Little Hoover Commission
Climate Change Adaptation

Logistics and Trade: Moving Goods, Moving People

February 27, 2014

T.L. Garrett
Vice President
Pacific Merchant Shipping Association

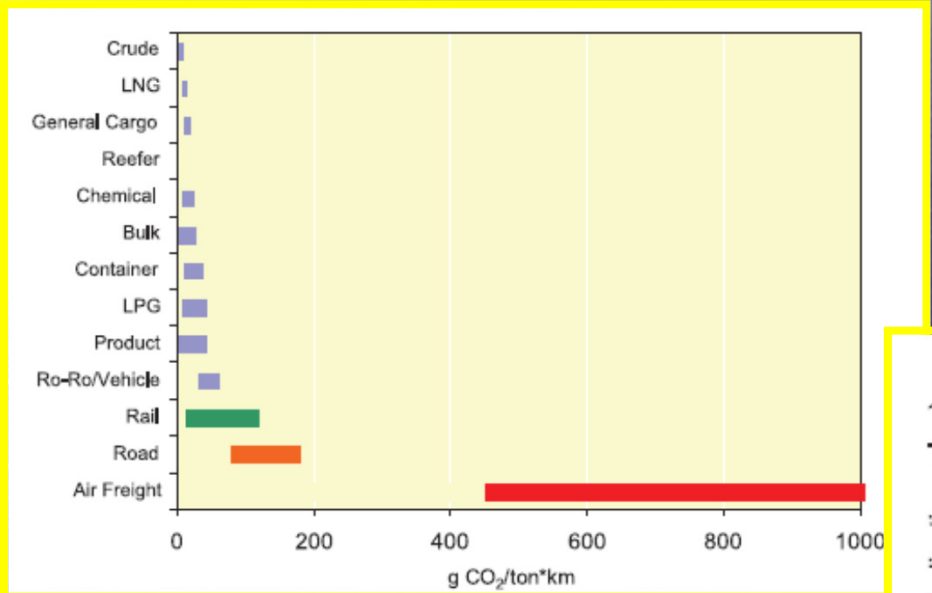
Ship Emission Control

IMO/EPA & CARB

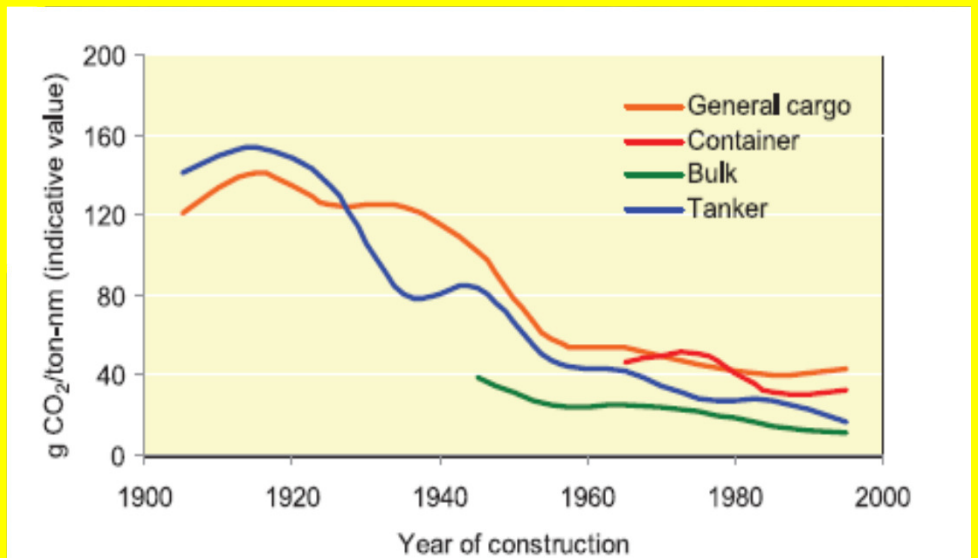
Ships, Most Efficient Mode to Move Cargo

IMO

Versus other modes



Improvements over Time



U.S./Canada Emission Control Area (ECA)

