

A National Conversation on the State of US Ports



Promoting Port Stakeholder Success:
Collaborative Action with EPA –
Focus on Transportation and Air Quality

Tuesday, September 24, 2013

Session Schedule

- **Welcome and Housekeeping**
- **Background for the Port Stakeholder National Conversation**
- **EPA's Efforts Supporting the Port Sector & Nearby Communities**
- **The Port Sector: A Sampling of Perspectives-**
Presentations by:
The American Association of Port Authorities, Maersk and Ports America
- **Question and Answer Session**
- **Final Thoughts/Wrap up**



Christopher Grundler
Director, Office of Transportation and Air Quality
U.S. Environmental Protection Agency

Applying EPA's Expertise To Ports

Supporting a National Ports Initiative with Transferable Experience



Cheryl L. Bynum

Director, SmartWay and Supply Chain Programs Center
U.S. Environmental Protection Agency

SmartWay Transport Partnership

EPA Strengths and Capabilities

Public/Private Partnership

Facilitating collaboration among diverse stakeholders

Market-driven Program Design

Leveraging market forces to motivate operational efficiencies.

SmartWay

Data, Tools, and Methodologies

Enabling stakeholders to exchange performance data using uniform metrics and methodologies

Technology Verification

Developing test protocols and evaluating fuel-saving benefits of equipment and vehicles.

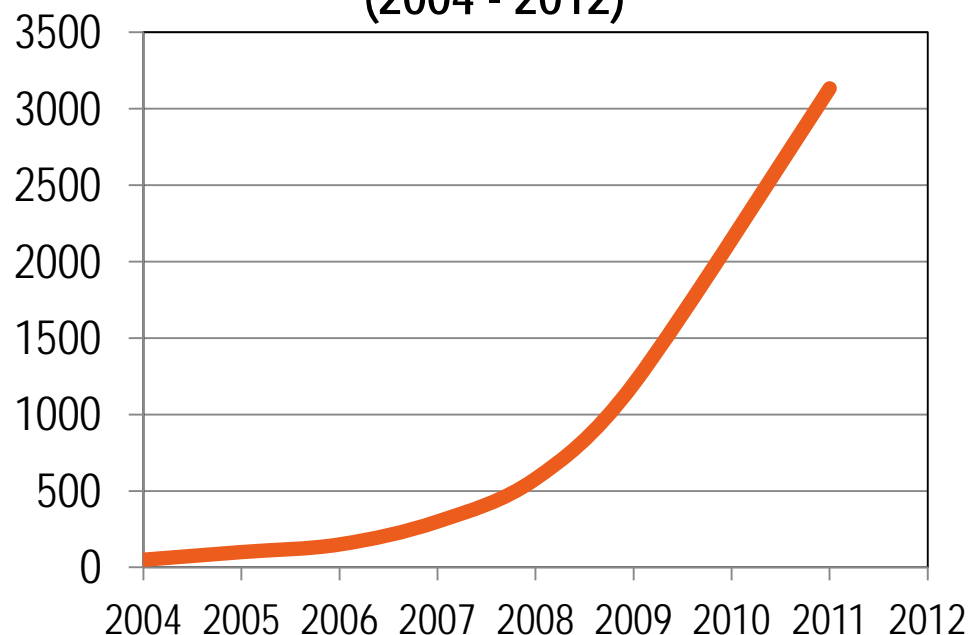
Addressing the Supply Chain

- EPA's SmartWay Transport Partnership promotes greenhouse gas and air pollutant reductions and energy efficiency in goods movement across the supply chain
- SmartWay provides:
 - Partner tools and resources to assess, track and reduce emissions and energy use
 - Testing and identification of lower carbon strategies and technologies to expand access to cleaner technologies
 - Recognition for top-performing partners
- Partners save money by reducing fuel use and emissions, which protects the environment, supports greener jobs, and strengthens US competitiveness

Achievements

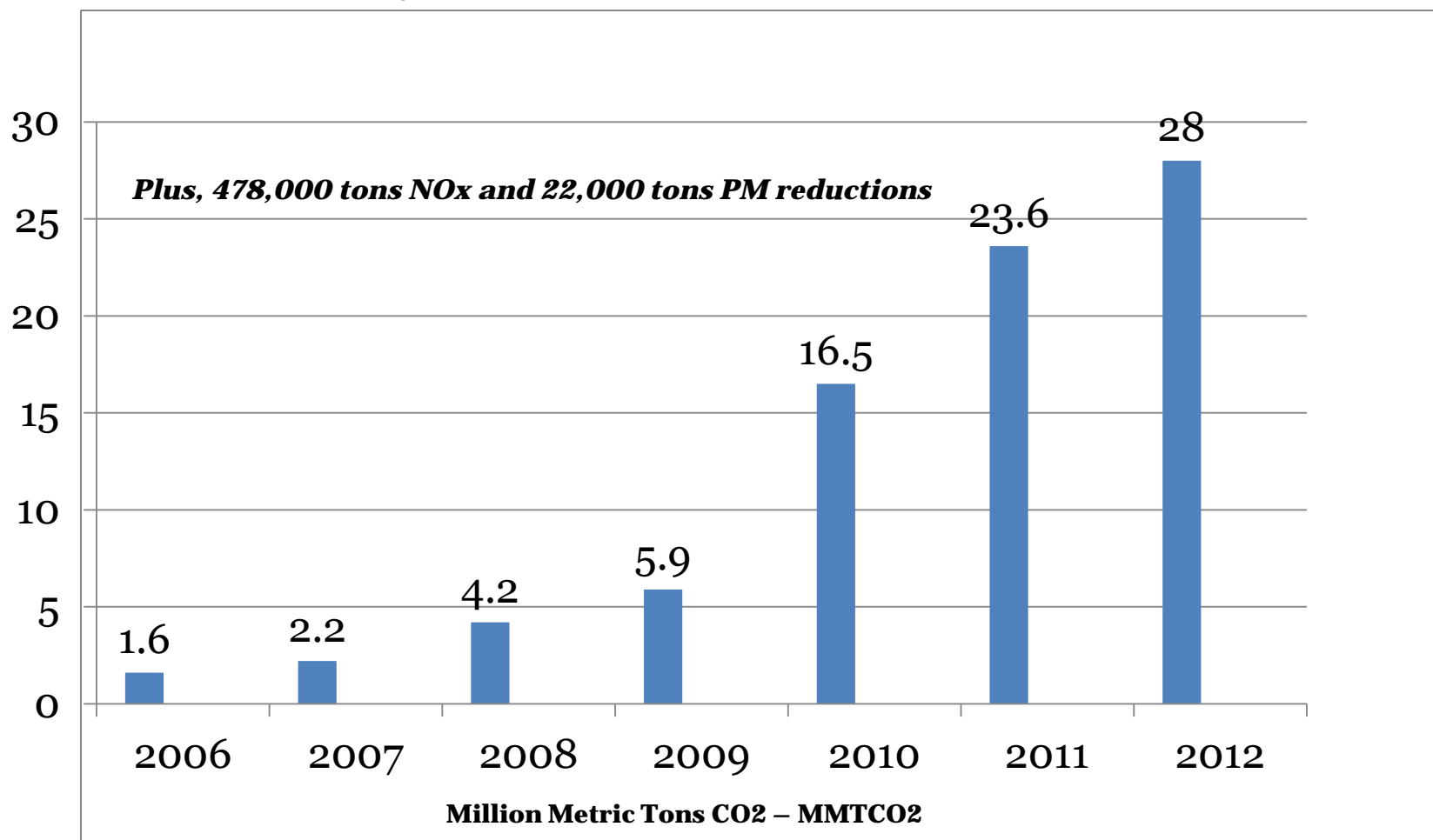
- **Energy Savings**
 - 65 million barrels of oil conserved since 2004 – cutting import demand
 - \$8.1 billion in avoided fuel costs for US companies
- **Driving change in supply chains**
 - 3,000 organizations since 2004
 - Over 800 shippers and logistics providers
 - Over 2,200 carriers, operating over 650,000 trucks (8% US total) & driving 50B miles (22% US total)

