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December 6, 2019

Ms. Mary D. Nichols, Board Chair  
Mr. Richard Corey, Executive Officer  
California Air Resources Board  
1001 I Street  
Sacramento, California 95812

Submitted via docket as directed at <http://www.arb.ca.gov/lispub/comm/bclist.php>  
Also transmitted via email

Cc (email): Heather Arias, Bonnie Soriano, Angela Csondes, Nicole Light

Subject: **Maersk Comments on Proposed Control Measure for Ocean-Going Vessels At Berth and Associated Standardized Regulatory Impact Assessment (SRIA)**, Board item [ogvatberth2019](#)

Dear Board Chair Nichols and Mr. Corey,

Thank you for this opportunity to comment on the Proposed Control Measure for Ocean-Going Vessels At Berth and Associated SRIA and ISOR. We commend staff for the outreach to stakeholders and the clear writing in the ISOR.

We have been engaged with CARB staff during the development of this new approach, in both workshops and meetings and through written comments. Three sets written comments were provided in 2019 (March 8, March 26, and June 10) and my speaker notes for the CARB Board public hearing on Dec. 5, 2019 are attached. Our comments in this document focus primarily on the proposed regulatory language and the processes defined for implementation. We have also provided input to PMSA and the World Shipping Council to incorporate in their comments.

**Structure of these comments:**

1. Executive Summary of comments
2. Maersk's interest in this rule and approach to regulation
3. The current At-berth regulation
4. Comments on the proposed new regulation
5. Recommendations

## 1. Executive summary of comments

The existing At-berth regulation has been an important and successful contributor in the dramatic reduction of shipping-related emissions. It is administratively complex, and CARB issued three Regulatory Advisories (2013, 2015 and 2017) to enable implementation and improve clarity. If this approach is continued in whole or in part in the future, some updating and technical corrections should be considered. A possible productive continuation could include a fleet averaging approach for the currently regulated fleets. Suggested areas for technical corrections are in Table 1.

Currently-regulated vessel fleet operators have developed sophisticated predictive models and expertise to manage this complex requirement and improve operations. Change to a new structure will make these models obsolete while achieving little to no additional environmental benefit vs the fully-implemented 2020 requirements already in place.

The per-vessel/checklist-based concept was initially supported by industry as a way to clarify and streamline the compliance process, address many of the issues in the current rule, establish balanced responsibilities for all participants, and make enforcement simpler. However, as the concept and language developed, the spirit changed from encouraging desired behaviors to a more controlling, punitive approach, which is also complex to administer, provides significantly less flexibility and planning capability, and creates conflict rather than cooperation between regulated entities.

The proposed “per-vessel” rule requires vessels to connect almost all calls starting January 1, 2021, however, the infrastructure to do so is not in place. The proposed regulation calls for Ports’ infrastructure plans to be submitted by July 2021, approved by CARB in 90 days (October), and only then start the funding, permitting and construction process. In addition, the envisioned alternative control systems are inadequate in LA/LB and do not exist in any other ports, and barge-based alternatives may not be usable in some locations due to safety concerns.

The proposed language includes positives such as a creative remediation fund (limited in use), and mechanisms to evaluate and approve future technologies. However the proposed rule still does not provide clear mechanisms to deal with significant operational disruptions, redeployments or market shifts. It also creates new technical issues which must be addressed if this approach is to be implemented. For example, the new rule calls for 1-hour connection times on arrival and departure, which is not feasible. We found that 38% of our vessel calls in California between May and October would not have met this requirement. (54% in Oakland). Clearly these technical issues need to be addressed before a rule based on this approach could be effectively implemented.

We recommend that staff work with the currently regulated vessel operators to improve the proposed compliance structure for these fleets – based on the current regulation’s EERO pathway (fleet averaging), the per-vessel approach, or some third alternative. The final direction should ensure at least one clear, feasible, reasonably cost-effective compliance pathway for all the typical variations of this business – including the periodic major disruptions (e.g., the 2015 labor disruptions, and the 2018 surge in extra vessels calls due to the threat of new tariffs in 2019, which resulted in a surge of over 30 additional vessels to CA ports in late 2018, few of which were shore power equipped).

We also recommend that CARB Staff work with Ports and other stakeholders to evaluate whether other reduction projects could provide earlier and more cost-effective ways to achieve the needed reductions.

Finally, only California has experience with shore power. Other ports and governments around the world are looking to California for data and best practices, so we need to get it right.

