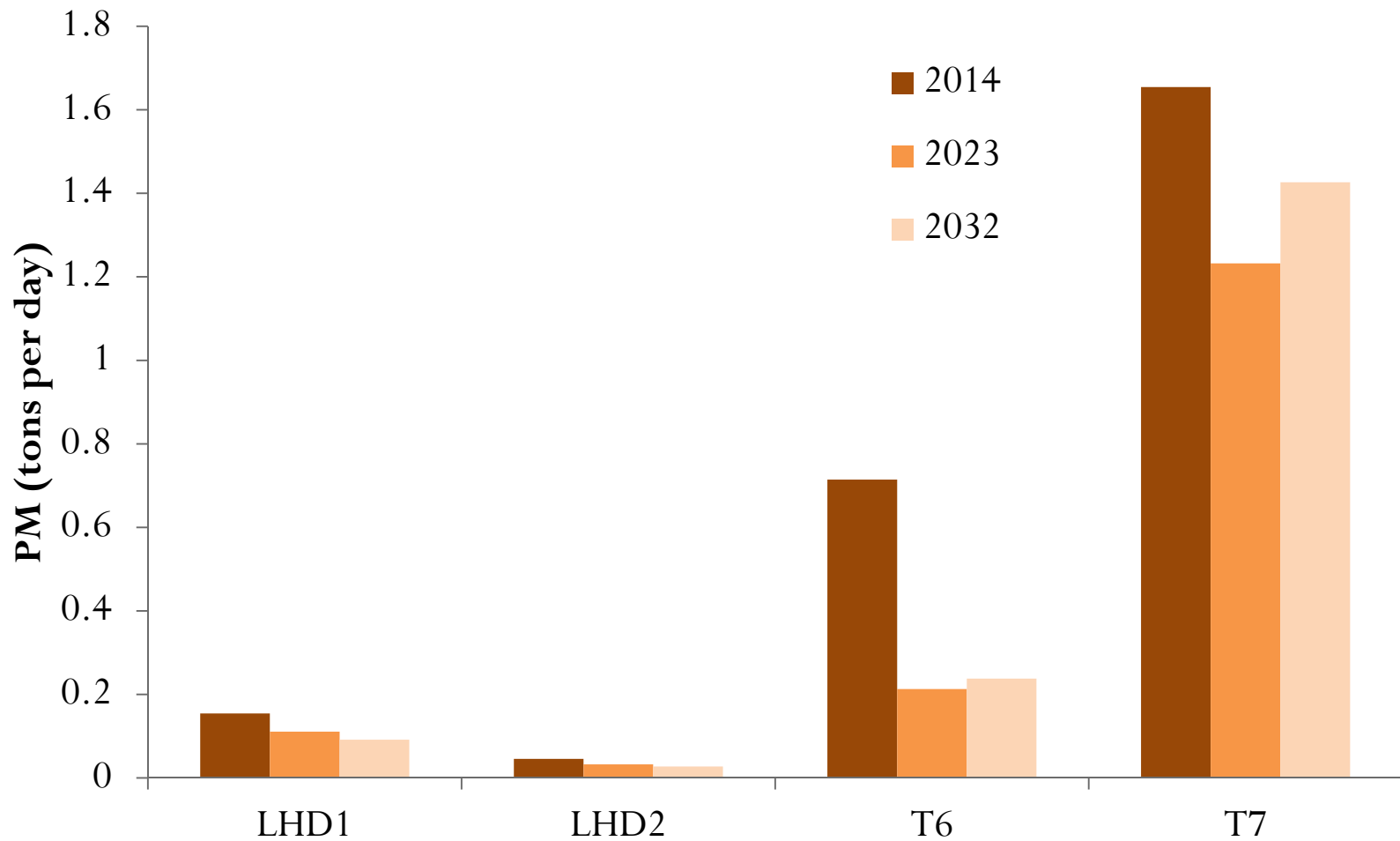
On-Road Goods Movement Vehicle Population



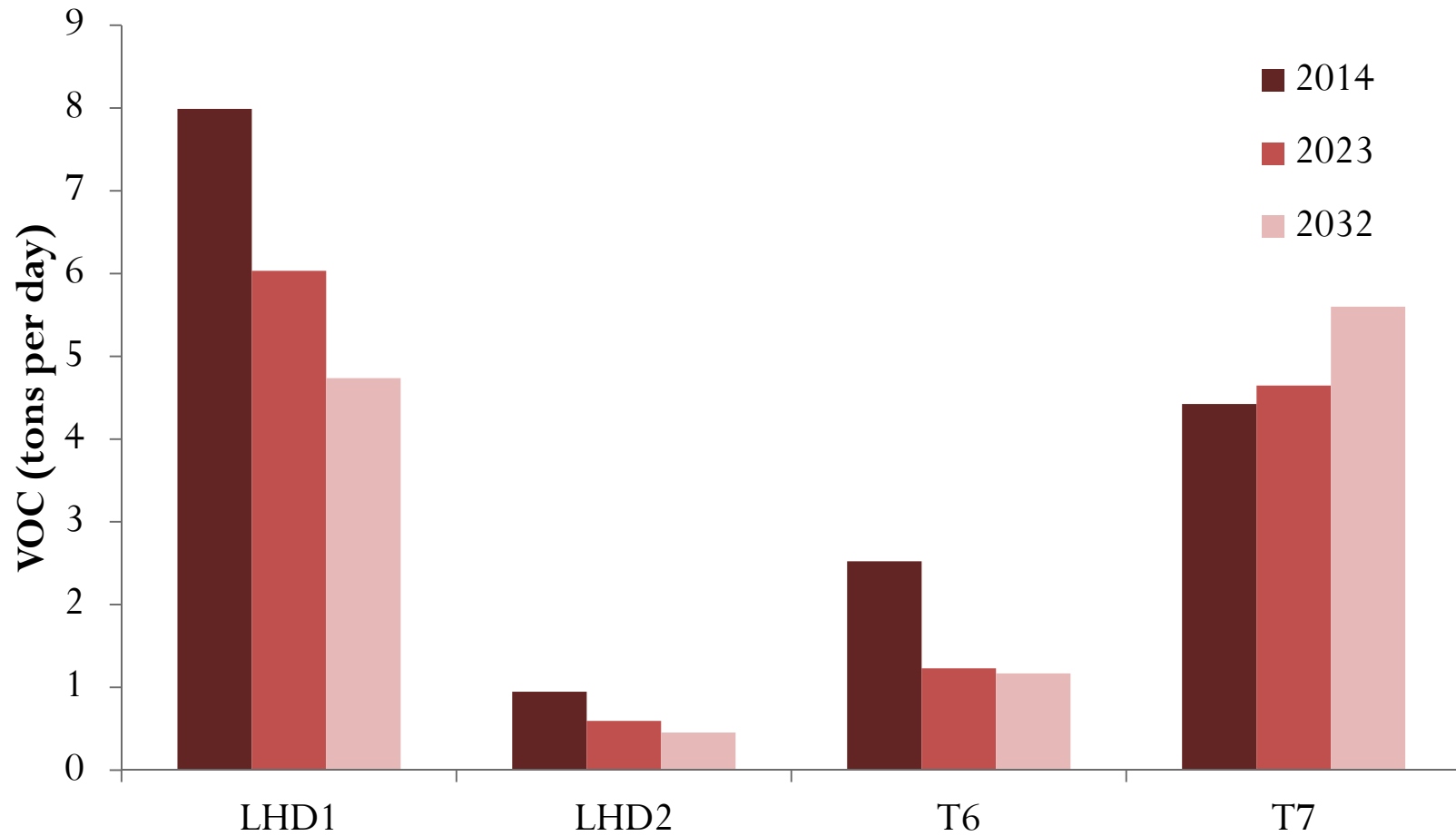
On-Road Goods Movement NOx Emissions



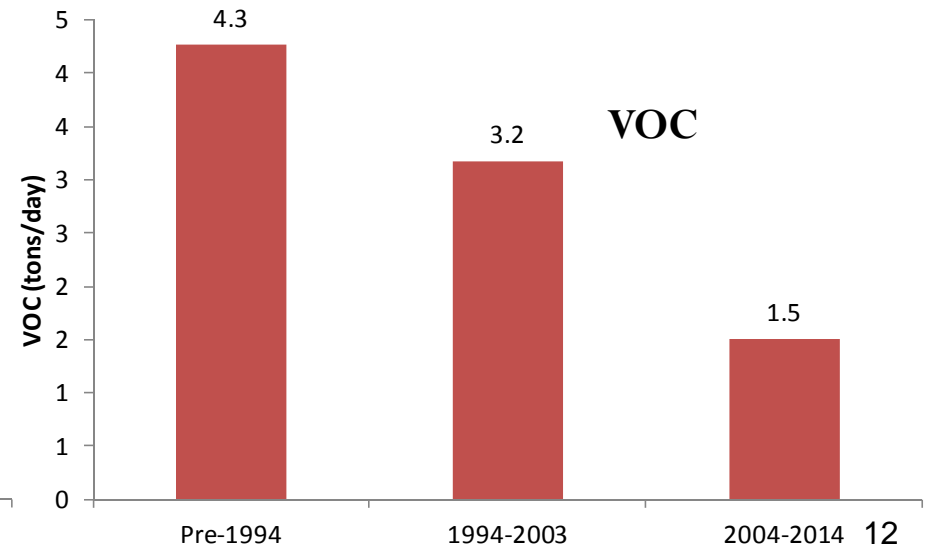
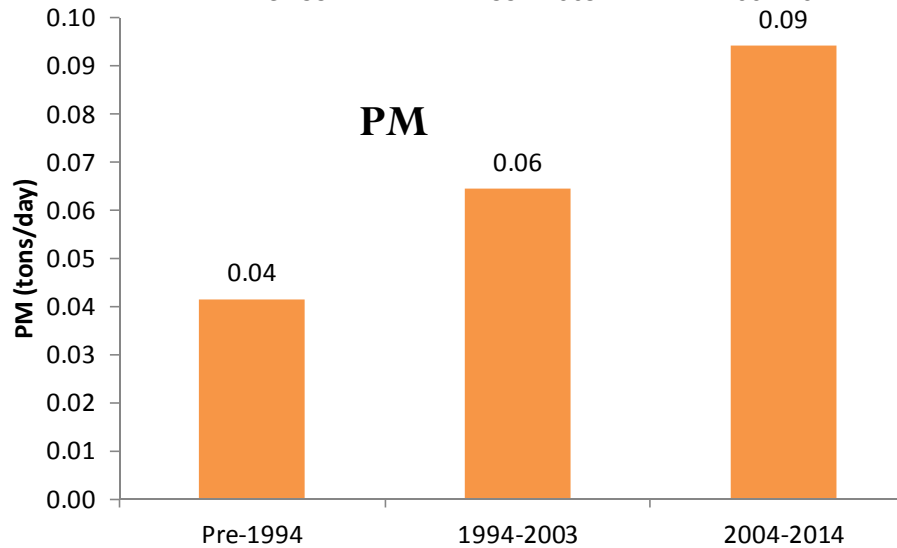
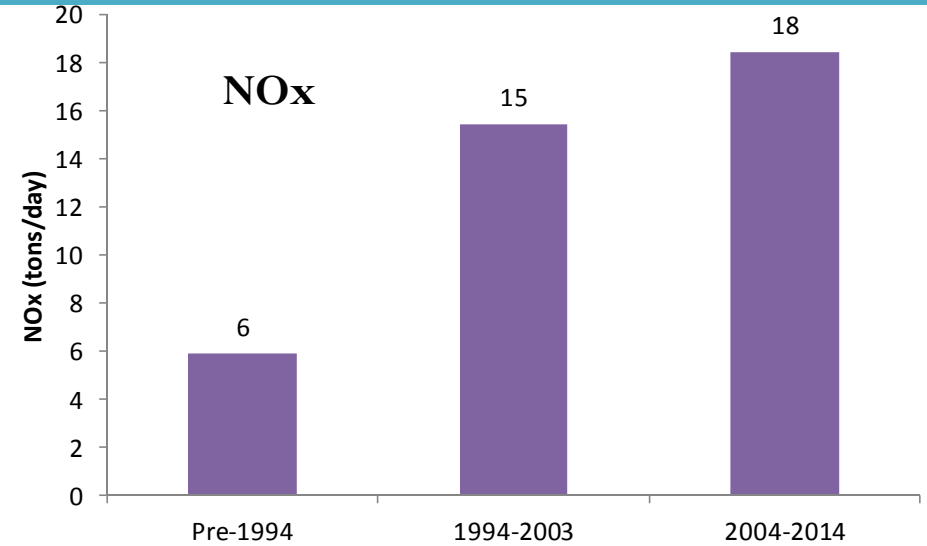
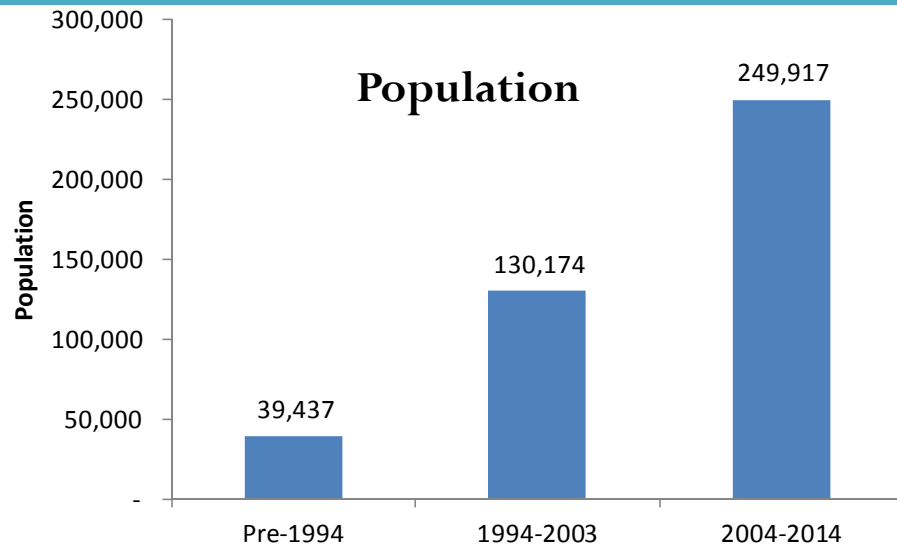
On-Road Goods Movement PM Emissions



