

AGREEMENT NO. _____

AGREEMENT BETWEEN
THE CITY OF LOS ANGELES AND
MAERSK AGENCY U.S.A., INC. as agent for MAERSK LINE A/S

THIS AGREEMENT is made and entered into by and between the CITY OF LOS ANGELES, a municipal corporation ("City"), acting by and through its Board of Harbor Commissioners, ("Board") and MAERSK AGENCY U.S.A., INC., a Delaware corporation, 9300 Arrowpoint Blvd., Charlotte, North Carolina, 28273, as agent for MAERSK LINE A/S, a Denmark corporation ("Maersk" or "Grantee").

WHEREAS, the City and the City of Long Beach Harbor Department adopted the San Pedro Bay Ports Clean Air Action Plan ("CAAP"), a program which has as one of its primary goals the reduction of diesel and other emissions resulting from operations at the Port of Los Angeles ("POLA") and the Port of Long Beach ("POLB"); and

WHEREAS, one program of the CAAP is the Technology Advancement Program ("TAP"), created in order to accelerate the verification or commercial availability of new, clean technologies usable in the port industry and which result in significant reduction of diesel particulate matter, nitrogen oxides, sulfur oxides and other pollutants; and

WHEREAS, the TAP provides grant funding to port-related technology vendors and port industry participants to assist in identifying, evaluating and demonstrating new and emerging emission reduction technologies and strategies that may result in new control measures, alternatives to existing strategies or as additional mitigation options under the CAAP; and

WHEREAS, Maersk plans to invest approximately \$125 million to modify twelve ocean-going vessels ("OGVs") to increase energy efficiency and decrease fuel consumption in those vessels, thereby resulting in air pollutant and greenhouse gas emission reductions; and

WHEREAS, Maersk requested a TAP grant to fund and support emissions testing and data analysis for four modified OGVs in order to quantify and verify the energy efficiencies and emissions reduction benefits resulting from the OGV modifications ("Energy Efficiency Measurement Demonstration Project" or "Project"); and

WHEREAS, the TAP Committee has reviewed and approved funding for Maersk's Project and through this Agreement and pursuant to its terms, the City will reimburse Maersk for a portion of the cost of the Project;

NOW, THEREFORE, in consideration of the forgoing recitals, the parties agree as follows:

I. AUTHORIZED REPRESENTATIVES TO RECEIVE NOTICES

A. The representatives of the respective parties who are authorized to receive notices for this Agreement are:

Lee Kindberg, Ph.D.
Director, Environment & Sustainability
Maersk Agency U.S.A., Inc.
9300 Arrowpoint Blvd.
Charlotte, NC 28273
Tel: (704) 571-2693
Email: lee.kindberg@maersk.com

Carter Atkins
Environmental Specialist
Port of Los Angeles
425 South Palos Verdes Street
San Pedro, CA 90731
Tel: (310) 732-7649
Email: catkins@portla.org

B. Formal notices, demands, requests and communications given by either party shall be made in writing to the authorized representatives set forth above.

C. If the name or address designated above is changed, written notice shall be given to the other party within five (5) working days of said change.

II. SERVICES TO BE PERFORMED BY GRANTEE

A. Grantee shall, to the reasonable satisfaction of the City, obtain those professional, expert and technical services and materials necessary to complete the Project and reporting requirements described in Exhibit A.

B. During the term of this Agreement, Grantee shall submit a written request to, and obtain written approval from, the Executive Director or his designee to change or modify the Scope of Work described in Exhibit A. Changes or modifications to Exhibit A that are not approved and accepted in writing by the Executive Director or his designee shall not be eligible for reimbursement and shall be considered a breach of this Agreement.

III. SERVICES TO BE PERFORMED BY CITY

A. City shall reimburse Grantee for Project costs incurred in accordance with the terms of this Agreement.

B. At any time during the term of this Agreement, and upon ten (10) days written notice to Grantee, City shall have the right to review Project documentation for the purpose of verifying that Project milestones have been completed and that the Project is being conducted in accordance with the terms of this Agreement.

C. Unless set forth herein, City shall not be obligated to provide assistance to Grantee to assure completion of the Project as required herein.

