

Seaports and Greenhouse Gases

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Seaports – A Primer

- Public entities
 - Governance structure different at every port
 - Elected or appointed Boards/Commissions
- Landlord vs. Operator
- Diverse operations
 - Cargo (container & breakbulk)
 - Cruise
 - Recreational and commercial moorage
 - Commercial real estate
 - Airports

Concerns About Climate Change

- Sea level rise
 - Inundation of facilities
 - Ships stacked 6 high being unable to fit underneath cranes during high tide
- Increased storm events
 - May damage terminal infrastructure
- Supply chain disruption
 - Ports in Asia may feel impacts of sea level rise before ports in North America
 - Possible routing changes as a result of storm events

Understanding our Carbon Footprints

- Emission inventories
 - 2005 Puget Sound Maritime Air Emissions Inventory first to include GHGs
- Industry-led efforts
 - Business for Social Responsibility Clean Cargo Working Group
- Supply chain analyses
 - Port of Seattle “Carbon Footprint Study for the Asia to North America Intermodal Trade” (Herbert Engineering, May 2009)

World Ports Climate Initiative



- Outgrowth of the Clinton Climate Initiative
C40 Cities
- C40 World Ports Climate Conference
 - Rotterdam, July 2008
 - 55 ports signed the World Ports Climate Declaration
- Administered by the International Association of Ports and Harbors (IAPH)

WPCI Mission Statement



- Raise awareness in the port and maritime community about the need for action
- Initiate studies, strategies, and actions to reduce GHG emissions and improve air quality
- Provide a platform for the maritime and port sector for the exchange of information
- Make available information on the effects of climate change on the maritime port environment and measures for its mitigation

WPCI Symposium



- Hosted by Port of Los Angeles, Nov. 2008
- Focus areas
 - IAPH Toolbox expansion (*Los Angeles*)
 - Intermodal transport (*Amsterdam*)
 - Cargo-handling equipment (*New York/New Jersey*)
 - On-shore power supply (*Gothenburg*)
 - Environmental ship index (*Rotterdam*)
 - Lease agreement template (*Montreal*)
 - **Carbon footprinting (*Los Angeles*)**

International Collaboration Carbon Footprinting Team



THE PORT AUTHORITY OF NY & NJ



Goal

Create a living, user-friendly document that ports and their tenants and customers can use, regardless of carbon footprinting experience



✘ Port of Amsterdam



THE PORT AUTHORITY OF NY & NJ



PORT OF OAKLAND



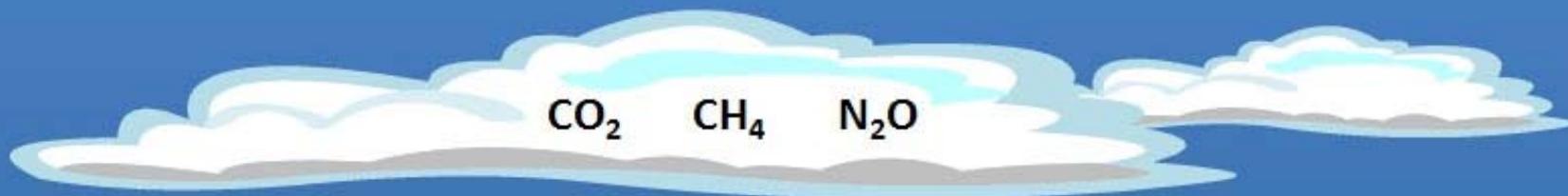
CARBON FOOTPRINTING FOR PORTS

GUIDANCE DOCUMENT
DRAFT



Prepared by:
Carbon Footprint Working Group
World Ports Climate Initiative
Port of Los Angeles, Lead Port

Port-Related GHG Source Category Scopes



SCOPE 1
Port Direct

SCOPE 3
Port Tenants
Indirect

SCOPE 2
Port Indirect



Port-Owned Fleet Vehicles,
Buildings



Ships, Trucks, Cargo Handling Equipment, Rail,
Harbor Craft, Buildings, and Purchased Electricity

Guidance Document

Overview

- Types of emission inventories
 - Activity-based
 - Surrogate
 - Hybrid
- Frameworks
 - Policy
 - Technical
 - Existing reporting
 - Emission estimation methods

- Mobile Sources:
 - Cargo-handling equipment
 - Trucks
 - Locomotives
 - Harbor craft
 - Inland waterway vessels
 - Ocean-going vessels
 - Construction equipment
- Stationary Sources

Guidance Document

Comparing Footprints

- Variables to consider:
 - Geographical boundary
 - Date (time period of inventory)
 - Method/approaches taken
 - Emission factors and defaults
 - Level of data resolution and quality
 - Type of port operations
 - Source categories
- Data may have to be normalized to meaningfully compare inventories