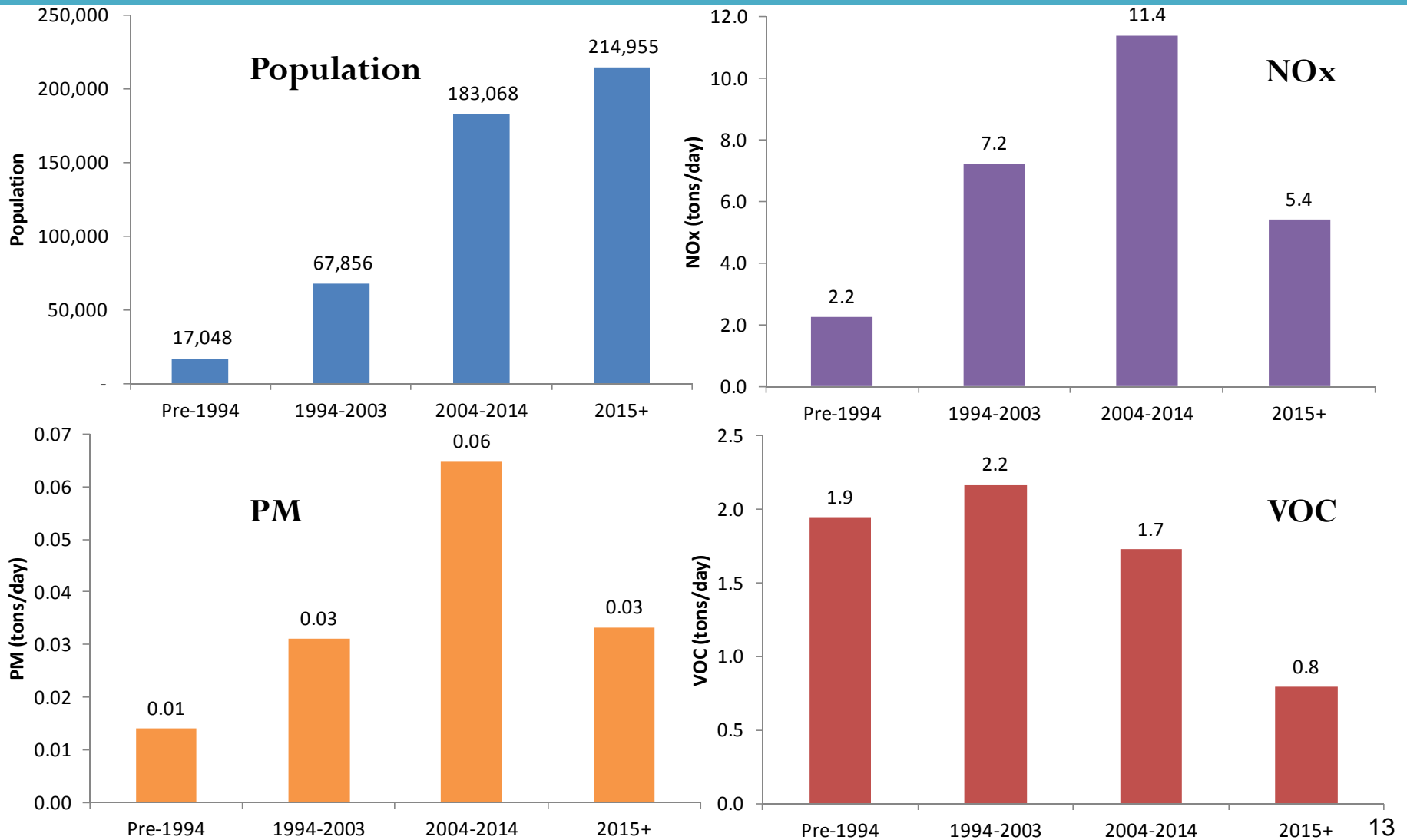
On-Road Goods Movement VOC Emissions



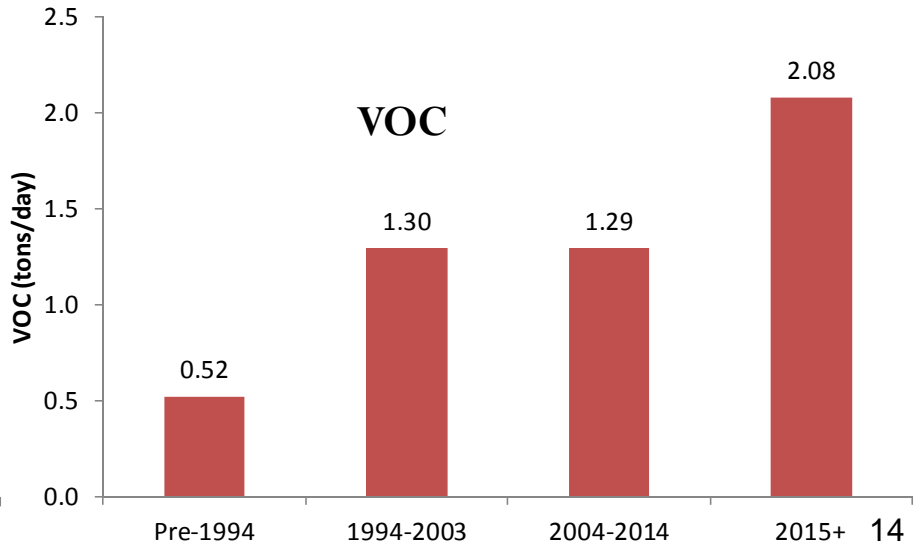
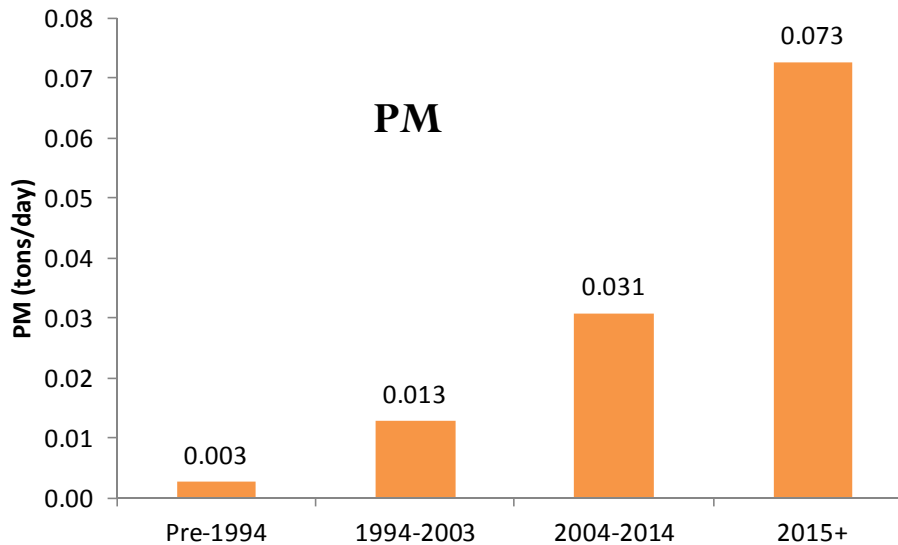
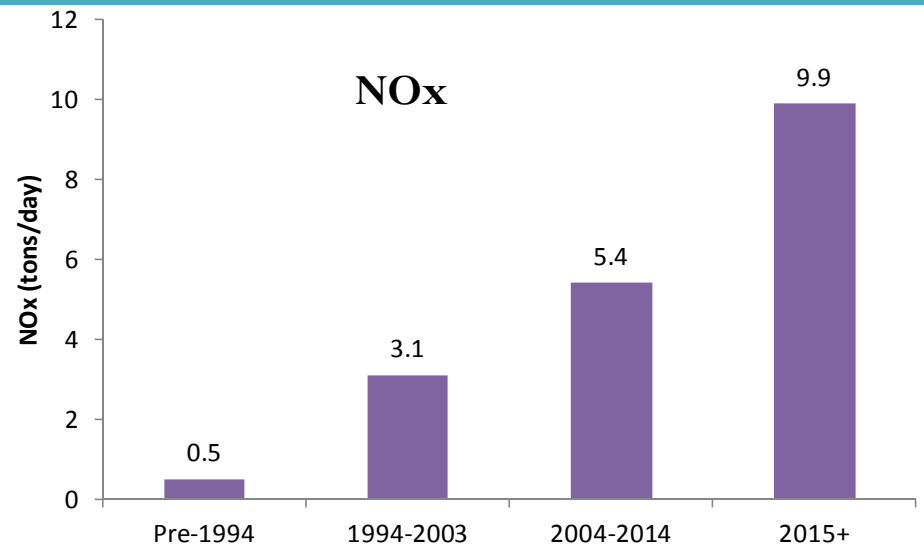
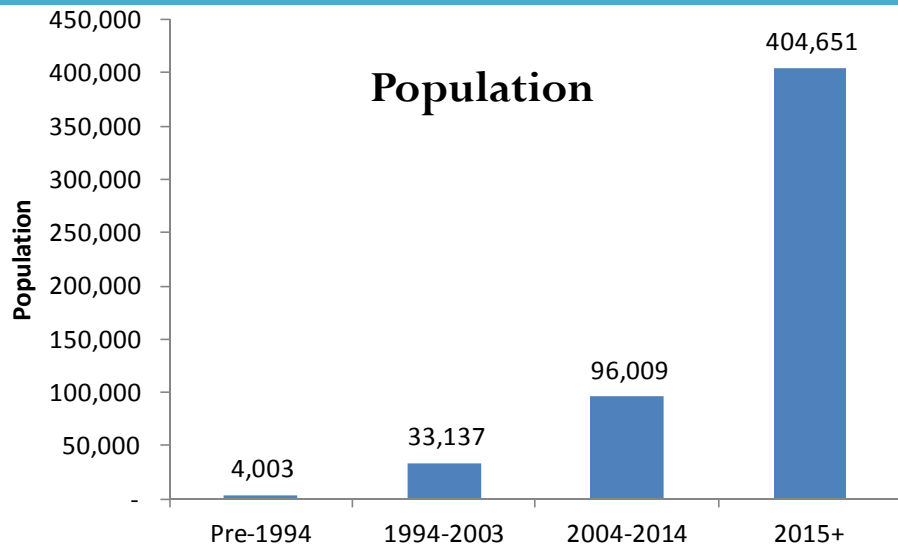
Vehicles Population/Emissions in 2014 Light Heavy-Duty (LHD) Trucks