## **2. Maersk’s interest in this rule and approach to regulation**

Maersk is the global leader in container shipping, operating in 130 countries and employing roughly 76,000 people. We operate about 750 container vessels globally. Each year 45 to 60 of our vessels make over 500 calls in five California ports. These international vessels spend on the order of 5% or less of their operable lifetimes in the waters of any one state or country.

Maersk has long been an environmental leader in shipping. Examples of this environmental leadership include:

- Our voluntary clean fuel initiatives in California started in 2006, and other high-priority ports followed (e.g., Hong Kong, Houston). We are the only shipping line that supported both the California Vessel Fuel Rule and the US EPA’s North American Emissions Control Area proposal.
- Since 2007 we have reduced our fuel consumed and related emissions by 47% on a per container per kilometer basis, through new larger vessels, improved operational and vessel management practices, and retrofits of our existing fleet. Our fuel and CO<sub>2</sub> data are calculated using Clean Cargo methodologies and third-party verified by Lloyd’s Register.
- Our 2018 commitment to Net Zero CO<sub>2</sub> Shipping by 2050 means that we must launch our first carbon neutral vessel by 2030. New fuel, propulsion and technology development initiatives are underway to support this goal.



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- We now provide the first carbon-neutral shipping options for customers, and we are partnering with major cargo owners and technology providers to develop future fuels and technologies.
- Maersk's APM Terminals company is now installing hybrid cargo handling equipment in priority ports around the world, including Pier 400 in Los Angeles. This hybrid equipment reduces diesel emissions by well over half and can be converted to fully electric operations as equipment technology, supply of electricity and charging infrastructure become available.

**Maersk's approach to compliance:**

Maersk supports California's clean air and climate goals and strives to meet or exceed all requirements. We have committed time and resources to work with regulators to provide information on operations and capabilities to help their development of regulations that achieve environmental goals, are cost effective, clear and enforceable, and avoid unintended consequences. Our goal is that there will be clear, feasible compliance pathways for all reasonably foreseeable operational modes, which encourage desired behaviors and discourage counterproductive actions. We also support the development of emissions inventories that recognize the full range of efficiency and environmental improvements implemented by fleets, terminals and ports.

Maersk vessels began complying with the California At-berth rule in 2010 using the Equivalent Emissions Reduction Option, which focuses on fleet emissions reductions. This is four years earlier than the 2014 compliance date on the Reduced On-board Generation compliance approach taken by most carriers.

We have been engaged with CARB staff during the development of the proposed rule and ISOR, including numerous meetings, calls and written communications. We have also provided significant input to both PMSA and WSC on their comments, and support most of their industry recommendations. This letter will provide more specifics on a few key issues that we feel are of particular concern.

**3. The Current California At-berth rule**

The existing At-berth Rule and Vessel Fuel Rule have been important and successful contributors in the dramatic reduction of shipping-related emissions near California ports. However, the current rule is administratively complex for both the regulated entities and the Enforcement division and does need technical corrections. The existing structure encourages "spreadsheet exercises" rather than encouraging operational behaviors that minimize emissions. It is also not yet fully implemented.



The existing At-berth Rule established a multi-year phase-in, with the final step scheduled in 2020. On 1/1/2020 the vessel fleet emissions reduction requirements step up from a minimum of 70% to a minimum of 80% emissions reductions.<sup>1</sup> Assuring that fleets achieve the requirements requires that operational targets be set well above the minimum. On the shore side, berths where shore power infrastructure was funded by Proposition 1B have 10% higher requirements, so their requirements step up from 80% to 90%. Achieving these existing requirements means almost all regular calling vessels must be shore-power capable and connect.

In 2-3 years data on the outcome of the fully implemented rule will be available, enabling more thorough assessments.

Table 1: Structural Aspects and Technical Corrections for the Existing At-berth Rule

General structure:

- The existing Equivalent Emissions Reduction compliance pathway (fleet averaging approach to emissions reductions) encourages focus on the largest sources with over-compliance to ensure full compliance. This structure does provide some flexibility to address normal operational variations and challenges, but is complex to manage for both the vessel operators and CARB Enforcement.
- Currently-regulated vessel fleet operators have developed sophisticated predictive models and expertise to manage this complex requirement and improve operation. Change to a new structure will make these models obsolete while achieving little to no additional environmental benefit from these fleets.
- Obligations and penalties should be balanced for all participants responsible for making shore power effective: vessel operators, marine terminals, Ports, and alternative technology providers. This is not currently the case. The key role of labor must also be considered.
- No mechanism is provided to address for major redeployments or business disruptions (e.g., 2015 labor situation, or the 2018 influx of over 30 extra vessels due to the threat of federal tariffs).

