

U.S. EPA Activities Related to Marine Air Pollution



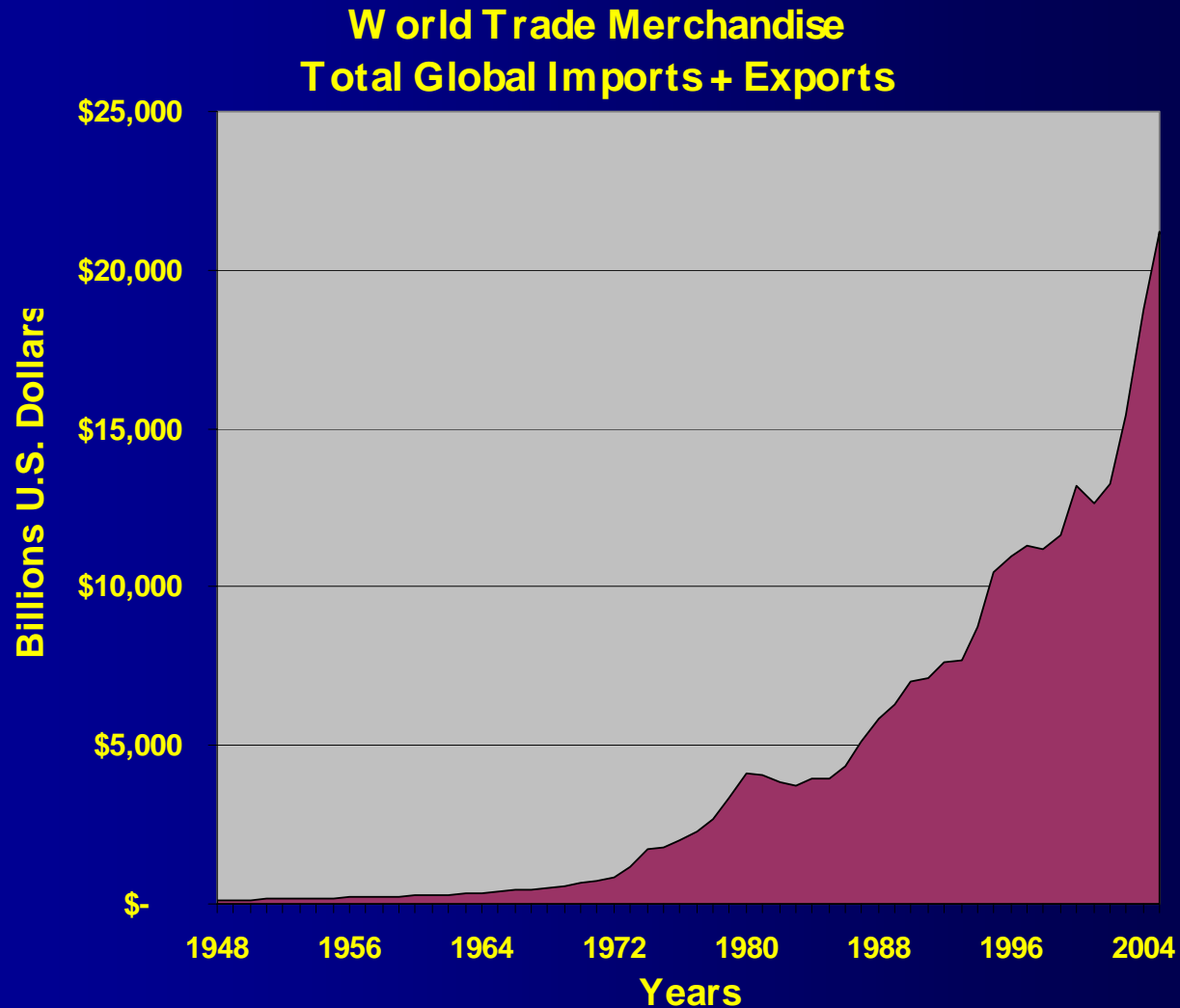
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Diesel Emissions

- Reducing emissions from diesel engines is one of the most important air quality challenges facing the country
- Even with more stringent standards set to take effect in the next decade, over the next 20 years millions of in-use engines will continue to emit large amounts of pollution