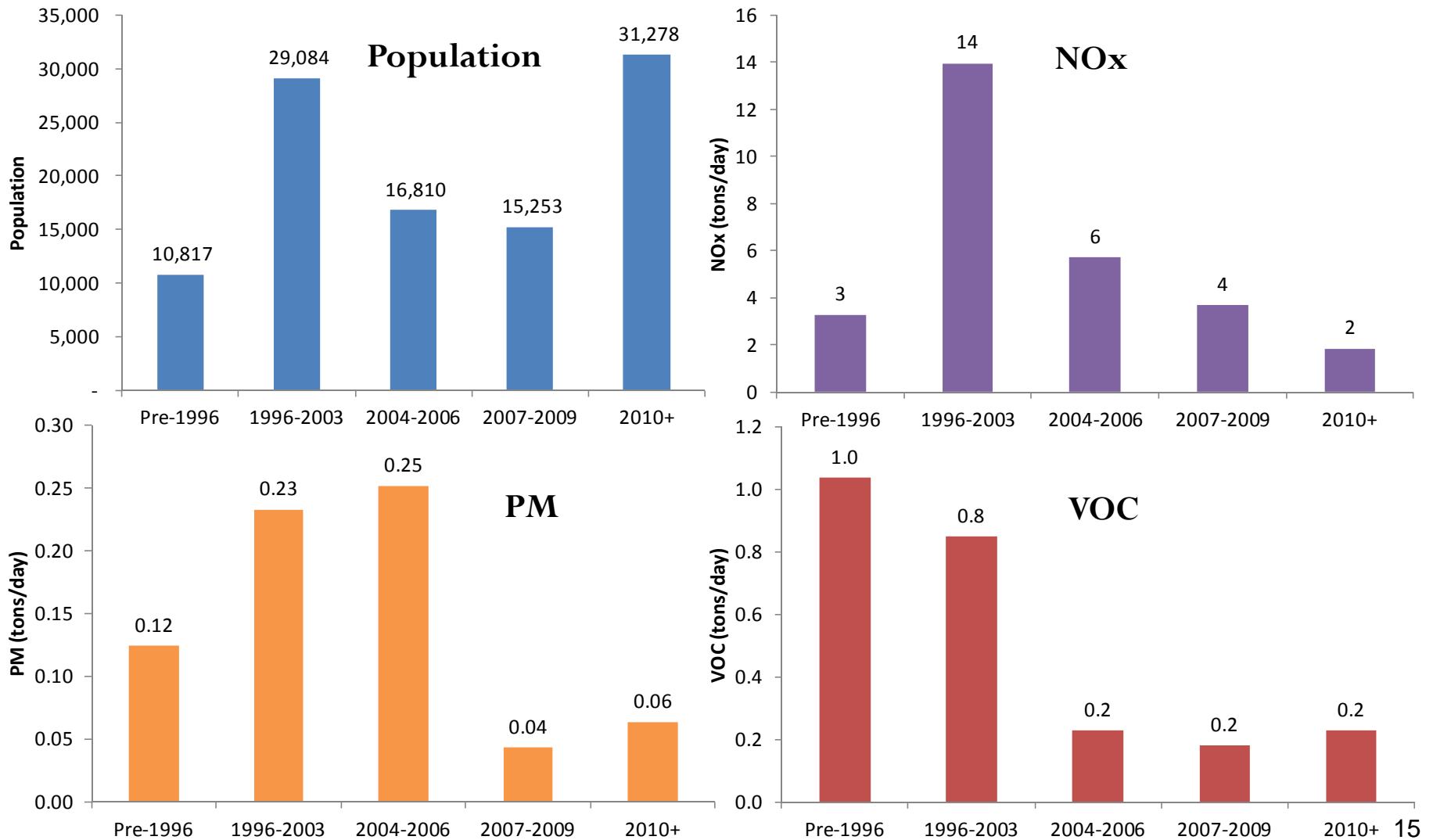
Vehicles Population/Emissions in 2023 Light Heavy-Duty (LHD) Trucks



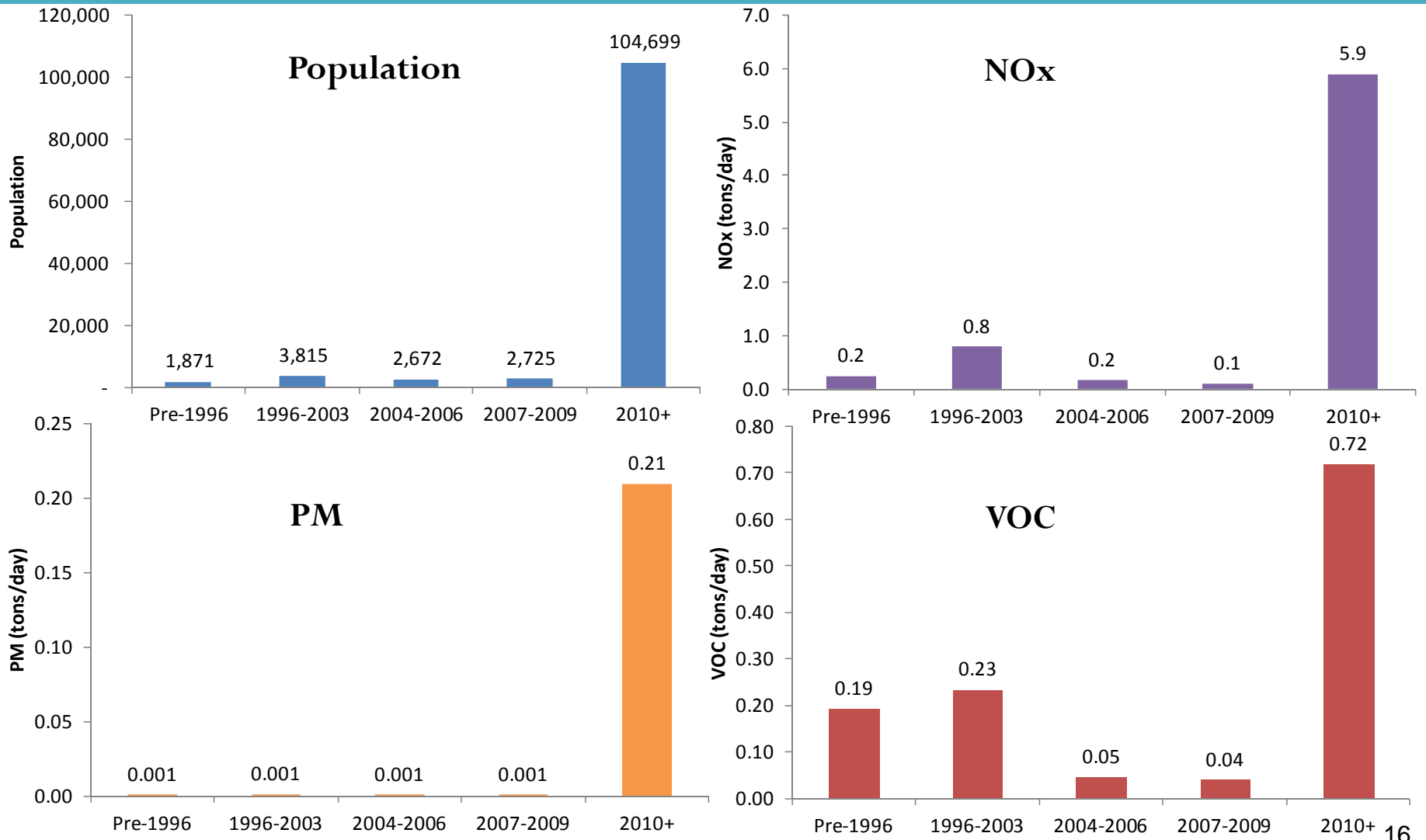
Vehicles Population/Emission in 2032 Light Heavy-Duty (LHD) Trucks



