A National Conversation on the State of US Ports

Advancing Solutions to Support More Sustainable Ports

Tuesday, March 4, 2014
Webinar Agenda

• Webinar Format and Housekeeping
• Welcome & Opening Remarks
• Building a Toolkit for Sustainable Ports: A Case Study Approach to Evaluating Existing Tools
• Open Floor/Questions and Answers
• Concluding Remarks
Welcome & Opening Remarks:
Dennis McLerran
Regional Administrator
U.S. Environmental Protection Agency
Region 10
Heather L. Wood, Vice President
Government Affairs
Virginia Port Authority
Building a Toolkit for Sustainable Ports

Advancing Solutions to Support More Sustainable Ports

Heather Wood
Vice President, Government Affairs
Virginia Port Authority
The Port of Virginia has long implemented programs and initiatives at its terminals that seek to lower emissions and improve air quality.
Inventory Purpose

- To monitor and document emissions contribution of port activities to the overall Hampton Roads Ozone Attainment / Maintenance Area.
- To identify mitigation strategies for further study.

*Figure 2-1: Hampton Roads Ozone Attainment/Maintenance Area (Shown in Green)*
Scope

- Analysis of VPA terminals
- Pollutants from each source within terminals
  - Ocean-going vessels (OGV), by type
  - Ship assist tugs known as harbor craft (HC)
  - Cargo handling equipment (CHE)
  - Rail locomotives (RL)
  - On-road heavy duty vehicles (HDV)
- Emission levels of pollutants in each source
  - Carbon Monoxide, Carbon Dioxide Equivalent, GHG, Oxides of Nitrogen, Hydrocarbons, Sulfur Dioxide, Particulate Matter 10, Particulate Matter 2.5
Model Methodology

- Consistent with EPA best practices for mobile sources
- Emissions levels calculated using integrated terminal capacity model to assess activity and operational efficiency levels based on VPA cargo throughput
- The model uses MOVES 2010b
  - EPA’s new emissions analysis software
  - Also uses actual engine specifications, fuel type, operating hours for each mode, and time in operational element.
Project Approach

- Calculate baseline activity levels, future activity levels and resulting emissions by source
- Use latest vessel & equipment type operational data
  - Engine specifications
  - Ship call & truck trip data
  - Time in mode calculations (idle, maneuvering, hoteling, etc.)
  - Hours of operation
  - Truck path data
  - Load factors
  - Emission factors
Results

- Reduced emissions of all pollutants in all modes, with increased cargo, since 2008
  - $\text{NO}_x = -26\%$
  - HC: -20\%
  - PM 2.5 & 10 = -56\%
  - $\text{SO}_2 = -59\%$
  - CO = -38\%
  - $\text{CO}_2 = -18\%$

- Due to:
  - Newer, cleaner engines
  - Policies to upgrade engines & exhaust systems
  - Policies requiring low sulfur fuels
  - Reduced truck trips due to APMT on-dock rail
  - Updated EPA software for over-the-road vehicles
Forecasts

- Used cargo growth forecast of 2040 Master Plan
  - APMT & NIT: 5% - 7% annual container growth
  - NNMT: steady container growth
  - PMT: excluded

- Forecasted reductions of all pollutants in all modes through 2021:
  - \( \text{NO}_x = -24\% \)
  - \( \text{HC} = -27\% \)
  - \( \text{PM} 2.5 \) & \( 10 = -61\% \)
  - \( \text{SO}_2 = -92\% \)
  - \( \text{CO} = -34\% \)
  - \( \text{CO}_2 = -9.3\% \)
Forecasts

Forecasted reductions due to:

- Wider and earlier adoption of low sulfur fuels
- Fleet turn-over to cleaner engines
- Increasing ship loading and discharge rates
- Greater use of hybrid & electric equipment
- Funding of Capture Fleet Engine Replacement
- Higher use of Rail & Barge Operations.
- Coordinated port / operator data collection
  - Gate Automation / Appointment Systems
  - Container Stack Automation
Case Studies

- James River Barge Line
- Maersk Low Sulfur Fuel Use
- Port of Virginia Green Operator (GO) Program
- Straddle Carrier vs. RMG Terminal Operations
- Ocean Going Vessel Baltimore Transit
- Locomotive Replacement
Elena Craft, Phd, Health Scientist
Environmental Defense Fund
National Conversation on Ports with Port Stakeholders

Advancing Solutions to Support More Sustainable Ports

Elena Craft, PhD
Health Scientist
March 4, 2014
Port growth in the US

- Ports in the US collectively handle more than 40 million TEUs per year

Data Source: Port Authority of Hamburg

Containership traffic in the US
Record Setting Growth
Freight Emissions Growing Domestically

Emissions Growth (2009 - 2035)
Million Metric Tons CO2e
Counties With Monitors Violating Primary 8-hour Ground-level Ozone Standards
0.060 - 0.070 parts per million
(Based on 2006 – 2008 Air Quality Data)
EPA will not designate areas as nonattainment on these data, but likely on 2008 – 2010 data which are expected to show improved air quality.

