

Ports Initiative Update

MSTRS

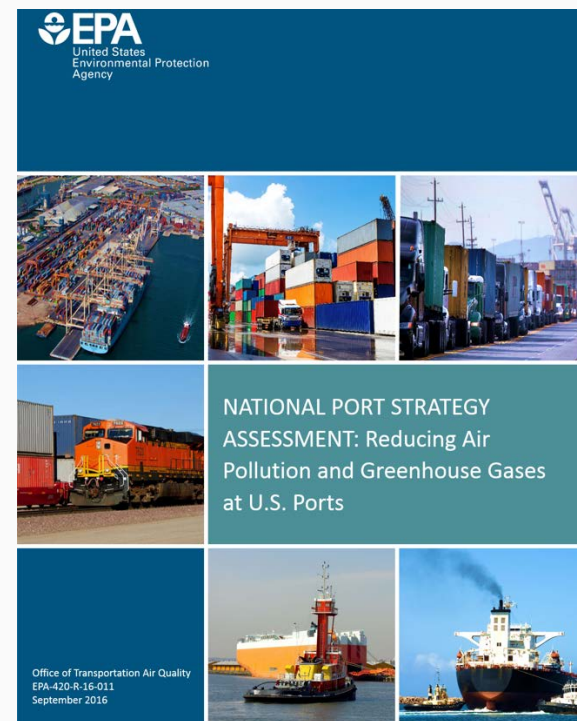
October 18, 2016





National Port Strategy Assessment

- *National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at U.S. Ports*
- Released September 22, 2016
- Available at: <https://www.epa.gov/ports-initiative/national-port-strategy-assessment>
- EPA developed this assessment in consultation with the MSTRS Port Workgroup





What is the National Port Strategy Assessment?

- Estimate 2011 baseline emissions for a group of ports
 - NO_x, PM_{2.5}, VOC, SO₂, CO₂, BC, and air toxics (acetaldehyde, benzene, and formaldehyde)
- Estimate business-as-usual (BAU) inventories for 2020, 2030, and 2050 (CO₂ only)
- Estimate potential emission reductions relative to BAU inventories for 2 scenarios:
 - Scenario A: Enhanced fleet turnover with existing technologies and operational improvements
 - Scenario B: More aggressive suite of strategies than Scenario A
- Assessment intended to show reduction potential for the scenarios across the aggregated group of ports, rather than a collection of specific port analyses



Non-OGV Strategies Modeled

Mobile Source Sector	Strategy	Specific Equipment
Drayage Trucks	Cleaner Technology	On-road Trucks
	Operational Improvements	
Rail	Cleaner Technology	Line Haulers, Switchers
	Operational Improvements	Line Haulers
Cargo Handling Equipment	Cleaner Technology	Yard Trucks, RTG Cranes, Container Handlers
Harbor Craft	Cleaner Technology	Tugs, Ferries

Note: See Appendix for a summary of all strategy scenarios modeled in study.