Vehicles Population/Emissions in 2014 Medium Heavy-Duty (T6) Trucks

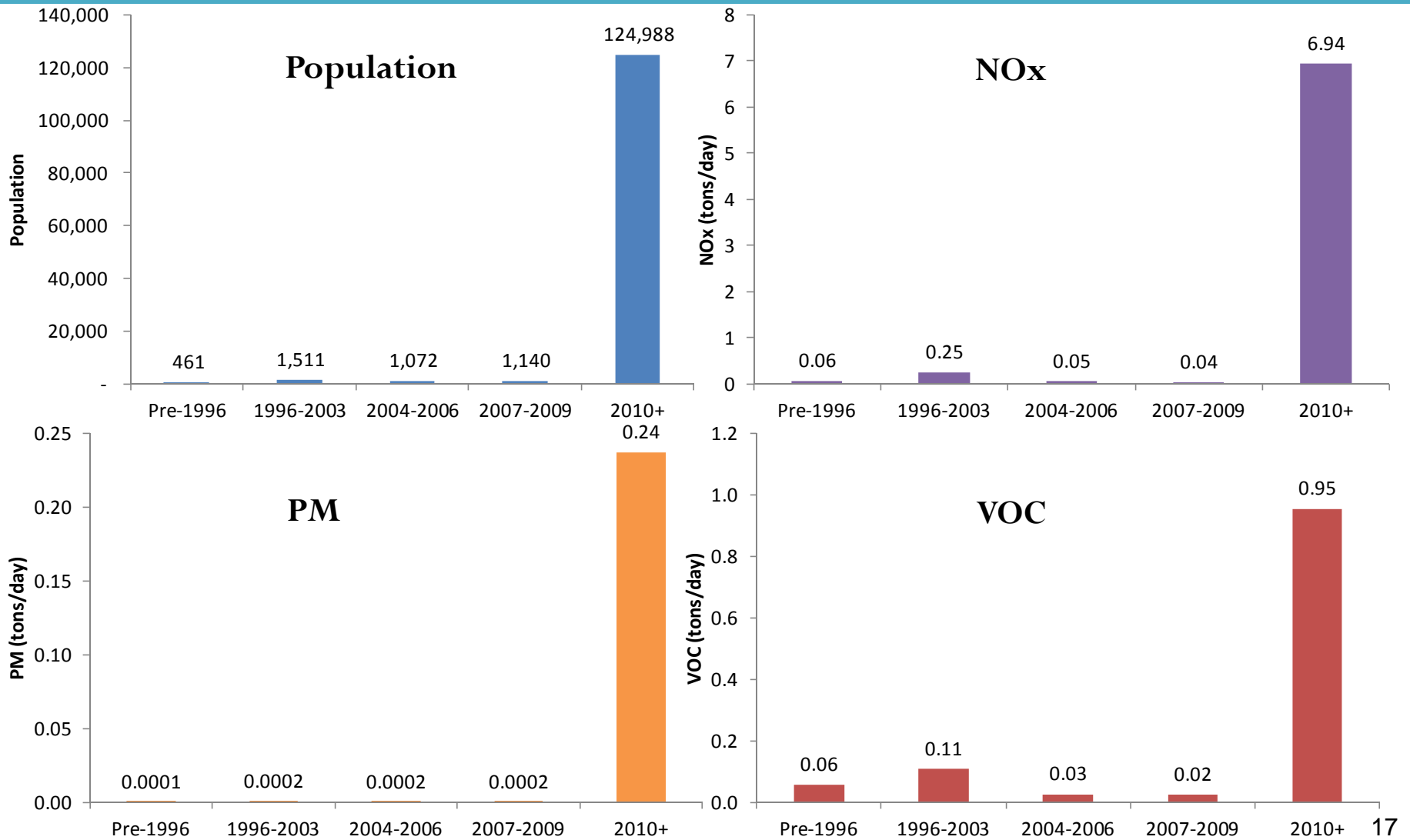


Vehicles Population/Emissions in 2023 Medium Heavy-Duty (T6) Trucks



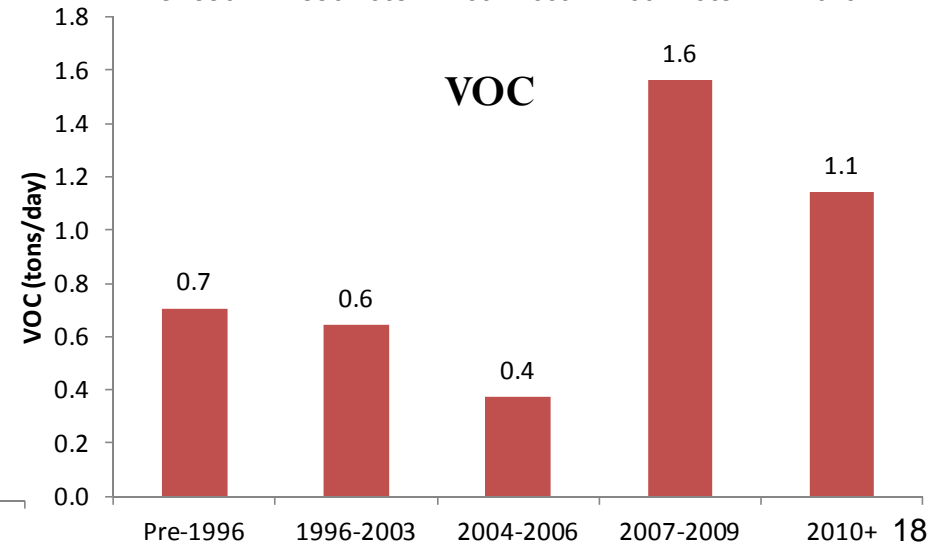
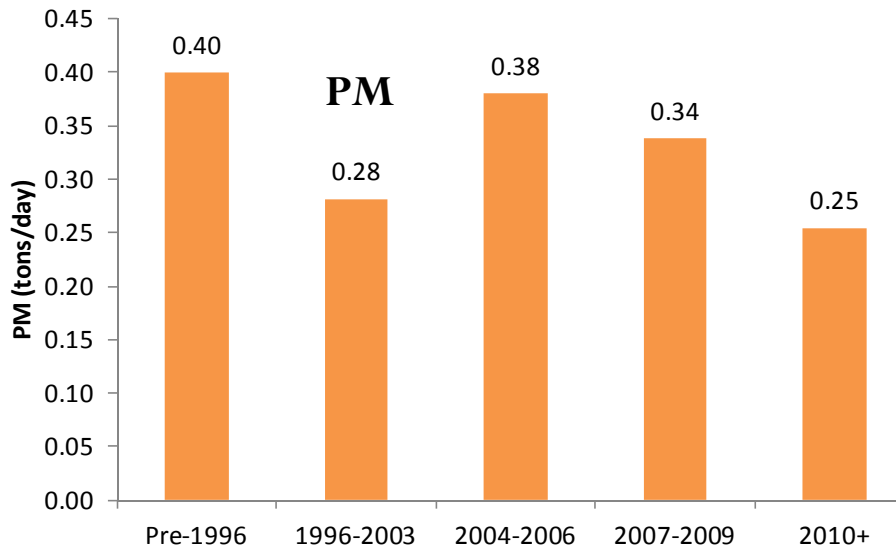
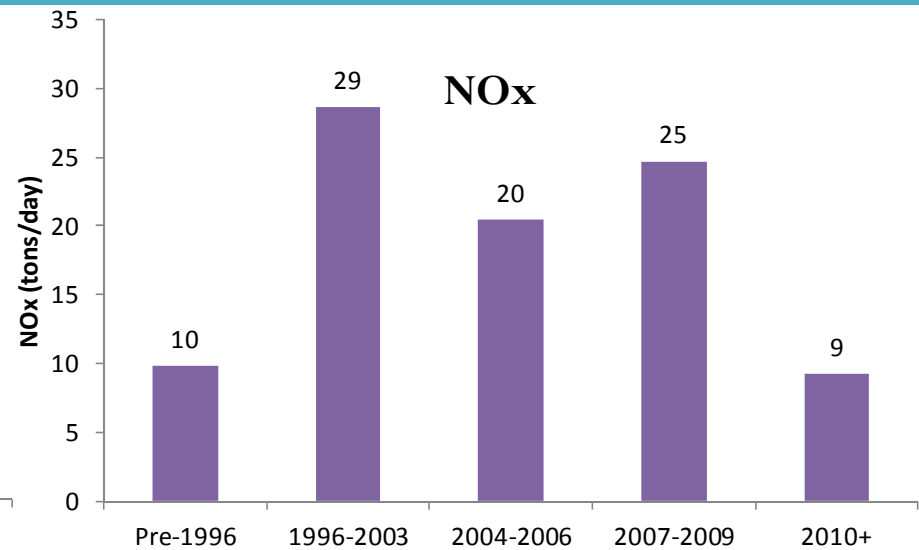
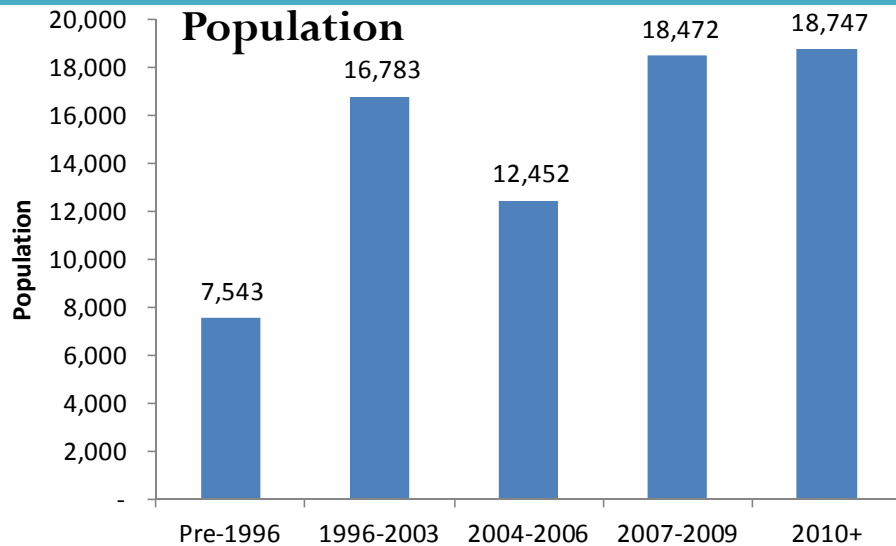
Vehicles Population/Emissions in 2032