Notes:
1. No monitored counties outside the continental U.S. violate.
2. EPA is proposing to determine compliance with a revised primary ozone standard by rounding the 3-year average to three decimal places.
Absolute Improvement in PM2.5 concentrations by 2020 due to emission control areas
Cleaning-up Hot Spots: Port Initiatives

- Tugs
- Ships
- Rail
- Trucks
- Cargo handling equipment
## Comparison of drayage truck standards adopted at US Ports

<table>
<thead>
<tr>
<th>Model Year</th>
<th>LA/LB</th>
<th>CARB</th>
<th>SEA/TAC</th>
<th>OAKLAND</th>
<th>NY/NJ</th>
<th>HOUSTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-2003</td>
<td>RETROFIT BY JAN 2010</td>
<td>RETROFIT BY JAN 2010</td>
<td>BANNED JAN 2018</td>
<td>RETROFIT BY JAN 2010</td>
<td>BANNED JAN 2017</td>
<td>-</td>
</tr>
<tr>
<td>2004-2006</td>
<td>BANNED JAN 2012</td>
<td>RETROFIT BY JAN 2012</td>
<td>BANNED JAN 2018</td>
<td>RETROFIT BY JAN 2012</td>
<td>BANNED JAN 2017</td>
<td>-</td>
</tr>
</tbody>
</table>
FOR IMMEDIATE RELEASE

EDF Contact: Mica Odom, (512) 691-3451 or modom@edf.org
CRT Contact: James Jack, (916) 813-0839 or execdir@responsibletrans.org

Groups Launch National EPA SmartWay Drayage Program

Public-Private Partnership to Reduce Diesel Truck Emissions at U.S. Ports

June 28, 2011 (Charleston, SC) - The Coalition for Responsible Transportation (CRT), Environmental Defense Fund (EDF), and U.S. Environmental Protection Agency (EPA) today announced the launch of the EPA SmartWay Drayage Program, a new goods movement initiative designed to clean up the air in and around our nation’s ports. The announcement came at a press conference held earlier today at the Port of Charleston, S.C.
REQUEST FOR PROPOSAL (RFP)

ENVIRONMENTAL RECOGNITION PROGRAM FOR PORTS

ENVIRONMENTAL DEFENSE FUND
301 CONGRESS AVE SUITE 1300
AUSTIN, TX 78701

PROPOSALS DUE: AUGUST 2, 2013
Identify Environmental Performance Metrics

• Potential environmental performance metrics
  - Metrics: quantitative and/or qualitative
  - Based on the program review and the results of stakeholder outreach

• No one-size-fits-all
  - Ownership structure
  - Geographical distribution
  - Variation in ship traffic

• Stakeholder engagement
Framework and Administration

• Establish effective framework
  - Criteria that will form the basis for recommendations for recognition levels
  - Draft guidelines for implementation of green programs in ports
  - Recommendations for branding/ recognition for the program, promotion and marketing

• Administration
  - Identify potential administrators for the recognition program.
  - Identify strategies for program implementation based on strengths of potential administrators.
Next Steps

- Final Report of Program Recommendations
- EPA’s National Port Stakeholders Summit
- Engage Stakeholders on Effort
- Work with EPA and other stakeholders on Recognition Program
Elena Craft, PhD
ecraft@edf.org
512-691-3452
Rose Siengsubcharti, Program Manager
San Pedro Bay Port’s Clean Air Action Plan (CAAP)
Technology Advancement Program (TAP)
Port of Long Beach
Technology Advancement Program

Rose Siengsubcharti
Environmental Specialist
EPA Port Stakeholder Webinar
March 2014
The San Pedro Bay Ports
2012 POLB/POLA NOx and DPM Emissions

- SHIPS: 54%
- HARBOR CRAFT: 11%
- CARGO HANDLING EQUIPMENT: 10%
- TRAINS: 10%
- TRUCKS: 16%

- SHIPS: 52%
- HARBOR CRAFT: 16%
- CARGO HANDLING EQUIPMENT: 9%
- TRAINS: 15%
- TRUCKS: 7%
Community Health
Clean Air Action Plan