SmartWay Partner Growth
(2004 - 2012)



Climate and Clean Air Benefits

Since 2006, SmartWay CO2 Benefits Have Increased More than Ten-Fold





Jennifer Keller

Director, Legacy Fleet Incentives and Assessment Center
U.S. Environmental Protection Agency

National Clean Diesel Campaign
Diesel Emissions Reduction Program (DERA)

EPA Strengths and Capabilities

Grants and Funding

Administering competitive grants and rebates to expand use of existing and emerging technologies.

Technology Verification

Verification of new technologies for port projects; emissions estimates; in-use testing for durability and continued emissions reductions

NCDC

Collaborative Place-Based Efforts

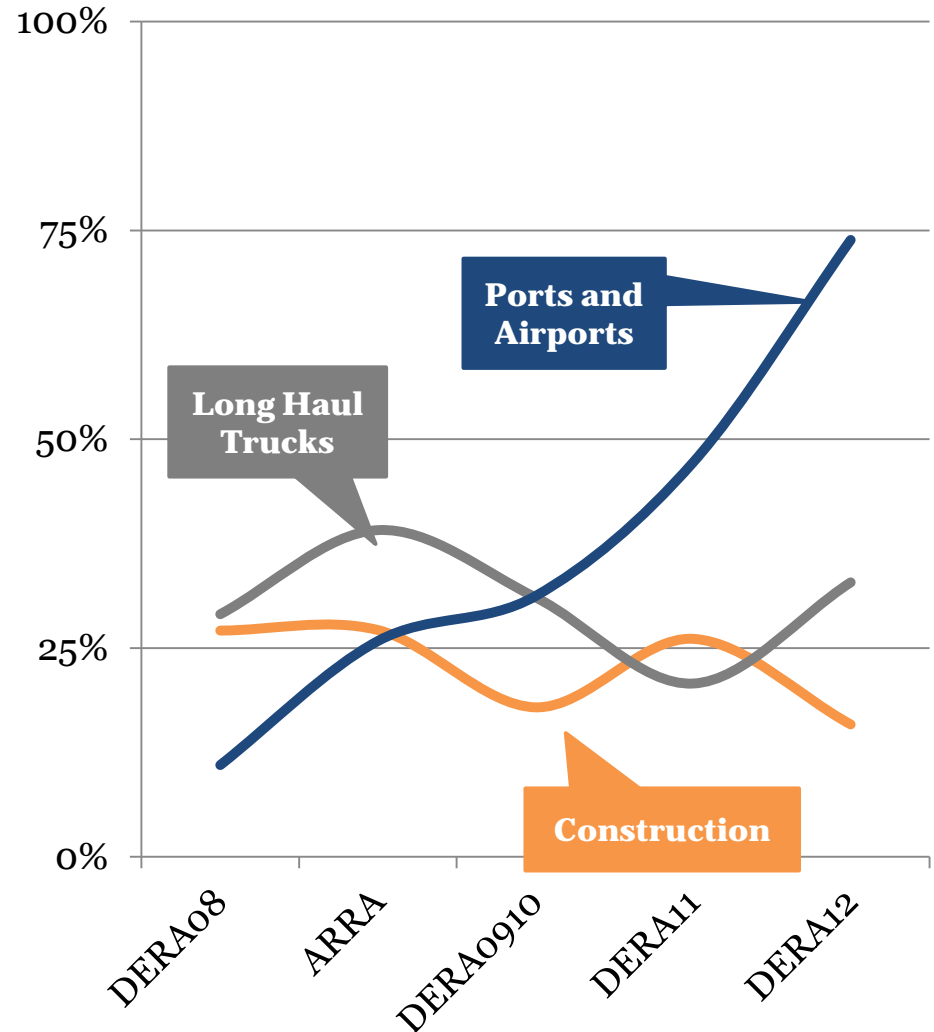
Leveraging funds and taking a local approach to diesel emissions mitigation.

Tools and Info Development

Developing impact assessment & quantification tools that require little modeling experience. Creating toolkits/best practice info providing stakeholders with reliable data, and strategies.