Driver: Exponential Increase in Global Trade Since 1948

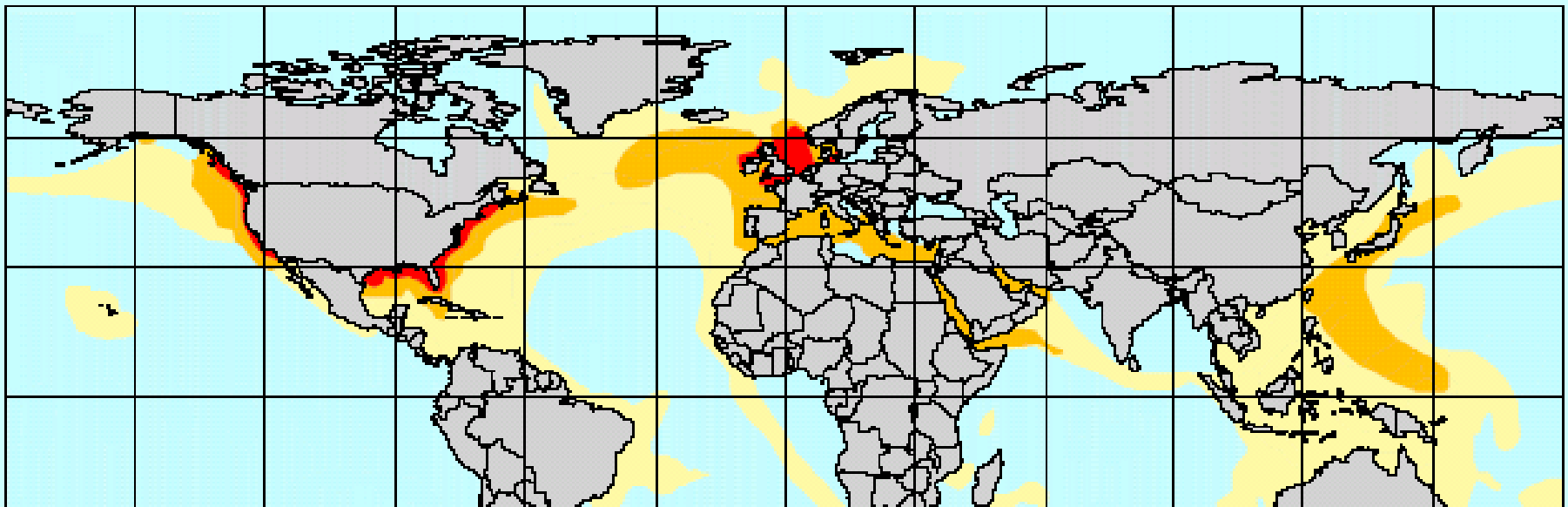


Growth in Shipping Impacts

Air Quality

- **US international waterborne freight is expected to double by 2020**
 - 95% of US overseas cargo goes through ports
 - 50% of goods are transported to regions outside of state via rail & truck
 - Will require new vessels, majority not US flagged ships
- **Cruise ships leaving US Ports increased by 10% in 2004**
- **Dock-side expansion to accommodate growth**
 - Ports spent \$2.8 billion on capital improvements in 2001-2
 - Increased interest from environmental & community groups
- **Many ports actively engaged in reducing diesel emissions**

Global ship traffic density



85 percent in Northern Hemisphere
70 percent within 400 km of land

Source: IMO Study on Greenhouse Gas Emissions from Ships, MEPC 45(8), 2000.