Medium Heavy-Duty (T6) Trucks



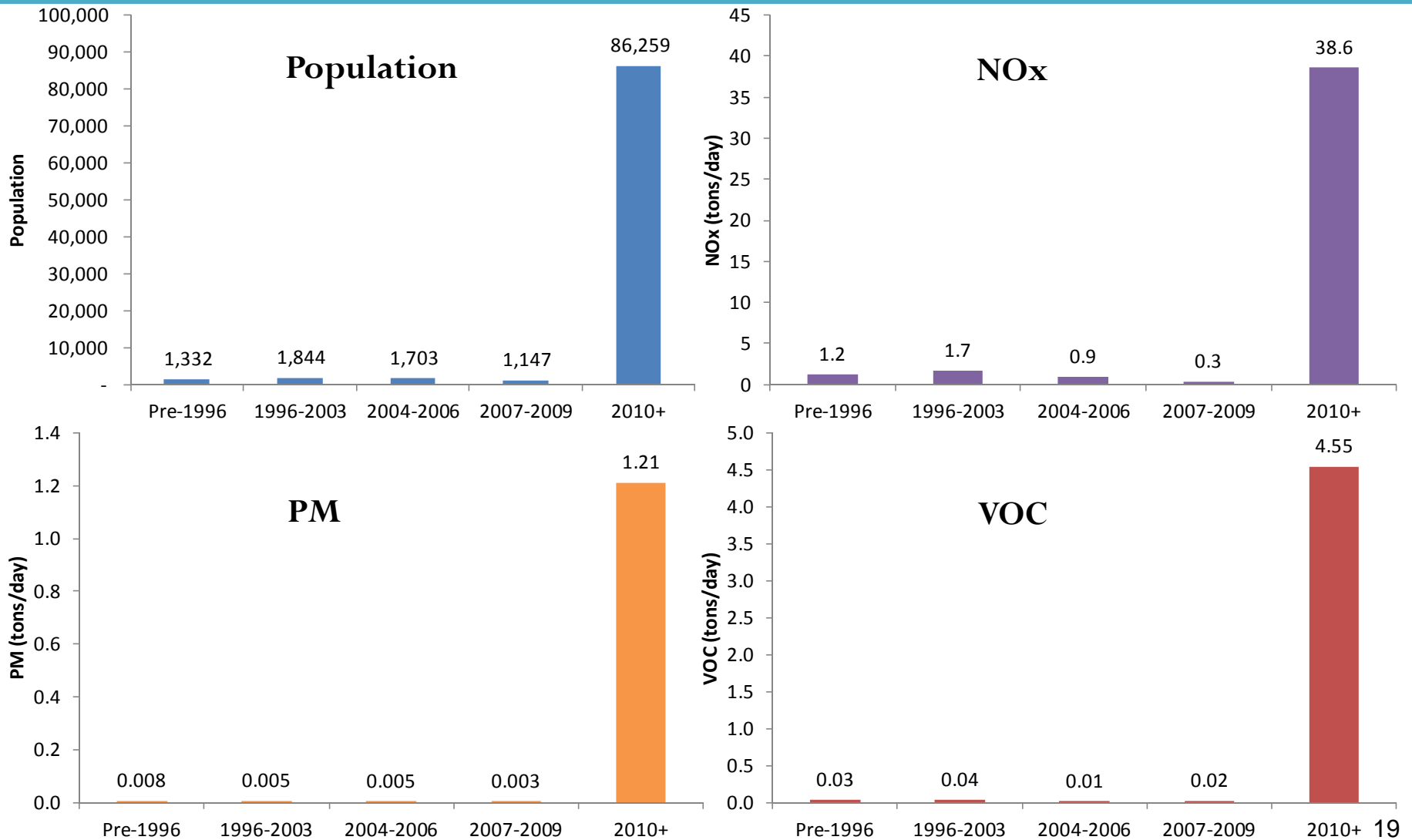
Vehicles Population/Emissions in 2014

Heavy Heavy-Duty (T7) Trucks

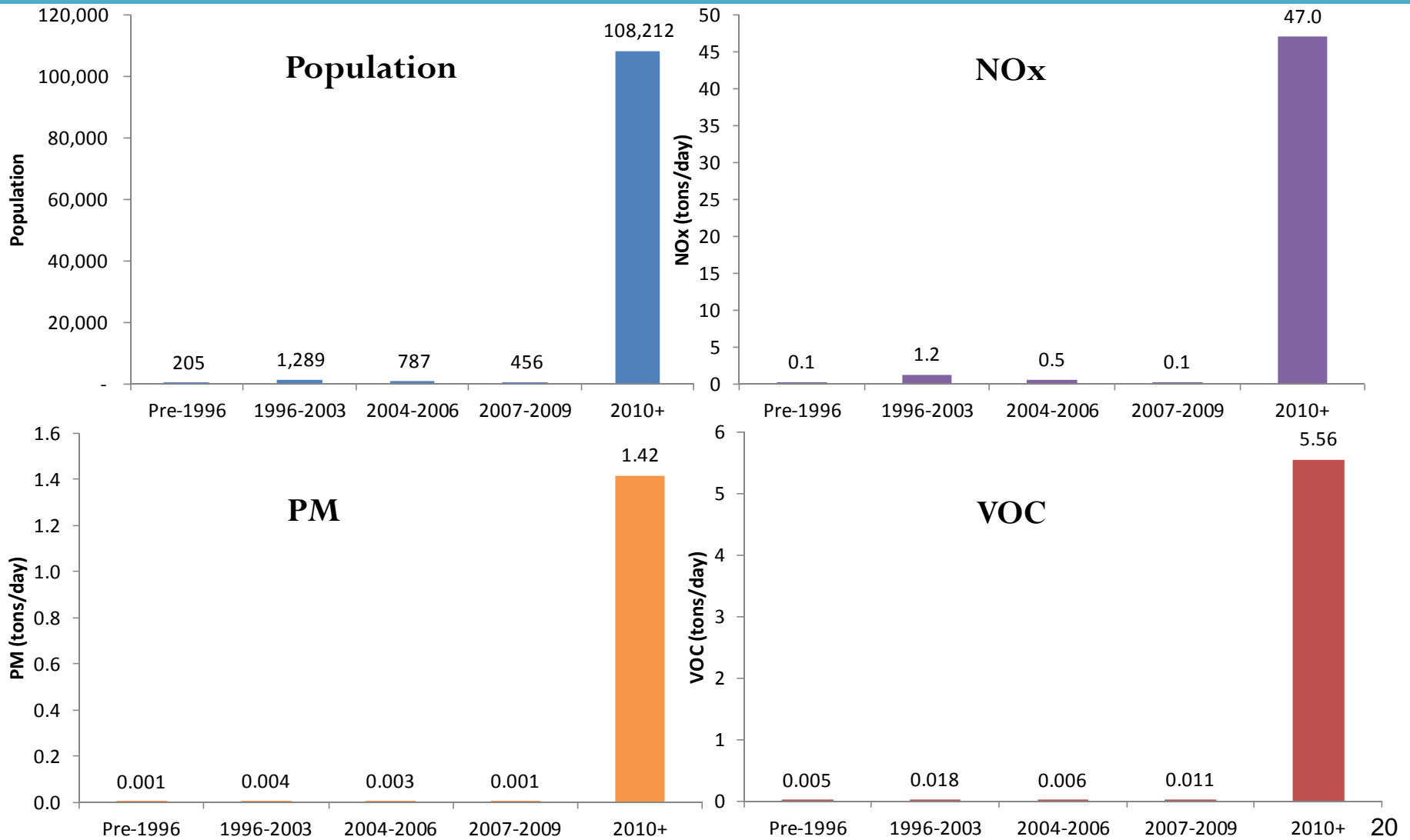


Vehicles Population/Emissions in 2023

Heavy Heavy-Duty (T7) Trucks







Vehicles Population/Emissions in 2032 Heavy Heavy-Duty (T7) Trucks



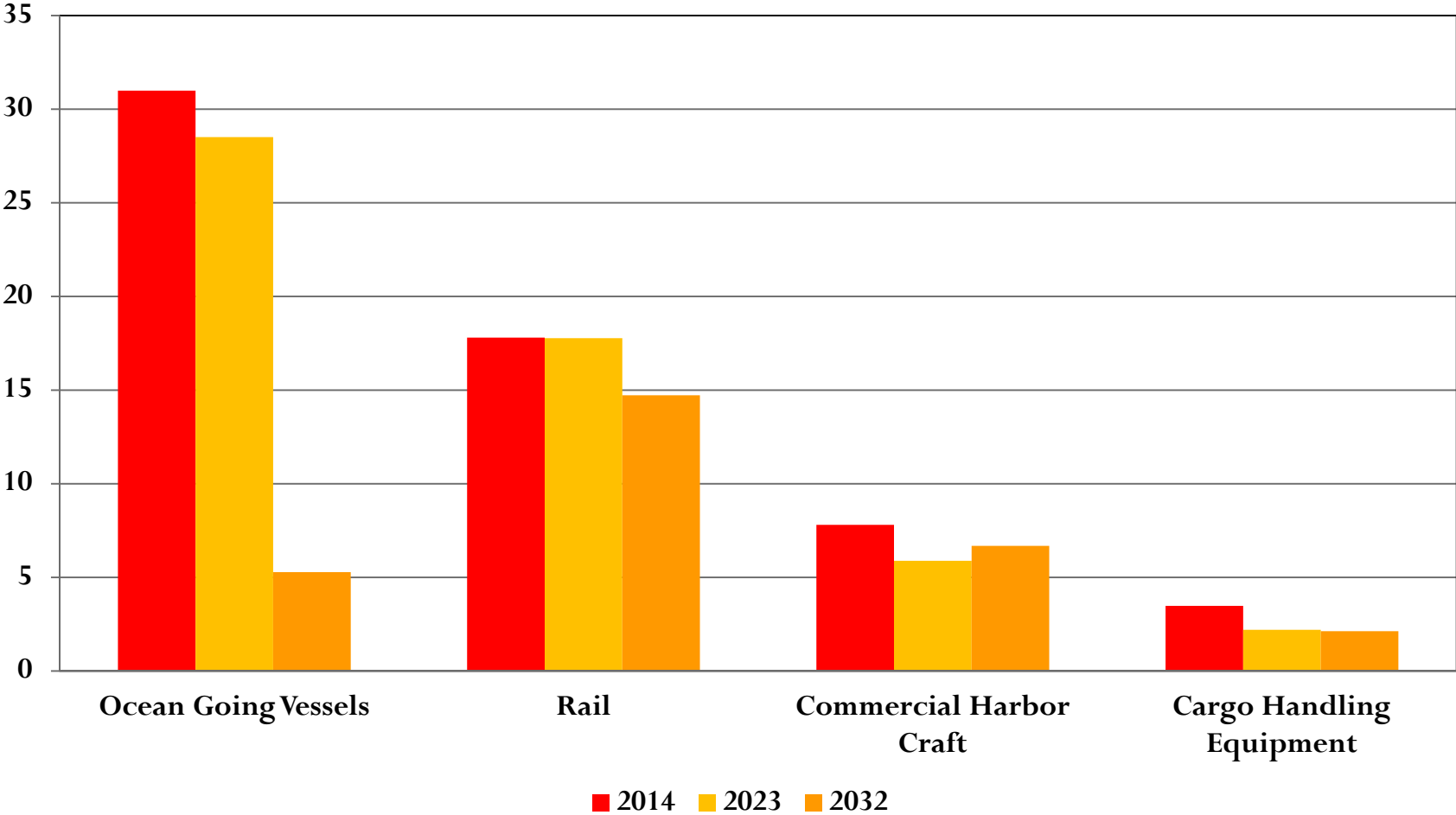
Off-Road Emission Inventory

Off-Road Goods Movement

Category	Class	
Ocean Going Vessels	Container, Tanker, Auto, Bulk, Refrigerated and General Cargo Vessels	
Freight Locomotives	Line-Haul and Switch Locomotives Operated by Class I Freight Railroads and Short Line Railroads	
Commercial Harbor Craft	Tug, Tow, Work, Crew Supply, Fishing Boats, Barges, and Dredges	
Cargo Handling Equipment	Container Handlers, Forklifts, Cranes, Loaders, and Bulk Material Handlers	

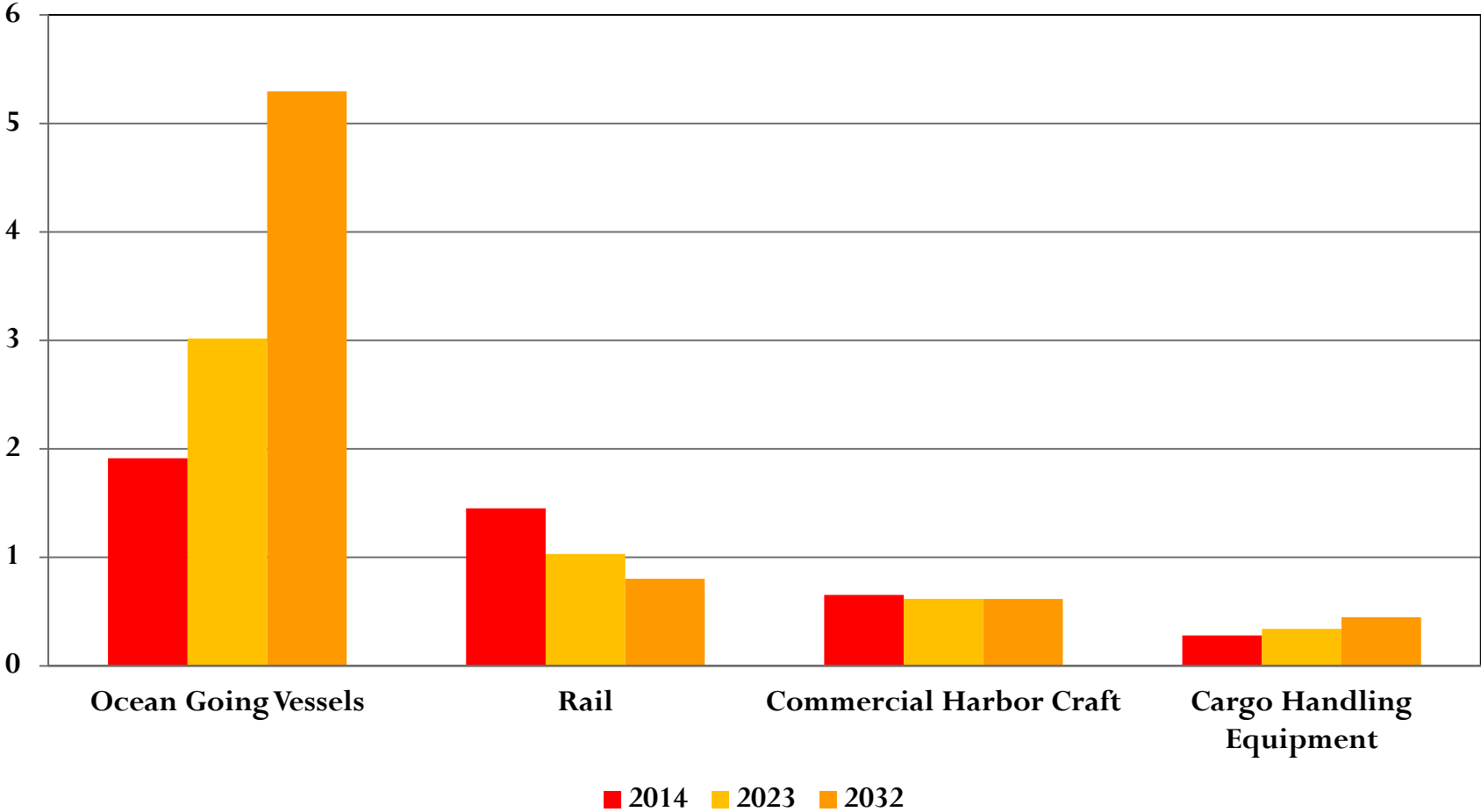
Off-Road Emissions

NO_x (TPD)