San Pedro Bay Ports Clean Air Action Plan
2010 Update

The Port of Long Beach
Clean Trucks Program

The Port of Long Beach
Green Ship Award Program
Fact Sheet

The Port of Long Beach
The Green Port

www.tdock.com
Technology Advancement Program (TAP)
TAP Objectives

• Encourage technology innovation
• Show that the technology works
• Get the technology verified and approved for sale in the marketplace
• Improve emissions reductions
• Reach our stated goals and strive for an emissions-free port
TAP Implementation

- Budget
- Unsolicited Proposals
- Proposal Evaluation
- Match Requirement
- Partnership with Port Terminal Operator, Shipping Lines, Licensed Motor Carrier, Harbor Craft Company
- Technology Verification or Certification
TAP Advisory Committee

The Port of LONG BEACH

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AQMD

THE PORT OF LOS ANGELES

California Environmental Protection Agency

Air Resources Board
## Emission Control Technologies

<table>
<thead>
<tr>
<th>DEMONSTRATION PROJECT</th>
<th>SOURCE CATEGORY</th>
<th>TOTAL PROJECT COST</th>
<th>TAP FUNDING</th>
<th>AGENCY FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEAWATER SCRUBBER</td>
<td>SHIPS</td>
<td>$3,390,000.00</td>
<td>$1,650,000.00</td>
<td>NA</td>
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<tr>
<td>FUEL SLIDE VALVE</td>
<td>SHIPS</td>
<td>$1,300,000.00</td>
<td>$45,000.00</td>
<td>$783,628.00</td>
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<tr>
<td>DIESEL PARTICULATE FILTER</td>
<td>TRAINS</td>
<td>$692,356.00</td>
<td>$150,000.00</td>
<td>$346,178.00</td>
</tr>
<tr>
<td>SOCK ON A STACK</td>
<td>SHIPS</td>
<td>$603,211.00</td>
<td>$299,054.00</td>
<td>$55,000.00</td>
</tr>
<tr>
<td>DIESEL PARTICULATE FILTER</td>
<td>HARBOR CRAFT</td>
<td>$531,308.00</td>
<td>$265,654.00</td>
<td>NA</td>
</tr>
<tr>
<td>DIESEL PARTICULATE FILTER</td>
<td>CARGO HANDLING EQUIPMENT (CRANE)</td>
<td>$322,140.00</td>
<td>$64,668.42</td>
<td>NA</td>
</tr>
<tr>
<td>FUEL SLIDE VALVE (FOLLOW-UP)</td>
<td>SHIPS</td>
<td>PORTS PROJECT</td>
<td>$216,000.00</td>
<td>NA</td>
</tr>
</tbody>
</table>
## Alternative Engine and Fuel Technologies

<table>
<thead>
<tr>
<th>DEMONSTRATION PROJECT</th>
<th>SOURCE CATEGORY</th>
<th>TOTAL PROJECT COST</th>
<th>TAP FUNDING</th>
<th>AGENCY FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNG ENGINE CERTIFICATION</td>
<td>TRUCKS</td>
<td>$9,894,027.00</td>
<td>$500,000.00</td>
<td>$1,750,000.00</td>
</tr>
<tr>
<td>LNG YARD TRACTOR</td>
<td>CARGO HANDLING EQUIPMENT (YARD TRACTOR)</td>
<td>$425,000.00</td>
<td>$350,000.00</td>
<td>$75,000.00</td>
</tr>
<tr>
<td>CNG TRUCK</td>
<td>TRUCKS</td>
<td>IN-KIND</td>
<td>$223,155.00</td>
<td>$421,250.00</td>
</tr>
<tr>
<td>EMULSIFIED BIODIESEL FUEL</td>
<td>CARGO HANDLING EQUIPMENT (TOP HANDLERS)</td>
<td>$132,000.00</td>
<td>$88,000.00</td>
<td>NA</td>
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</table>
## Hybrid Technologies

