

# The Green Gateway

West Coast  
Collaborative  
May 31, 2012



Port   
of Seattle®

Where a sustainable world is headed.™

# Century Agenda

**Over the next 25 years we will add 100,000 jobs through economic growth led by the Port of Seattle, for a total of 300,000 port-related jobs in the region, while reducing our environmental footprint.**

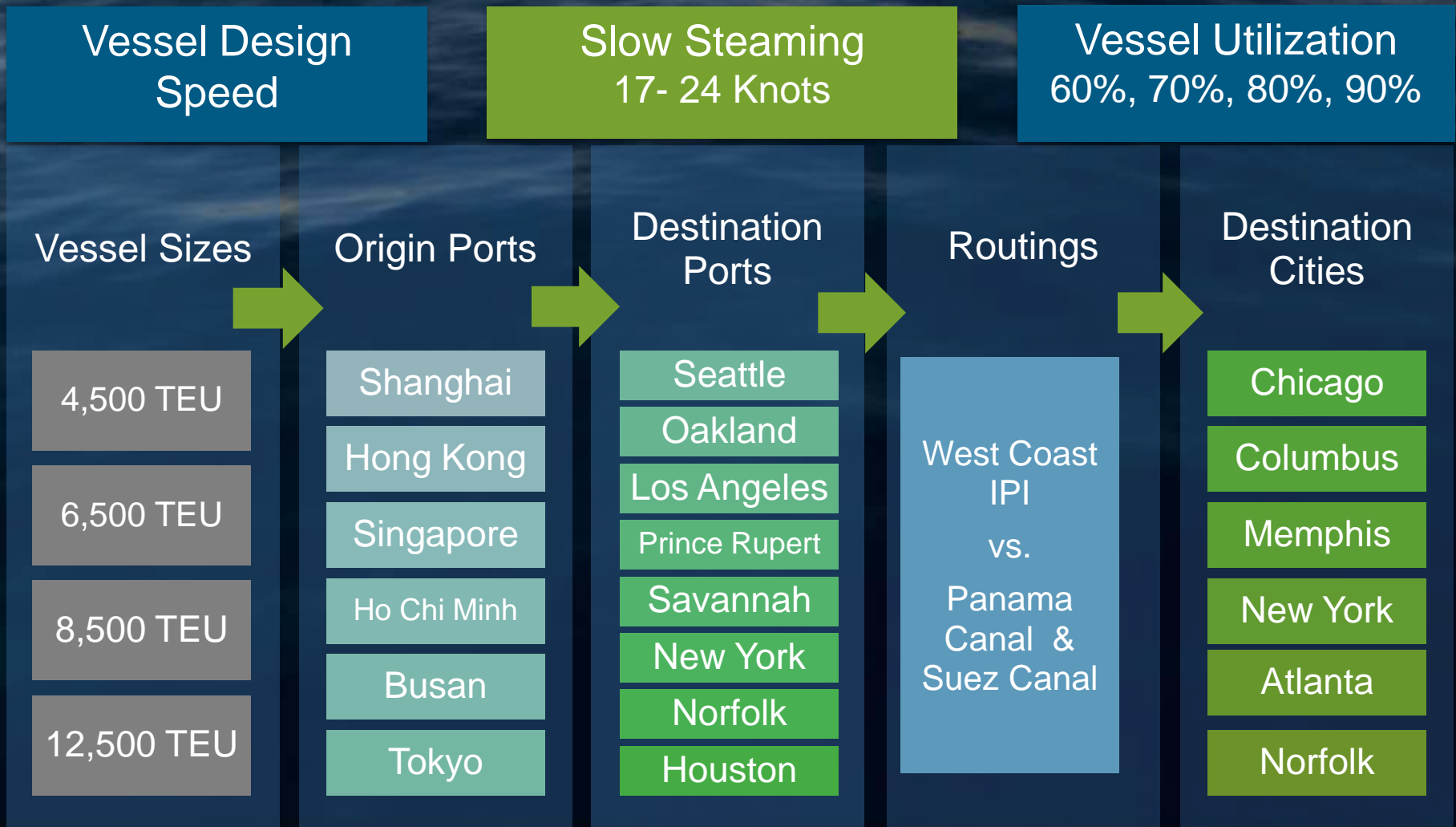
# Century Agenda

- Grow seaport annual container volume to more than 3.5 Million TEUs
- Triple the value of annual outbound cargo
- Double the economic value of cruise traffic to Washington State
- Restore, create and enhance 40 additional acre of habitat
- Reduce air pollutant emissions by 50% and reduce carbon emissions from Port operations by 50%

