

Measuring and Reducing GHG Emissions at Ports: *Resources from EPA's Ports Initiative*



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EPA Ports Initiative Elements

Funding

Helping Ports Capitalize on Funding for Clean Technologies

Technical Resources

Providing Tools to Help Identify Smart Infrastructure Investments

Collaboration

Promoting Port-Community Collaboration for Effective Planning

Coordination

Increasing Efficiency in Federal Government and Port Operations

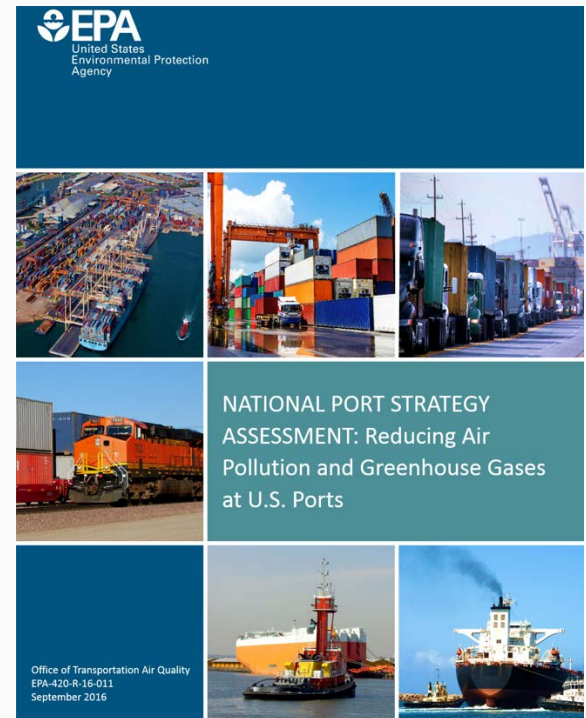
Communications

Creating a Knowledge Clearinghouse

National Port Strategy Assessment

Overview

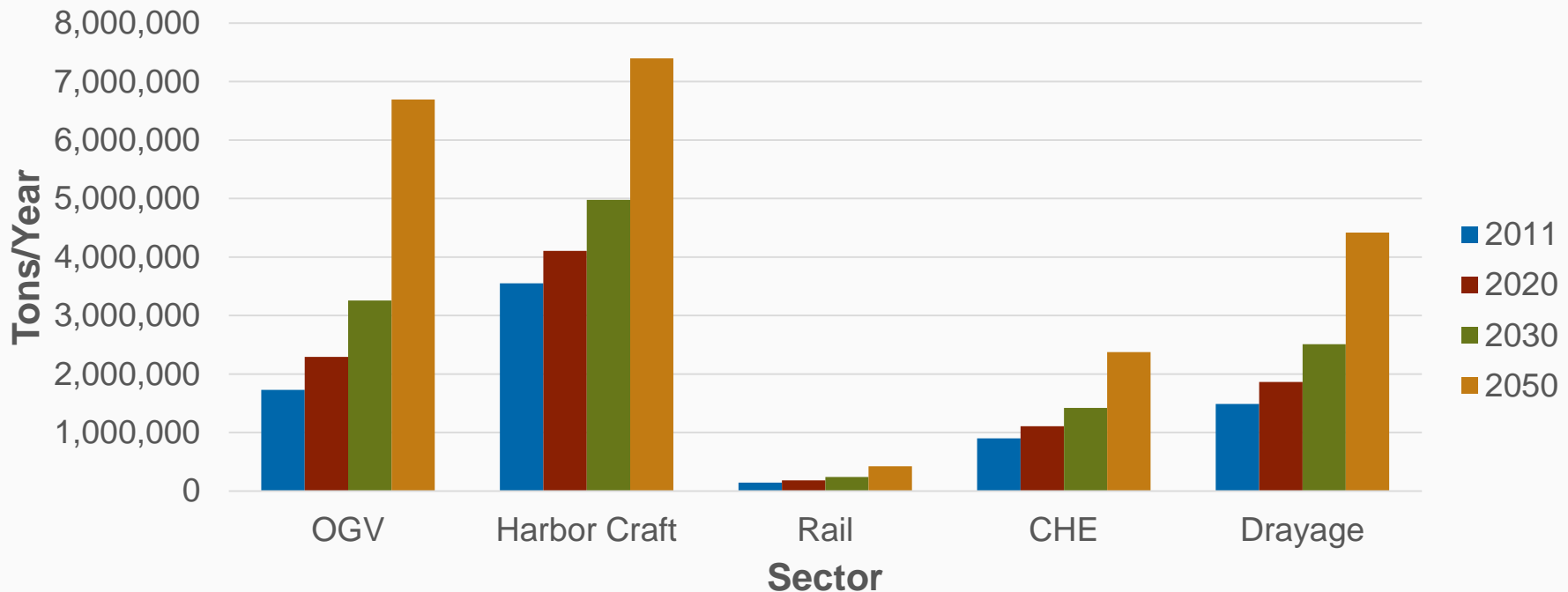
- *National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at U.S. Ports*
- Released September 22, 2016
- Available at: www.epa.gov/ports-initiative/national-port-strategy-assessment