<table>
<thead>
<tr>
<th>DEMONSTRATION PROJECT</th>
<th>SOURCE CATEGORY</th>
<th>TOTAL PROJECT COST</th>
<th>TAP FUNDING</th>
<th>AGENCY FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYBRID TUGBOAT</td>
<td>HARBOR CRAFT</td>
<td>$8,000,000.00</td>
<td>$1,389,920</td>
<td>NA</td>
</tr>
<tr>
<td>HYBRID YARD TRACTOR</td>
<td>CARGO HANDLING EQUIPMENT (YARD TRACTOR)</td>
<td>$1,200,00.00</td>
<td>$600,00.00</td>
<td>$300,000.00</td>
</tr>
<tr>
<td>HYBRID CRANE</td>
<td>CARGO HANDLING EQUIPMENT (RTG CRANE)</td>
<td>$169,870.00</td>
<td>$84,935.00</td>
<td>$130,130.00</td>
</tr>
<tr>
<td>PLUG-IN HYBRID YARD TRACTOR</td>
<td>CARGO HANDLING EQUIPMENT (YARD TRACTOR)</td>
<td>IN-KIND</td>
<td>$61,500</td>
<td>NA</td>
</tr>
<tr>
<td>ENERGY STORAGE</td>
<td>CARGO HANDLING EQUIPMENT (RTG CRANE)</td>
<td>PORTS PROJECT</td>
<td>$23,000.00</td>
<td>$8,000.00</td>
</tr>
<tr>
<td>HYBRID YARD TRACTOR (FOLLOW-UP)</td>
<td>CARGO HANDLING EQUIPMENT (YARD TRACTOR)</td>
<td>PORTS PROJECT</td>
<td>$26,000.00</td>
<td>NA</td>
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## Zero Emission Technologies

<table>
<thead>
<tr>
<th>Demonstration Project</th>
<th>Source Category</th>
<th>Total Project Cost</th>
<th>TAP Funding</th>
<th>Agency Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-Electric Yard Tractor (Lead Acid Batteries)</td>
<td>Cargo Handling Equipment (Yard Tractor)</td>
<td>PORT PROJECT $263,500.00</td>
<td>$263,500.00</td>
<td>$263,500.00</td>
</tr>
<tr>
<td>All-Electric Yard Tractor (Lithium Ion Batteries)</td>
<td>Cargo Handling Equipment (Yard Tractor)</td>
<td>$940,000.00</td>
<td>$400,000.00</td>
<td>NA</td>
</tr>
<tr>
<td>All-Electric On-Road Trucks (New)</td>
<td>Trucks</td>
<td>$4,429,421.00</td>
<td>$300,000.00</td>
<td>$3,488,801.00</td>
</tr>
</tbody>
</table>
Updates on Port Technologies

- Foss Maritime’s Hybrid Tug Retrofit Project
- EPA DERA Funded Technologies
- Port Shorepower Progress
- Port At-Berth Technologies
Looking Ahead

- Seek zero emission technologies
- Focus technology projects on ship applications
- Monitor for federal and state grant opportunities
- Partner with air agencies on projects
For more information on current and past technology projects, access the following link:

http://www.cleanairactionplan.org/programs/tap/techdemos.asp
Ports Technologies Contacts

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Beth Carper
Air Resources Specialist
Puget Sound Clean Air Agency

Stephanie Jones-Stebbins, Director
Seaport Environmental and Planning Programs
Port of Seattle
Strategic Plans for Sustainable Ports: The Northwest Ports Clean Air Strategy Experience

Stephanie Jones Stebbins, Port of Seattle
Beth Carper, Puget Sound Clean Air Agency
What We Will Share Today

• Background: Initial Strategy and 2013 update
• Emission-reduction goals and performance measures
• Performance targets, by sector and lessons learned
• The big picture lessons learned
Northwest Ports Clean Air Strategy: What is it?

- Three-port, international collaboration focused on reducing diesel particulate matter and greenhouse gases
- Sets clear, measurable short-term and long-term targets for:
  - Ocean-going vessels (OGV)
  - Harbor vessels
  - Rail
  - Cargo handling equipment (CHE)
  - Trucks
  - Port administration
- Pilot Projects
Strategy Partners

• Port of Seattle
• Port of Tacoma
• Port Metro Vancouver (BC)
• US Environmental Protection Agency
• Washington State Department of Ecology
• Puget Sound Clean Air Agency
• Environment Canada
• Metro Vancouver, BC
Strategy’s Geographic Reach
Summary of Approach

- 2005 Emissions Inventory measuring maritime air quality & sources
- 2008 NW Ports Clean Air Strategy
- 2010 and 2011 Emission Inventory Updates
- 2013 Northwest Ports Clean Air Strategy Update
Port of Seattle Airshed’s 2005–2011 Emission Reductions (Similar Results for POT)
Port-Related DPM and GHG Emissions by Sector, from the Three Ports, 2010/2011