Trends in DERA Funding

- **Growing trend in DERA marine / ports projects**
 - 17% → 70% estimated funding over 5 grant cycles
 - ~70 projects
 - 15 awarded directly to port authorities
- **Ports have concentrations of diesel engines and equipment**
 - Marine engines, cargo handling equipment, drayage trucks, and rail equipment
- **Projects are cost-effective**
 - Multi-source, multi-pollutant benefits



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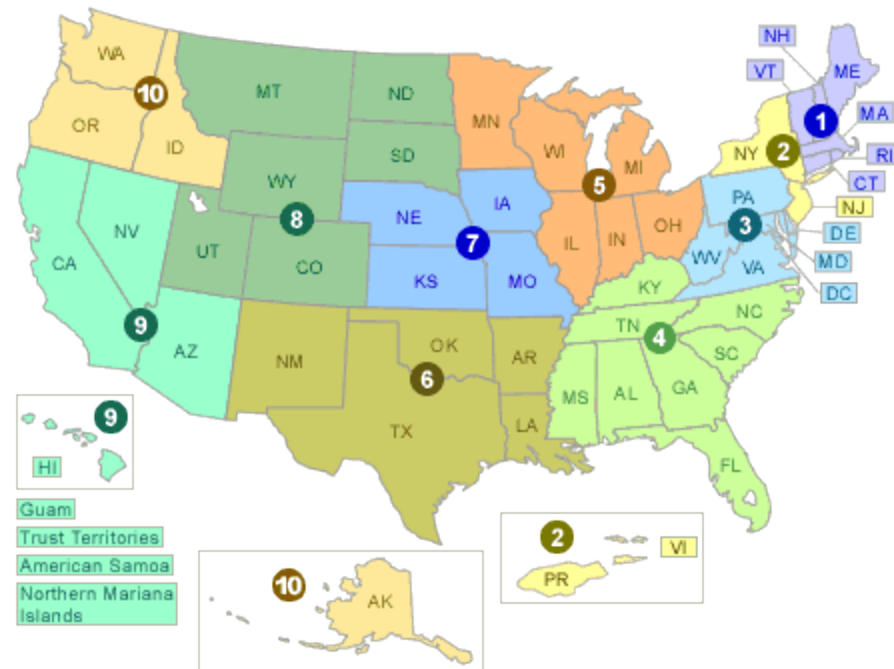
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EPA Regional Collaboratives: Local Engagement

- Regions 2, 9 and 10- have worked with local ports to establish and update port specific clean air strategies
- Regions 3, 4- specific projects with ports including cleaner fuels, repowers and drayage truck replacement
- Regions 1, 2- have established a North East Diesel Collaborative Ports workgroup with State agencies, port authorities, industry, and consultants
- Region 6- worked to establish Entry/Exit Pre-check and Inspection Facility at the Port of Houston to reduce truck emissions.





Susan Monteverde
Vice President for Government Relations
American Association of Port Authorities

Promoting Port Stakeholder Success Collaborative Action with EPA

Transportation and Air Quality

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September 24, 2013



Alliance of the Ports of Canada, the Caribbean, Latin America and the United States

Seaports
Deliver
Prosperity

American Association of Port Authorities
703.684.5700 • www.aapa-ports.org

Our Message:

Federal investments in seaports are an essential, effective utilization of limited resources, paying dividends through increased trade and commerce, long-term job creation, secure borders, military support and environmental stewardship.



SECURITY

Secure seaports keep people, goods, equipment and infrastructure safe



IMPORTS

In 2011, imported industrial supplies & materials increased by 21 percent, excluding crude oil

SEAPORTS



EXPORTS

U.S. exports supported an estimated 9.2 million jobs in 2010



ENVIRONMENT

Seaports help protect habitat and reduce air emissions to ensure the health of coastal communities and ecosystems

Transportation and Air Quality



Close Population Centers

Cargo-handling Equipment

Rail

Trucks

Ocean-going Vessels

Harbor Craft/Dredges

Different Approaches at Different Ports

Funding:

- Port funding
- DERA
- State funds

Type of Programs:

- Clean Truck Programs
- Clean Fuel Incentives
- Vessel Speed Reduction
- Plug-In Technology
- Yard Equipment
- Rail/Dredging
- LNG

Transportation and Air Quality



Close Population Centers

Cargo-handling Equipment

Rail

Trucks

Ocean-going Vessels

Harbor Craft/Dredges

Regulatory Requirements

- *Emission Control Area (ECA)*
 - *AAPA supported speeding up cleaner vessel fuel requirements*
 - *Concerns:*
 - Cruise Ships
 - Fuel Availability
 - Future of Shore Power
- *EPA Clean Air Regulations*
 - *Criteria Pollutants/expansion could result in more ports being located in non-attainment areas*
- *California Regulations*

Strategic Approaches



San Pedro Bay Ports
Clean Air Action Plan



A Clean Air Strategy
for The Port of New York & New Jersey

Final – October 21, 2009



Pacific Northwest Ports Clean Air Strategy



THE CLEAN AIR STRATEGY PLAN

Winning through Stewardship



Programmatic Approaches



Maritime Comprehensive Truck Management Program
—
A MAQIP Program

Project-Based Approaches

Diesel Emissions Reduction Act (DERA) Grants:

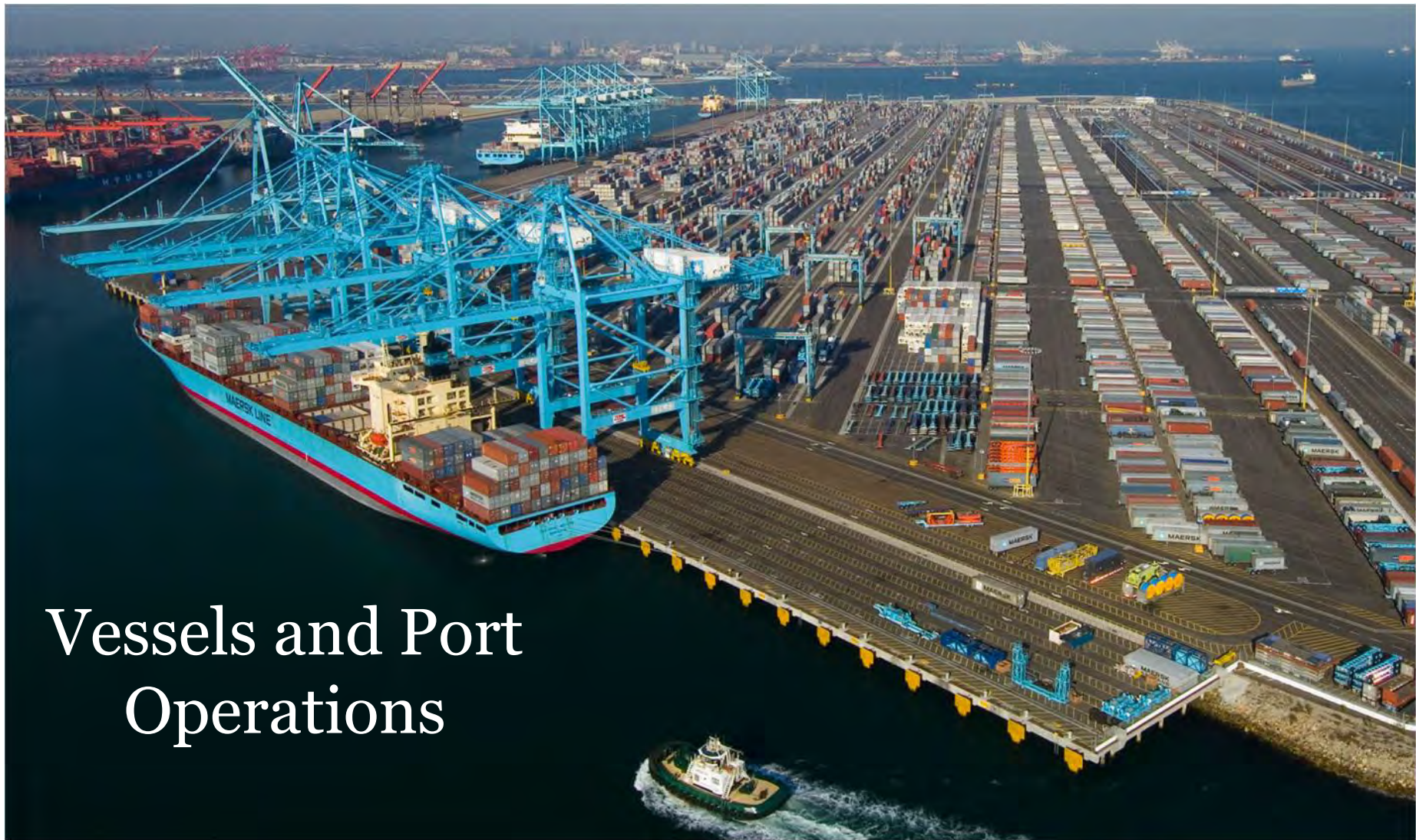
- *Massachusetts Port Authority – Trucks*
- *Port of San Francisco – Cruise Ship Electrification*
- *PortMiami – Cargo-handling Equipment*
- *Port of Corpus Christi – Locomotive*
- *Georgia Ports Authority – Marine Engines*
- *Port of Baltimore – Variety of Engines*

AAPA's New Partnership on International Environmental Initiatives

- ***Green Marine*** – Is a Canadian-U.S. initiative that is getting widespread support . The cornerstone of the *Green Marine* initiative is its far-reaching environmental program, which makes it possible for any marine company operating in Canada or the U.S. to voluntarily improve its environmental performance by undertaking concrete and measurable actions.
- ***EcoPort*** - The *EcoPort* status is obtained by any port within the broad ESPO membership upon completion of a Self-Diagnosis Method (SDM) checklist. Additional credit is provided to ports that are certified with PIERS, the only port-sector specific environmental management standard, and ISO 14001. A joint AAPA –ESPO Eco Port program is underway.



Lee Kindberg, Ph.D
Director, Environment & Sustainability
North America
Maersk



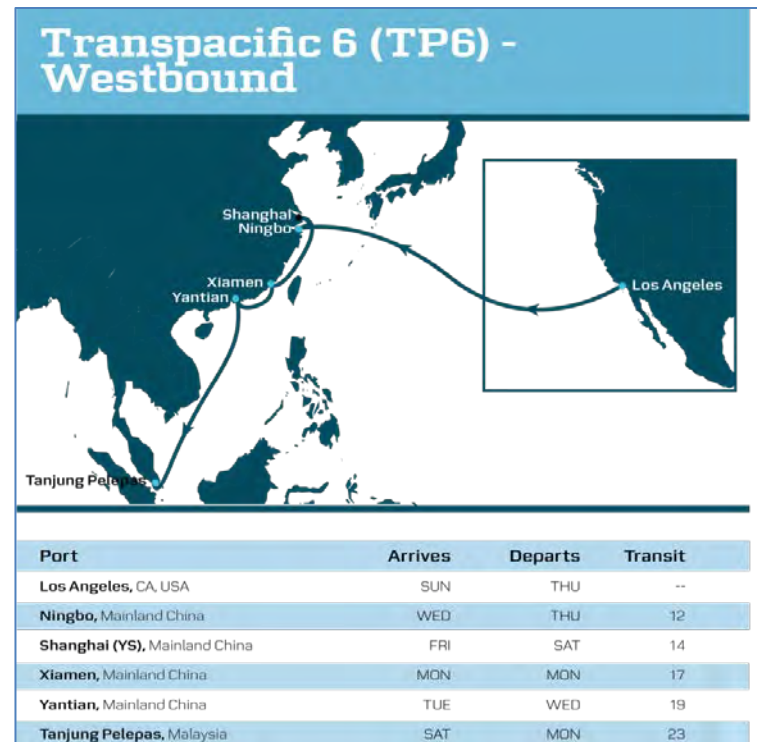
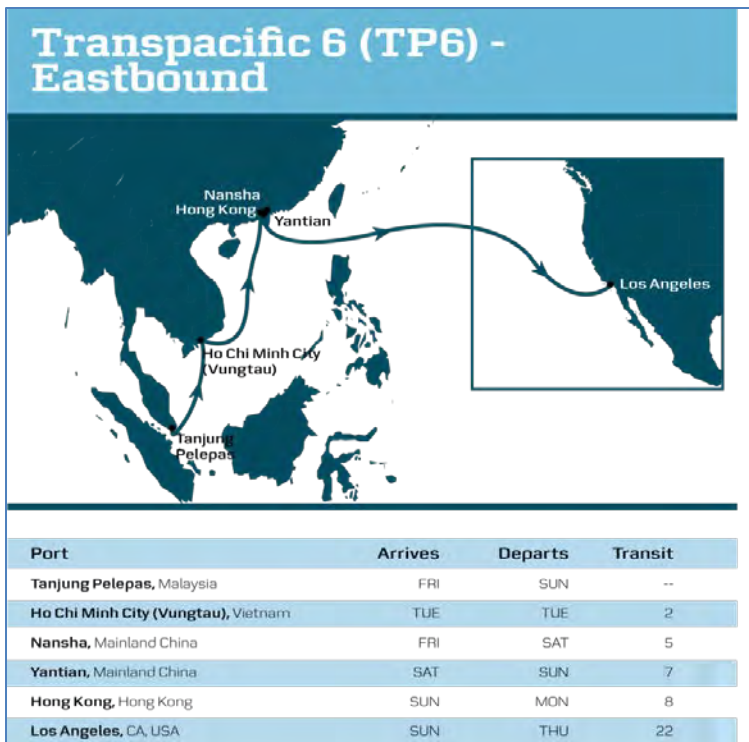
Vessels and Port Operations