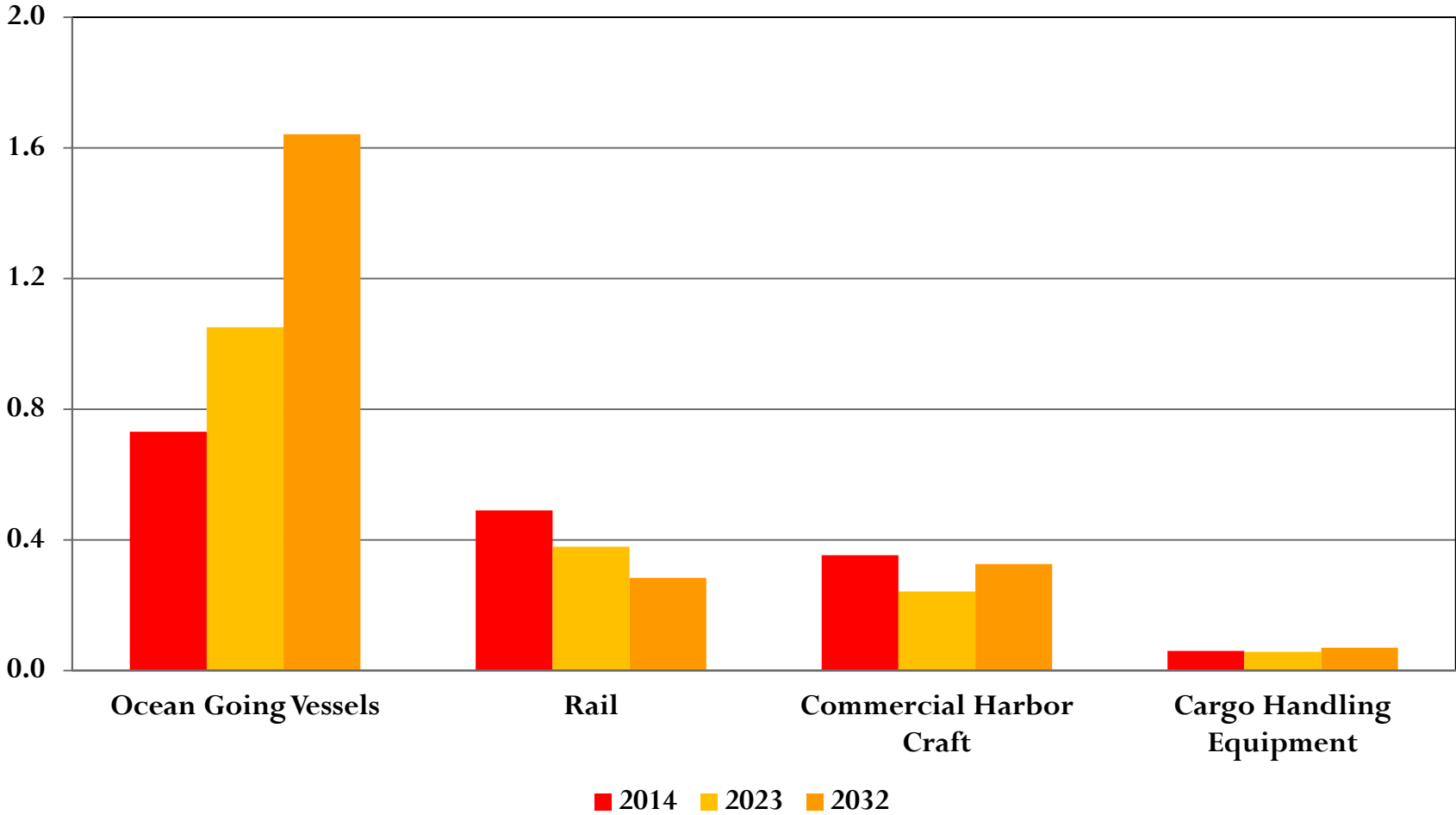
Off-Road Emissions

VOC (TPD)



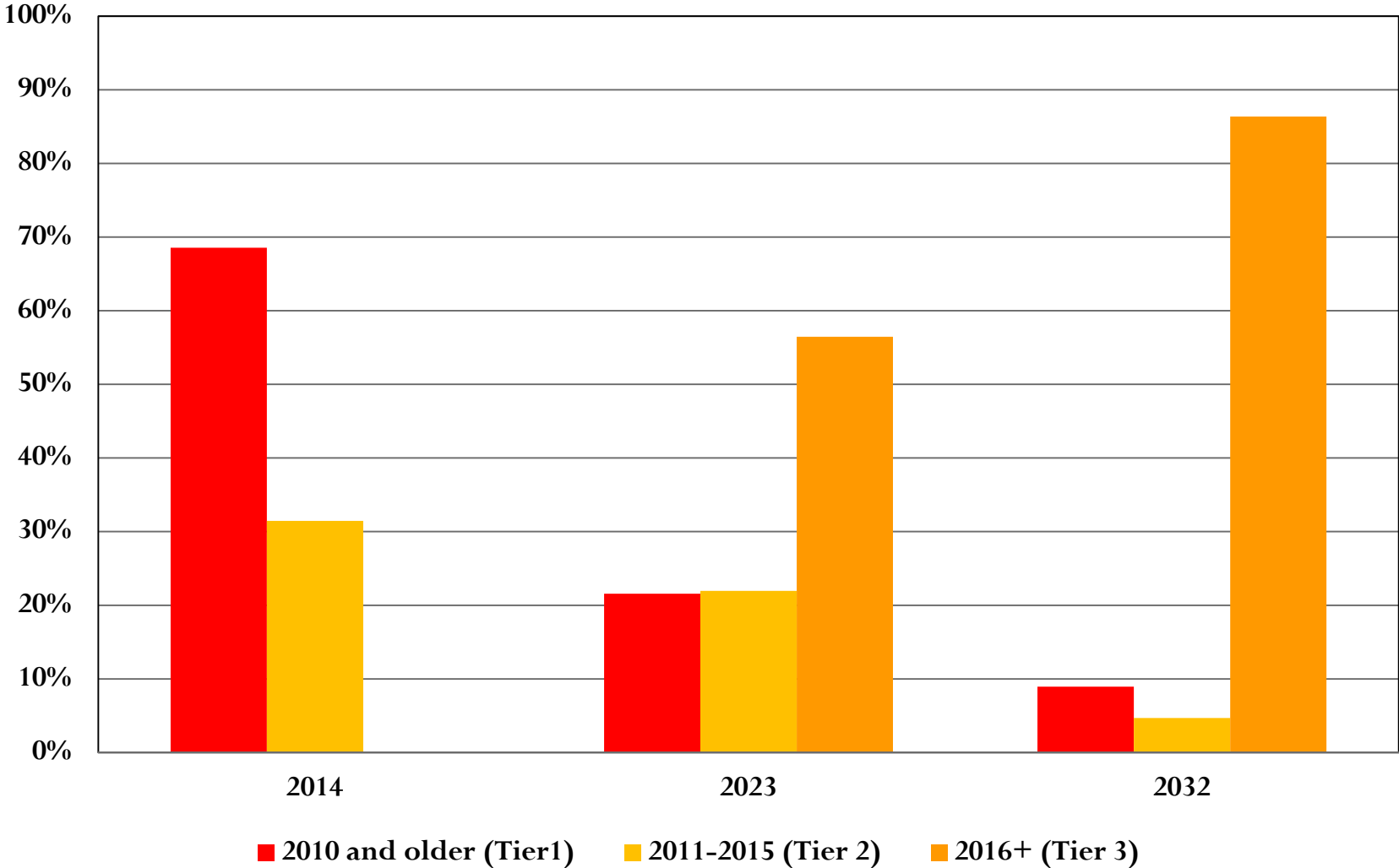
Off-Road Emissions

PM2.5 (TPD)



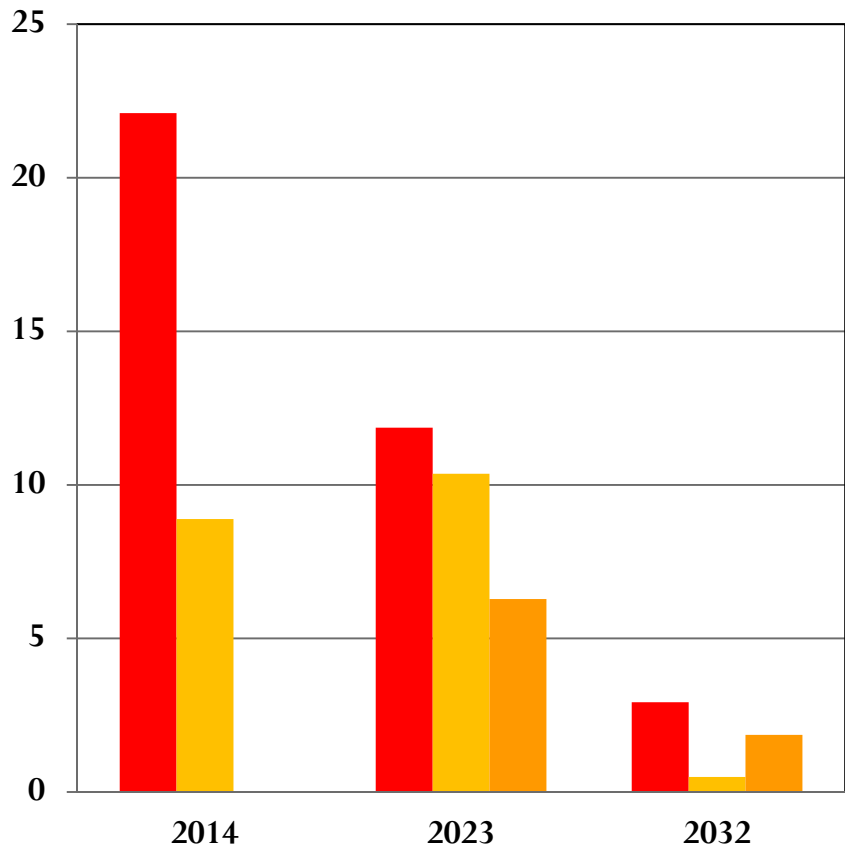
Ocean Going Vessels

Ocean Going Vessels by Tier



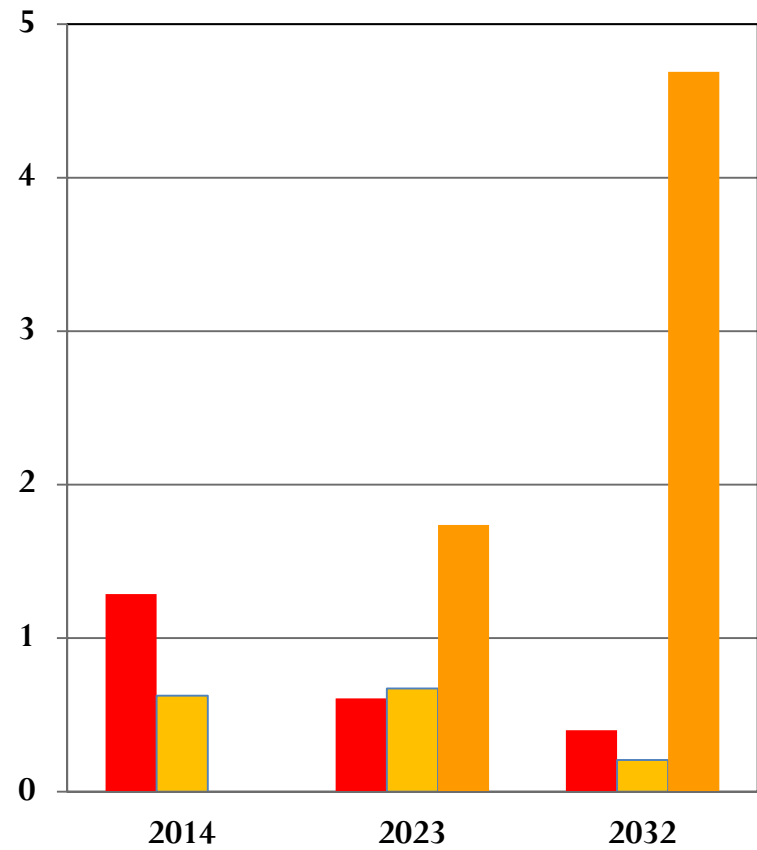
Ocean Going Vessel Emissions by Tier

NO_x (TPD)