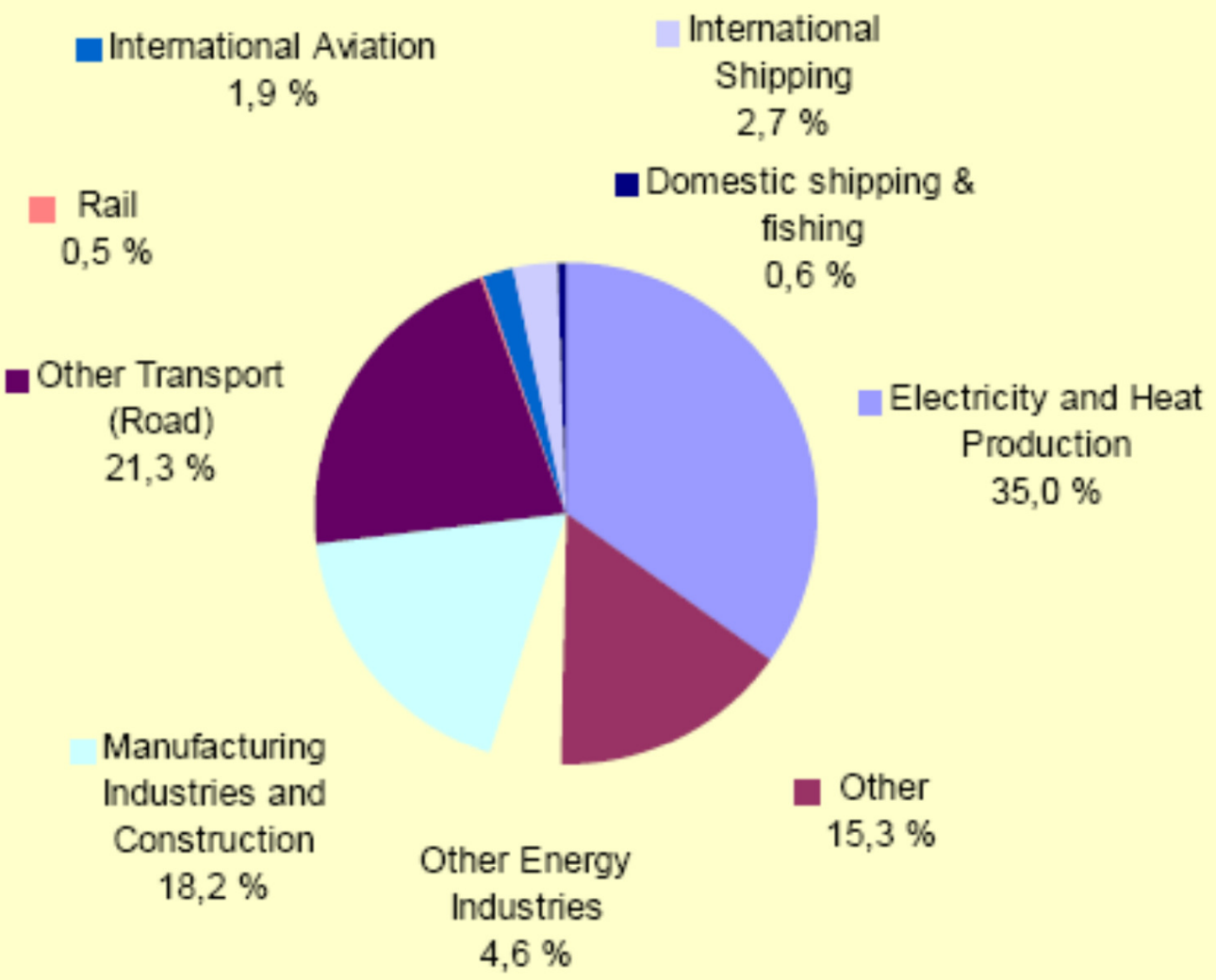
1st Phase August 2012 – 1.0% S Fuel
2nd Phase January 2015 – 0.1% S Fuel