EPA Ports Initiative Webinar – Sept. 24, 2013
Lee Kindberg
Director, Environment & Sustainability



“Liner shipping” means vessels have strict routes and schedules.

Routes require several weeks, so multiple vessels are scheduled on each route to provide regular service (weekly).

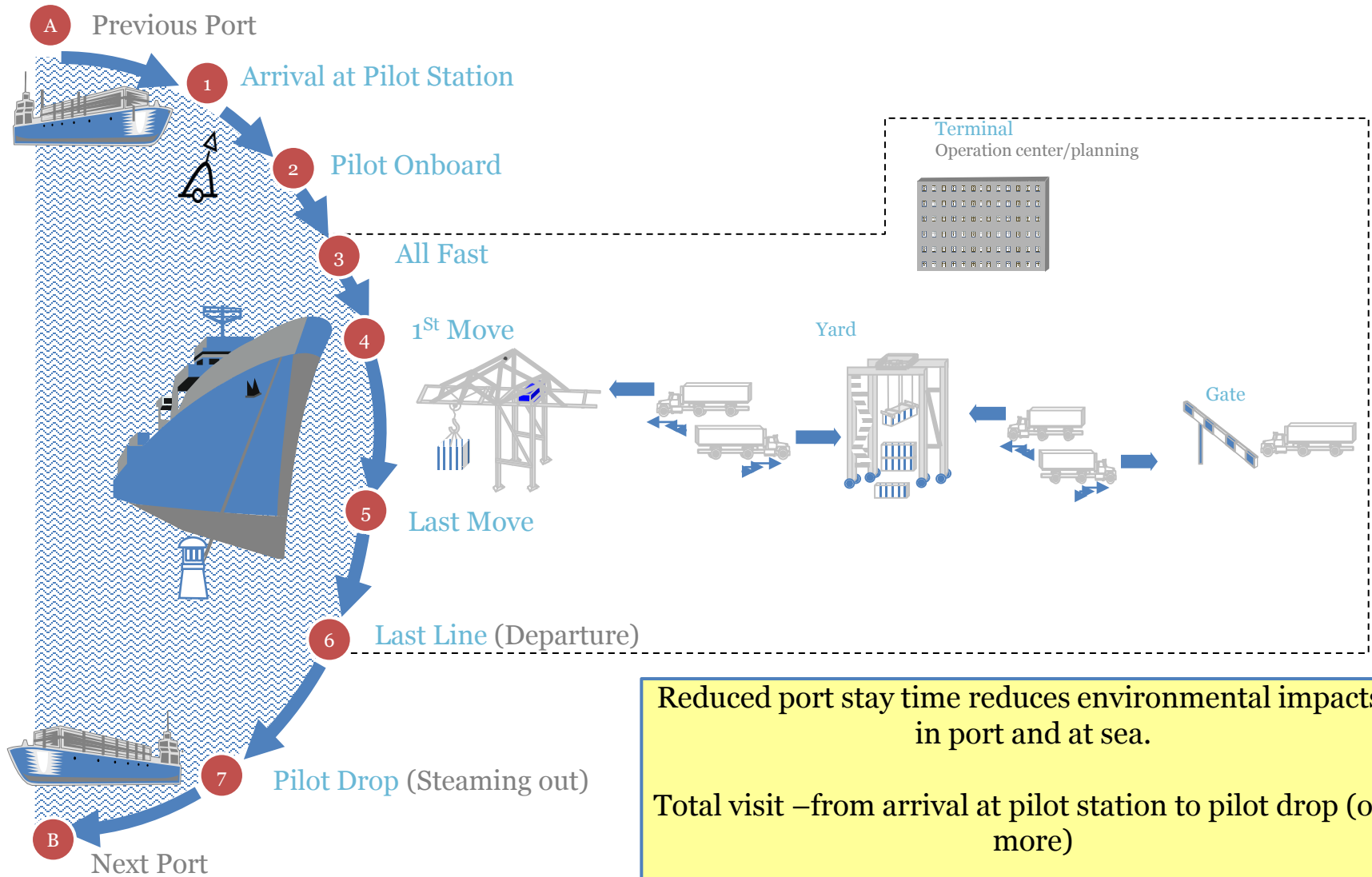


7 week round trip typically means 7 vessels on the service

Surprising facts about Liner Shipping that impact program planning:

1. Liner shipping is like an air line or bus line – not a taxi. Schedule conformance is critical for both cost and air emissions.
2. International vessels spend only about 5% of their lifetimes in the waters of any one country or state.
3. Vessels operate with total crews of only 16 to 24.
4. Homeland Security and other rules require notice, planning and proper ID to visit or sail with a vessel.
5. The old growth projections of “10% forever” are obsolete.
6. The rest of the world uses metric units for environmental, supply chain and other calculations.

Vessel view of port operations



Reduced port stay time reduces environmental impacts in port and at sea.

Total visit –from arrival at pilot station to pilot drop (or more)

Planning, communications and cooperation are key.

Port and terminal performance plays a major role in vessel environmental impact.