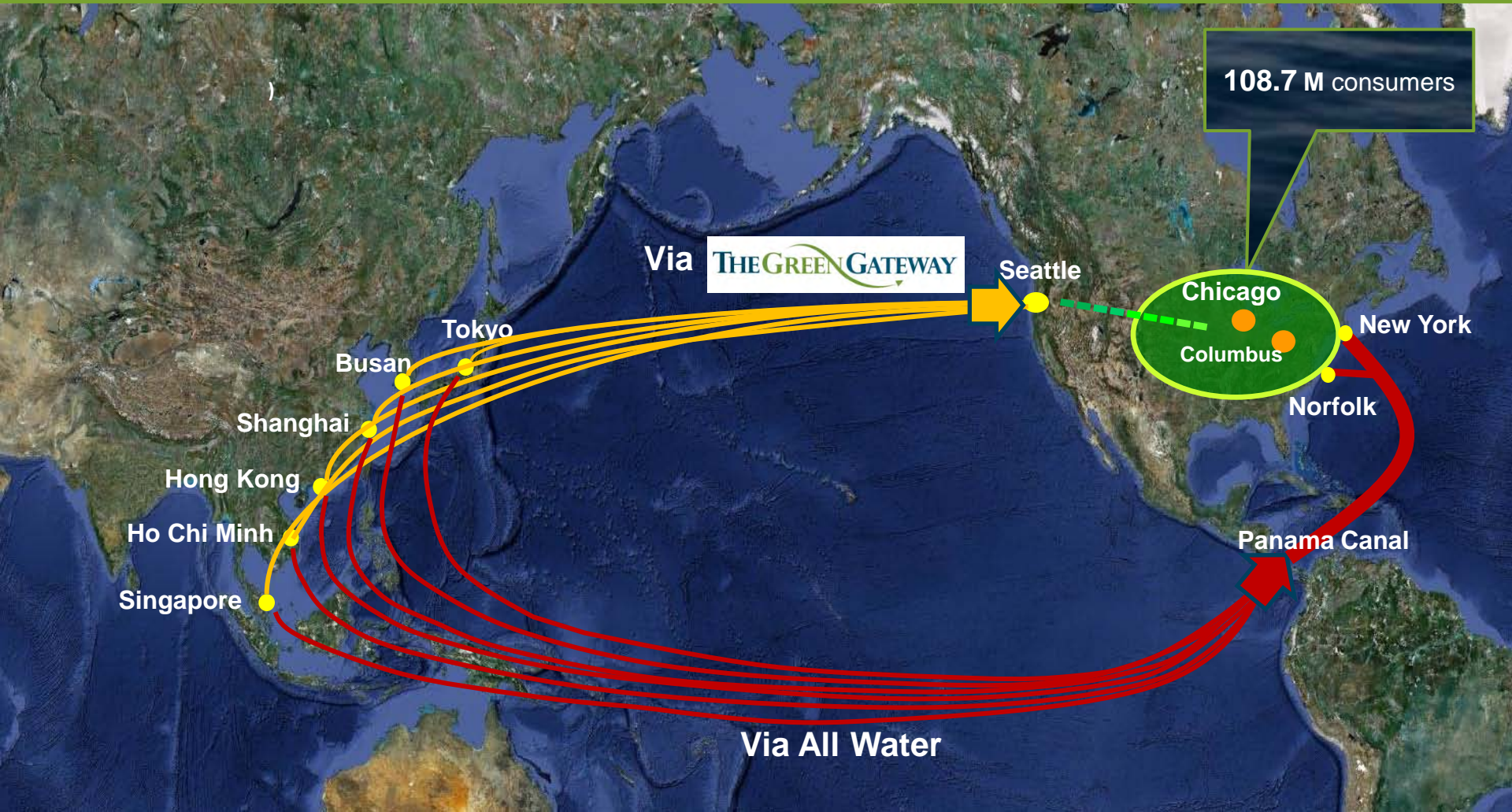
# West Coast Advantage: Carbon Footprint Study Asia to North America

