

# Ports in 2016 – An EDF Perspective

Northeast Diesel Collaborative Ports & Goods Movement Work  
Group

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# Why Freight Matters

## Diesel

- Ships
- Trucks
- Rail
- Harbor craft
- Cargo equipment

## Emissions

- Particulate matter (PM)
- Oxides of nitrogen (NOx)
- Health hazards

## Activity

- Hub traffic and congestion
- Residential area exposure
- Vulnerable populations

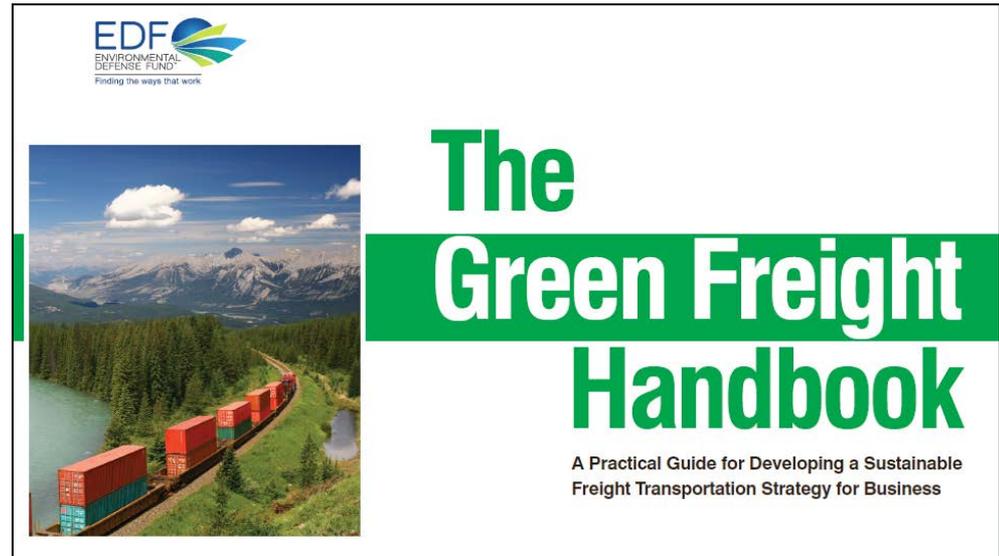
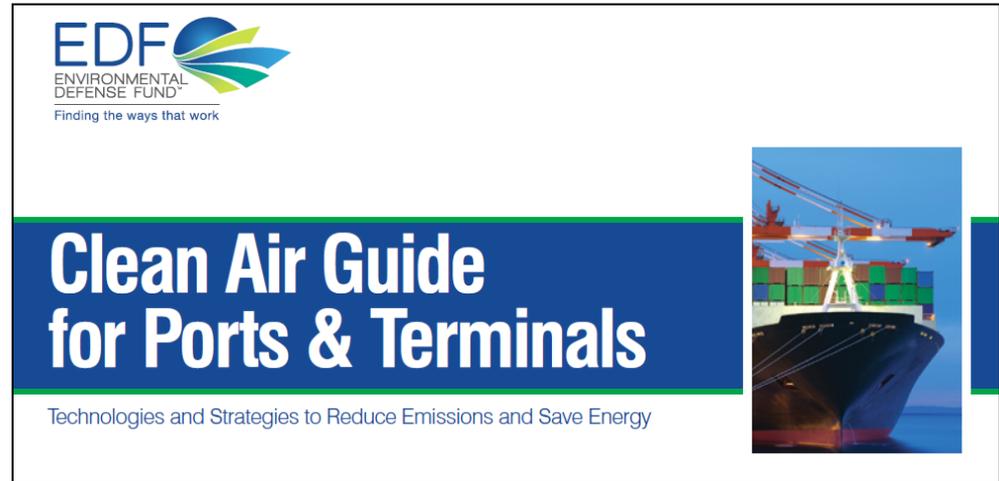
# Port Growth

- Market trends: mega ships, Panama Canal
- Top 10 ports 16% ↑ in January YOY, loaded containers
- Port of Houston
  - Ship Channel receiving 8,500 vessels, up 5%
  - \$68 million for container terminal expansion



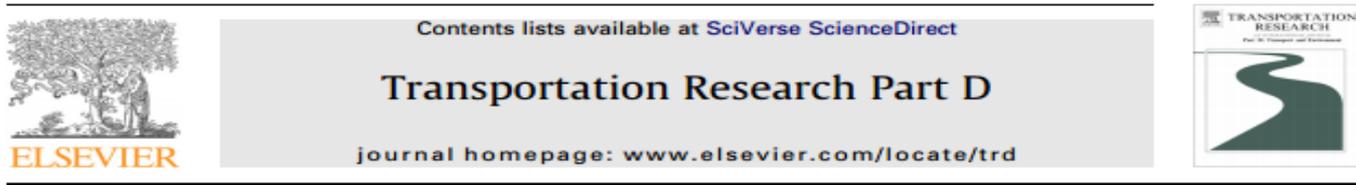
# Emissions Solutions

- **Idling: rest-period idling = 1,800 hours/year/truck**
- **Truck standards: MY 2014 trucks are over 60x cleaner**
- **Fuel standards: new GHG standards for heavy-duty trucks**
- **Programs: EPA voluntary ports initiative**
- **Strategies: EDF's Green Freight Handbook and Clean Air Guide**