- Why?
 - Product guarantee
 - Customer satisfaction
 - Asset optimisation
 - Reduction of **WASTE**
 - Waste in the supply chain has a direct negative impact on the environment
- Efficiency reduces wasted time and resources at dock
- Shore-side infrastructure is a critical part in efficient movement and environmental impact.



Measurement and transparency are critical to environmental progress.

Standard methods exist to report environmental impacts of shipping.
The best-accepted is BSR's Clean Cargo Working Group (CCWG).

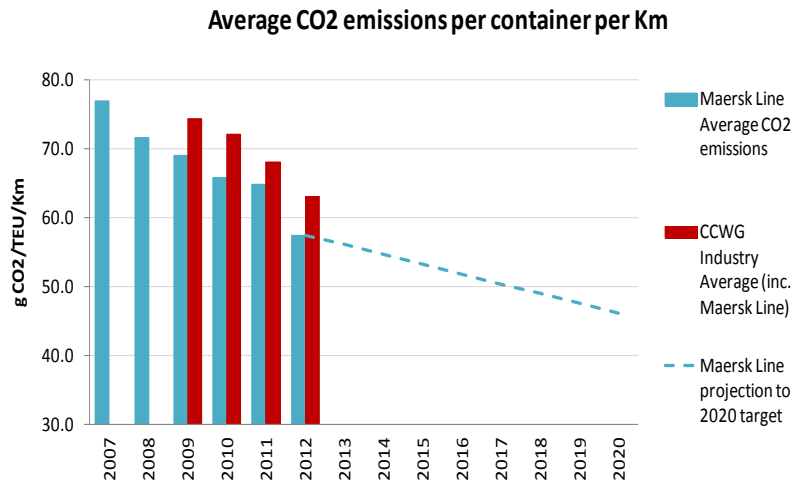


- CCWG members carry >60% of containers shipped globally
- Annual Environmental Data Collection
- Standardized CO₂ analysis
 - Third party verification
 - Publish trade lane averages.

<http://www.bsr.org/en/our-work/working-groups/clean-cargo>

Vessels are increasingly fuel efficient.

This reduces fuel use, CO₂ and other air emissions.



verified by:



Key Initiatives

- Triple E vessels launching summer 2013
- Steady steaming – slower average speeds plus just-in-time practices
- Eco-Retrofitting owned & charter vessels
- Network planning and execution
- Fleet additions and cascading

Focus on energy efficiency for sustained performance

- ➔ Maersk Line reduced air emissions 25% per container from 2007 to 2012.
- ➔ CO₂ reduction goal was raised to 40% by 2020.



Cleaner fuel reduces toxic air emissions in ports.

Voluntary programs end in 2015 when the ECA requires 0.1%S

US & Canada:

- Over 3100 port calls in North America since 2006
- Fuel is <0.1%S MGO (vs. 2.5%S bunker or 1.0% ECA fuel)
- Reduced over 5300 MT of emissions:

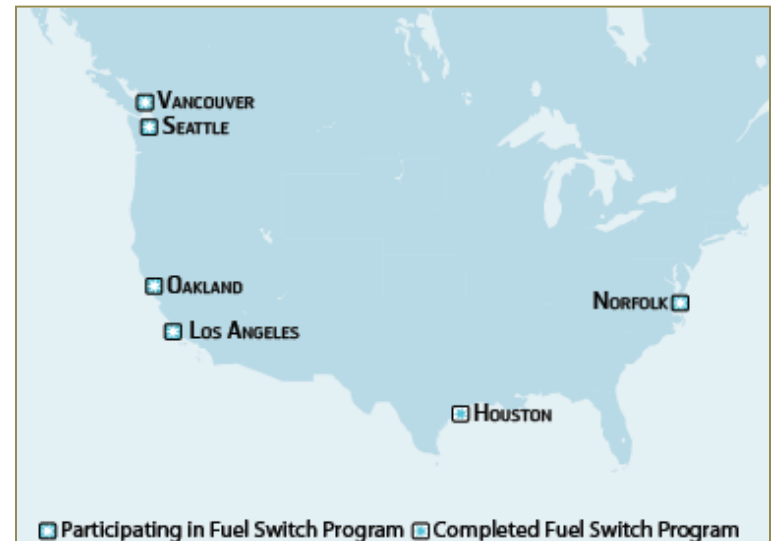
SOx		90-95%
Particles (PM)	80-86%	
NOx		6-10%

Other Maersk Line fuel initiatives:

- Hong Kong since 9/2010
- Singapore since 7/2011
- Gothenburg Sweden since 1/2012