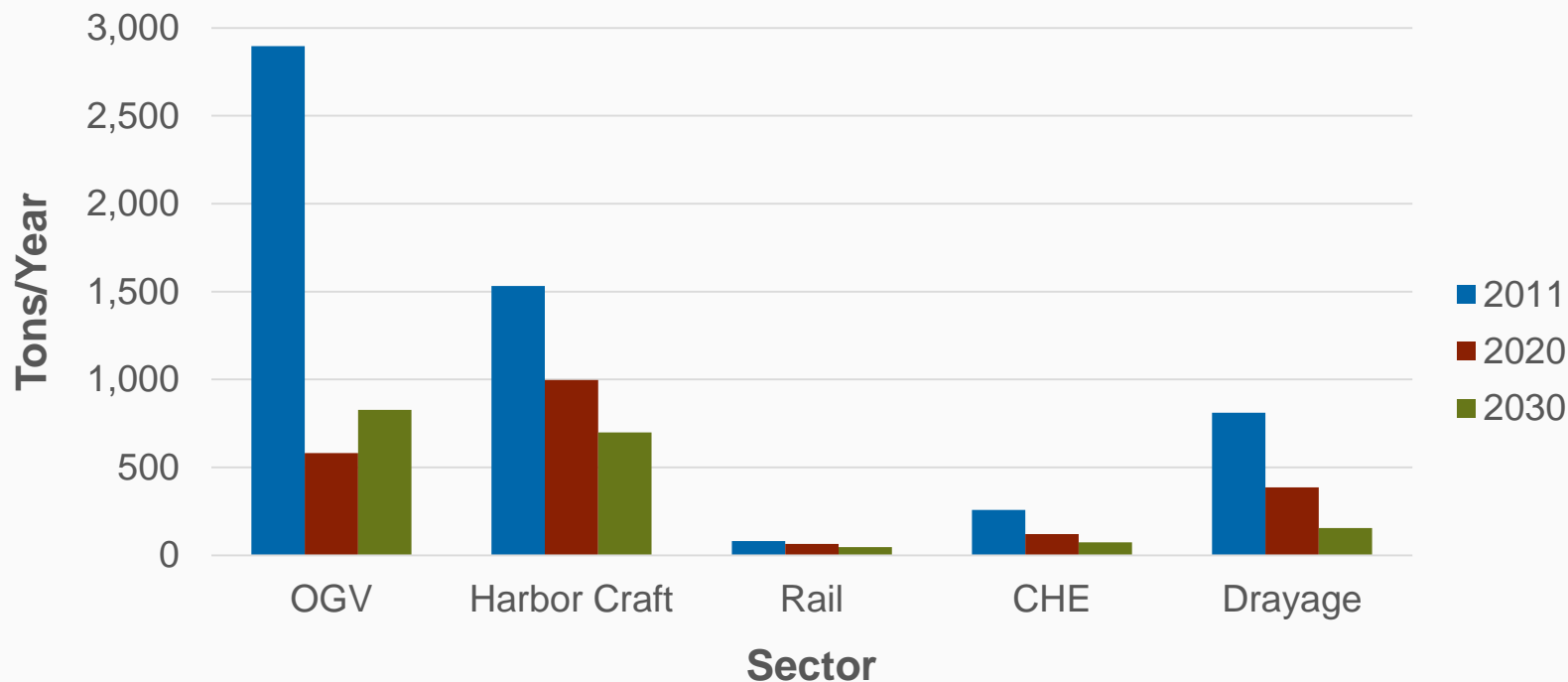
OGV Strategies

Strategy:	Applied To:
Fuel Changes (lower sulfur levels, LNG)	Propulsion & Auxiliary Engines
Shore Power	Frequent Callers Only
Advanced Marine Emissions Control Systems (AMECS)	Non-frequent Callers Only (container & tanker)
Hoteling	Container Ships Only