IV. EFFECTIVE DATE AND TERM OF THE AGREEMENT

Subject to the provisions of Charter Section 245, this Agreement shall be in full force and effect commencing from the date of execution by the Executive Director and shall continue until the earliest of the following occurs:

1. Three (3) years has lapsed from the effective date of this Agreement;
2. The Board of Harbor Commissioners, in its sole discretion, terminates and cancels all or part of this Agreement for any reason upon giving ten (10) days' notice in writing of its decision to cancel and terminate this Agreement. Reimbursement for Project costs incurred up to the date of termination shall be paid in accordance with the terms of this Agreement;
3. The parties have completed the Project requirements as indicated in Exhibit A;
4. The parties mutually agree to terminate the Project prior to the end of the three year term or completion of the Project. Reimbursement for Project costs incurred up to the date of termination shall be paid in accordance with the terms of this Agreement; or
5. Grantee notifies City, upon giving ten (10) days' notice in writing, of its decision to cancel the Project. Reimbursement for Project costs incurred up to the date of termination shall be paid in accordance with the terms of this Agreement.

V. GRANT AWARD

A. The grant award is calculated based upon estimated expenses of the Project as reported by Grantee. For the satisfactory performance of the work required by this Agreement, City shall pay and reimburse Grantee in the amounts and schedule set forth in Exhibit B.

B. The maximum payable under this Agreement shall be One Million Dollars (\$1,000,000). Expenses incurred above this amount shall not be reimbursed unless the parties enter into a written amendment to this Agreement and the same is approved in accordance with the Los Angeles City Charter.

C. Grantee shall submit invoices, in duplicate form, to City following the effective date of this Agreement for the tasks performed in Exhibit A and according to the schedule in Exhibit B. Each such invoice shall be signed by the Grantee and shall include the following certification:

"I certify under penalty of perjury that the above bill is just and correct according to the terms of Agreement No. _____ and that payment has not been received.

(Representative's Signature)

D. Grantee must include on the face of each itemized invoice submitted for payment its Business Tax Registration Certificate number. No invoice will be processed for payment by City without this number shown thereon. All invoices shall be approved by the Executive Director or his designee prior to payment. All invoices due and payable and found to be in order shall be paid as soon as, in the ordinary course of City business, the same may be approved, audited and paid.

Grantee shall submit appropriate supporting documents with each invoice. Such documents may include provider invoices, receipts, payrolls, and time sheets. The City may require, and Grantee shall provide, all documents reasonably required to determine whether amounts on the invoice are allowable expenses under this Agreement. Grantee is not required to submit support for direct cost items of \$25 or less.

City's obligation to make payments pursuant to this Agreement is contingent upon Grantee complying with the Scope of Work and submission of deliverables in accordance with the requirements of this Agreement, and approval of same by the Executive Director or his designee.

E. For payment and processing, all invoices should be mailed to the following address:

Accounts Payable Section
Harbor Department, City of Los Angeles
P.O. Box 191
San Pedro, CA 90733-0191

VI. EMISSION REDUCTION CREDITS (ERCs)

The parties agree that no Emission Reduction Credits will be generated by the Project.

VII. BUSINESS TAX REGISTRATION CERTIFICATE

The City of Los Angeles Office of Finance requires the implementation and enforcement of Los Angeles Municipal Code Section 21.09 et seq. This Code Section

provides that every person, other than a municipal employee, who engages in any business within the City of Los Angeles, is required to obtain the necessary Business Tax Registration Certificate and pay business taxes. See Exhibit C.

VIII. INDEMNIFICATION

Except for the sole negligence or willful misconduct of the City, or any of its Boards, Officers, Agents, Employees, Assigns and Successors in Interest, Grantee undertakes and agrees to defend, indemnify and hold harmless the City and any of its Boards, Officers, Agents, Employees, Assigns, and Successors in Interest from and against all suits and causes of action, claims, losses, demands and expenses, including, but not limited to, attorney's fees (both in house and outside counsel) and cost of litigation (including all actual litigation costs incurred by the City, including but not limited to, costs of experts and consultants), damages or liability of any nature whatsoever, for death or injury to any person, including Grantee's employees and agents, or damage or destruction of any property of either party hereto or of third parties, arising in any manner by reason of the negligent acts, errors, omissions or willful misconduct incident to the performance of this Agreement by Grantee or its subcontractors of any tier. Rights and remedies available to the City under this provision are cumulative of those provided for elsewhere in this Agreement and those allowed under the laws of the United States, the State of California, and the City.

