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Mr. Rodney Hill
Staff Air Pollution Specialist
California Air Resources Board
1001 I Street, PO box 2815
Sacramento, CA 95812

Submitted electronically to <http://www.arb.ca.gov/msprog/tech/techreport/comments.htm>

We appreciate this opportunity to comment on the draft document "Technology Assessment: Transport Refrigerators." ("TA") as published on July 31, 2015.

Maersk Line is the world's largest container shipping company, operating over 600 container vessels under the brands Maersk Line, Safmarine and SeaLand. Maersk Line is part of the Maersk Group, headquartered in Copenhagen, Denmark.

All of our refrigerated shipping containers operated globally are designed to be connected to electricity on vessels and on the shore, and are only operated on gensets when electricity is not available. Our TRU gensets are used to power the refrigerated containers when electricity is not available, primarily during truck and rail transportation.

We currently own and operate approximately 5400 TRU gensets in North America, of which about 3000 are registered with the California Air Resources Board (CARB). These TRU gensets operate routinely in multiple states and in Canada. Maintaining the CARB TRU list and ensuring that only listed gensets enter California has added complexity and time to managing the genset fleet. Since most TRUs operated in North America will likely eventually need to enter California, Maersk Line strongly supports harmonization of the CARB TRU regulatory approach with EPA and the rest of the states. We also support the efforts to work with SmartWay on new technologies and best practices, as recommended in the Technology Assessment.

We have recently invested in "California for life/Tier 4 Final" gensets with Diesel Particulate Filters. These units are more expensive than conventional gensets, both in original purchase and in additional maintenance cost and lost operational time. There is currently only one certified supplier for this technology, so unit costs may be higher due to lack of competition among suppliers. We also experienced delays in putting new units into service due to upgrades required as the technology developed and was deployed.

Our experience with this and other new technologies leads us to recommend the following:

1. Clear requirements should be laid out over future years and kept consistent to enable planning and support such investments.
2. In order to encourage continued investment in new technologies, we recommend that any new regulations "grandfather" gensets purchased as compliant to previous regulations. This will allow those TRUs to continue to be used through the end of their useful operational lives, and justify such investments.
3. We also agree with the Technology Assessment that incentive programs can be very helpful in encouraging/accelerating implementation of new, less-proven technologies. Such programs have been very effective in accelerating

improvements in vessel operations and marine terminal cargo handling equipment, and could be very cost-effective in the TRU area.

4. We recommend that testing plans for new technologies be initially directed to less sensitive cargos such as hard frozen goods, and not be applied to high value sensitive goods such as blood plasma.
5. We appreciate the emphasis on safety with new technologies, and recommend that safety be a criterion in selecting new technologies.
6. Unit weight is also an important consideration. Underslung 50gal. gensets are often used on longer hauls due to the need for safe access for refueling and to minimize fuel and unit weight.
7. Compatibility with and monitoring via GPS and other new technologies should be included in testing and implementation planning.
8. The Assessment states a "need for technology beyond Tier 4." Similar comments were made in the OGV Technology Assessment. In both cases we strongly encourage a detailed feasibility assessment and coordination with EPA and engine manufacturers prior to including these needs in regulations.
9. The Agency should work with industry stakeholders during future regulatory developments to identify and address feasibility and safety concerns, maximize operating flexibility for interstate and international equipment, and minimize administrative burdens.

Infrastructure considerations

The Technology Assessment states that "Long haul carriers would not be good candidates for these technologies until publicly-accessible refueling infrastructure is sufficiently available." We agree, and appreciate this recognition. Over 90% of the registered TRU gensets we use in California travel outside the state on a regular basis. Thus the infrastructure to support new technologies must extend beyond California borders to be broadly adopted and achieve the desired reductions.

Broader efficiency possibilities

We understand that the purpose of the Technology Assessment is to review the potential for improvements to this specific equipment. We encourage a broader look. The TA states that "Improved energy efficiency is key to the success of all of the technologies that were evaluated" – clearly true. However the Assessment does not explore the significant potential for more system-oriented strategies to reduce TRU emissions. For TRU gensets, these broader strategies include increasing energy efficiency of the refrigerated containers powered by the TRUs, faster cargo flow, and methods to reduce temperature swings by the cargo. Many of these approaches can be implemented more quickly and potentially with less investment. Therefore we believe that future incentives and regulations should be broad enough to include reductions related to these system-based efficiency strategies. An example is that idling reduction and run-time control software could be a quick and easy win if CARB were to expedite review and support commercialization of such systems. Emissions inventories and regulations should recognize such reductions.

Our records show that a significant improvement in energy efficiency has already been achieved in the movement of refrigerated containers. The daily fuel consumption rate has dropped from previous levels around 1 gal/hour to current levels of 0.5 to 0.8 gal/hour, depending on weather/ambient conditions, cargo temperature, and cargo thermal



Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

characteristics. It is not clear whether these improvements are reflected in the estimates of current emissions related to TRUs in California.

We believe that California should consider this total system efficiency approach as well. Current and future regulations that focus only on the TRU units will unavoidably ripple through the North American freight movement system, increasing costs and stranding some assets.

Thank you again for the opportunity to comment on the Technology Assessment. We will be happy to discuss any of these points in more detail or work with the Agency in considering potential reduction strategies.

Sincerely,

A handwritten signature in black ink, reading "B. Lee Kindberg".

B. Lee Kindberg
Director, Environment & Sustainability
Maersk Line Vessel Operations North America

Cc: Maersk Line Operations: Matt Merkel, Joe McMahon
Maersk Government Affairs: Doug Morgante, Sande George