- 2010 and older (Tier 1)
- 2011-2015 (Tier 2)

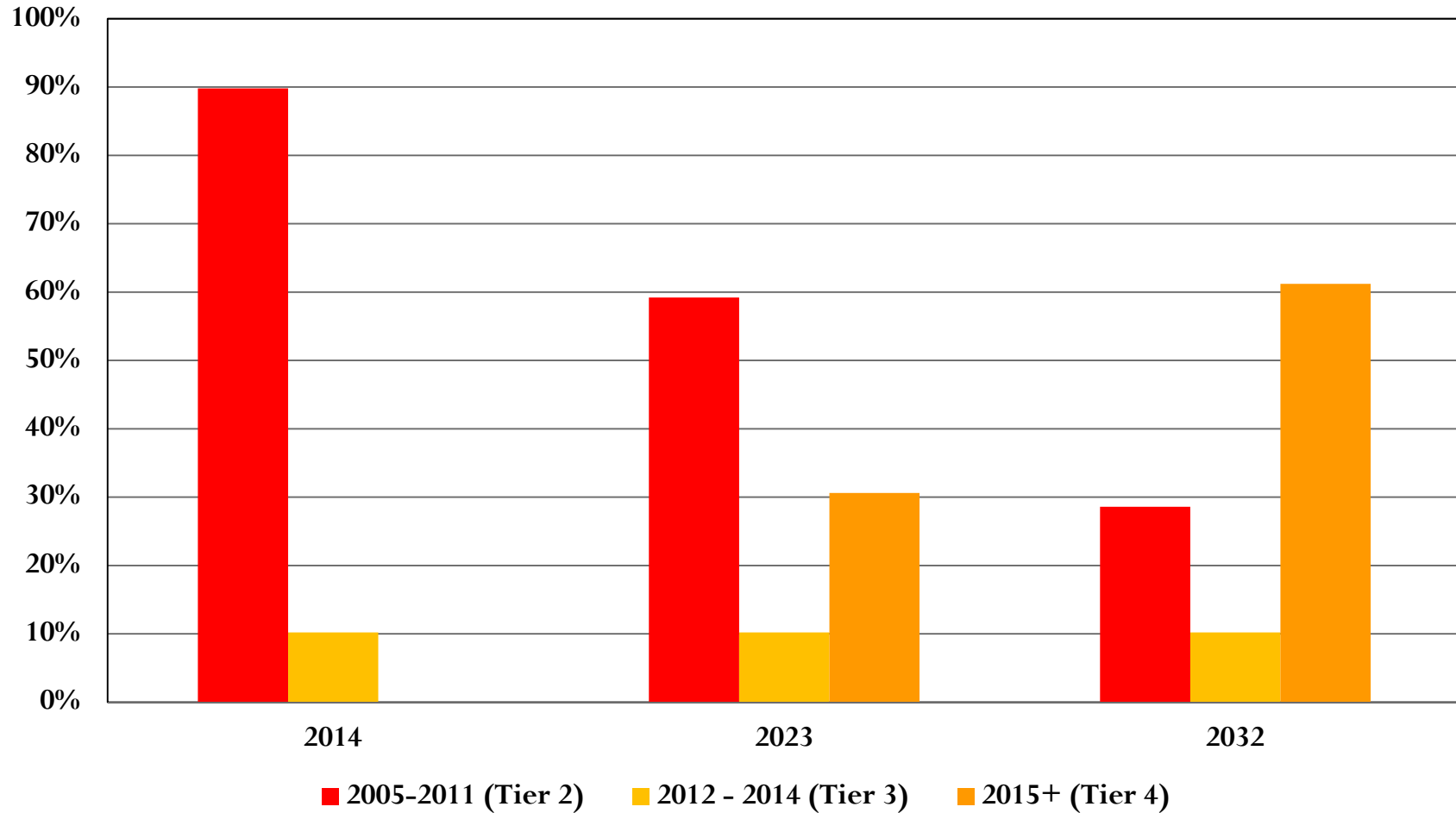
VOC (TPD)



- 2010 and older (Tier 1)
- 2011-2015 (Tier 2)
- 2016+ (Tier 3)

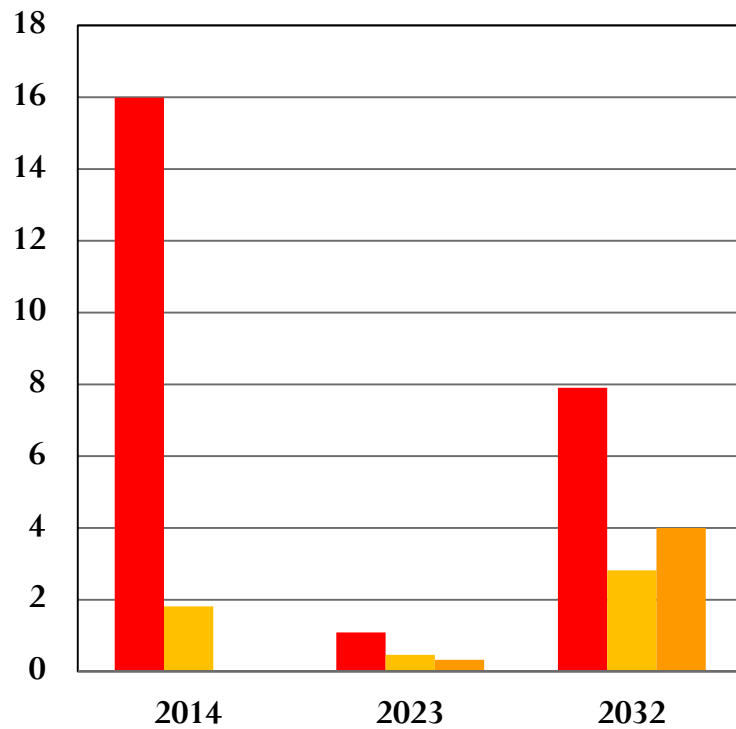
Freight Locomotives

Freight Locomotives by Tier



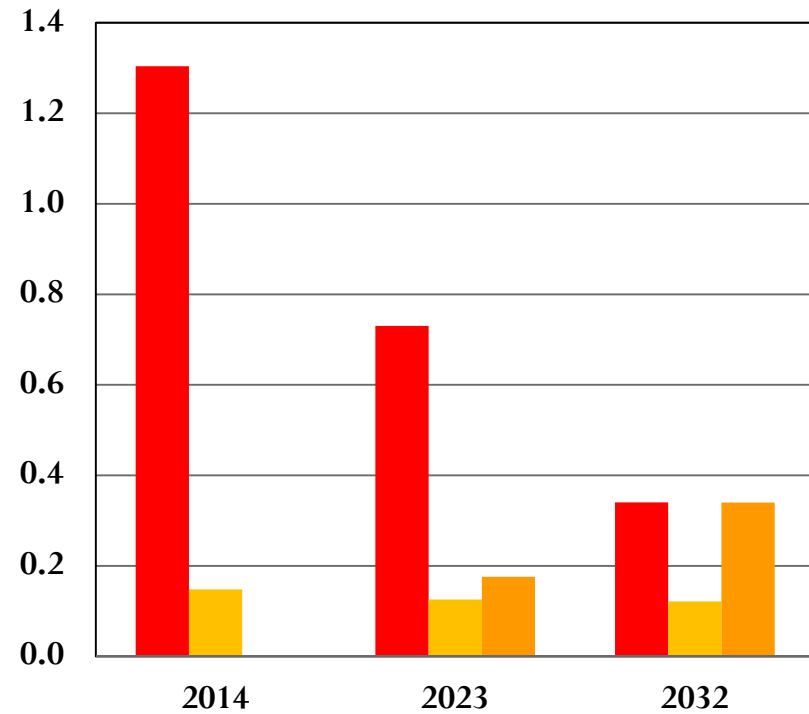
Freight Locomotive Emissions

NO_x (TPD)



- 2005-2011 (Tier 2)
- 2012 - 2014 (Tier 3)
- 2015+ (Tier 4)

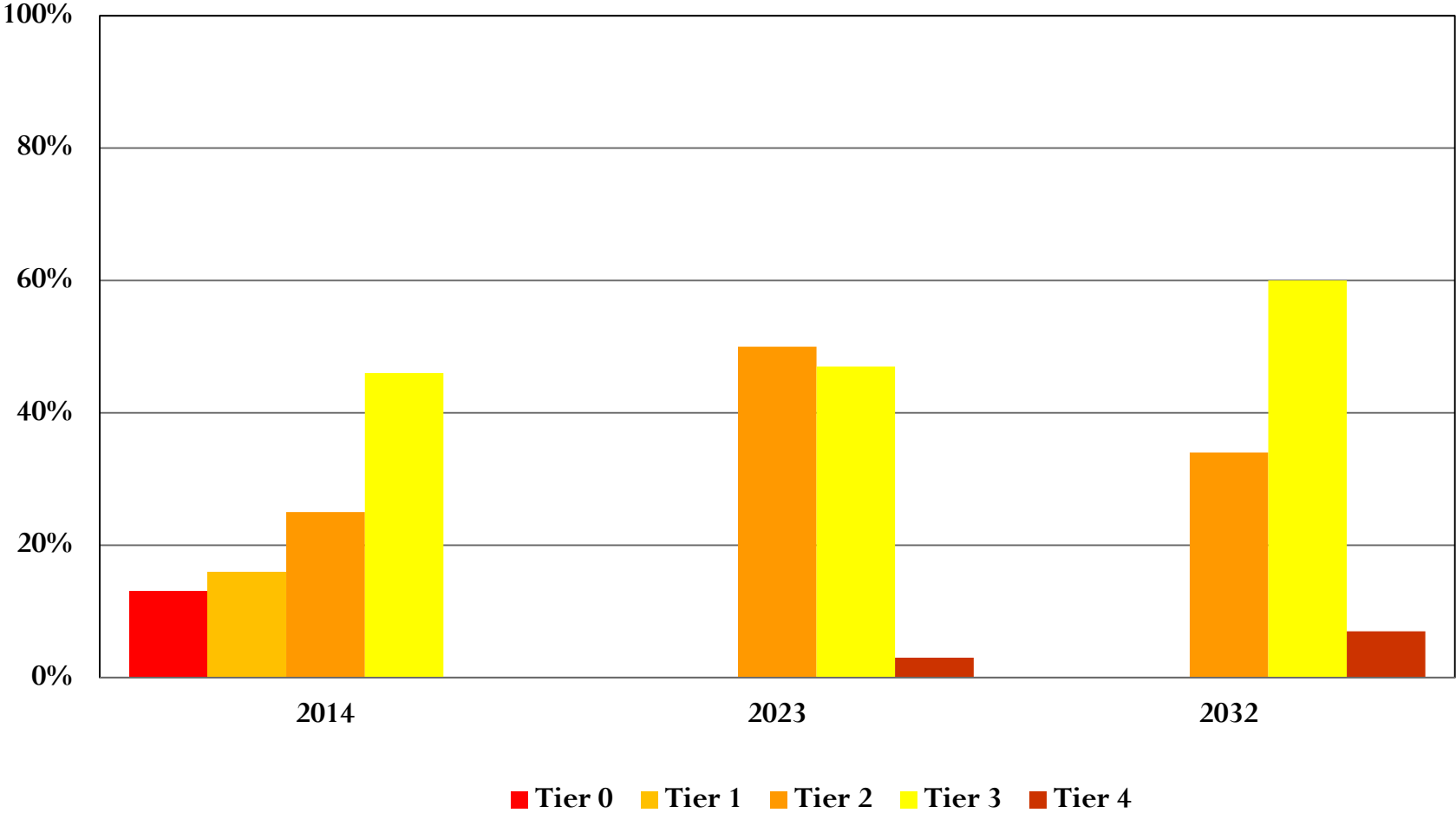
VOC (TPD)