Grantee shall report in writing to the Executive Director within fifteen (15) calendar days after it, its officers or managing agents have knowledge of any accident or occurrence involving death of or injury to any person or persons, or damage in excess of Five Hundred Dollars (\$500.00) to property and occurring within the Port of Los Angeles Harbor District if Consultant's officers, agents or employees are involved in such an accident or occurrence. Such report shall contain to the extent available (1) the name and address of the persons involved, (2) a general statement as to the nature and extent of injury or damage, (3) the date and hour of occurrence, (4) the names and addresses of known witnesses, and (5) such other information as may be known to Grantee, its officers or managing agents.

IX. TERMINATION PROVISION

The Board of Harbor Commissioners, in its sole discretion and subject to Article IV, shall have the right to terminate and cancel all or any part of this Agreement for any reason upon giving Grantee ten (10) days' advance, written notice of the City's election to cancel and terminate this Agreement. It is agreed that any Agreement entered into shall not limit the right of the City to enter into similar agreements with third parties or perform the services described in this Agreement either during or after the term of this Agreement.

X. TERMINATION DUE TO NON-APPROPRIATION OF FUNDS

This Agreement is subject to the provisions of the Los Angeles City Charter which, among other things, precludes the City from making any expenditure of funds or incurring any liability, including contractual commitments, in excess of the amount appropriated thereof.

The Board, in awarding this Agreement, is expected to appropriate sufficient funds to meet the estimated expenditure of funds through June 30 of the current fiscal year and to make further appropriations in each succeeding fiscal year during the life of the Agreement. However, the Board is under no legal obligation to do so.

The City, its boards, officers, and employees are not bound by the terms of this Agreement or obligated to make payment thereunder in any fiscal year in which the Board does not appropriate funds therefore. Grantee is not entitled to any compensation in any fiscal year in which funds have not been appropriated for the Agreement by the Board.

Although Grantee is not obligated to perform any work under the Agreement in any fiscal year in which no appropriation for the Agreement has been made, Grantee agrees to resume performance of the work required by the Agreement on the same terms and conditions for a period of sixty (60) days after the end of the fiscal year if an appropriation therefore is approved by the Board within that 60-day period.

If in any subsequent fiscal year funds are not appropriated by the Board for the work required by the Agreement, the Agreement shall be terminated pursuant to Article IV. Such termination shall not relieve the parties of liability for any obligation previously incurred.

XI. ACCEPTABILITY OF WORK

The City shall decide on a reasonable basis any and all questions that may arise as to the quality or acceptability of the work performed by Grantee under this Agreement, including errors and omissions, and as to the amount of reimbursement due to Grantee. Decisions shall be final, and the City shall have authority to enforce and make effective such decisions and orders with respect to the performance of this Agreement.

Grantee understands that no board member, officer, agent or employee of City has the authority to require work outside this Agreement other than is allowed by this Agreement.

XII. COMPLIANCE WITH APPLICABLE LAWS

Grantee shall, at all times, in the performance of its obligations comply with all applicable laws, statutes, ordinances, rules and regulations, enacted and adopted by

federal, state, regional, municipal or other governmental bodies, departments or offices thereof. In addition to the foregoing, Grantee shall comply immediately with any and all orders or directions issued by the City under authority of any such law, statute, ordinance, rule or regulation.

XIII. ASSIGNMENT

Grantee shall not assign, sell, license or otherwise transfer this Agreement or any of the rights granted by this Agreement without the prior written consent of the City, which shall not be unreasonably withheld. Any attempted transfer or assignment without the prior written consent of the City shall be void and confer no rights whatsoever upon a transferee or assignee. Any attempted transfer or assignment without the prior written consent of the City shall be considered a breach of this Agreement and the City may proceed with termination of the agreement.