MARPOL Annex VI
Ship Emission Regulation

	Global	ECA
NOx	15-20%	80%
SOx	80%	96%
PM	73%	83%

Global CO_2 Emissions

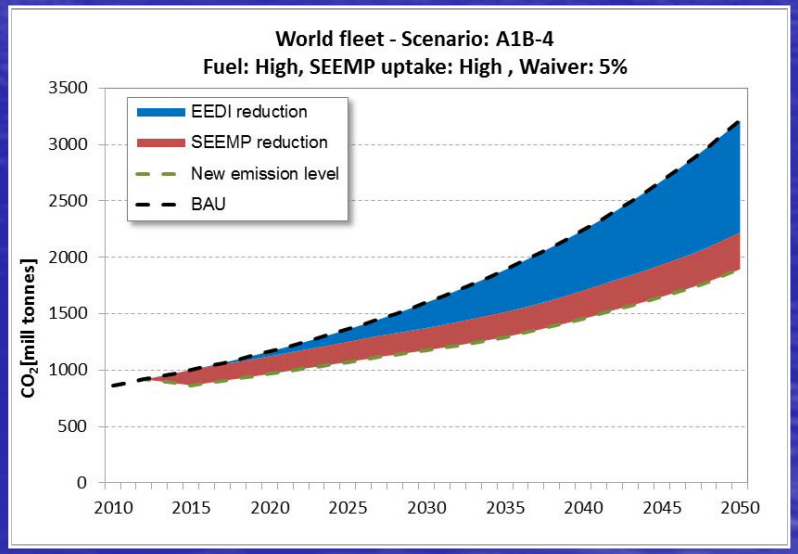
IMO



MARPOL Annex VI, Chapter 4, Regulation on Energy Efficiency for Ships

In force January 2013

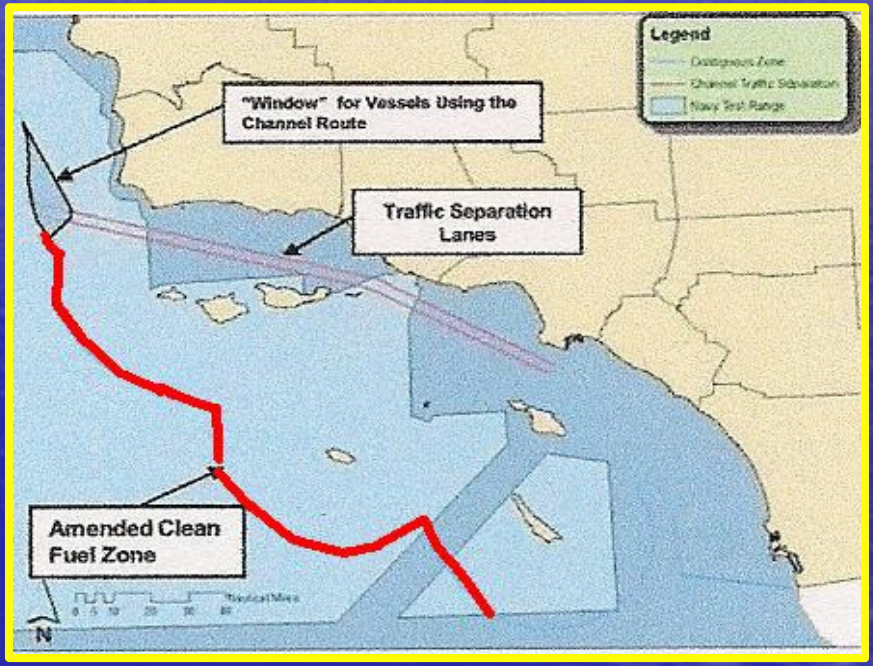
- Energy Efficiency Design Index (EEDI)
  - 10% start
  - Adjusted every 5 yrs.
- Ship Energy Efficiency Management Plan (SEEMP)