National Port Strategy Assessment

Projected Growth in CO₂ Emissions

Business As Usual Total CO₂ Emissions for 19 Ports 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. If included, we would expect smaller increases in these sectors in 2030 and 2050.

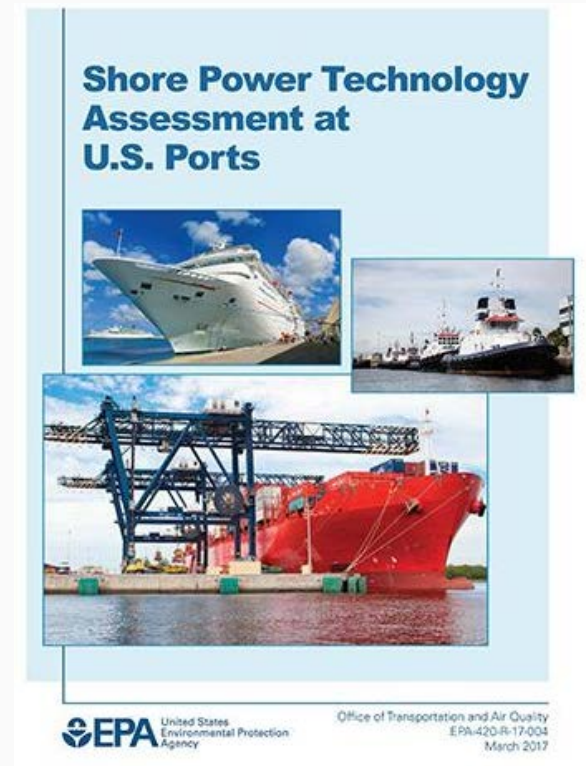
National Port Strategy Assessment

Effective Strategies are Available to Reduce CO₂

Strategy Scenario	% reduction from CO ₂ BAU	
	2030	2050
Replace older drayage trucks with plug-in hybrid electric trucks	0–4%	6–12%
Replace older locomotives with electric locomotives, GenSets, and fuel efficiency	3–6%	11–23%
Replace older CHE with electric technologies	7–18%	27–45%
Reduce OGV hoteling emissions with shore power	2–5%	4–10%

Shore Power Assessment

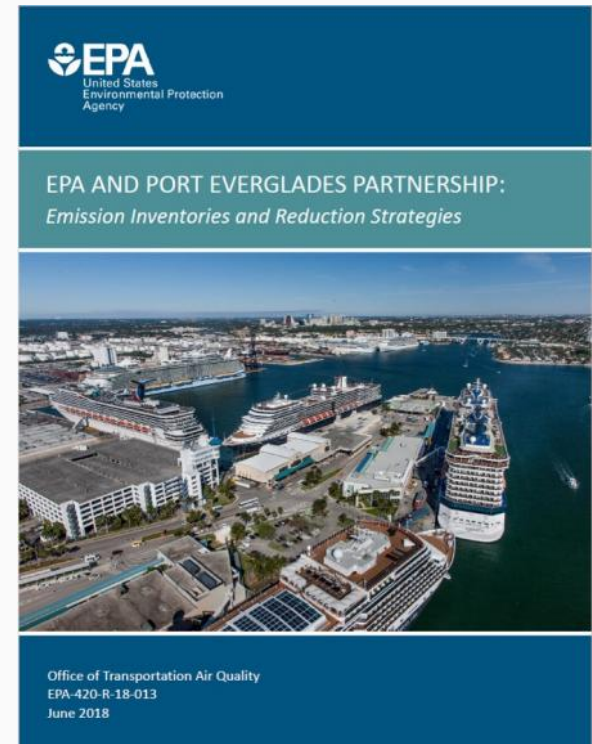
- Characterizes shore power systems at U.S. ports
- Includes a new methodology for calculating emission reduction of shore power systems
- Released April 4, 2017
- Available at: www.epa.gov/ports-initiative/shore-power-technology-assessment-us-ports