Progress is Already Being Made

Total PM_{2.5} Emissions Aggregated by Sector, Tons/Year

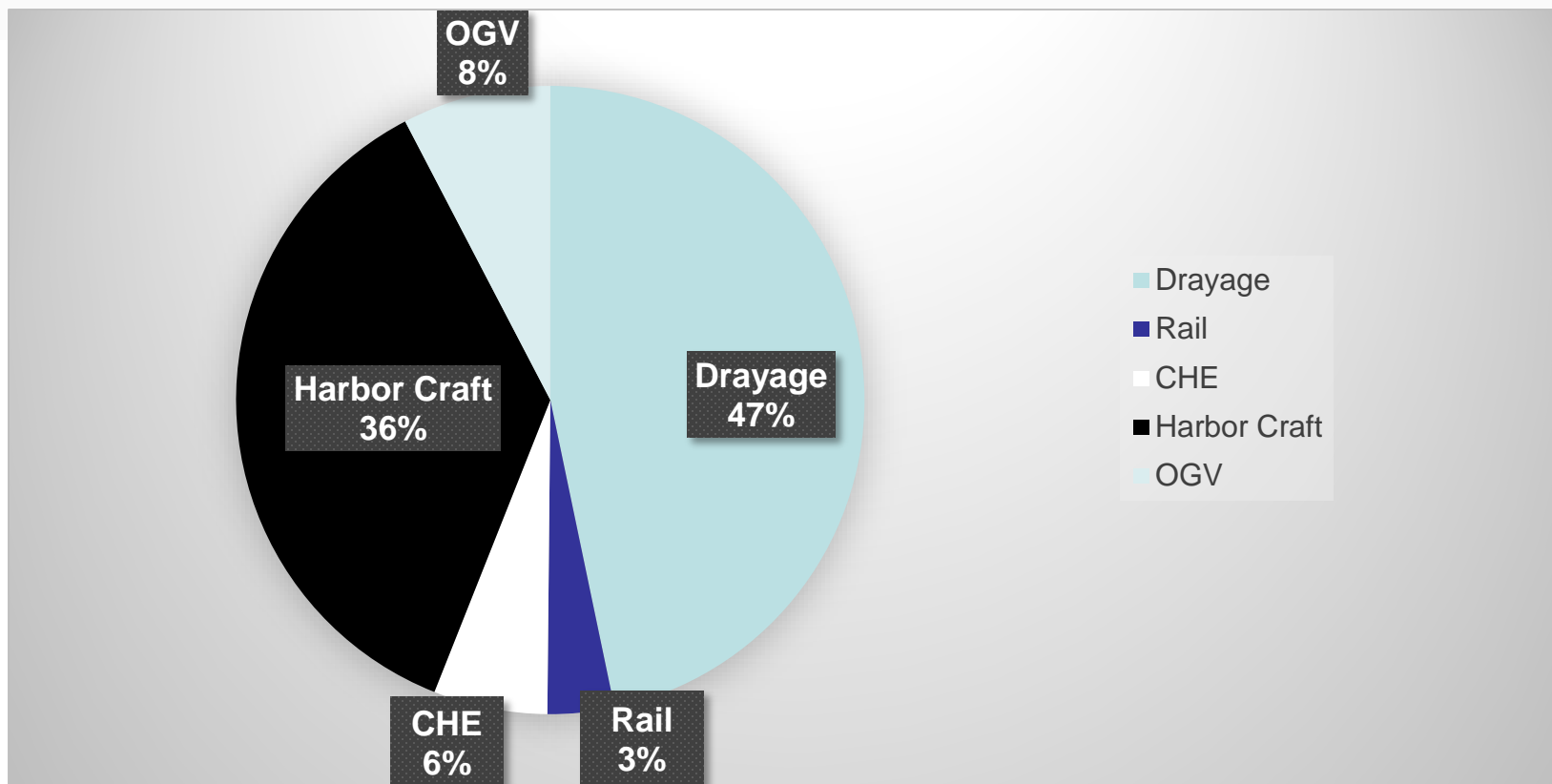


Note: Modeling domain covered 5-10 km from port for ships and 0.5 km from port for rail and drayage.