CARB Regulatory Boundaries

2009

Sunsets 2015

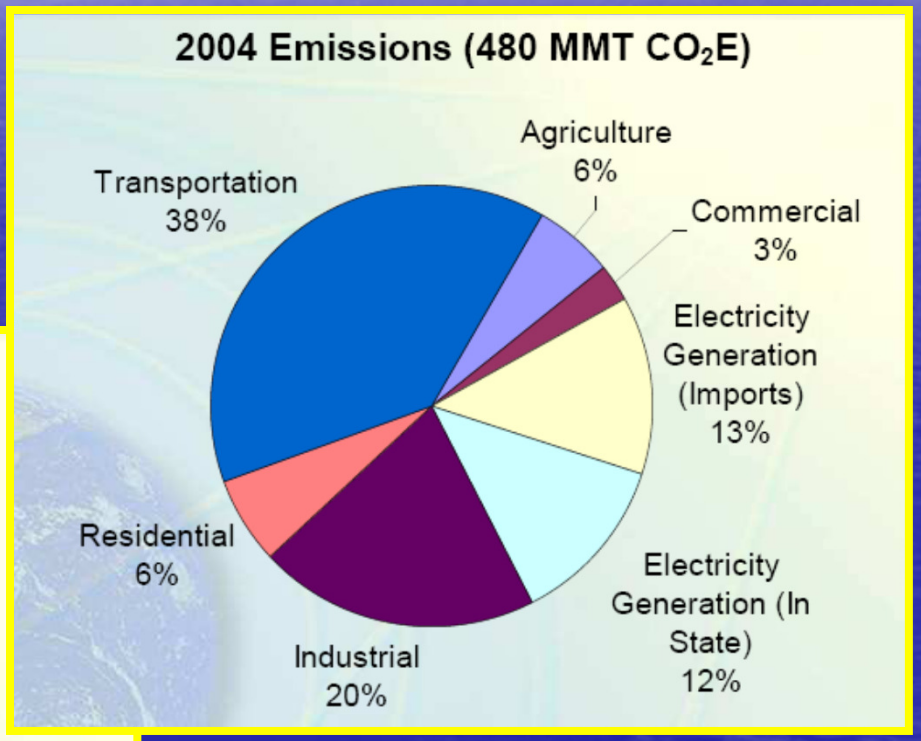


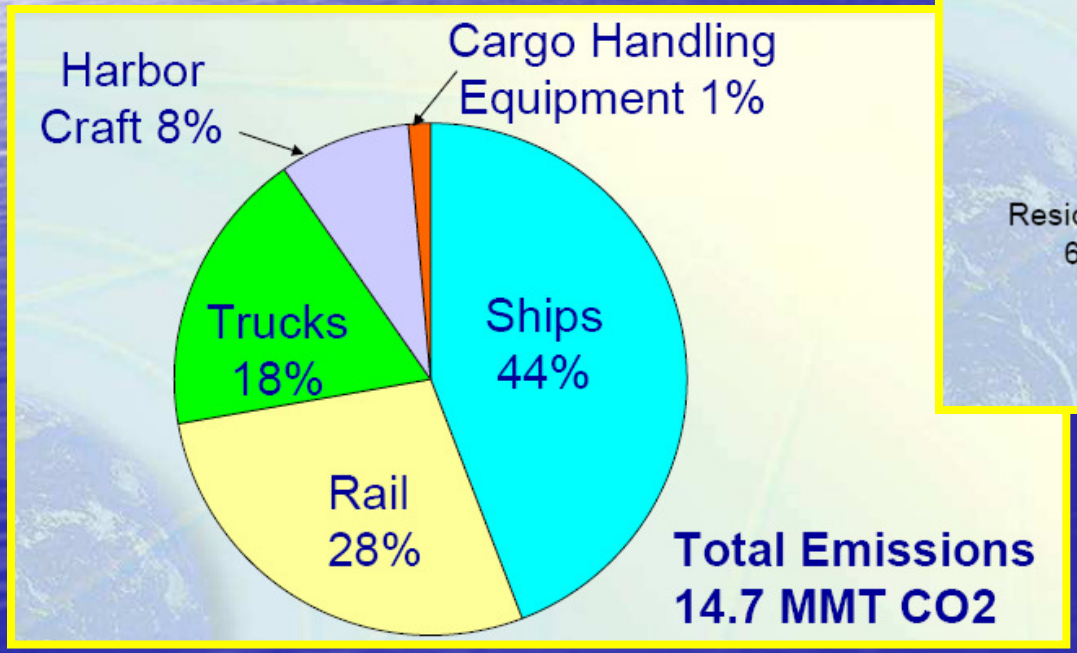
2011 Amendment

Current sulfur limit of 0.1%

