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Office of the Executive Officer
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December 5, 2007

Mr. James Goldstene, Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Goldstene:

Comments on California Air Resources Board
Proposed At-Berth Ocean-Going Vessel Regulation

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to provide comments on the California Air Resources Board (CARB) proposed at-berth ocean-going vessel regulation. We commend CARB's efforts in developing this first of its kind regulation for addressing at-berth (hotelling) emissions from ocean-going vessels and recommend several enhancements to the proposed regulation for your consideration.

With the projected two- to three-fold cargo growth anticipated at our ports within the next 15 to 20 years, ocean-going vessels would be the third largest source of NOx emissions in 2014 and the single largest source of NOx emissions by 2023 in the South Coast Air Basin (Basin), due to the lack of air quality regulations. Reducing emissions from ocean-going vessels is one of the most critical strategies of the 2007 State Implementation Plan to achieve the needed emission reductions in the Basin to meet the federal PM2.5 and 8-hour ozone ambient air quality standards. In addition to their contribution to the regional PM2.5 and ozone air quality problem, ocean-going vessel hotelling emissions are also ranked the highest source of elevated cancer risks at the Ports of Los Angeles and Long Beach based on a recent CARB exposure study. Serious health impacts ranging from increased risk of premature mortality to respiratory and cardiovascular illnesses are associated with hotelling emissions which occur entirely within close proximity to the shore and nearby communities. Without adequate reductions from ocean-going vessels, attainment of the federal health-based ambient air quality standards would virtually be impossible in our region.

To avoid any potential delays in meeting the federal air quality standards, we believe that the proposed regulation should, at minimum, achieve CARB's 2007 State Implementation Plan tar-

gets for ocean-going vessels and seek to optimize such reductions where feasible. Although, in general, we are in support of the proposed regulation for addressing hotelling emissions, we are recommending the following enhancements in order to maximize emission benefits and most importantly, reduce population exposure as early as possible, as outlined below:

Proposed Compliance Paths

We appreciate the proposed changes that your staff provided on December 3, 2007 to simplify the compliance paths to two schedules. However, we believe that the proposed schedules are less aggressive compared to the schedule proposed in Section (d)(2)(B). The NOx emission reductions for the current proposal compared to the emission reductions under Section (d)(2)(B) of the October 2007 release, are 1.6 tpd less in 2010, 2.6 tpd less in 2012, and 1.9 tpd less in 2014. As such, we recommend that the schedule be revised as follows:

Date	Reduced Onboard Power Option (Grid)	Equivalent Emission Reduction Option [1]
January 1, 2010	~~Ships must use shore power if available~~ 20% visits and power demand[1,2]	~~1~~20% reduction
January 1, 2012	~~Ships must use shore power if available~~ 40% visits and power demand[1,2]	~~25~~40% reduction
January 1, 2014	~~5~~60% visits and power demand [1]	~~5~~60% reduction
January 1, 2017	70% visits and power demand [1]	70% reduction
January 1, 2020	80% visits and power demand [1]	80% reduction

1. In addition, all ships must use shore power if available.
2. Equivalency may be demonstrated on a port-wide basis based upon a submittal by the Port Authority.

We recognize that lead time is necessary to construct the necessary infrastructure at individual terminals to implement the "Reduced Onboard Power Option". As such, we propose that prior to 2014, an equivalency demonstration on a port-wide basis to the 2010 and 2012 targets be allowed. The equivalency demonstration would be submitted by the Port Authority. We believe that the equivalency demonstration would meet the overall emission reduction targets for 2010 and 2012.

As you are aware, the Ports of Los Angeles and Long Beach have committed to expedited emission reductions from port-related sources in implementing the San Pedro Bay Ports Clean Air Action Plan (CAAP). The Ports are well underway in implementing the CAAP shorepower measure. The Ports envision that grid-based electric power to be the primary technology. We believe that alternative technologies such as distributed generation would provide significant emission reductions as the grid-based electric infrastructure is constructed. The recommended changes above would ensure that the emission reductions are realized as early as possible.

Relative to compliance plan submittals, we recommend that Table 2 under Section (g)(1) be revised to have subsequent terminal plan updates beginning in 2011 under the "Grid-Based Shore Power" option. We also recommend that under subparagraphs (h)(1)(A) and (h)(2)(A), all vessel fleet plans be submitted no later than July 1, 2009 regardless of the compliance approach to document specific actions which will be taken by each vessel operator to comply with the proposed rule requirements. Specifically, Table 3 under Section (h)(2)(A) be revised to reflect submittal of initial vessel plans by July 1, 2009 with subsequent submittals every two years to 2019.

Technological Feasibility and Cost

We believe that the above schedules are feasible given the current state of existing and developing technologies. Grid-supplied shore power technology is now rapidly being utilized at our ports with about 90 calls using this technology in 2006. The San Pedro Bay Ports Clean Air Action Plan calls for significant use of grid-supplied shore power to reduce hotelling emissions with over 1,000 calls targeted by the 2010/2011 timeframe, which would result in about a 20% reduction in NOx emissions. We believe that with the flexibility to combine different control technologies the Ports can achieve the recommended targets by 2010.