Regulatory Strategy for New Diesel Engines and Fuel

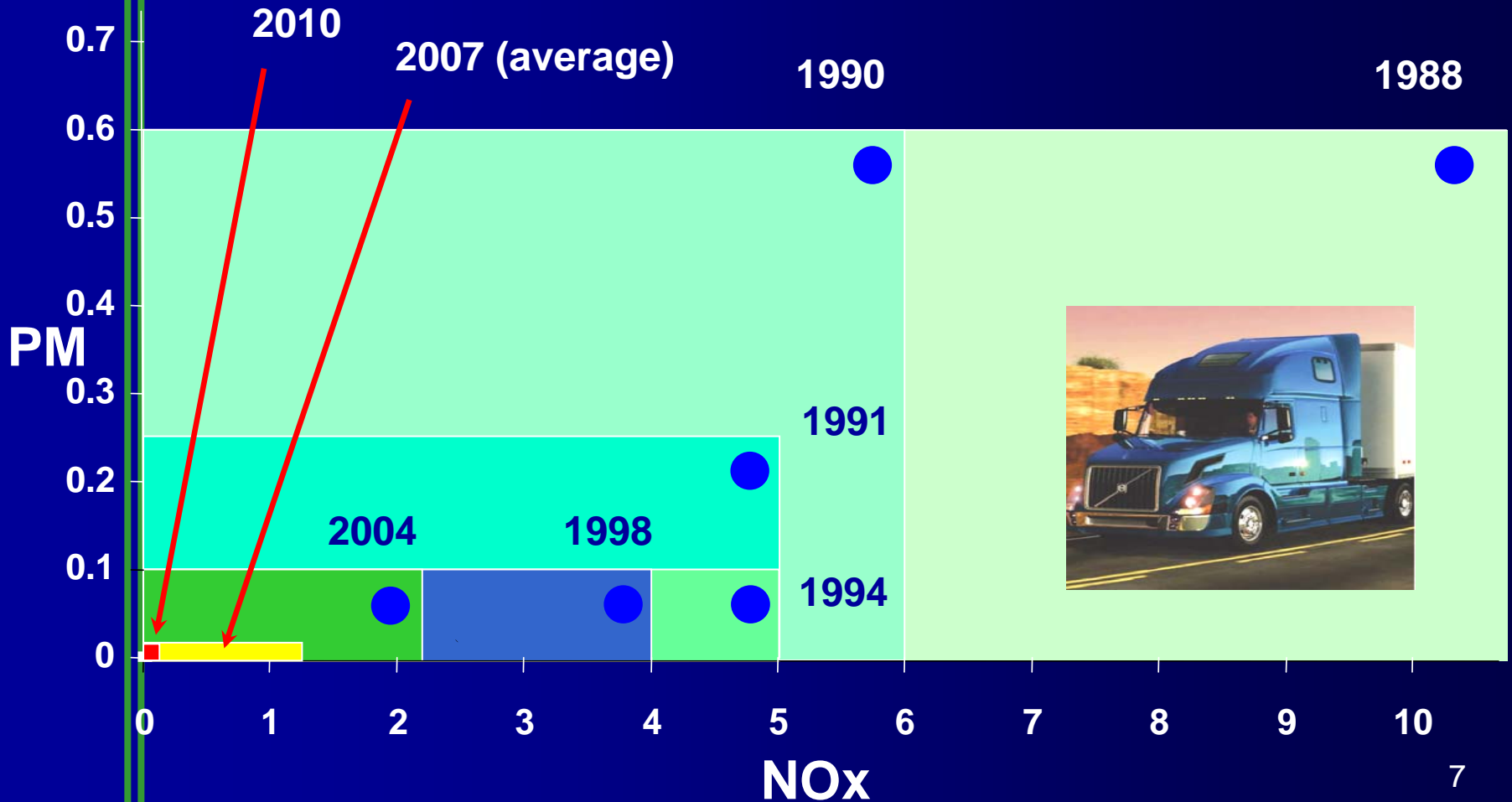


Common Aspects of existing regulations--

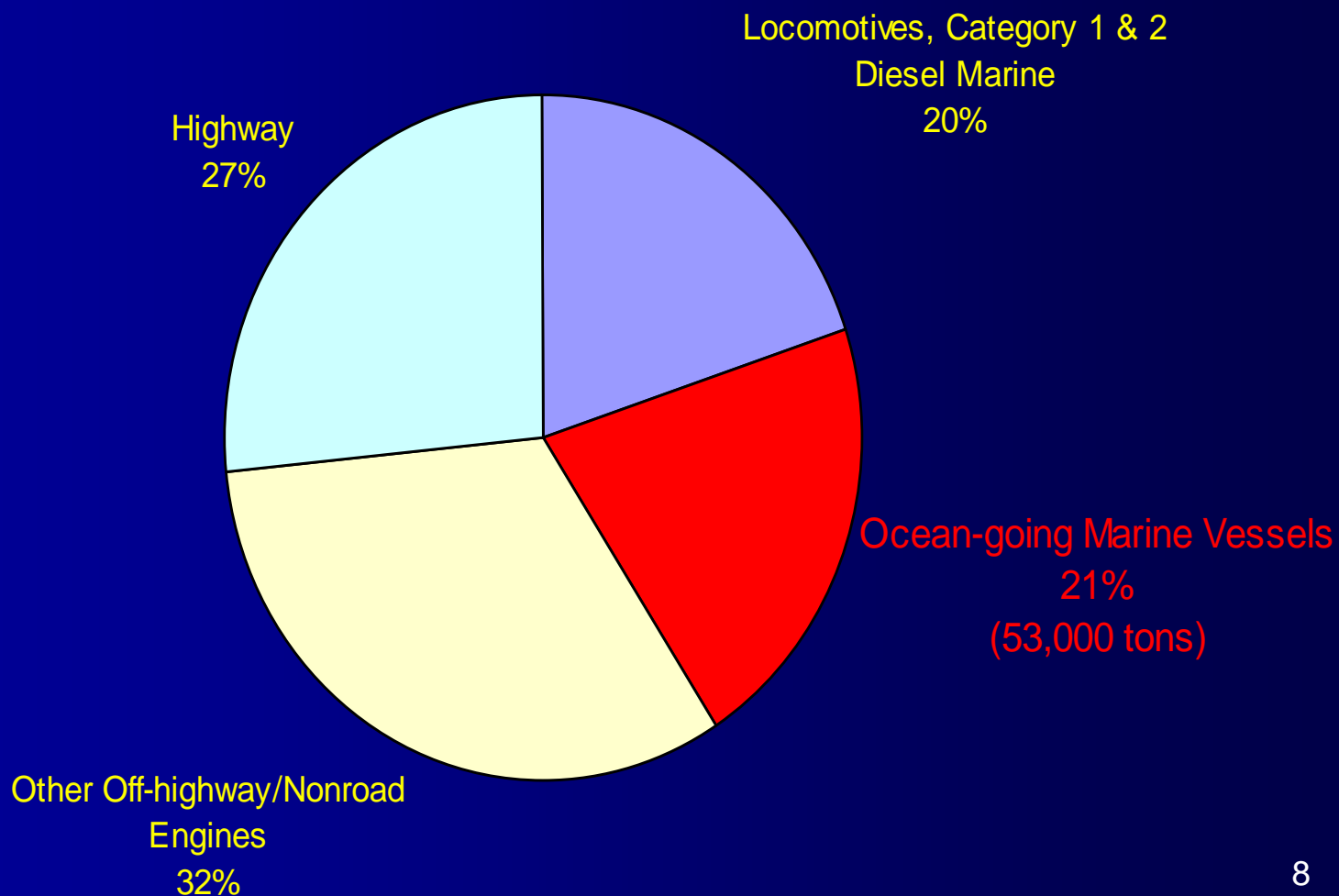
- Systems approach– ULSD enables clean technologies
- Very large environmental benefits
- By 2030, PM reduced by ~250,000 tons/year, NOx by ~4 million tons/year
- Annual benefits expected to exceed \$175 billion versus costs of approximately \$11 billion

Locomotive/Marine and C3 Marine

Highway Heavy-duty Diesel Emission Standards (g/bhp-hr)