AB32 California Global Warming Solutions Act

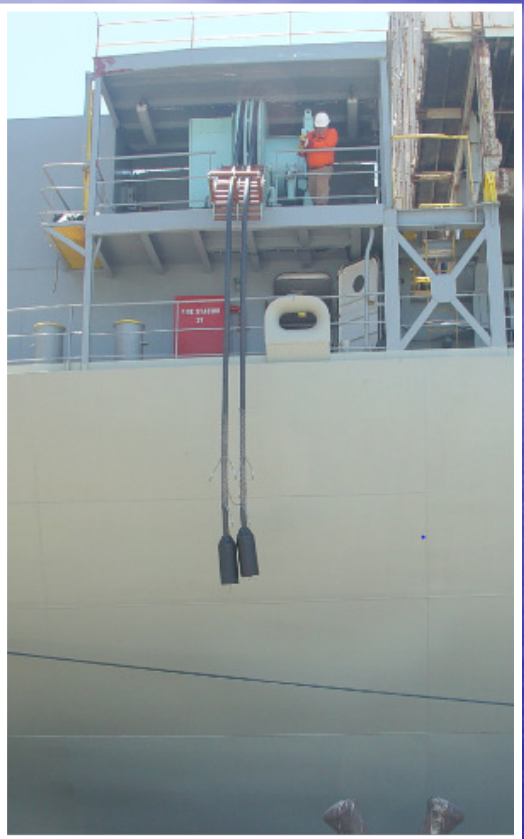
Goal 1990 levels by 2020
est. 173 MMT CO_2





Goods Movement=3%

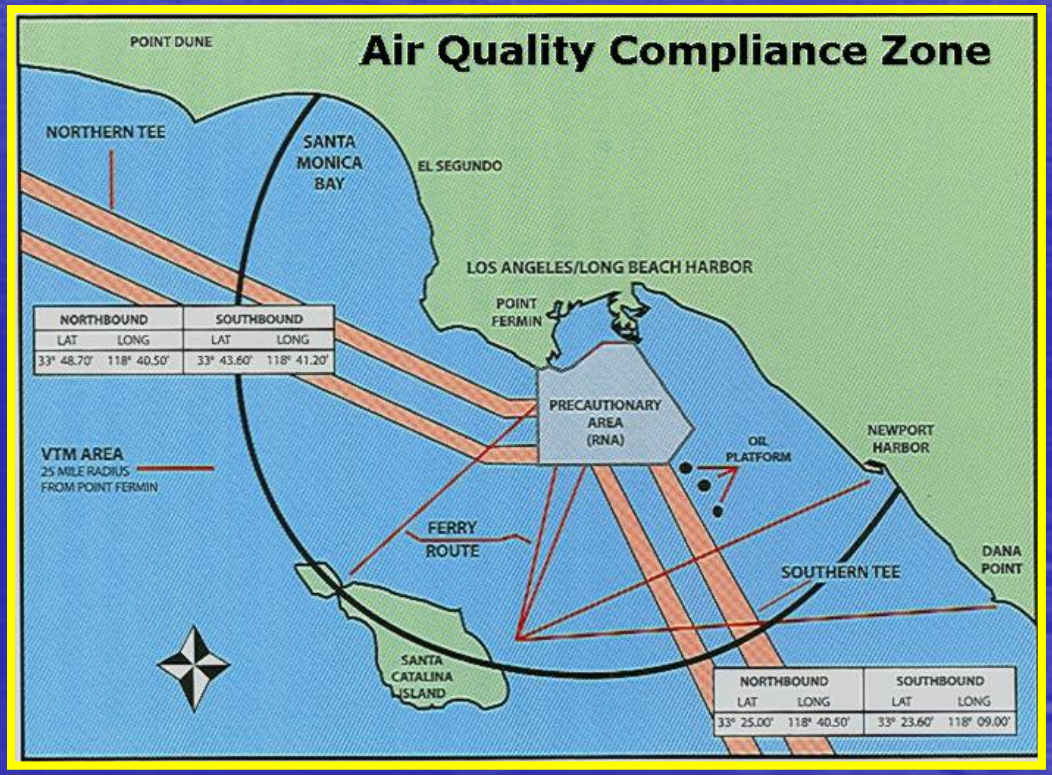
Shore Power Reg.