Any request for consent to an assignment shall be made in writing, accompanied by information relevant to the City's determination as to the financial and operational responsibility and appropriateness of the proposed assignee, including but not limited to any modifications to the Project Scope of Work, if any. Grantee agrees to provide to the City such other or additional information and/or documentation pertaining to the requested consent as may be reasonably requested by the City.

XIV. INDEPENDENT CONTRACTOR

Grantee agrees that the performance of the work required by this Agreement is done as an independent contractor and not an agent or employee of the City. Grantee shall not represent itself as an agent or employee of the City and shall have no power to bind the City in contract or otherwise.

XV. CONFLICT OF INTEREST

It is hereby understood and agreed that the parties to this Agreement have read and are aware of the provisions of Section 1090 et seq. and Section 87100 et seq. of the Government Code relating to conflict of interest of public officers and employees, as well as the Conflict of Interest Code of the City and Department. The parties agree that they are unaware of any financial or economic interest of any public officer or employee of City relating to this Agreement. Notwithstanding any other provision of this Agreement, it is further understood and agreed that if such financial interest does exist at the inception of this Agreement, City may immediately terminate this Agreement by giving written notice thereof.

XVI. TRADEMARKS, COPYRIGHTS AND PATENTS

Grantee agrees to save, keep, hold harmless, protect and indemnify the City and any of its officers or agents from any damages, costs, or expenses in law or equity from infringement of any patent, trademark, service mark or copyright of any person or

persons, or corporations in consequence of the use by City of any materials supplied by Grantee in the performance of this Agreement. Provided however, the parties agree that all intellectual property rights related to the process and technology used by Grantee for the Project shall belong to Grantee.

XVII. OWNERSHIP OF DOCUMENTS

All data, documents, reports or other materials, copies of working papers which contain information relating to the review, documentation, analysis and evaluation of the work described in this Agreement shall become the property of the City. The City reserves the right to use, duplicate, disclose in whole or in part in any manner for any purpose whatsoever all said data, documents, reports or other materials, and to authorize others to do so.

XVIII. TAXPAYER IDENTIFICATION NUMBER (TIN)

The Internal Revenue Service (IRS) requires that all consultants and suppliers of materials and supplies provide a TIN to the party that pays them. Consultant declares that it has an authorized TIN which shall be provided to the Department prior to payment under this Agreement. No payments will be made under this Agreement without a valid TIN.

XIX. STATE TIDELANDS GRANTS

This Agreement is entered into in furtherance of and as a benefit to the State Tideland Grant and the trust created thereby. Therefore, this Agreement is at all times subject to the limitations, conditions, restrictions and reservations contained in and prescribed by the Act of the Legislature of the State of California entitled "An Act Granting to the City of Los Angeles the Tidelands and Submerged Lands of the State Within the Boundaries of Said City," approved June 3, 1929, (Stats. 1929, Ch. 651), as amended, and provisions of Article VI of the Charter of the City of Los Angeles relating to such lands. The parties agree that any interpretation of this Agreement and the terms contained herein must be consistent with such limitations, conditions, restrictions and reservations.

XX. GOVERNING LAW AND VENUE

This Agreement shall be governed by and construed in accordance with the laws of the State of California, without reference to the conflicts of law, rules and principles of such State. The parties agree that all actions or proceedings arising in connection with this Agreement shall be tried and litigated exclusively in the State or Federal courts located in the County of Los Angeles, State of California, in the judicial district required by court rules.

XXI. INTEGRATION

This Agreement contains the entire understanding and agreement between the parties hereto with respect to the matters referred to herein. No other representations, covenants, undertakings, or prior or contemporaneous agreements, oral or written, regarding such matters which are not specifically contained, referenced, and/or incorporated into this Agreement by reference shall be deemed in any way to exist or bind any of the parties. Each party acknowledges that it has not been induced to enter into the Agreement and has not executed the Agreement in reliance upon any promises, representations, warranties or statements not contained, referenced, and/or incorporated into the Agreement. THE PARTIES ACKNOWLEDGE THAT THIS AGREEMENT IS INTENDED TO BE, AND IS, AN INTEGRATED AGREEMENT.