Other control technologies such as dockside distributed generation (DG) and after-treatment systems offer alternative means of compliance for vessel fleets. An existing 1 MW DG system equipped with fuel cell technology is already verified by CARB offering a near-zero emission alternative for reducing hotelling emissions. Other forms of distributed generation systems include microturbines. The use of shore-side after-treatment systems is also being demonstrated at the Port of Long Beach this year which is potentially capable of achieving over 90% reductions in NOx and PM emissions. SCR has also been successfully installed and tested on an auxiliary engine onboard a container vessel achieving 90% reduction in NOx emissions. Other technologies capable of meeting Best Available Control Technology (BACT) limits could also be considered.

For the South Coast Air Basin, alternative technologies proposed to achieve the emission reduction targets should be at BACT. As such, we are concerned with the proposed NOx emission level in Section (d)(2)(E) for dockside non-grid-based power systems (2 g/kW-hr) which is significantly higher than the NOx level allowed for grid power provided by local utilities (0.03 g/kW-hr). Under the proposed regulation, while compliance can be demonstrated based on the number of calls fitted with non-grid power meeting the proposed NOx levels, emission reductions and associated localized health benefits will be substantially lower compared to calls utilizing grid power. Although we are supportive of alternative non-grid electrical power systems, we believe that these technologies must meet a maximum allowable NOx limit which is more in line with the grid power NOx limits and consistent with local stationary source regulations for internal combustion (IC) engines or boilers. Specifically, we recommend that an interim NOx limit of 0.2 g/kW-hr or cleaner be established for shore-side non-grid power generating systems (consistent with existing BACT level for new non-emergency stationary IC engines) prior to 2014 after which all such systems must meet a grid-based NOx level. Therefore, in order to maintain equivalency in emission reductions, we recommend that Section (d)(2)(E) be revised for the South Coast Air Basin to require these NOx limits for non-grid portable power generating systems to be at 0.2 g/kW-hr beginning 2010 with a lower number beginning in 2014 that would be

equivalent to NOx levels from utilities operating in the Basin after 2014. Specifically, we recommend that Section (d)(2)(E) be revised as follows:

(E) No person shall sell, supply, offer to supply, or purchase electrical power for use on a vessel during a visit in lieu of using the on-board auxiliary diesel engines, unless such electrical power is either be supplied by the local utility or is otherwise generated by equipment that meet the following emission:

1. NOx Emissions

   a. Up to and including December 31, 2013, the NOx emissions shall be no greater than 0.2 g/kW-hr at any time: and

   b. Beginning January 1, 2014, the NOx emissions shall be no greater than 0.032 g/kW-hr at any time;

We also recommend that a new subsection be added under Section (e) to allow an exemption from the requirements of Sections (d)(2)(A)(1) and (d)(2)(A)(2) above, that prior to 2014, a vessel operator demonstrates meeting the emission reduction targets is not feasible due to physical limitations, safety, or other reasons. The vessel operator must demonstrate that the only choice is grid-based electric power and show progress to developing the necessary infrastructure to meet the emission reduction targets of Sections (d)(2)(A)(3) and (d)(2)(A)(4).

The AQMD staff recommended enhancements to the proposed regulation would reduce local exposure to air pollutions earlier while retaining the overall long-term emission reduction goals of the regulation. We recognize that there may be additional costs associated with a more aggressive compliance schedule for vessel operators which may prefer identifying technology solutions that require longer lead time to deploy (e.g., grid-based electric power). However, we believe that vessel operators can take such technology paths for the longer term compliance targets and in the interim deploy more near-term solutions without incurring substantial economic impacts. We evaluated the capital and operating costs for several alternative solutions ranging from fuel cell technologies, stationary LNG-powered dockside generators (such as that proposed by Wittmar), and grid-based electric power (including both shoreside infrastructure and verssel retrofit costs) for a typical terminal with specified number of calls and vessels. For a scenario assuming a 20% compliance in 2010, the cost to implement the various technologies (based on a twenty-foot equivalent unit or TEU) were estimated as follows:

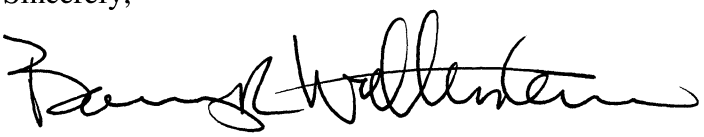
- Grid power - $2.30 per TEU
- Fuel Cell - $3.40 per TEU
- LNG-powered Dockside Generator (w/SCR) - $0.80 per TEU (Purchase cost)
- LNG-Powered Dockside Generator (w/SCR) - $3.50 per TEU (@ $1,000/hr usage)

Based on our analysis, the additional cost of compliance can be easily borne by the vessel operators (and the Ports of Los Angeles and Long Beach covering the cost of shore-side grid-based power) which would be able to recoup the costs to implement one or a combination of the above technologies through a modest increase in per TEU charge.

Lastly, the proposed regulation does not address several classes of ocean-going vessels namely tankers, bulk ships, and vehicle carriers which account for about 20% of NOx and PM emissions from hotelling operations. Regulation of these vessels is proposed to be addressed under a separate rulemaking at a later date. We are concerned that delayed rulemaking on these vessels would delay achievement of the targeted SIP emission reductions and therefore urge the Board to place high priority on these vessel categories and proceed expeditiously with developing and adopting this second phase of the regulation as early as possible in 2008.

Thank you again for the opportunity to provide these comments. We look forward to working with you in crafting and implementing the regulation for this important source category. If you have any questions regarding our comments, please feel free to call me or Mr. Henry Hogo, Assistant Deputy Executive Officer - Mobile Source Division, Science and Technology Advancement, at 909-396-3184.

Sincerely,



Barry R. Wallerstein, D.Env
Executive Officer

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