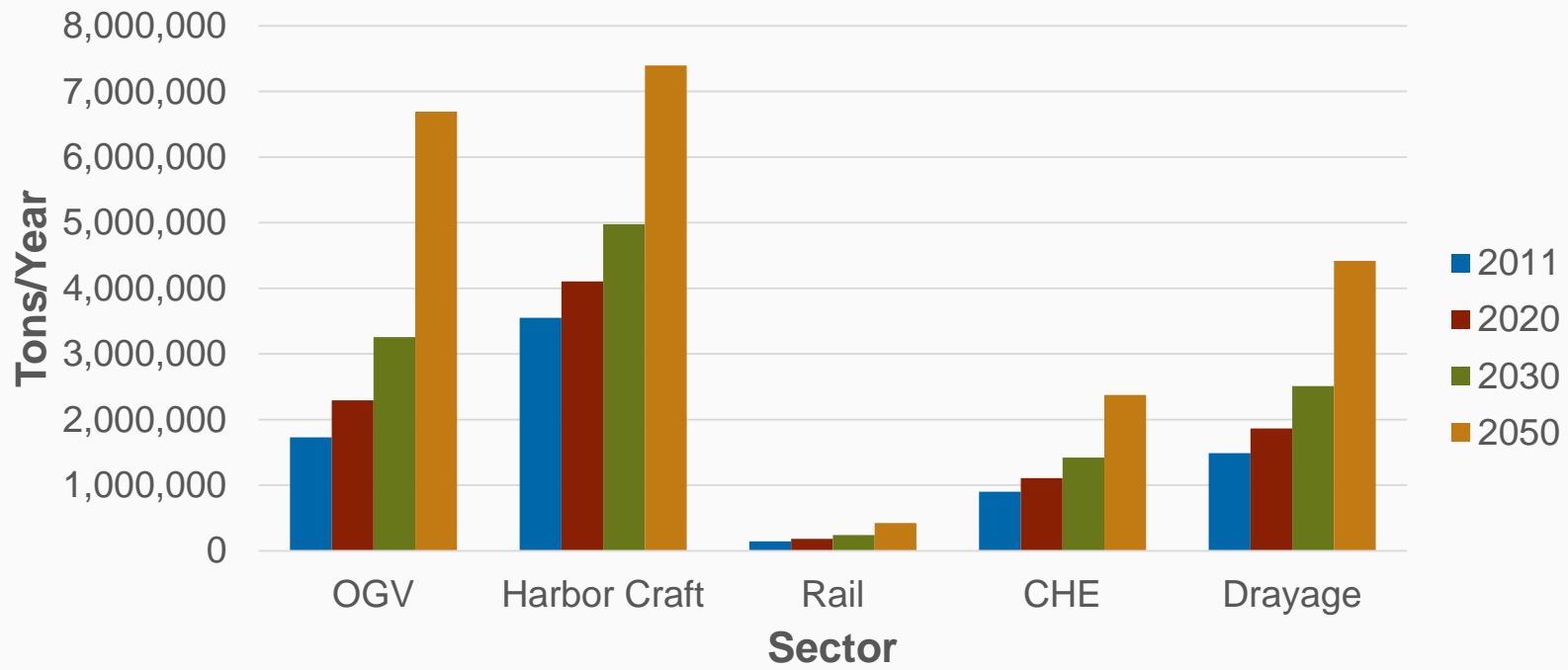
More Progress Can be Made

Reductions Scenario A in 2020





Total CO₂ Emissions Aggregated by Sector, Tons/Year



Note: EPA's Phase I and II HD GHG truck regulations and the IMO's energy efficiency design index (EEDI) requirements are not reflected in these results.