- 2005-2011 (Tier 2)
- 2012 - 2014 (Tier 3)
- 2015+ (Tier 4)

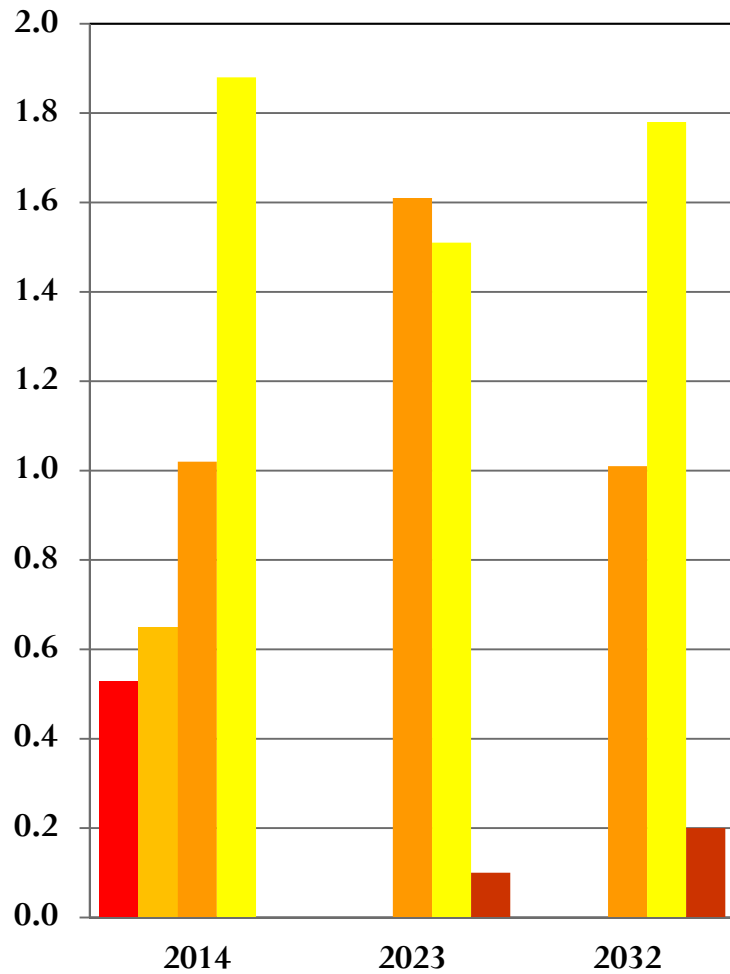
Commercial Harbor Craft

Commercial Harbor Craft by Tier

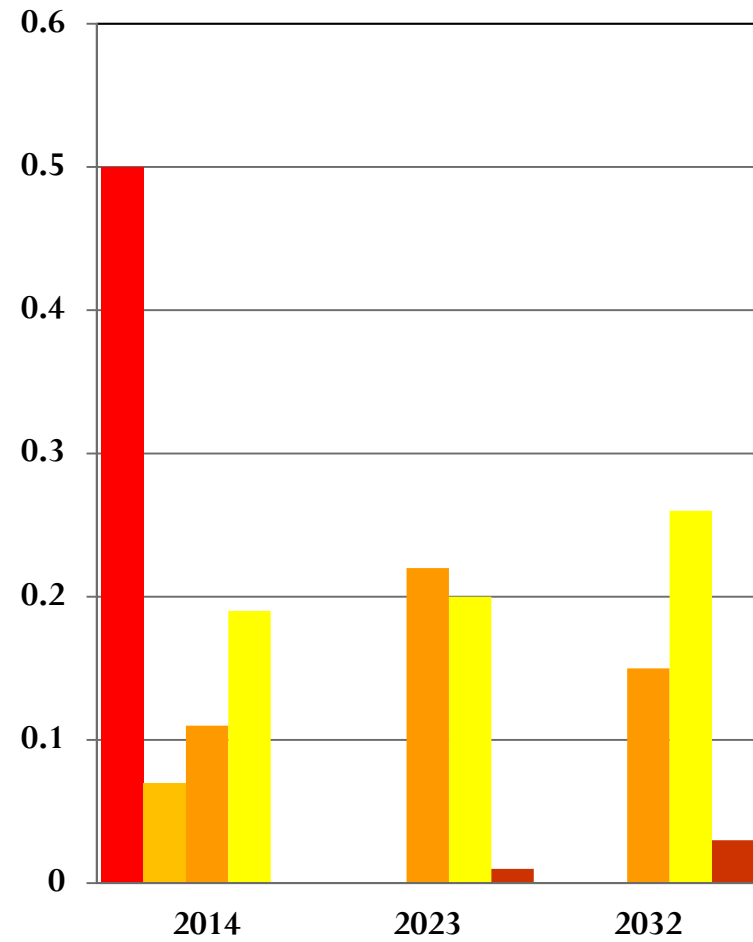


Commercial Harbor Craft Emissions

NO_x (TPD)

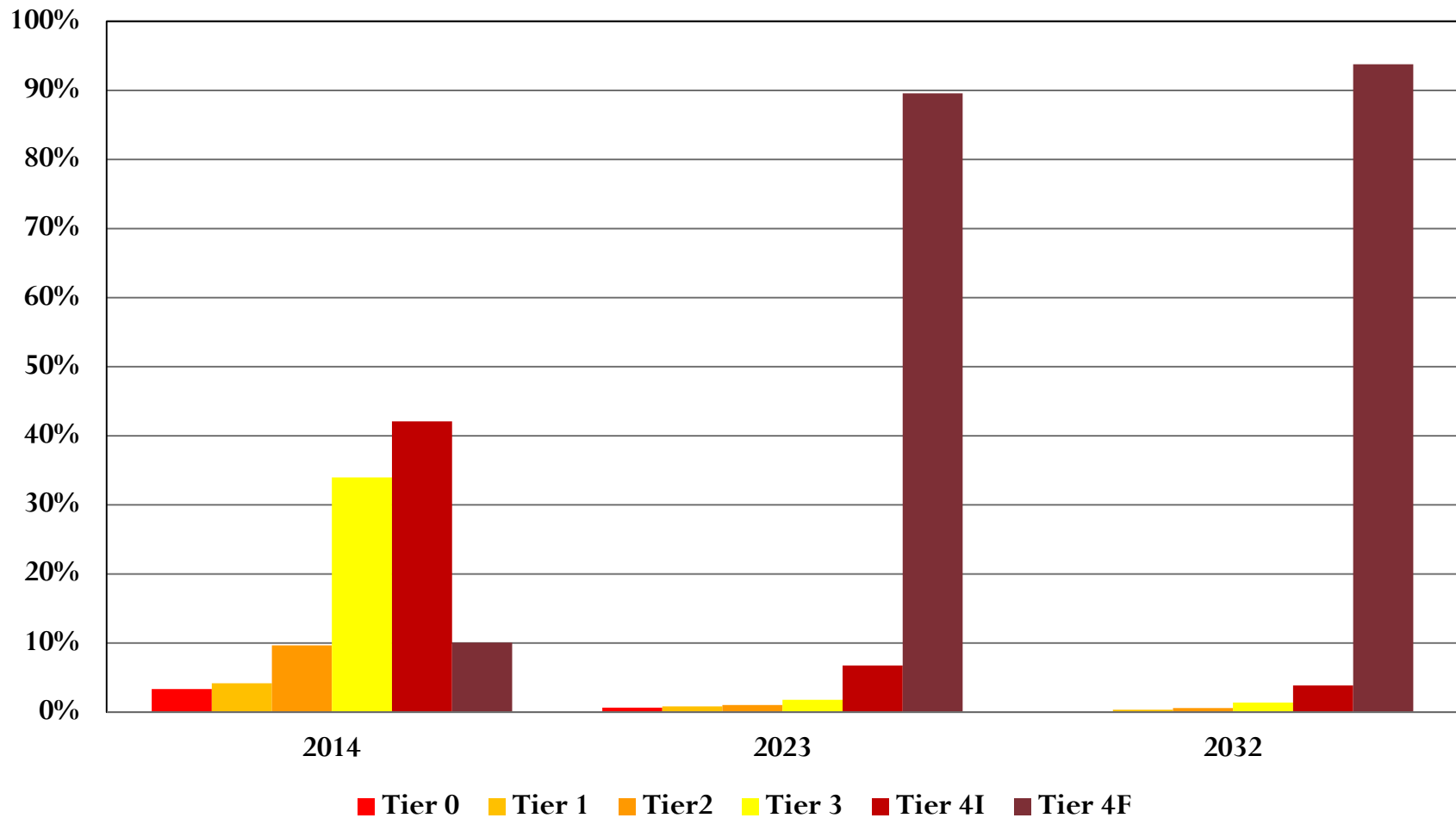


VOC (TPD)



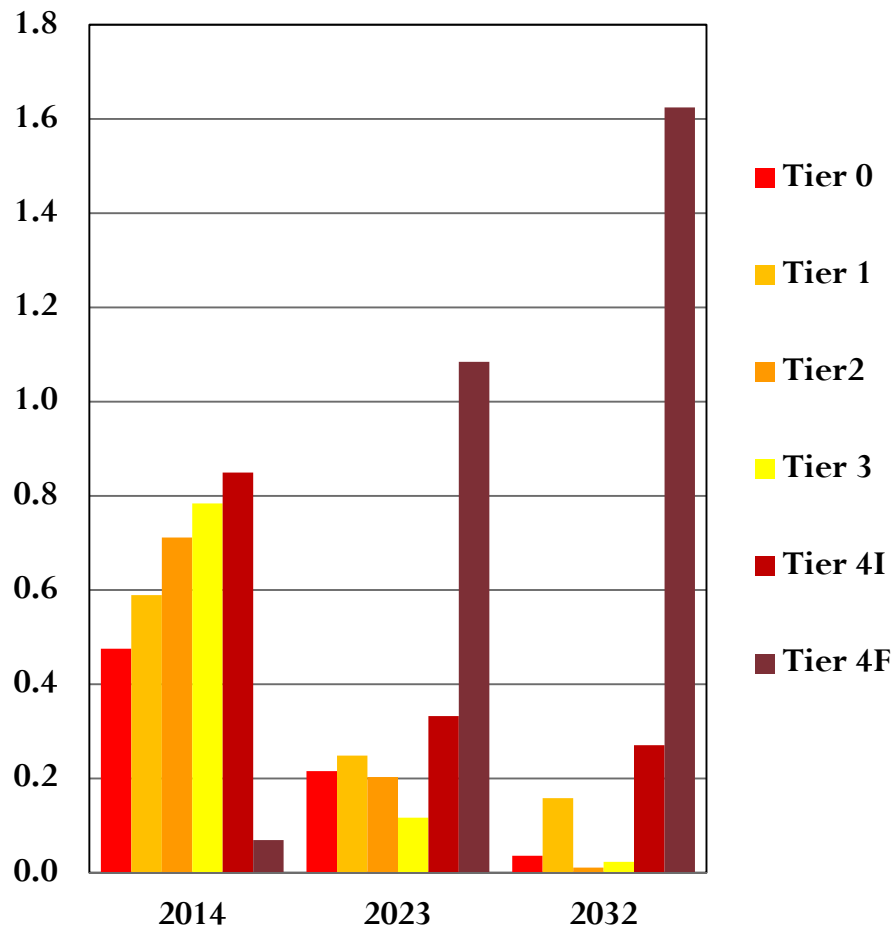
Cargo Handling Equipment

Cargo Handling Equipment by Tier



Cargo Handling Equipment Emissions

NO_x (TPD)



VOC (TPD)