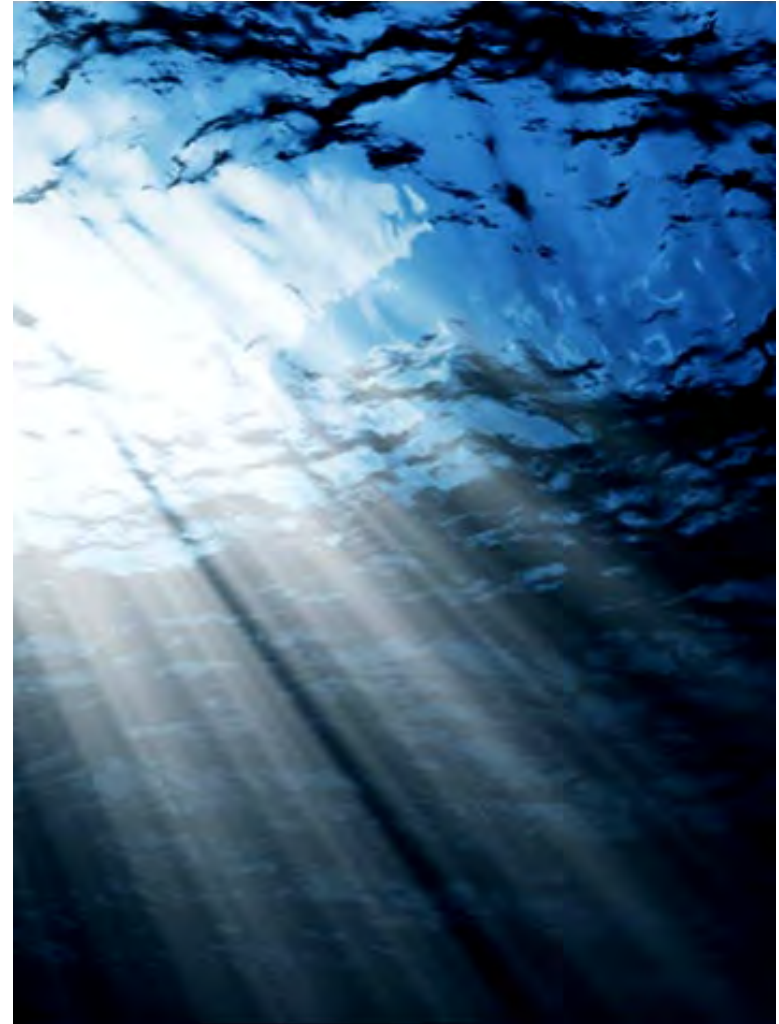


First port call with MGO fuel: Maersk McKinney Moller and Sine Maersk in LA 3/31/2006.



What challenges delay port environmental improvements today?

1. Communication is sporadic
2. Lacking a common framework, language and metrics
3. Many individual initiatives that create confusion
4. Need for stronger alignment between ports, terminals and lines on environmental programs and objectives.
5. Limited mechanism for input by other stakeholders.



How can port stakeholders work together to accelerate progress?

- **Industry wants to reduce our impact**
 - **Limited resources**
 - **Cannot pass costs to shippers**
- **Make it easy**
- **Help level the playing field:**
 - **Incentives do work**
 - **Coordinate voluntary and mandatory programs**
- **Consider what each party can provide**

Specifics that help

- **Build on international standards**
- **Minimize administrative burden**
 - **Verify efficiently**
 - **Consider the goals**
- **Set goals in terms of environmental outcomes**
- **Promote innovation, efficiency and operational flexibility**

Thank you





Thomas Ward
Chief Engineer
Ports America

Maritime and the Ports Commerce, Operations & Sustainability

Thomas Ward, PE, SE, D.PE

Chief Engineer

Ports America



Ports America



Terminal operations, stevedoring, labor management, maintenance, health & safety, information technology, design, construction, equipment procurement, and innovation: **comprehensive service.**

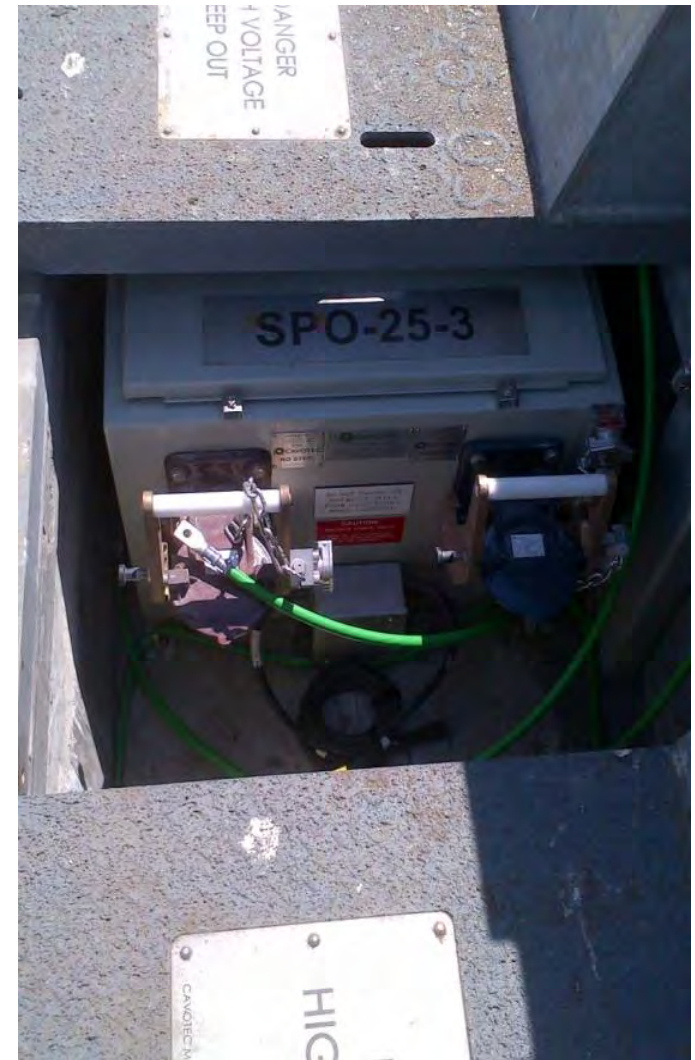
The Broad View

- Ports America:
 - Hires waterfront labor to...
 - Unload and load ships and...
 - Unload and load trucks and trains while...
 - Maintaining equipment with high availability and...
 - Minimizing consumables so as to...
 - Sustain a decent margin on expense and...
 - Invest to augment gross and net revenue
- 12M TEUs, 8M tons breakbulk, 1M Pax, 2.5M RO/RO;
12,000 workers at 80 port facilities
- **Safety** is our dominant environmental driver
- We are on the **front line** of environmental protection



Environmental Initiatives

- Night gates – reduce highway traffic
- On-dock intermodal – reduce truck traffic
- Tier IV engines – reduce diesel particulates
- Alternative fuels – reduce carbon footprint
- Hybrids – reduce fuel consumption
- Plasma lighting – reduce light pollution, energy
- **Shore power** – eliminate vessel pollution at dock
- Regenerative power – reduce energy demand
- Surface runoff control – reduce water pollution
- Truck idling – reduce emissions