\* Herbert Engineering Corporation, 2011

# Study Overview



# Asian ports to the Midwest through Seattle and the Panama Canal

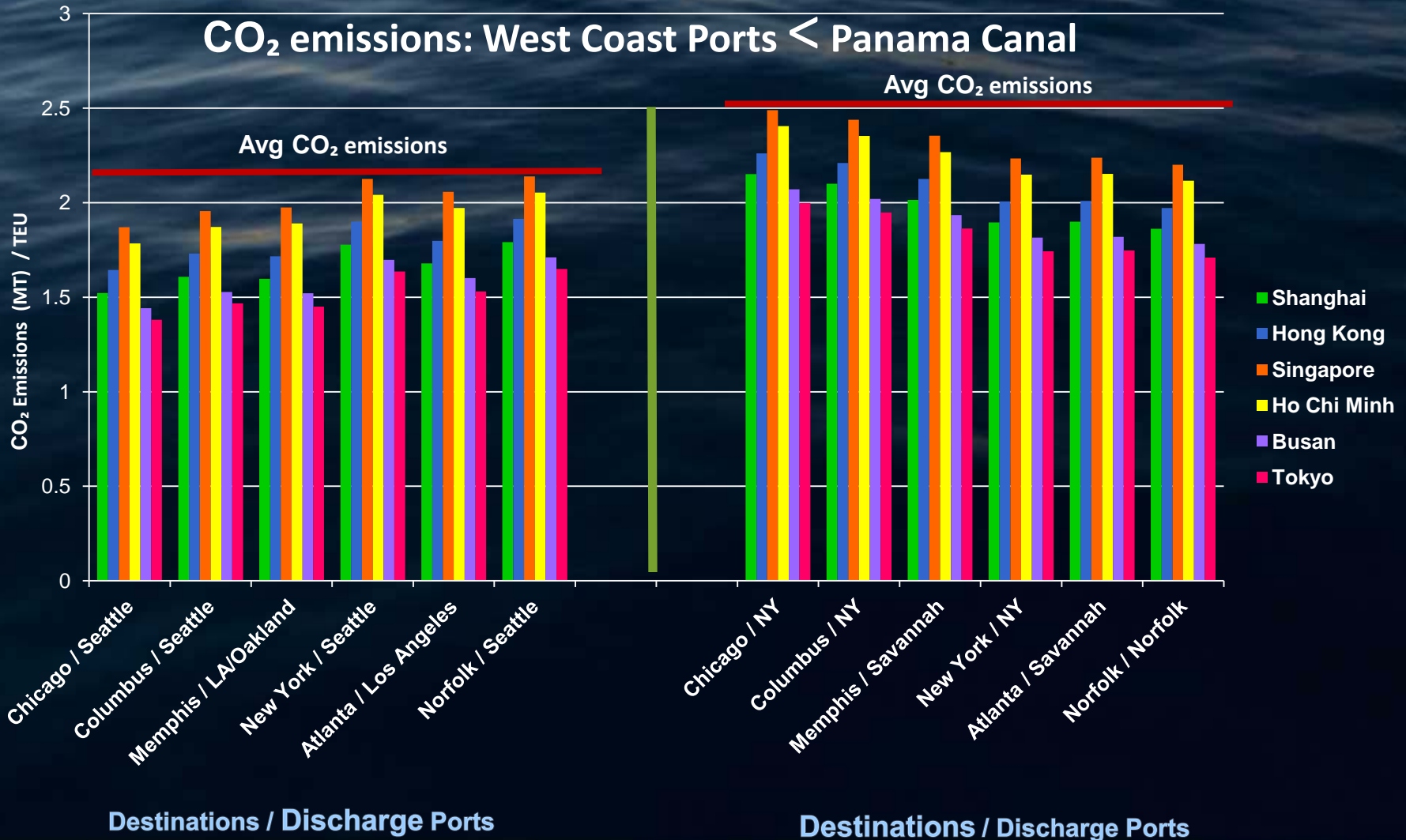


# 8,500 TEU Container Ship

## Via WEST COAST

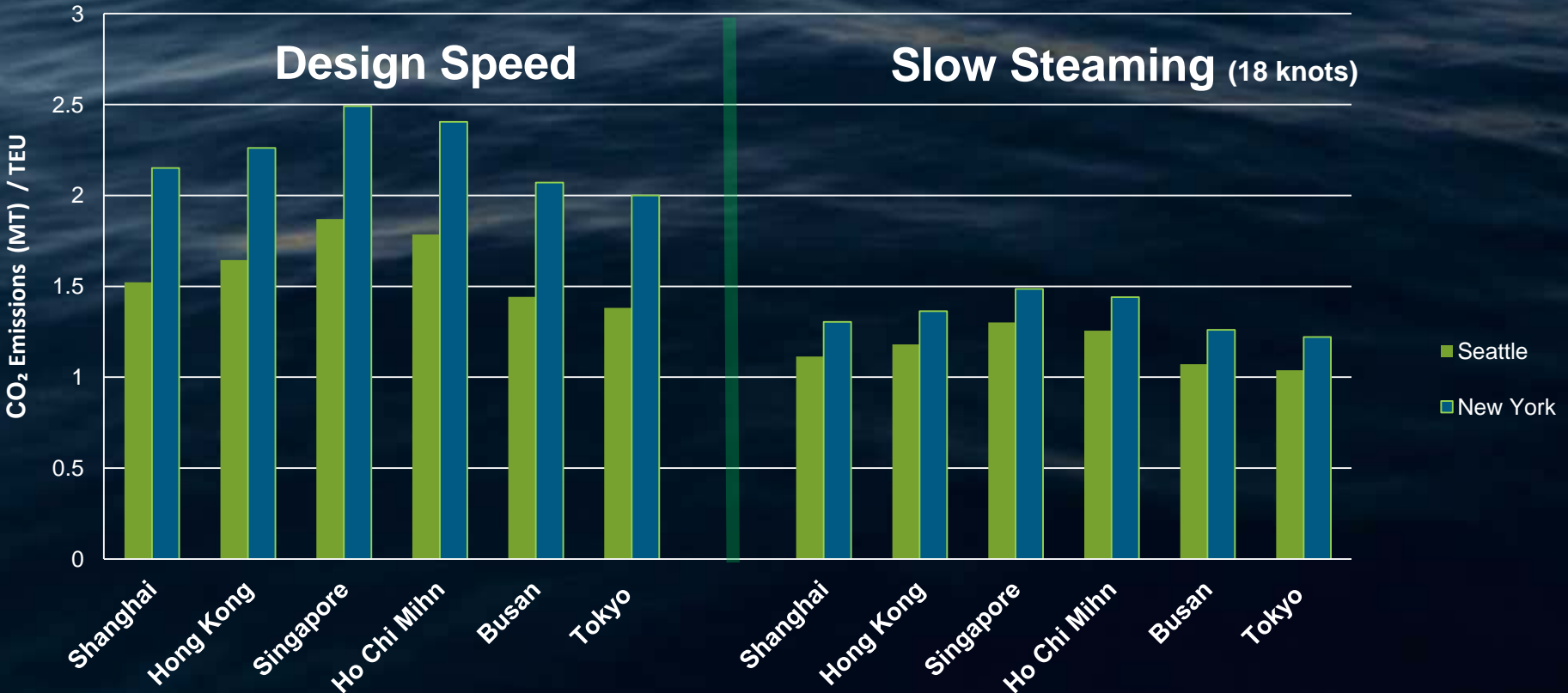
## Via PANAMA CANAL

### CO<sub>2</sub> emissions: West Coast Ports < Panama Canal



# Asian Ports to Chicago via Seattle and New York through Panama Canal

8,500 TEU Container Ship



Origin Ports to Chicago



# General Results

## Design Speed

- U.S. West Coast Ports  
Carbon footprint advantages compared to East Coast Ports for deliveries to Chicago, Columbus, NY and Norfolk
- Seattle is the best performing port: From Asia to the Midwest (Chicago and Columbus) and the East Coast