Need to clarify use of Regulatory Advisory scenarios and streamline reporting.

- The Regulatory Advisories include several key provisions ("scenarios") essential for effective operation of the Rule, including Commissioning calls, shore-side power unavailability (e.g. infrastructure projects), annual reporting and averaging, research and testing of

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<sup>1</sup> The current first line-last line vessel visit definition results in low calculated reductions since it includes time prior to regulatory clearances and time needed for shore power connection and disconnection. It is not feasible to operate on shore power or an alternative during these times.



alternatives technologies, etc. These issues need to be addressed in any technical corrections.

- Dealing with short calls <30 hours. The emissions reduction calculation structure defined in the existing rule is increasingly challenging with the upcoming 80% reduction requirement. For example, a 10-hour call with 3 hour connect/disconnect time is a 70% reduction.
- Power consumption defaults given in "Table 1" are not accurate for today's vessels, and do not include larger vessels. This can distort emissions calculations.
- Arrival/departure definitions and the connection window were originally not based on actual experience and should be adjusted now that data is available.
- Review and clarify the math to be used for exclusions outside the vessel operator's control. The existing structure penalizes smaller ports and vessel fleet operators making short calls.

The initial concept of a per-vessel/checklist approach was attractive and widely supported as addressing many of the issues in the current rule. However, as the concept, structure and language developed, the spirit changed from encouraging desired behaviors to a more controlling, punitive approach. Particular concerns include these:

1. Compliance Pathway:
  - The rule basis is per-vessel with only a few exemptions. This demands near perfect performance from a mobile source technology that is used only intermittently and must withstand the challenging ocean environment during and between uses.
  - The rule does not provide feasible compliance pathways for some normal operational situations (e.g., major business or economic changes, network redesigns, or the large number of "extra loaders" encountered in late 2018).
2. Control options: Alternatives are very limited in LA/Long Beach, and completely unavailable in other ports. Feasible compliance options need to be available and clearly defined for all ports prior to implementation of a more stringent requirement.
3. Complexity: The proposed rule is also administratively complex and challenging, so is not an improvement vs. the existing rule. The seven-day reporting requirement conflicts with annual allowance of VIEs and TIEs. This adds significant uncertainty and challenge to planning, decision-making and reporting for any non-routine call.
4. Conflict vs. cooperation: The design as now written will lead to conflict between vessel operators, terminals and ports rather than increasing cooperation.



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5. Cost: The rule as currently structured increases costs and the risk of non-compliance, particularly at ports with few or no alternatives (assuming payment to the remediation fund is allowed at these locations). This will increase costs per container more at these ports, further disadvantaging these smaller ports.

Examples of practical flaws in the proposed regulatory language:

1. Replaces the current 3-hour engine run time with two one-hour requirements. No data was provided to support this change. (why a 1-hour rule was chosen/feasible).

In October 2019 Maersk analyzed data on 135 vessel calls back to May 7, 2019. We found that 38% of the calls would not have met the proposed 1-hour rule on arrival. (Details: 27% in LA, 34% in Long Beach and 54% in Oakland). Would these visits all have paid mitigation fees (if available and allowed) or been out of compliance?

If 38% of vessels cannot meet a fundamental requirement in the regulation, there is a problem with the feasibility of the regulation. Analysis of engine run times required by size and port are available for discussion with staff.

- Recommendation: Initially require documentation of reasons when the time is exceeded, with no penalty, and review in the proposed 2023 program review to determine statistically feasible times.

2. Currently regulated Vessel fleet operators are required to comply on essentially every vessel call starting 1/1/2021, but infrastructure does not exist to do so. Ports and terminals must submit PLANS by July 2021, and CARB has 90 days to review and approve those plans. Only then can the infrastructure proposal, permitting, funding and construction processes be started.

- Recommendation: Defer implementation of the per-vessel approach until this infrastructure availability is addressed.

3. Reporting is required within 7 days, however VIEs and TIEs are granted annually. This incompatibility in time spans means vessel operators must make decisions with very significant annual cost and operational impacts without knowing the annual impact and without the ability to plan for the full year.
  - The Terminal TIEs may not be available for some needs, and could be provided preferentially to fleets with ownership interests
  - VIEs at 5% mean only 2 calls per year in some small ports



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- The VIE structure does not provide a mechanism to address the periodic business changes and disruptions mentioned above.
- Recommendation: Allow adjustment of VIE and TIE visit allocations on an annual basis to enable cost controls and effective planning.