EPA-Port Everglades Partnership

Final Report

- *EPA and Port Everglades Partnership: Emission Inventories and Reduction Strategies*
- Released June 1, 2018
- Available at: www.epa.gov/ports-initiative/epa-and-port-everglades-partnership-emission-inventories-and-reduction-strategies



EPA-Port Everglades Partnership

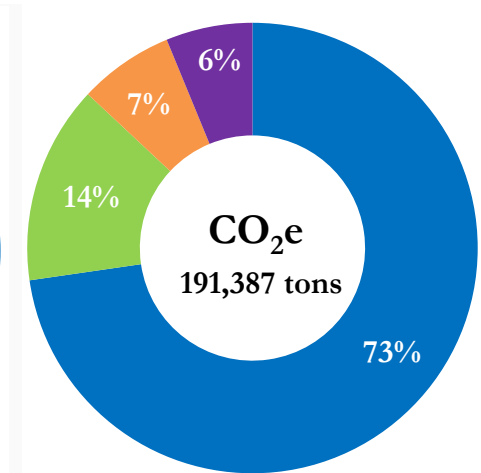
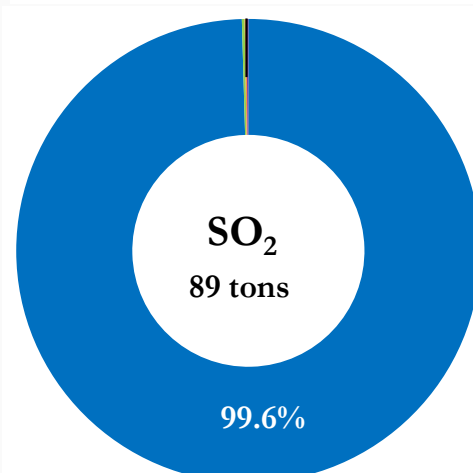
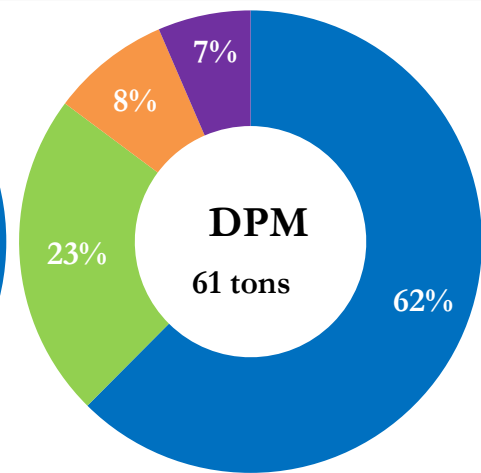
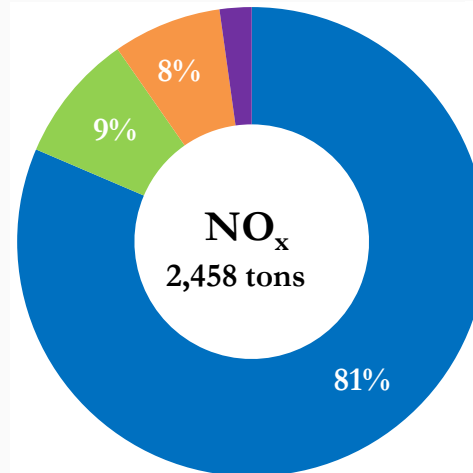
Overview of Activities