## Slow Steaming

- Improves transportation efficiency as the vessel speed is reduced = emissions go down
- Seattle in most cases has the smallest carbon footprint to Chicago and Columbus
- LA has the smallest CO<sub>2</sub>e emissions for deliveries to Memphis from Shanghai, Hong Kong, Busan and Tokyo

## Utilization

- Loss of vessel utilization decreases CO<sub>2</sub>e transportation efficiency

# Green Gateway Carbon Calculator



<http://www.portseattle.org/seaport/cargo/CarbonCalc.shtml>

## Carbon Calculator

Carbon Calculator data results are derived from the Carbon Footprint Study for the Asia to North America Intermodal Trade paper by the Herbert Engineering Corp.

[Remove All Rows](#)

A canal must be chosen for East Coast and Gulf ports.

Origin Port	Dest. Port	Canal	Final Dest	TEU	Speed (Knots)	Vessel Utilization	Ocean CO <sub>2</sub> e (t)	Rail CO <sub>2</sub> e (t)	Total CO <sub>2</sub> e (t)	Total CO <sub>2</sub> e/TEU (t)
Shanghai	Seattle	No Canal	Chicago	8500	DS	80	5944	3877	10067	1.532
Shanghai	Savannah	Panama	Chicago	8500	DS	80	11898	1903	14047	2.138
Shanghai	Norfolk	Panama	Chicago	8500	DS	80	12152	1762	14160	2.155
Shanghai	New York	Panama	Chicago	8500	DS	80	12373	1674	14293	2.175

[Add a Row](#)

# THE GREEN GATEWAY

Seattle

Chicago

New York

Columbus

Norfolk

USA

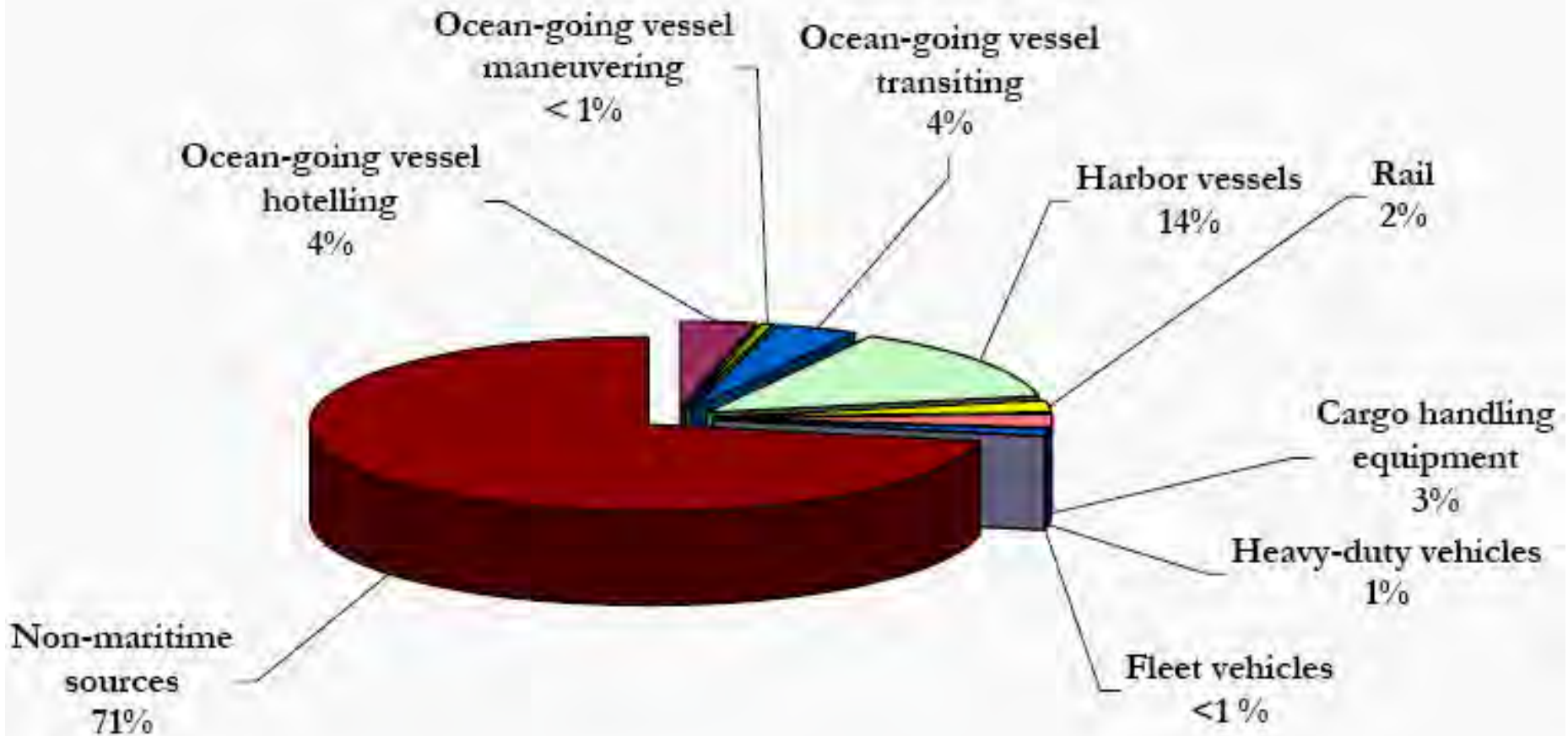
Seattle offers the lowest carbon footprint for cargo shipped by sea from Asia to major markets in the Midwest and East Coast.