**DPM**
- OGVs: 78%
- Rail: 9%
- Harbor vessels: 4%
- CHE: 5%
- Trucks: 5%

**GHGs**
- OGVs: 46%
- Rail: 13%
- Trucks: 28%
- Harbor vessels: 5%
- CHE: 7%
Northwest Ports Clean Air Strategy: 2013 Update

- The 2013 Strategy update reflects results of the 2011 Emissions Inventory
- Set DPM and GHG goals
- Established actions and performance targets by sector for 2015 and 2020
- Proposed pilot studies and demonstration projects
- Encouraged 3rd-party certification programs
### 2013 Strategy Update’s Emission-Reduction Goals (from 2005 Baseline)

<table>
<thead>
<tr>
<th>Targeted Emissions</th>
<th>2015 Goals</th>
<th>2020 Goals</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel particulate matter</td>
<td>75% reduction</td>
<td>80% reduction</td>
<td>Emissions per ton of cargo</td>
</tr>
<tr>
<td>Greenhouse gases</td>
<td>10% reduction</td>
<td>15% reduction</td>
<td>Emissions per ton of cargo</td>
</tr>
</tbody>
</table>
Performance Measurement

Annually:

• Publish a progress report on status of meeting actions & targets

Every 5 years:

• Conduct an emissions inventory to track status of meeting emission reduction goals
## Targets for Ocean-Going Vessels

<table>
<thead>
<tr>
<th>Actions</th>
<th>2015 Targets</th>
<th>2020 Targets</th>
<th>Reduces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vessels surpass Emission Control Area (ECA) requirements</strong></td>
<td>Early compliance with 2015 ECA 0.1% fuel-sulfur level (or equivalent) while hoteling before Jan 1, 2015</td>
<td>Ports track number of vessels improvements (Tier 3 marine engines, cleaner fuel, shorepower, &amp; other emission-reduction technologies)</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Ports &amp; carriers join port-designed or 3rd-party certification programs promoting continuous improvement</strong></td>
<td>Ports and 10% of vessel calls</td>
<td>Ports and 40% of vessel calls</td>
<td>✓</td>
</tr>
</tbody>
</table>
Lessons Learned: OGV

- Largest contributor to airshed
- ECA will provide significant reductions
- POS’s At-Berth Clean Fuels program incentivizes lower-sulfur fuel before ECA mandates
- LNG and Shore-power have potential reductions in DPM emissions but are more complex and expensive projects
## Targets for Harbor Vessels

<table>
<thead>
<tr>
<th>Actions</th>
<th>2015 Targets</th>
<th>2020 Targets</th>
<th>Reduces (DPM, GHG)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy Partners (S.P) conduct annual outreach to port-related harbor vessel companies &amp; recognize best practices and engine upgrades</strong></td>
<td>S.P. conduct outreach &amp; 50% of harbor vessel companies report best practices and engine upgrades</td>
<td>S.P. conduct outreach &amp; 90% of harbor vessel companies report best practices and engine upgrades</td>
<td>✓ ✓</td>
</tr>
<tr>
<td><strong>Ports &amp; harbor vessels join port-designed or 3rd-party certification programs that promote continuous improvement</strong></td>
<td>Ports and 10% of harbor vessels</td>
<td>Ports and 40% of harbor vessels</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>
Lessons Learned: Harbor Vessels

• Engine replacements
  – Most common and successful projects
  – Expensive
  – Require grants unless existing engine fails

• Most vessel owners are not used to grant restrictions
  – Competitive bid process
  – Scrapping old engines

• Require strict oversight to meet grant deadlines
## Targets for Locomotives

<table>
<thead>
<tr>
<th>Actions</th>
<th>2015 Targets</th>
<th>2020 Targets</th>
<th>Reduces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switcher locomotive owners/operators participate in a fuel-efficiency</td>
<td>100% owners/operators institute a program</td>
<td>100% owners/operators achieve performance objectives of chosen program</td>
<td>✓</td>
</tr>
<tr>
<td>program</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Switcher locomotive operators upgrade or replace unregulated engines</td>
<td>10% of unregulated locomotive engines</td>
<td>20% of unregulated locomotive engines</td>
<td>✓</td>
</tr>
<tr>
<td>(engine replacements Tier2 or better)</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Lessons Learned: Locomotives

• Engine replacements
  – Like harbor vessels, most successful projects and most expensive.
  – Stronger resistance to projects, with or without grants