## 5. Recommendations:

1. Ports and government agencies around the world are looking to California as the only place with experience and data. CARB needs to ensure anything published or enacted is accurate, clear and a scalable practice.
2. The proposed rule should not go forward as currently designed. This rule, by requiring near 100% connections for shore power or alternatives, no ability to use an alternative (CAECT) for many vessels including very large cargo and cruise vessels, and no fleet averaging leaves no margin for error and sets up vessel operators for failure in spite of all reasonable efforts to comply.

Instead, we ask that the Agency “hit pause” and re-evaluate options including the following:

- Other port-specific concepts that could achieve greater reductions
  - The “Industry alternatives” which include fleet averaging.
  - Allowing the currently regulated fleets to continue under the Equivalent Emissions Reduction Option with technical corrections.
  - Another clear and simple approach is a fleet averaging approach based solely on the percent of time the fleet is connected. We believe this is consistent with CARB’s inventory approach.
3. If the proposed rule does move forward as currently structured, the following changes would make it more feasible and practical:
    - a. We ask that the CARB Board direct staff to ensure that any rule changes provide clear feasible pathways for all reasonably foreseeable business events outside the control of the vessel fleet and marine terminal operators.
    - i. Conduct an analysis covering at least the known occurrences encountered in the decade this rule has been on the books (economic and trade disruptions, labor issues impacting productivity, ownership and alliance changes, redeployments, business swings due to carrier bankruptcy, et. al.). Use the results of this analysis to fine-tune the requirements.





- ii. Ensure implementation of the infrastructure improvement projects required to deliver high levels of control for the future and provide mechanisms to enable vessel and terminal compliance during construction while minimizing total environmental impact (all modes). This has been addressed under Scenario 1 of the 2015 Regulatory Advisories, which discourages diversions to other modes such as trucking.
  - iii. Phase in the new requirements in alignment with availability of infrastructure and alternative control systems.
- b. Technical aspects for the proposed regulatory language:
- i. Modify the "1 hour connect/disconnect time requirements" to be "as soon as practicable." If a numeric standard is needed, CARB could initially require documentation of reasons when a defined time is exceeded, with no penalty, and review performance in the proposed 2023 program review to determine statistically feasible times.
  - ii. Please clarify that "compatible" and "compatibility" refer to shore power electrical standards and are not related to physical vessel configurations (e.g., not intended to require installation of shore power on the second side of the vessel).
  - iii. Please clarify a vessel operator's options and responsibilities if the master or CAECT provider believes the available CAECT cannot safely connect to the vessel's stack due to height, configuration or presence of a scrubber.
  - iv. Clarify and fine tune processes for managing exceptions:  
We continue to be concerned about the complexity and fault-finding involved in managing the TIEs/VIEs and remediation fees.
    - VIEs need to be flexible within a port complex like LA/LB since vessel services may move from terminal to terminal as business changes.
    - To be most useful, VIEs and remediation fees should be reviewable and adjustable if needed and valid for at least 18 months.
    - Clarify whether a VIE covers a vessel visit to one port or a full California voyage. It appears that as written a vessel scheduled to make calls in 3 ports that experiences a malfunction could be required to expend VIEs in each port called until repairs can be made. The operational alternative would be to omit vessel port calls, potentially requiring that containers be trucked to the other ports.
    - Clarify the mechanism for managing the situation where a vessel experiences a major mechanical problem and is moved to a "lay by" berth for repairs. We are checking to determine whether such occasionally-used berths have shore power capability. If shore power is



not available could this be covered under the original TIE/VIE, or would a second TIE/VIE be required? An unintended consequence could be prolonging repairs by making them at anchorage instead of at berth.

