THE PORT
OF LOS ANGELES

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April 5, 2011

Karen V. Gregory
Federal Maritime Commission
800 North Capitol Street, N.W. Room 1046
Washington, D.C. 20573-0001

Dear Ms. Gregory:

SUBJECT: SOLICITATION OF VIEWS ON THE IMPACT OF SLOW STEAMING QUESTIONS DIRECTED TO ALL INTERESTED PARTIES

The Port of Los Angeles (Port) is pleased to have the opportunity to submit comments relating to the Federal Maritime Commission's (FMC) solicitation of views on the impact of slow steaming. The Port is submitting comments and findings associated with the FMC's "Questions Directed to All Interested Parties." As you are aware, the Port has been a leading advocate, developer, implementer, and supporter of direct port involvement in quantifying and addressing port-related emission sources. One of the earliest emission reduction strategies implemented by the Port was slow steaming. In 2001, the Port launched its Vessel Speed Reduction (VSR) Program, which was originally a voluntary program with shipping lines to reduce their transit speeds within 20 nautical miles (nm) in order to reduce criteria pollutant emissions (oxides of nitrogen [NOx], particulate matter [PM], and sulfur oxides [SOx]) and greenhouse gases (carbon dioxide [CO_2], methane [CH_4], and nitrous oxides [N_2O]). Today, the VSR program continues to be implemented on a voluntary basis; however, the Port is now incorporating compliance with the VSR program into new or revised leases. The program has become so effective that in 2010, over 90% of all vessel calls coming to the Port were compliant with the VSR program requirements. The Port intends to continue using slow steaming as an effective emission reduction strategy.

The Port's experience with slow steaming places it in an advantageous position to respond to the questions posed in FMC's solicitation. Below are the Port's responses to the FMC's questions:

1. What are the major benefits and costs associated with slow steaming?

Slow steaming is a significant strategy that affects all pollutants including criteria pollutants and greenhouse gases (GHGs). The elegance of slow steaming is that it can significantly reduce the energy required to move an OGV across the ocean, which in turn provides a net reduction in all pollutants while reducing fuel consumption for most ship types. In general, a ship's propulsion power is the single largest energy demand during a voyage. The power requirement varies with the cube of speed (known as the Propeller

Law[1]) so a modest reduction in speed causes a larger reduction in power needs and, hence, on emissions and fuel consumption.

The primary benefits realized by the Port from the VSR are the substantial emission reductions. During the development of the VSR, the Port was focused primarily on reducing criteria pollutants (NOx, PM, SOx) emissions because of the localized impacts that were caused by these pollutants. In 2009, implementation of the VSR reduced 950 tons of NOx, 72 tons of PM and 700 tons of SOx. A co-benefit of the VSR is the reduction in fuel consumption and a corresponding decrease in GHG emissions. GHG emission reductions will be discussed further in repsonse to Question 2.

From the Port's perspective, slow steaming is a key strategy because it is universally accepted and, unlike most OGV emission reduction strategies, there are no capital costs. Any vessel of any size and type of engine can utilize slow steaming as an emission reduction strategy with no modifications. Additionally, there is an actual operational cost reduction in the form of lower fuel consumption over a given route. This provides an ease of implementation and financial incentive to shipping lines to participate. From the shipping line's perspective the major costs associated with slow steaming would be the elongation of ocean transit times due to slower speeds and the associated crew costs, the potential need to add vessels to strings, and a potential competitive disadvantage against lines not participating in slow steaming on the same routes.

2. To what extent has the slow steaming of services in the U.S. ocean liner trades reduced greenhouse gas emissions?

As discussed above, a co-benefit of the VSR is the reduction in GHG emissions. In 2009, GHG emissions from OGVs calling the Port were reduced within the port region by approximately 15% due to the implementation of the voluntary VSR program. This reduction accounted for the elimination of approximately 226,446 tons of CO_2 emissions. As participation increases in the 20 nm to 40 nm over the next several years, the emission reductions from VSR will increase significantly.

When evaluating total GHGs, the reductions of the VSR would be significantly overshadowed by the emission reductions that can be achieved throughout a transpacific vogayge at cruising speed. Evaluating the ship activity data that the Port has been collecting since 2002, the potential container ship emission reductions from slow steaming (5 knots slower than sea-speed) would range from 25% to 35% for all pollutants. The first figure on the following page illustrates the potential reductions available from container ships by class size in twenty-foot equivalent units (TEUs) on a round-trip (RT) basis.

For super-slow steaming (8 knots slower than sea speed), ship ocean transit emissions could be reduced from a range of over 40% to over 50% for all pollutants, as shown in the second figure on the following page.