CARB Regulation, Dec '07
- Ship Types, Grid (2014) & Non-Grid (2010) options
- Percent Calls & emission goal (80%-2020)

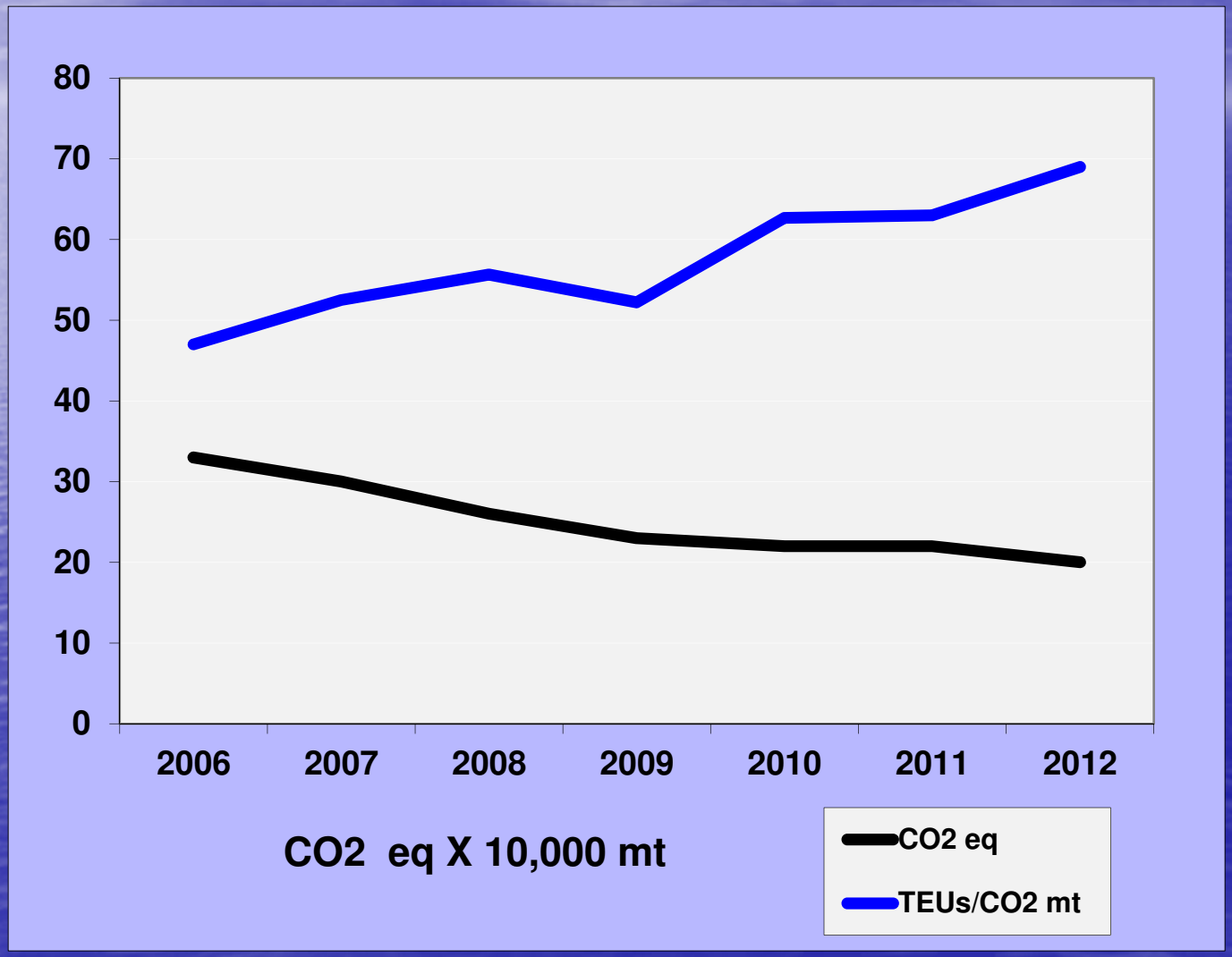
Voluntary Vessel Speed Reduction Program/Reg?