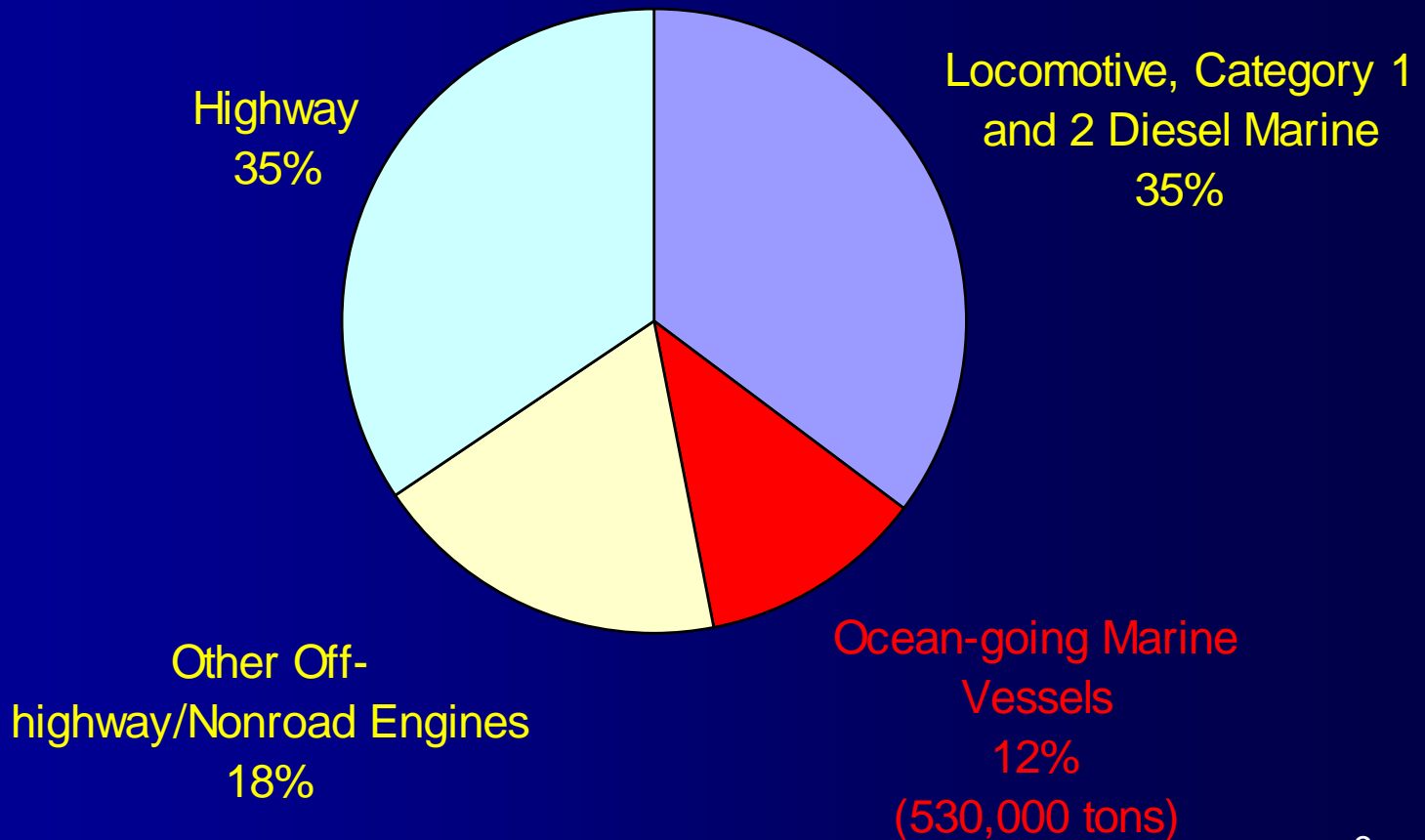


2030 US Mobile Source PM-2.5 (250,000 tons total)



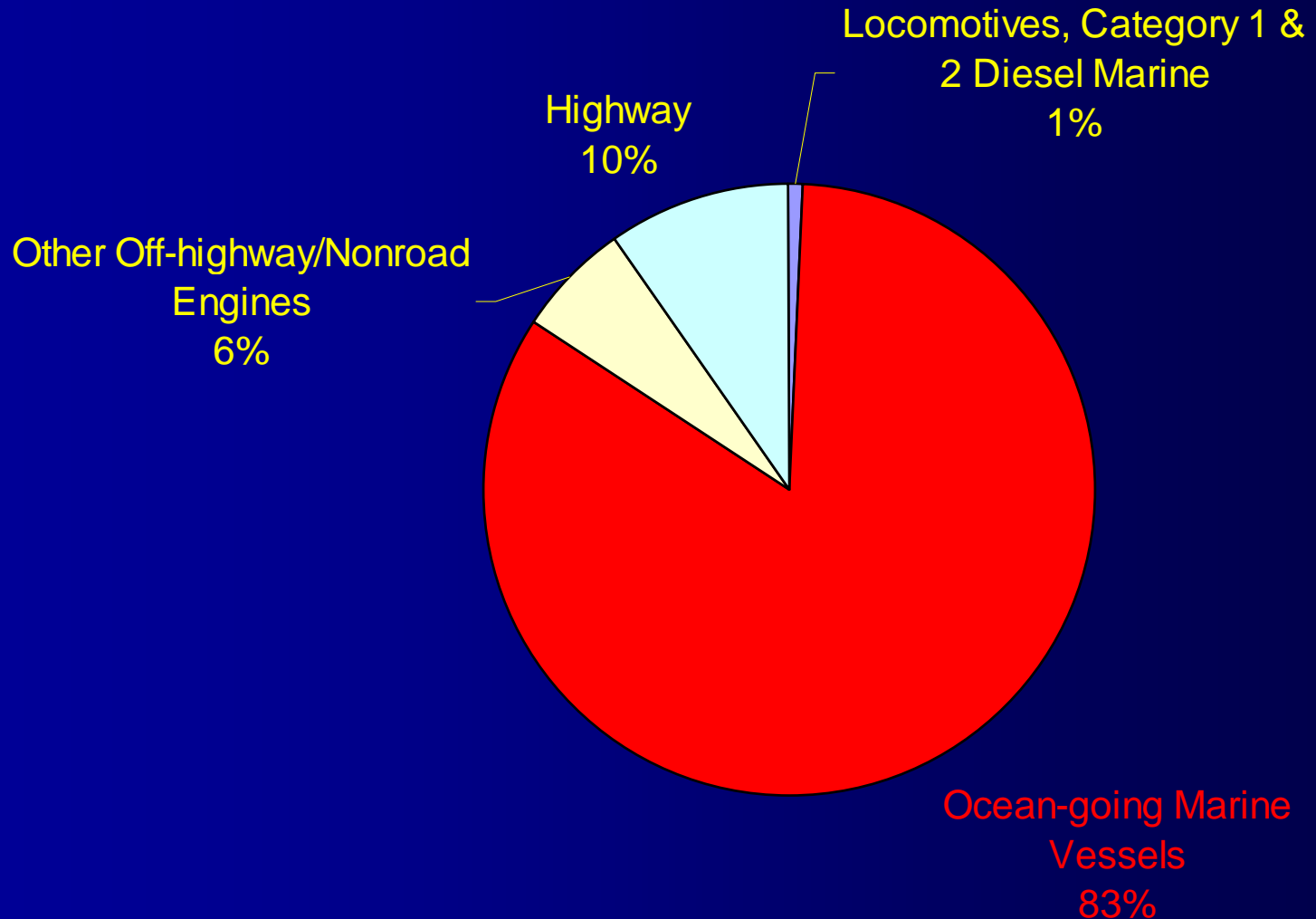
2030 US Mobile Source NO_x

(4.5 million tons total)



2030 US Mobile Source SO_x

(480,000 tons total)



Ocean-going Vessels

- **Ships are key to global commerce**
 - Flagged by many nations
- **Regulated internationally by IMO**
- Current round of negotiations at IMO is an opportunity to solve a serious environmental problem, and provide long-term certainty for the marine industry



IMO Annex VI Negotiations

- **The United States Government has consistently stated that IMO**
 - Look to the long-term and base standards for PM, SO_x and NO_x on advanced technology
 - Provide the industry with appropriate lead time
 - Show leadership in order to eliminate the need for nations and sub-national governments to develop independent regulatory requirements for ocean-going vessels
- **We are hopeful that IMO will use this approach and establish long-term standards to address PM, NO_x and SO_x from ocean-going marine vessels**

MARPOL Annex VI Next Steps



- **Next IMO subcommittee meeting**
 - London, April 2007
 - Subcommittee expected to report back to Marine Environmental Protection Committee – July 2007
- **Key outcomes for consideration**
 - **Near- and long-term NO_x requirements for new vessels**
 - **NO_x limits for existing vessels**
 - **Address PM and SO_x emissions from all ocean-going vessels**

US EPA Regulation for Category 3 Vessel Engines

- **2003 US EPA Regulation under Clean Air Act**
 - As with current IMO Tier 1, NOx only standards, effective 2004
- **US EPA is committed to regulatory action**
 - Environmental need compelling
 - Technology is feasible and can achieve substantial reductions
 - Pressure from many stakeholders in the US for EPA to set more stringent standards
 - Applicability to foreign-flagged vessels that enter US ports a central issue
- **However, we are committed to the IMO Annex VI negotiation process, and believe it is the most appropriate forum for achieving global environmental objectives for ocean-going vessels**

Summary

- **Technology is available and feasible**
- **Cargo Owners are looking for creative ways to reduce emissions**
- **Stakes are high for local communities**
- **Large public health benefits are achievable**
- **International consensus for meaningful, long-term standards is necessary**