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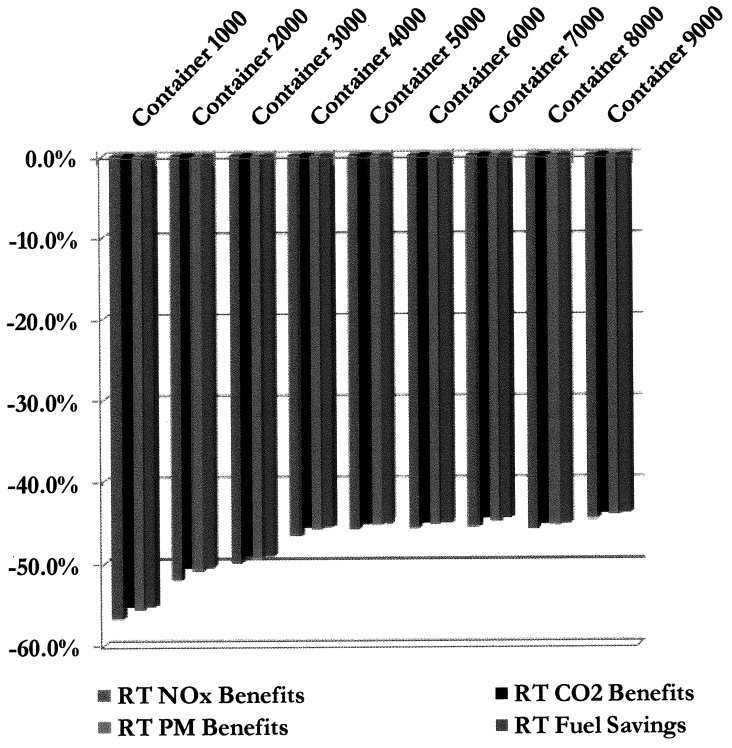
[1] Power (kW) = Main Engine Rated Power (kW) * (Actual Speed/Max Speed)^3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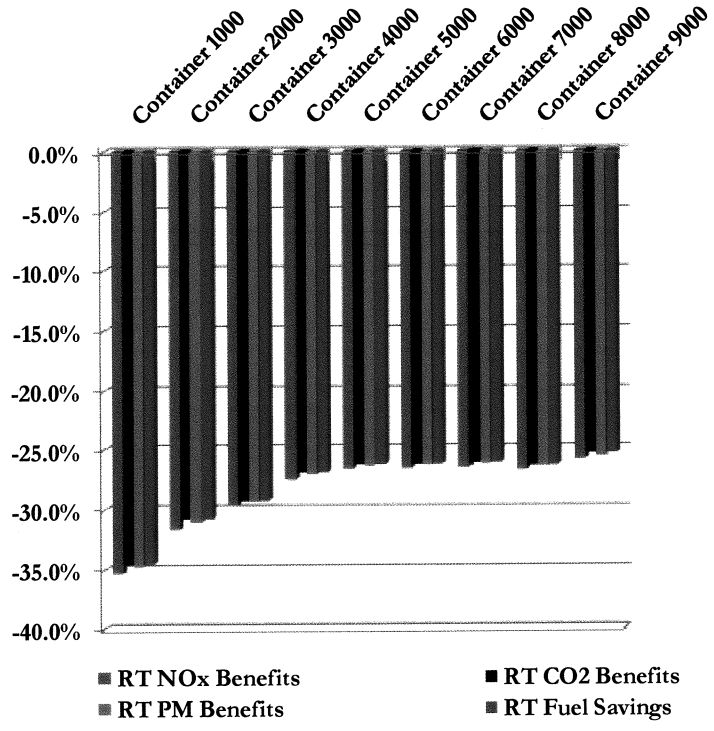
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Slow steaming is a significant strategy from a pollutant and fuel consumption reduction standpoint for ships. If slow steaming was implemented on all containership ocean transits over a year, similar reductions as shown above could be realized from containership annual emissions.

The Port is available to discuss the data, methods, and modeling behind these graphics, if it would benefit the FMC.

3. Discuss the likely long-term prevalence of slow steaming and its potential impacts on the economy and/or the environment?

As stated above, slow steaming can have significant benefits to the environment by reducing criteria pollutant emissions as well as GHG emissions. Slow steaming can reduce emission by 25-50% depending on the amount of speed reduced, while not requiring any significant modifications to the ship and providing significant fuel savings. The only cost is time, which can be dealt with in numerous ways, including adding vessels to a string or by setting up programs that encourage the use of slow steaming. Programs may provide financial or recognition incentives or set up voluntary agreements with participants.

New vessel build designs already are considering, innovations in hull design, alternative propulsion systems, propellers/rudders, innovations incorporating wind and solar power, etc. that allow certain vessels to travel faster with a smaller footprint than current ship technologies. Until those innovations are developed and implemented, slow steaming is the single most significant strategy for reducing GHGs from ocean transits.

4. How important is slow steaming in the overall effort to reduce emissions of greenhouse gases and other air pollutants arising from ocean liner operations?

As discussed in the previous questions, slow steaming is the most effective and significant strategy for reducing emissions associated with ship ocean transit emissions (all pollutants) because it significantly reduces the energy demands to propel the ship during its voyage.

5. What data sources are available to measure the economic and environmental impacts of slow steaming?

The Port has arrival and departure activity data from 2001 through 2011 that includes information on previous and next ports. As part of the activity-based annual emissions inventory process, the port collects vast amounts of data from all port-related sources including boarding ships calling the port to better understand ship operations by activity mode. These data, in conjunction with the methods that have been developed and approved by our regulatory Technical Working Group (TWG), made up of EPA Region 9, CARB, and SCAQMD, the Port produces the most detailed emissions inventories for port-related sources in the world. The reason the Port has dedicated so much effort to this process is to better inform policy decisions on emission reductions strategies and to track the progress of our CAAP. While the port does not actively track the economic

impacts of global programs such as slow steaming, other industry based groups such as BSR's Clean Cargo Working Group or the World Shipping Council may have calculated their potential effects.

The Port would like to invite the FMC to come visit the Port to open further dialogue on ship emissions, slow steaming, and to get a "first-hand look" at the Port's emission reduction strategies and our Technology Advancement Program. If you have any questions please feel free to contact me at (310) 732-3763 or ccannon@portla.org, or Kevin Maggay, Air Quality Supervisor, at (310) 732-3947 or kmaggay@portla.org.

Once again, the Port is pleased to have this opportunity to submit these comments to the FMC and we look forward to future collaboration.

Sincerely,

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CHRISTOPHER CANNON
Director of Environmental Management

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