• Anti-idling technology for locomotives:
  – Installed on most locomotives in our region (on new engines or as retrofits)
  – Some grants covered 50 to 100% of initial costs
  – Incredible fuel savings—rail companies miss out if they don’t invest in it
## Targets for Cargo-Handling Equipment

<table>
<thead>
<tr>
<th>Actions</th>
<th>2015 Targets</th>
<th>2020 Targets</th>
<th>Reduces DPM</th>
<th>Reduces GHG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHE meets Tier 4 interim (T4i) emission standards or equivalent</strong></td>
<td>50% of equipment</td>
<td>80% of equipment</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Ports &amp; terminals have fuel-efficiency plans in place that promote continuous improvement</strong></td>
<td>Ports and 50% of terminals</td>
<td>Ports and 100% of terminals</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Lessons Learned: Cargo-Handling Equipment

• DPF retrofits
  – Pre- and post-installation training improves chance of success
  – Require significant follow up support
  – Work well *if terminal is invested in proactively maintaining their equipment*

• Idle-reduction retrofits
  – If programmed correctly, provide fuel savings and warm starts with fewer emissions
  – Co-benefits include: better battery life and fewer maintenance issues
## Targets for Trucks

<table>
<thead>
<tr>
<th>Actions</th>
<th>2015 Targets</th>
<th>2020 Targets</th>
<th>Reduces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trucks meet or surpass EPA emission standards for model year 2007</td>
<td>100% of trucks by the end of 2017</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Ports, terminals, and trucks have fuel-efficiency plans in place that promote continuous improvement</td>
<td>Ports</td>
<td>Ports, terminals, and 50% of trucks</td>
<td>✓</td>
</tr>
</tbody>
</table>
Lessons Learned: Trucks

• Incentivized scrap and replace programs are the best option for Pacific Northwest
  – Owner/operators don’t have significant capital to buy replacements
  – Programs require significant administrative resources
  – Funding sources to-date have included Ports, state environmental agencies, and CMAQ; DERA also an option

• Effective retrofits are not available at the low temperatures and high horse power
<table>
<thead>
<tr>
<th>Actions</th>
<th>2015 Targets</th>
<th>2020 Targets</th>
<th>Reduces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ports own and operate cleaner vehicles/ equipment &amp;</strong></td>
<td><strong>Ports report use of cleaner vehicles and equipment</strong> and other relevant information</td>
<td><strong>Ports increase use of cleaner vehicles and equipment</strong></td>
<td>✔️</td>
</tr>
<tr>
<td><strong>have fuel-use reduction plans promoting continuous improvement</strong></td>
<td></td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Ports apply clean construction standards to engines used on port-led</strong></td>
<td><strong>Ports adopt clean construction practices for port-led projects, &amp; enact a plan for Tier 2 engine emission reqts.</strong></td>
<td><strong>Ports continue to apply clean construct. practices for port-led projects, &amp; enact a plan for Tier 4 engine emission reqts.</strong></td>
<td>✔️</td>
</tr>
<tr>
<td>construction projects</td>
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<td><strong>Ports facilitate energy studies and conservation projects at port-owned</strong></td>
<td><strong>Each port conducts 3 energy studies</strong></td>
<td><strong>Each port completes 3 energy conservation projects</strong></td>
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<td>and/or tenant facilities</td>
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• Each port will evaluate or engage in at least one pilot study or demonstration project per year
• Port currently partnering with Puget Sound Clean Air Agency on CNG-conversion pilot for dray trucks
Lessons Learned: Overall

• Collaboration:
  – Getting three ports to agree on goals is challenging, but unifying once accomplished
  – Successful collaboration lays a foundation for more ambitious goals
  – International port collaboration is even more difficult due to differing regulatory structures

• Politics:
  – Sometimes the largest-emitting sector isn’t the one to which the public, and thus leaders, pay the most attention
  – Incentivizing voluntary actions usually takes money; having a multi-port strategy helps with grant applications and helps leaders commit funds
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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
Follow Up

Please join us—

National Port Stakeholders Summit
Hilton Baltimore
Baltimore, Maryland
Tuesday, April 8, 2014

Hosted by the EPA’s Office of Transportation and Air Quality, this Summit will bring together leaders from industry, government, community groups, and others with a shared interest in promoting healthy air at and around ports. The goal is to advance strategies that support more sustainable ports while encouraging economic growth.

Find out how to register for the National Summit and about EPA’s Ports Initiative at: www.epa.gov/otaq/ports

Please contact us at talkaboutports@epa.gov to ask a question or to submit a comment