- Port Everglades:
 - Developed an activity-based inventory for port facilities and operations
 - 95% of customers participated in a voluntary and confidential survey
 - Provided technical and policy support to EPA's project activities
- EPA:
 - Supported development of the Port's baseline emissions inventory
 - Developed baseline emissions estimates for mobile source corridors outside the Port
 - Developed future Business as Usual inventories and emission reduction scenarios
 - Documented methods, lessons learned, and practical examples that EPA can share with stakeholders and incorporate into our future update of the EPA's 2009 Port Inventory Guidance

EPA-Port Everglades Partnership

2015 Baseline Emissions Inventory

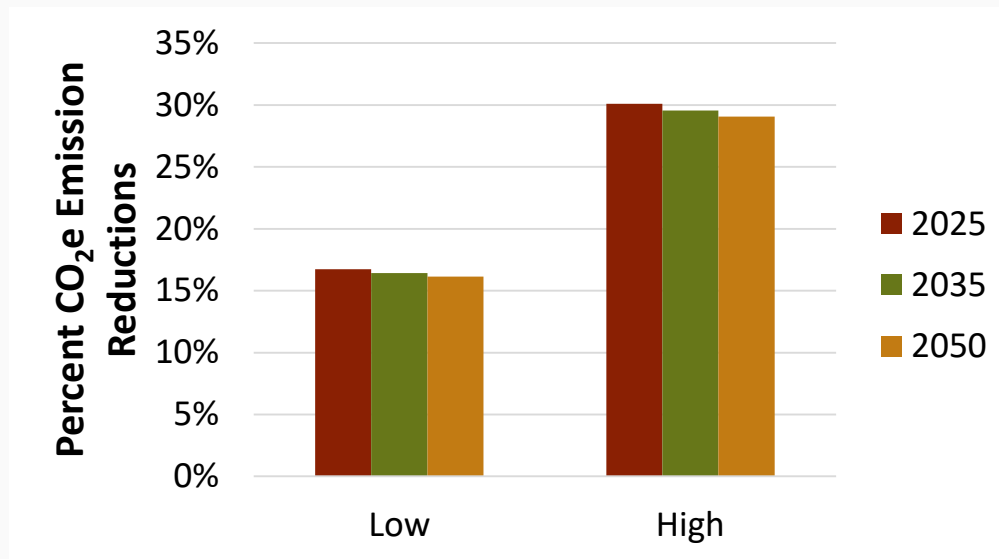
- Ocean-going vessels
- Cargo handling equipment
- Harbor craft
- On-road vehicles
- Locomotives



EPA-Port Everglades Partnership

Example Emission Reduction Strategy Scenario

- Off-port Vessel Speed Reduction
 - Modeled as a voluntary program where vessels reduce their speed to 12 knots or less in federal waters near Port Everglades
 - Low Scenario: Assume 50% vessels participate
 - High Scenario: Assume 90% vessels participate



EPA-Port Everglades Partnership

Key Findings

- Partnering with Port Everglades was key to developing methods and lessons learned that can be applied to other ports
- Inventories can help benchmark port and port industry progress
- Emissions are being reduced, but more can be done with available strategies
- Strategies and scenarios are effective to reduce emissions
- Potential actions can have benefits beyond a port's boundary
- Data and methods are available for developing port inventories

Stay Tuned...!

Communications and Upcoming Products

- Fact Sheets on Operational Strategies that can save GHGs and increase efficiency
- Updated port inventory guidance which will include GHGs
- Additional case studies
- Searchable table of funding opportunities:

www.epa.gov/ports-initiative/funding-opportunities-ports-and-near-port-communities

- EPA's Ports Initiative website and newsletter sign-up:

www.epa.gov/ports-initiative

Keep in touch:

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Appendix

Case Study:

Port of Los Angeles Electric Crane Project

- All-electric crane replaced older diesel crane through DERA grant
- Will substantially reduce criteria and GHG emissions over life of project
- Example of public/private partnership, part of comprehensive plan counted on towards attainment goals in Southern CA



Case Study:

Truck Appointment System at GCT Bayonne Terminal

- Example of a terminal at large port (PANYNJ) that took initiative to save costs and improve the environment
- Dray truck appointments from 06:00-13:00 hours implemented to reduce congestion and idling emissions
- Carbon dioxide (CO₂) reduction of 21,000 metric tons/year; overall air pollutant reductions of 61,000 kg/year; and fuel cost savings of \$5.3 million/year