- A similar question applies if a vessel “double calls” – visits one terminal in a port complex and then makes a brief stop in another terminal in the same port (e.g., to load empty containers). Is there a *de minimis* visit?
- Is there a way to address the regulatorily-required 5-year vessel dry dockings? A service with 5 identical vessels will almost certainly include vessels of the same class, with dry dockings bunched rather than being spaced evenly at one per year. For a short rotation service, (e.g., 5 vessels in 5 weeks) such dry dockings may require a replacement vessel for 2 to 3 visits. Replacement vessels with shore power can be difficult to charter and are not available in some sizes. Thus, dry dock replacement could exhaust or exceed all VIEs at each port, leaving no VIEs for extra loaders, redeployments or operational issues. Would remediation fees be an option in this case?
- Similarly, how will a port or terminal operator handle major public works or infrastructure projects, such as the major projects to install infrastructure for electrification of cargo handling equipment and heavy duty over-the-road vehicles? Is the only option to increase the cost of these desirable projects due to remediation fees? Is it clear that remediation fees would be allowed for these uses?

c. Reporting

- i. The Responsible Official must manage data quality and carefully allocate VIEs/TIEs/exemptions for the full fleet on a centralized basis. Thus, individual vessels will not be capable of reporting directly to CARB.
- ii. Due to the high level of expertise and knowledge required for managing VIEs, seven (7) days is not feasible during certain seasons (summer holidays, Christmas, etc.). Negotiation with terminals around use of TIEs vs. VIEs will also require time. In addition, VIE vs. remediation cost management calls for a minimum of 30 calendar days, and a quarterly or annual adjustment period would be more feasible for planning and fleet/cost management.
- iii. We do not yet know what information will need to be reported or how the system will work, and therefore cannot comment specifically on the feasibility, time commitment or individual items to report. This requirement should be made transparent to the regulated community quickly or be revisited when the reporting system design is available.



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- d. Remediation fee: The remediation fee is an interesting and creative mechanism for addressing operational challenges and enabling community air quality improvements. Broad availability of the remediation fee option would help address the flexibility needs identified in both the existing and the proposed rule. As mentioned above, to be most useful, VIEs and remediation fees should be reviewable and adjustable if needed during the time that they are valid. A critical question is when is the Fee payable, how and by whom in each operational scenario?
- e. The severability clause on the last page will leave the rule unbalanced and unworkable if any party is able to successfully challenge their inclusion in the rule. A reversion to some modified version of the existing rule may be more appropriate in this case.
- f. The research exemption needs to be broader to cover testing of new measurement devices (e.g., CEMs), new treatment technologies, fuels, etc. for both ship and shore side.

Again, thank you for this opportunity to comment on the proposed regulatory language and ISOR.

Sincerely,

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## Speaking Points for CARB At-berth Public Hearing

Oakland CA, Dec. 5, 2019

B. Lee Kindberg, Ph.D.

Good Morning. I am Lee Kindberg, Head of Environment & Sustainability for Maersk North America.

Maersk is the world's largest container shipping company and has long been committed to environmental leadership.

- voluntary use of clean fuels in California starting in 2006.
- reduced CO2 by 41% per container moved in the last decade.
- We have committed to zero carbon shipping by 2050 so are working to launch our first zero carbon vessel by 2030.

I've managed our clean fuels and shore power programs from the beginning.

Maersk Exeter arrived in Oakland this morning. She left here in early August -- 16 weeks ago -- and visited Asia, Singapore, Suez and Antwerp before returning.

A weekly sailing on that route takes 16 vessels - all shore power capable at a cost ~\$1M. If we change out vessels that's an additional million each and takes 6 to 9 months.

Current rule:

- Has helped reduce emissions @ ports
- Is complex for us to manage and CARB to enforce, so we have built models and expertise to do so.
- Needs technical corrections – but not necessarily a whole new rule.

We were optimistic that the new rule would streamline compliance and establish responsibilities for all participants.

However, as the proposal evolved the spirit changed, and it became equally complex and even punitive.

The proposal means throwing out our models, SOPs and experience, and starting over – with less flexibility, far less ability to plan, and minimal additional environmental benefit.

- The new rule requires vessels to connect 100% starting 1/1/2019 but the infrastructure to do so just isn't there. Ports' infrastructure plans would be approved by CARB in October that year.



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And the envisioned alternative systems just don't exist in most ports.

- There is still no clear mechanism to deal with significant disruptions, redeployments or market shifts.
- Technical issues – e.g. 1-hour connection times –

38% of our vessels calls since May would not have met. (54% here in Oakland)

What would we like to see?

1. Direct staff to pause and work with currently regulated fleets to improve the structure – old or new or a third approach.
2. Ensure at least one clear, feasible, reasonably cost-effective compliance pathway for all the likely variations of this business – including the periodic major disruptions.

2015 labor

2018 tariffs → surge of 34 additional vessels to CA

3. Finally, only California has experience with shore power. Other ports and governments are watching so we need to get it right.

Thank you again for this opportunity to speak. I will also submit written comments by Monday.