XXII. SEVERABILITY

Should any part, term, condition or provision of this Agreement be declared or determined by any court of competent jurisdiction to be invalid, illegal or incapable of being enforced by any rule of law, public policy, or city charter, the validity of the remaining parts, terms, conditions or provisions of this Agreement shall not be affected thereby, and such invalid, illegal or unenforceable part, term, condition or provision shall be treated as follows: (a) if such part, term, condition or provision is immaterial to this Agreement, then such part, term, condition or provision shall be deemed not to be a part of this Agreement; or (b) if such part, term, condition or provision is material to this Agreement, then the parties shall revise the part, term, condition or provision so as to comply with the applicable law or public policy and to effect the original intent of the parties as closely as possible.

XXIII. CONSTRUCTION OF AGREEMENT

This Agreement shall not be construed against the party preparing the same, shall be construed without regard to the identity of the person who drafted such and shall be construed as if the parties had jointly prepared this Agreement and it shall be deemed their joint work product; each and every provision of this Agreement shall be construed as though the parties hereto participated equally in the drafting hereof; and any uncertainty or ambiguity shall not be interpreted against any one party. As a result of the foregoing, any rule of construction that a document is to be construed against the drafting party shall not be applicable.

XXIV. TITLES AND CAPTIONS

The parties have inserted the Article titles in this Agreement only as a matter of convenience and for reference, and the Article titles in no way define, limit, extend or describe the scope of this Agreement or the intent of the parties in including any particular provision in this Agreement.

XXV. MODIFICATION IN WRITING

This Agreement may be modified only by written agreement of the parties. Any such modifications are subject to all applicable approval processes required by, without limitation, City's Charter and City's Administrative Code.

XXVI. WAIVER

A failure of either party to this Agreement to enforce the Agreement upon a breach or default shall not waive the breach or default or any other breach or default. All waivers shall be in writing.

XXVII. EXHIBITS; ARTICLES

All exhibits to which reference is made in this Agreement are deemed incorporated in this Agreement, whether or not actually attached. To the extent the terms of an exhibit conflict with or appear to conflict with the terms of the body of the Agreement, the terms of the body of the Agreement shall control. References to Articles are to Articles of this Agreement unless stated otherwise.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date to the left of their signatures.

THE CITY OF LOS ANGELES, by its Board of Harbor Commissioners

Dated: _____

By _____
EUGENE D. SEROKA
Executive Director

Attest: _____
AMBER M. KLESGES
Board Secretary

MAERSK AGENCY U.S.A., INC.
as agent for MAERSK LINE A/S

Dated: 2/19/2016

By [Signature]

Type Name: ROLF MEISEN
Type Title: SVP, OPERATIONS

Attest [Signature]

Type Name: TIMOTHY H O'LOUNGH
Type Title: VP, OPERATIONS

APPROVED AS TO FORM AND LEGALITY

_____, 2016

MICHAEL N. FEUER, City Attorney
Janna B. Sidley, General Counsel

By _____
Heather M. McCloskey, Deputy

Account#	<u>59965</u>	W.O. #	<u>78085</u>
Ctr/Div#	<u>0330</u>	Job Fac.#	<u>637-00</u>
Proj/Prog#	<u>000</u>		
Budget FY:		Amount:	
<u>2015-16</u>		<u>0</u>	
<u>2016-17</u>		<u>600,000</u>	
<u>2017-18</u>		<u>300,000</u>	
<u>2018-19</u>		<u>100,000</u>	
<u>TOTAL</u>		<u>1,000,000</u>	

For Acct/Budget Div. Use Only

Verified by: _____

Verified Funds Available: _____

Date Approved: _____

EXHIBIT A

MAERSK OCEAN-GOING VESSEL ENERGY EFFICIENCY MEASUREMENT DEMONSTRATION PROJECT

SCOPE OF WORK AND PROJECT TASKS

The following tasks are necessary to implement the Maersk Ocean-Going Vessel Energy Efficiency Measurement Demonstration Project ("Project").