Common Ground with Unique Facilities

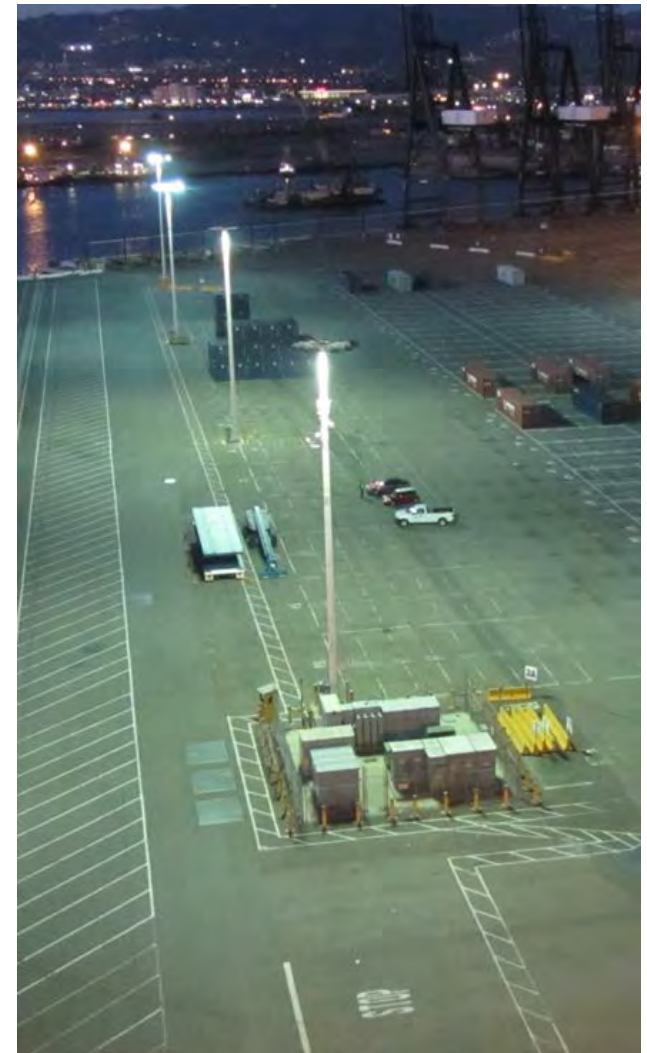
- “If you’ve seen one marine terminal, you’ve seen one marine terminal”
- Despite the differences, we have common drivers:
 - Diesel engines, bright lights, surface runoff, noisy operations, street traffic
- As such, individual solutions at one terminal can be adapted to another terminal
 - Tier IV, new lights, drainage vaults, driver-assist technology, flexible operating hours
- Economics vary, so funding is very uneven
- Complex labor and commerce drive incrementalism

Environment and Safety

- Safety is our dominant environmental driver
- Longshore work is dangerous work
- Dynamic impact is our dominant safety problem
 - Trips, falls, jostles, thumps, crushes
- All decisions revolve around safety – we must send our workers home safe at the end of the day
- Improving the “environment” and safety are not naturally consistent – special care is needed
- New lighting technology is one of the first truly “sustainable” advances we’ve seen

Environment and Safety

- Night gates – more work in the dark
- On-dock intermodal rail – workers on rail cars
- Tier IV engines – more maintenance
- Alternative fuels – more fueling, more volatility
- Hybrids – greater vehicle weight
- **Plasma lighting** – *this one's a winner*
- Shore power – high voltage line handling
- Regenerative power – substation protection
- Surface runoff control – sometimes they flood
- Truck idling – failure to restart causes chaos

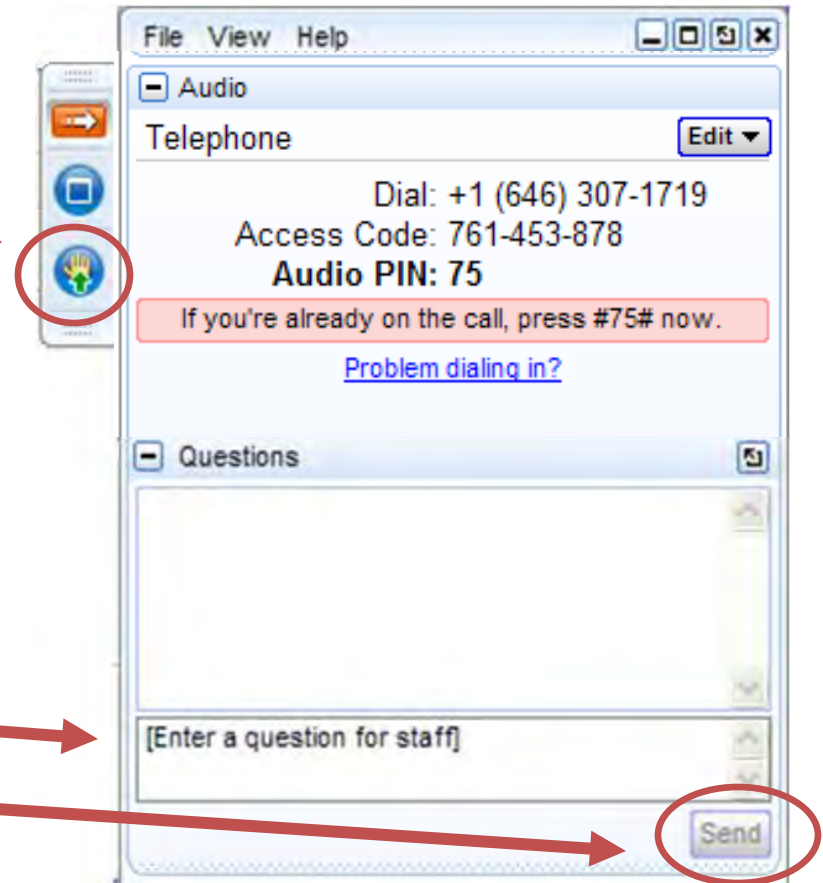


Q&A Participation Instructions

By default, you are in listen-only mode (muted).

If you would like to verbally ask a question or comment during the Q&A session, click the ***raised hand button***. We will unmute your phone line and announce your name when it is your turn to speak. ****Please make sure your phone is unmuted on your end.***

You may also submit a question by typing into the ***Enter a question for staff box*** and click the ***Send button***. Staff will read and answer these questions as time allows.



Questions and Answers

- Raise your hand to speak
- Please state your name and company/organization
- To allow others an opportunity to speak please limit responses to 60 seconds



Karl Simon
Director, Transportation and Climate Division
U.S. Environmental Protection Agency

Follow Up

Please join us—

Our next national conversation on the state of US ports is scheduled for Nov. 19th and will focus on “Goods Movement and Ports: Community Impacts & Collaborative Solutions”

Please send any additional questions to TalkAboutPorts@epa.gov