# Puget Sound Maritime Air Emissions Inventory

- 2005 activity-based inventory
- First to include greenhouse gases
- Coordinated with similar effort in Canada
- Northwest Ports Clean Air Strategy formulated as a result of inventory
- Inventory is being updated with 2011 data and will show progress made since 2005



# 2005 Diesel Particulate Matter Puget Sound Clean Air Agency Region





# Northwest Ports Clean Air Strategy

*Port of Seattle  
Port of Tacoma  
Vancouver Port Authority*

December 2007



# Port of Seattle



PORT METRO  
vancouver



Environment  
Canada

Environnement  
Canada

# Northwest Ports Clean Air Strategy

Focused on diesel particulate matter and greenhouse gases

Clear, measurable performance measures

- Ocean-going vessels

- Cargo handling equipment

- Trucks

- Rail

- Harbor vessels

Encourage ongoing innovation and efficiencies  
short term (2010) and long term (2015) targets

2012 Strategy Update will add 2020 targets

# Ocean Going Vessels

73% of frequent calling vessels met the NWPCAS goal

Shore power at 2 cruise berths

At-Berth Clean (ABC) fuels incentive program

- Tiered \$1200-\$2850 incentive for use of < 0.5% sulfur fuel

10 Participating Lines

- 2011: 375 Vessels
- 2010: 400 Vessels
- 2009: 235 Vessels

Green Gateway Partners

Recognizes carriers for environmental programs that go beyond ABC fuels and environmental requirements.





# Cargo-Handling Equipment

- 61% are Tier 2, 3 or 4
- Level 1, Level 2 and Level 3 exhaust retrofits
- Anti idling pilot project underway.
- 100% of CHE used ultra low sulfur diesel fuel and/or biodiesel blends
- Grants from EPA, PSCAA, and Ecology



# Rail and Harbor Vessels

- Harbor Vessels
  - Focus on cleaner fuels and engines
- Rail:
  - Encourage SmartWay participation
  - BNSF North SIG Yard electrification
  - Louis Dreyfus switcher engine anti-idling



# Clean Truck Program

Developed collaboratively and implemented in 2011

- 100% MY 1994 or newer
- Terminal operators administer
- Drayage Truck Registry in place
- RFID coming on board in 2012
- Next: MY 2007 or newer in 2015

## ScRAPs

- \$5,000 incentive
- 280 trucks scrapped



# Conclusion