Task 1 Project Management & Coordination

Task 2 Fleet Characterization

- Catalogue existing fleet parameters, by vessel and by class
- Catalogue anticipated modifications to the fleet parameters, by vessel and by class
- Deliverables: Fleet Characterization Report

Task 3 Technical Work Plan and Measurement Equipment Specification

- Develop technical work plan, which will provide the framework for how the Project will move forward, as well as roles, responsibilities, timelines, system design and vessel selection.
- Develop technical specifications for measurement equipment and devices and issue bid requests for competitive selection.
- Stakeholder meetings to review the plans and incorporate comments.
- Deliverables: Technical Work Plan

Task 4 Data Collection Plan

- Develop the data collection plan on Pre- and Post-Radical Retrofit.
- Stakeholder meetings to review the plans and incorporate comments.
- Deliverables: Data Collection Plan

Task 5 Monitoring Equipment Installation and Data Collection

- Collect Pre-Radical Retrofit data as per Data Collection Plan.
- Purchase and installation of advanced fuel flow meters and other monitoring equipment, sensors, etc.
- Collect Post-Radical Retrofit data as per Data Collection Plan.
- Prepare a report that summarizes system layout, locations of meters, meter identification, test data to validate monitors and sensors operate as designed.
- Deliverables: Installation and Data Collection Report

Task 6 Data Analysis

- Evaluate pre and post retrofit data and assess the benefits of the retrofit program elements.
- Develop draft energy and fuel data parameter analysis report.
- Coordinate stakeholder review of the report and incorporate comments.
- Deliverables: Energy and Fuel Parameters Report

Task 7 Final Project Report

- Develop preliminary draft of Project report and appendices.
- Port review and comments, incorporate into a draft report.

- Meetings with TWG and incorporate comments.
- Deliverables: Final Project Report

SCOPE OF WORK

Objective

The objective of this Project is to demonstrate the benefits of energy efficiency improvements for ocean-going vessels (OGVs) in a manner that ensures the improvement can be demonstrated after implementation.

Approach

Data will be collected and analyzed using energy-based and fuel-based evaluation approaches that will be developed under the auspices of the San Pedro Bay Ports (SPBP) Technology Advancement Program (TAP) and Clean Air Action Plan Ocean-Going Vessel Measure 6 (OGV-6). Data will be collected on a minimum of four vessels, as described below. The Project team will coordinate with the TAP Advisory Committee (AC) and the ports' emissions inventory Technical Working Group (TWG) throughout the Project, as appropriate.

This Project will build upon and enhance the data collection methods in the California Air Resources Board's OGV evaluation guidelines¹ by utilizing unprecedented access to vessel energy consumption data by each engine type (main engines, auxiliary engines, and boilers). The demonstration will be conducted by collection of detailed vessel parameters and operational data onboard two classes of containerhips calling at either the Port of Los Angeles or the Port of Long Beach that are undergoing Maersk Line's (Maersk) "Radical Retrofit" program. Radical Retrofit is a plan to retrofit existing vessels with current and future technologies, resulting in energy efficiency improvement and fuel savings.

The Radical Retrofit of Maersk's Gudrun and Gerner Class vessels is expected to save 2,950 metric tons (tonnes) of fuel per Gudrun Class vessel annually and 2,050 tonnes per Gerner Class vessel annually, for a total annual reduction of 10,000 tonnes of fuel for the four vessels to be tested. This will reduce the greenhouse gas (GHG) emissions from the four vessels by an estimated 31,140 tonnes of carbon dioxide (CO₂) per year. Diesel particulate matter (DPM), oxides of nitrogen (NO_x), and oxides of sulfur (SO_x) will also be reduced as a result of lower engine loads and the associated reduced fuel consumption.