Guidance Document

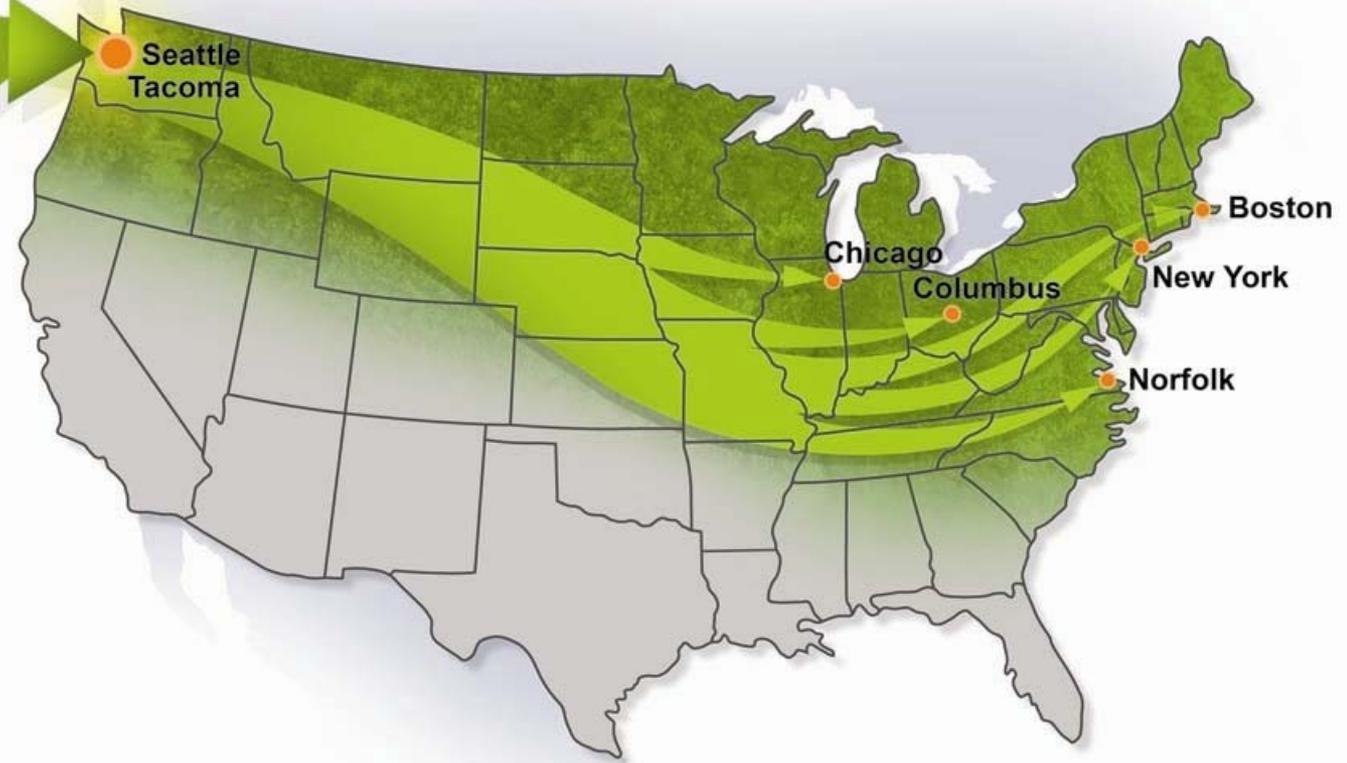
Next Steps

- Comments from greater WPCI group
- Determine if web-based calculators are of interest
- Determine if recommendations need to be strengthened
- Finalize report and post of WPCI website
- Periodic review and updates

THE GREEN GATEWAY

Puget Sound

Asia



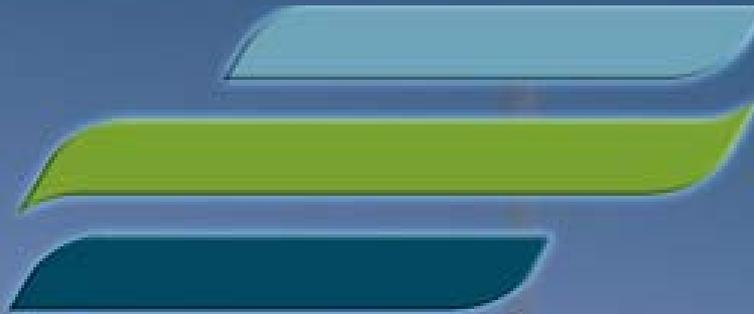
The Green Gateway

Overview

- “Carbon Footprint Study for the Asia to North America Intermodal Trade” (May 2009)
 - Conducted by Herbert Engineering for Port of Seattle
 - Origin ports of Hong Kong, Shanghai, Singapore
 - U.S. gateway ports of Seattle, Oakland, Los Angeles/Long Beach, Houston, Savannah, Norfolk, New York/New Jersey
 - Destination Cities of Memphis, Columbus, Chicago
- Analysis determined tons carbon dioxide equivalent (CO₂e) per TEU
- Independent review (academics, industry)

The Green Gateway Update

- Working with DNV to verify May 2009 Herbert Engineering study
- Requested Herbert to conduct additional analysis:
 - Asian ports of Ho Chi Minh, Busan, and Tokyo
 - N.A. destination cities of New York, Atlanta, and Norfolk
 - Vessel utilization from 40% to 100%
 - Vessel eco-speed
 - Truck trips up to 300 miles inland
 - Develop computer-based analysis tool

The logo consists of three horizontal, rounded rectangular bars stacked vertically. The top bar is light blue, the middle bar is green, and the bottom bar is dark teal. The text 'Port of Seattle' is overlaid on the image in a dark teal, sans-serif font.

Port of Seattle

Where a Sustainable World is Headed

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