# Research and Analysis

- GPS idling data for drayage trucks
- AIS data for vessel movements
- Methodology analysis of truck sector emissions inventory
- Emissions footprint of a container at port
- Mobile sector emissions banking and trading



## Emissions reduction analysis of voluntary clean truck programs at US ports



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### ARTICLE INFO

**Keywords:**  
Port emissions  
Drayage trucks  
Particulate matter  
Freight transportation

### ABSTRACT

This paper analyzed three incentive-based, voluntary vehicle replacement programs underway at US ports using fleet baseline and program completion data and an emissions standard-based emission estimation methodology. The principal findings demonstrate that best management practices for voluntary clean truck programs can substantially reduce truck drayage emissions, although not to the level achieved through mandatory programs. Emissions reductions were found to be 1–4% as compared to potential reductions of 12–15% for particulate matter and 31–34% for nitrogen oxides.

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# MD/HD Phase II

## Federal clean truck standards

New standards can further cut fuel consumption from trucks and buses



On June 19, 2015 the U.S. Environmental Protection Agency (EPA) and the Department of Transportation (DOT) proposed new greenhouse gas and fuel efficiency standards for the nation's heavy trucks. These new standards by the U.S. Government will build on the first-ever greenhouse gas and fuel economy standards for new freight trucks and buses finalized in 2011.

Co-convended by:



California Environmental Protection Agency  
Air Resources Board



### Medium- and Heavy-duty Innovators Round Table Discussion

May 18, 2016

9am-3:30pm

South Coast Air Quality Management District, Room GB  
21865 Copley Drive, Diamond Bar, California

#### Round Table Overview

Join technology providers, OEMs, fleets, regulators and other stakeholders in a round table discussion about important innovation occurring today in the medium- and heavy-duty sector. The dialogue will explore innovations that are advancing important U.S. leadership in new technologies as well as critical clean air and climate protections. The event

# Clean Air Guide for Ports & Terminals

## OCEAN-GOING VESSELS

	Strategy	Description	Example	Benefits	Considerations
Frame-works	Incentive programs	External programs can frame further emissions reductions	<a href="#"><u>Port Metro Vancouver partnership with RightShip</u></a>	External credibility and measurement frameworks	May need tailoring for unique port characteristics
Technology	Alternative fuels	Cleaner burning fuels that meet or exceed Emissions Control Area requirements	<a href="#"><u>Alternative fuels position paper by DNV GL</u></a>	Vary upon type of fuel	Vary upon type of fuel
	Shore power	Enables vessels to turn off engines while docked and connect to landside electricity	<a href="#"><u>Shore power at Prince Rupert Port Authority</u></a>	Directly reduce emissions closest to communities	Consider frequency of vessel calls; emissions of power source; vessel equipment
	<a href="#"><u>MOBILE SCRUBBERS</u></a>	Flexibility of air scrubbing system that can be moved from vessel to vessel	<a href="#"><u>Alternative Maritime Emission Control System (AMECS) at Port of Long Beach</u></a>	Ability to reduce emissions from more vessels	Equipment costs for ports
Operat-ional	Slow steaming/VSR	Vessel speed reduction (VSR) close to ports is proven to reduce emissions	<a href="#"><u>VSR at Port of San Diego</u></a>	Flexibility with no new technology; take advantage of Automatic Identification System (AIS)	Must adapt to channel and traffic considerations

# EDF Climate Corps Program



## Port Freeport

### Summary

Keegan Hartman analyzed the emissions savings that could result from container-by-barge shipping and encouraged Richardson Companies to engage in the EPA SmartWay Program.

### Goals

The [Richardson Companies](#) hosted Keegan Hartman in 2015 to help benchmark and evaluate the greenhouse gas emissions related to transporting shipping containers by tug and by barge. Richardson was opening a new container barge terminal and needed data collected and analyzed to quantify the impact on greenhouse gas emissions. With this new terminal, Richardson would be able to ship goods closer to their final destination over water instead of by truck traffic. The last portion of the journey – called the “last mile” – would still have to be by truck. Additionally, Richardson was participating in a hydrogen fuel cell Class 8 truck demonstration project and needed a model that considered the use of these trucks for the “last mile” delivery of the containers.

### Solutions

Working with employees in a number of business units at Richardson, Hartman determined the best way to benchmark greenhouse gas emissions was through the [EPA's SmartWay Program](#). SmartWay provides a standard template for recording and tracking

### At a Glance

#### Industry

Government/Public Administration

#### Year

2015

#### Project Type

Freight and Logistics

#### Location

Freeport, TX

### ABOUT THE FELLOW

**Steven Washington**  
Texas Southern University

[LinkedIn profile](#)



Steven Washington is a second year master's student in the Urban Planning and Environmental Policy program at

Texas Southern University. He is also a Barbara Jordan-Mickey Leland Scholar. Washington is conducting his master's thesis on climate change and community capacity in Pleasantville, a port community in Houston, Texas.



Annual CO<sub>2</sub> Reductions:  
**3,900 metric tons**

### Summary

Steven Washington analyzed the energy savings possible from shipping cargo over water via a container-by-barge service instead of over the highway.

[www.edf.org/ports](http://www.edf.org/ports)

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