$V \approx E^3$

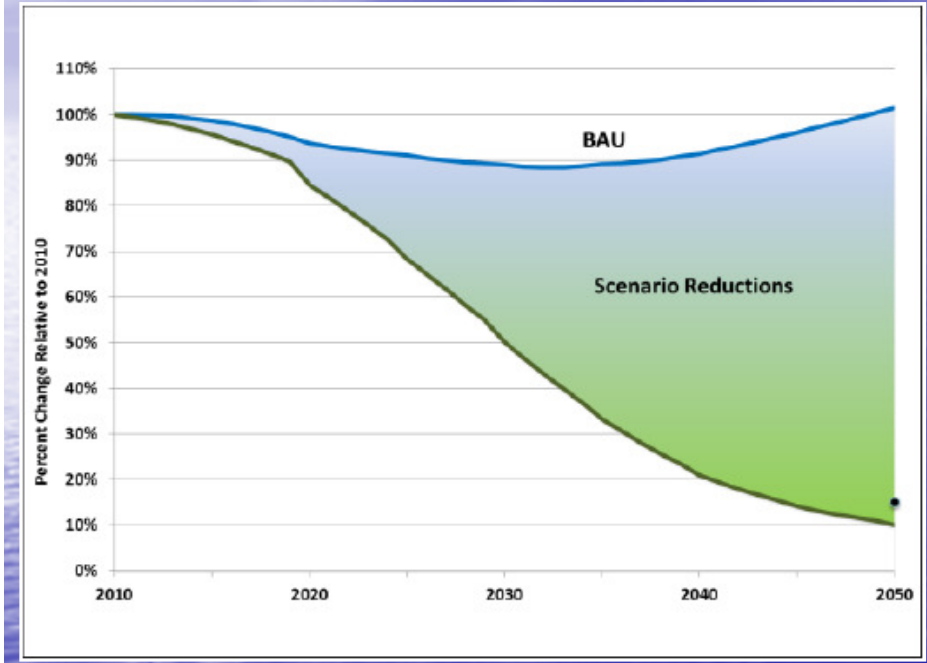


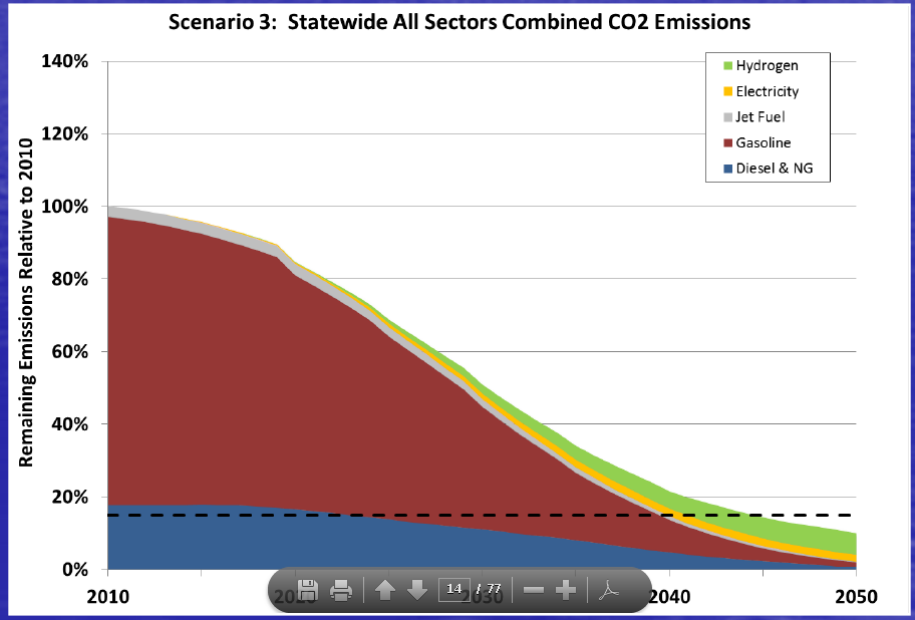
Initiated May 2001
Green Flag Program
+ 90% compliance

Container Vessel GHG Improvement



Moving Forward w/ AB 32





Challenges & Opportunities

Panama Canal
Expansion & Competition
from other Ports

Automated Terminals

Thank you! Questions?