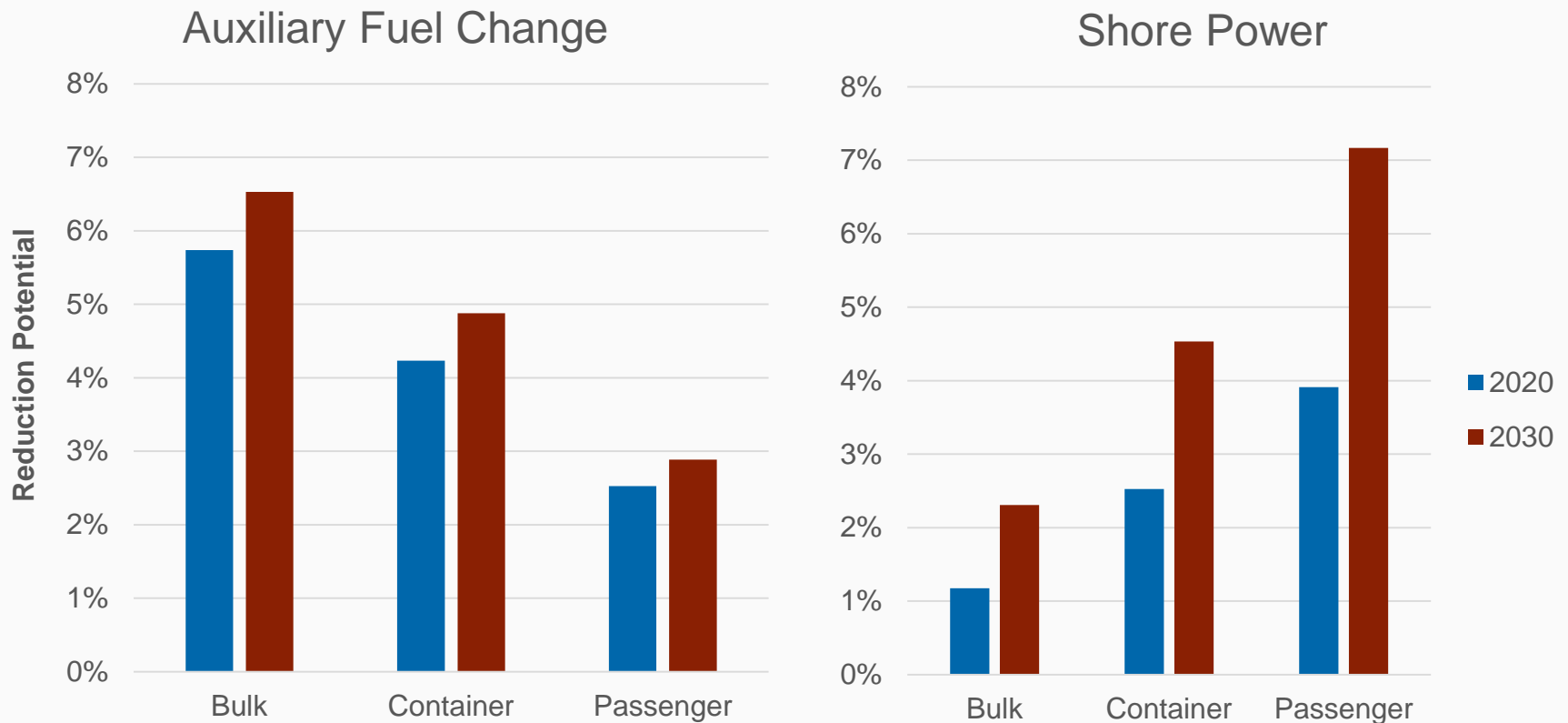


Stratification Analysis

- Intended to examine impact of emission reduction strategies across different port types and sizes
- Examined OGV relative emissions reductions
 - By port type: container, bulk and passenger
 - A port can be included in more than one category
 - By port size: large and small
 - Based on number of containers, mass throughput and number of passengers handled
 - Emission reductions were summed for each strategy across various groupings of the 19 ports



Effective Strategies Available for All Types of Ports





Conclusions

- Progress is already happening, but we need to do more
 - EPA's current vehicle and engine standards are resulting in considerable port-related emissions reductions
 - Some port areas applying strategies assessed in report
 - But future emissions trends show that air quality and climate goals continue to be important, and additional efforts by states, cities, and ports could make a difference
- More investment would help to reduce port-related emissions
 - States, cities, ports, Tribes, communities, and other stakeholders should consider available funding sources for targeted strategies for their port area
 - Most strategies would be eligible for DERA, CMAQ, etc.



Conclusions

- Effective strategies are available for every type and size of port to reduce emissions
- Replace older, dirtier diesel vehicles, engines, and equipment first to reduce NO_x and PM_{2.5} and protect public health
- Zero emissions technologies are effective and available to reduce ever-increasing CO₂ emissions
- Although this assessment focused on cleaner technologies, improving efficiency for port operations has great potential to reduce emissions
 - Continues to be an important research topic



Port Everglades Partnership

- EPA and Port Everglades are working together to develop:
 - Future year emission inventories for 2020, 2030, and 2050
 - Emission reduction strategy scenarios for:
 - Trucks
 - Locomotives
 - Cargo handling equipment
 - Harbor craft
 - Ocean-going vessels
 - Emissions analyses of off-port road, rail, and marine corridors
- This work will also inform future data and methods, lessons learned, and practical examples to share with other ports and stakeholders
- Target to complete by spring 2017



Near-port Community Capacity Building

- Pilot draft materials promoting port/community decision-making
 - Ports Primer for Communities
 - Community Action Roadmap
 - Environmental Justice Primer for Ports
- September 14, 2016 - Public Comment on Draft Tools/ Pilot Project Opportunity
- Select/Announce/Begin Pilots – late Fall 2016
- Address comments and refine draft tools - Ongoing