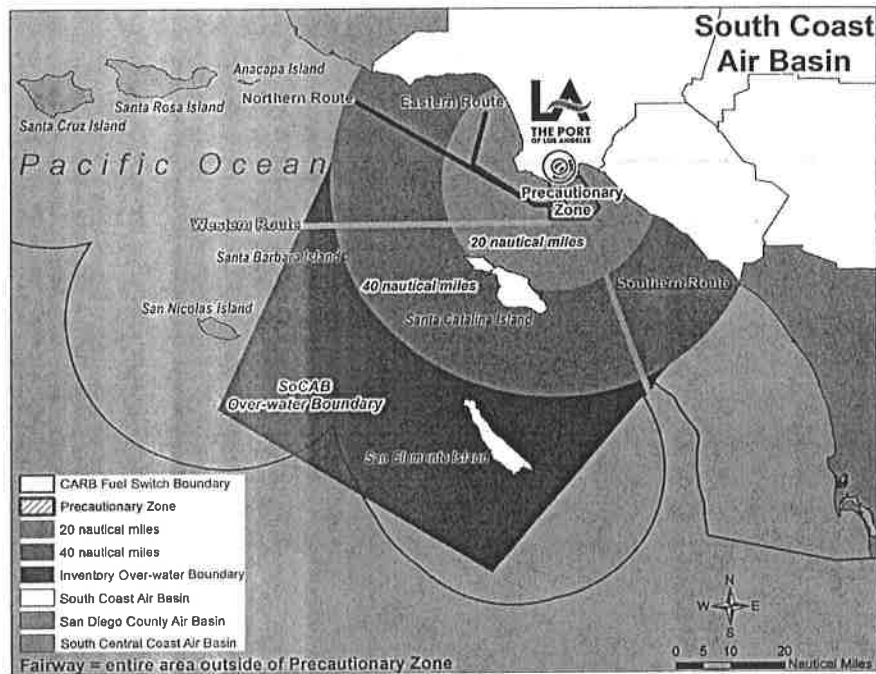
In addition, an increase in carrying capacity will reduce the carbon footprint per container transported in line with globally accepted measurement of CO₂ reductions from liner shipping activities. The planned capacity boost of 838 TEU on each of these 9,000+ TEU vessels increases capacity by approximately 9%, thereby reducing fuel consumption and emissions produced per container by approximately 8% at full capacity utilization.

¹ CARB, Recommended Emissions Testing Guidelines for Ocean-Going Vessels, Version 1, June 20, 2012

The Project will quantify emissions and relative reductions within the port emissions inventory geographical domain, shown in the figure below and where feasible, in the California OGV Fuel Zone and California area of the Emissions Control Area.

This quantification will be based on detailed energy and fuel consumption data for the main engines, auxiliary engines, and auxiliary boilers within the emissions inventory over-water boundary. A baseline will be established on at least two vessels per class (four vessels in total) prior to the Radical Retrofit and then the same data will be collected after the retrofits are completed. Data collected after the Radical Retrofit will be measured and then compared to the baseline in order to develop the reduction value. Guidelines will also be established for long-term data collection in order to assure reductions are maintained.

Project geographical domain for emissions inventories



The Project will depend on two key programs that will enhance the accuracy of the fuel consumption and other data collected on the Gudrun and Gerner Class vessels, and potentially other vessels calling California:

- The “Purchase to Propeller” program (“PtP”), which is designed to improve the accuracy and granularity of fuel delivery and consumption data by installing a number of new flow meters with digital capability on the vessel bunker delivery system and on each consuming unit on the vessel. Today, fuel data are collected using older flow meters or from Bunker Delivery Notes (BDNs), which may not accurately reflect the exact amounts delivered or consumed by each on-board engine or unit. More accurate data will greatly improve fuel consumption management and support on-board and shore-side analyses of new energy efficiency and emissions reductions approaches.
- The “Star Connect” platform, which will extract on-board fuel, energy, and operational data and transfer the information to a cloud database, accessible to authorized

stakeholders via a tablet application. We anticipate that this project will take fuel consumption monitoring and control to a new level, and reveal many new opportunities to reduce both fuel use and related emissions to the environment.

For this Project, the following is a preliminary list of data elements that will be collected from selected vessels before and after the Radical Retrofit to enable emissions reduction estimation for the Project under a range of operating conditions.

Anticipated operational data, collected in 3-5 minute intervals, include the following for each main engine, auxiliary engine, generator or boiler, as applicable:

- ✓ Power output, in kilowatt (kW)
- ✓ Speed, in revolutions per minute (rpm)
- ✓ Temperature at engine exhaust (not end of stack), in °C
- ✓ Load, in kW, MMBTUs, or tonnes fuel per hour
- ✓ Exhaust gas heat recovery, on/off
- ✓ Exhaust gas heat recovery, in kW or MMBTUs
- ✓ Fuel type (MDO/MGO/HFO) & sulfur content
- ✓ Propeller speed, rpm
- ✓ Speed over ground, knots
- ✓ Speed through water, knots
- ✓ Latitude & longitude
- ✓ Time stamp

Physical parameters:

- ✓ Main and auxiliary engines' IAPP & EIAPP sheets (one time)
- ✓ Auxiliary boiler make, model, technical specs, year, etc. (one time)
- ✓ Energy efficiency or emission reduction technologies on the ship prior to the Radical Retrofit [slide valves if MAN 2 strokes] (one time)
- ✓ Hull, propeller; and rudder condition per trip, last cleaning, next schedule cleaning (per arrival & departure)
- ✓ Hull coating condition, last application, next schedule application, etc. (per arrival & departure)
- ✓ Number of Reefers onboard (per arrival and departure)
- ✓ Weather & sea conditions (per arrival and departure)

All Project vessels are owned and operated by Maersk and have called the Ports since 2009. Shore power capability was installed in 2013-2014 to comply with the California At-Berth regulation, and so these vessels are expected to be assigned to California service for the long term. Currently, the Gudrun and Gerner Class vessels call the Ports as part of their string service.

Planned retrofits for these vessels include bulbous bow modification, improved new propellers, de-rating of the main engines, propeller boss fin cap (PBCF), bridge elevation, lashing bridges, and more. These are relatively new vessels (MY 2005-2009), with existing energy efficiency and emissions reductions packages including waste-heat recovery. This Project will quantify the benefits of the Radical Retrofit program, allowing these vessels to be increasingly effective in their current deployment, and reduce impacts on port climate and air quality.

EXHIBIT B

PERFORMANCE AND PAYMENT SCHEDULE

City shall make payments to Grantee according to the performance milestones set forth below and in accordance with the terms of the Agreement.

Scope of Work Tasks are detailed in Exhibit A.

Task/Payment Milestone	Description	Proposed Schedule
Payment Milestone #1	<p>Completion of Tasks #2, #3, & #4 Payment: Not-To-Exceed \$250,000</p> <p>Deliverables: Fleet Characterization Report, Technical Work Plan, and Data Collection Plan.</p> <p>Project Milestone #1 invoice.</p>	12-16 weeks from date of the Fully Executed Agreement
Payment Milestone #2	<p>Completion of Task #5 Payment: Not-To-Exceed \$350,000</p> <p>Deliverables: Documentation for equipment installation and Installation and Data Collection Report.</p> <p>Project Milestone #2 Invoice.</p>	10-18months from date of the Fully Executed Agreement
Payment Milestone #3	<p>Completion of Task #6 Payment: Not-To-Exceed \$300,000</p> <p>Deliverables: Energy and Fuel Parameters Report.</p> <p>Project Milestone #3 Invoice.</p>	12-24 months from date of the Fully Executed Agreement
Payment Milestone #4	<p>Completion of Task #7 Payment: Not-To-Exceed \$100,000</p> <p>Deliverables: Final Project Report, approved by City.</p> <p>Project Milestone #4 Invoice.</p>	15-30 months from date of the Fully Executed Agreement

EXHIBIT C

BUSINESS TAX REGISTRATION CERTIFICATE (BTRC) NUMBER

The City of Los Angeles Office of Finance requires all firms that engage in any business activity within the City of Los Angeles to pay City business taxes. Each firm or individual (other than a municipal employee) is required to obtain the necessary Business Tax Registration Certification (BTRC) and pay business tax. (Los Angeles Municipal Code Section 21.09 et seq.)

All firms and individuals that do business with the City of Los Angeles will be required to provide a BTRC number or an exemption number as proof of compliance with Los Angeles City business tax requirements in order to receive payment for goods or services. Beginning October 14, 1987, payments for goods or services will be withheld unless proof of tax compliance is provided to the City.

The Tax and Permit Division of Los Angeles Office of Finance has the sole authority to determine whether a firm is covered by business tax requirements. Those firms not required to pay will be given an exemption number.

If you do NOT have a BTRC number contact the Tax and Permit Division at the office listed below, or log on to www.lacity.org/finance to download the business tax registration application.

MAIN OFFICE

LA City Hall

201 N. Main Street, Rm. 101

(213) 473-5901