STATE OF CALIFORNIA
California Environmental Protection Agency
California Air Resources Board
ASD/BCGB-337 (Rev 01/2021)

GRANT AGREEMENT COVER SHEET

GRANT NUMBER
G14-LCTI-08 **Amendment 4**

NAME OF GRANT PROGRAM	
Multi-Source Facility Demonstration Project	
GRANTEE NAME	
Los Angeles Harbor Department	
TAXPAYER'S FEDERAL EMPLOYER IDENTIFICATION NUMBER 96-6000735	TOTAL GRANT AMOUNT NOT TO EXCEED $14,510,400.00
START DATE: June 1, 2016	END DATE: ~~December 31, 2021~~ **December 29, 2023**

This legally binding Grant Agreement, including this cover sheet and Exhibits attached hereto and incorporated by reference herein, is made and executed between the State of California, California Air Resources Board (CARB) and Los Angeles Harbor Department (the "Grantee"). Amendments are shown as deletions in ~~strikethrough~~ text and as additions in **bold, underlined** text. All other terms and conditions remain the same.

Exhibit A – Grant Provisions
Exhibit B – Work Statement, incorporating the following attachments: Attachment I-Budget Summary, Attachment II-Project Milestones and Disbursement Schedule, Attachment III - Project Schedule and Attachment IV – Key Project Personnel
Exhibit C – Grant Solicitation Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments: Multi-Source Facility Demonstration Project Exhibit D – Grant Solicitation
Exhibit D –Grantee Application Package

The purpose of Amendment No. 4 is to extend the term of the Grant by twenty-four (24) months and to make minor changes to Exhibit A and Exhibit B I-IV. This amendment is of no force or effect until signed by both parties. Grantee shall not commence performance until it receives written approval from CARB.
The undersigned certify under penalty of perjury that they are duly authorized to bind the parties to this Grant Agreement.

STATE AGENCY NAME		GRANTEE'S NAME (PRINT OR TYPE)	
California Air Resources Board		Los Angeles Harbor Department	
SIGNATURE OF ARB'S AUTHORIZED SIGNATORY:		SIGNATURE OF GRANTEE (AS AUTHORIZED IN RESOLUTION, LETTER OF COMMITMENT, OR LETTER OF DESIGNATION)	
TITLE Branch Chief	DATE	TITLE	DATE
STATE AGENCY ADDRESS 1001 I Street, Sacramento, CA 95814		GRANTEE'S ADDRESS (INCLUDE STREET, CITY, STATE AND ZIP CODE) 425 S. Palos Verdes Street, San Pedro, CA 90731	

CERTIFICATION OF FUNDING

AMOUNT ENCUMBERED BY THIS AGREEMENT	PROGRAM	PROJECT	ACTIVITY
$0.00	3510000L32	3900-LCTI	
PRIOR AMOUNT ENCUMBERED FOR THIS AGREEMENT	FUND TITLE		FUND NO.
$14,510,400.00	Greenhouse Gas Reduction Fund		3228
TOTAL AMOUNT ENCUMBERED TO DATE	(OPTIONAL USE)	CHAPTER	STATUTE
$14,510,400.00		25	2014

APPR REF	ACCOUNT/ALT ACCOUNT	REPORTING STRUCTURE	SERVICE LOCATION	FISCAL YEAR (ENY)
101	5432000	39006100	57207	2014/15

I hereby certify that the California Air Resources Board Legal Office has reviewed this Grant Agreement.

SIGNATURE OF CALIFORNIA AIR RESOURCES BOARD LEGAL OFFICE:	DATE
D Keens	11/3/2021

TRANSMITTAL 1

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Exhibit A
Amendment 4

Grant Provisions

1. GRANT PARTIES and CONTACT INFORMATION

1.1 The parties agree to comply with the requirements and conditions contained herein, as well as all commitments identified in the Fiscal Year 2014-15 Grant Solicitation Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments: Multi-Source Facility Demonstration Project (Exhibit C) and Grantee Application Package (Exhibit D).

1.2 The California Climate Investments logo and name serves to bring under a single brand the many investments whose funding comes from the Greenhouse Gas Reduction Fund (GGRF). The logo represents a consolidated and coordinated initiative by the State to address climate change by reducing greenhouse gases, while also investing in disadvantaged communities and achieving many other co-benefits. The Grantee agrees to acknowledge the California Climate Investments program as a funding source from CARB's Low Carbon Transportation program whenever projects funded, in whole or in part by this Agreement, are publicized in any news media, websites, brochures, publications, audiovisuals, or other types of promotional material. The acknowledgement must read as follows: 'This publication (or project) was supported by the "California Climate Investments" (CCI) program. Guidelines for the usage of the CCI logo can be found at www.arb.ca.gov/ccifundingguidelines'.

1.3 **Grant Summary and Amendments (if applicable)**

Project Title: Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments Multi-Source Facility Demonstration Project: Port of Los Angeles Green Omni Terminal Project

Funding Amount: [1]$14,510,400

Match Amount: $ 12,092,000

[1] Senate Bill 852 – Budget Act of 2014 (Committee on Budget, Chapter 25)

1.4 **Grant Parties and Contact Information**

a. This grant is from the California Air Resources Board (hereinafter referred to as CARB) to the Los Angeles Harbor Department (hereinafter referred to as Grantee).

b. The CARB Project Liaison is Darren Nguyen. Correspondence regarding this project shall be directed to:

Darren Nguyen
Air Resources Board
Mobile Source Control Division
Post Office Box 2815
Sacramento, California 95812
Phone: (916) 324-6745
E-mail: Darren.Nguyen@arb.ca.gov

c. The Grantee Liaison is Teresa Pisano. Correspondence regarding this project shall be directed to:

Teresa Pisano
Acting Marine Environmental Supervisor
LA Harbor Department
425 South Palos Verdes Street
San Pedro, California 90731
Phone: 310-732-7057
Email: tpisano@portla.org

2 TIME PERIOD

2.1 Performance of work or other expenses billable to CARB under this grant may commence after signing and awarding of this grant. ~~Performance on this grant ends when the Grantee has submitted the final report or if the grant is terminated, whichever is earlier.~~ **Grantee is required to continue to contribute to the required match commitment until December 29, 2023, at which point all match commitments must be made.**

2.2 Upon completion of the project, the Grantee shall submit a draft Final Report to the Project Liaison no later than ~~March 2, 2021~~[2] **April 3, 2022**[2](see Section 6 Reporting).

2.3 Final request for payment shall be received by CARB no later than ~~March 2, 2021~~ **May 3, 2022** (see Section 4 Grant Disbursements).

[2] Senate Bill 74 – Budget Act of 2019 (Ting, Chapter 23)

2.4 The CARB Executive Officer retains the authority to terminate or reduce the dollar amount of this grant if by **March 31, 2017**, 50 percent of project fund has not been expended by the Grantee. In the event of such termination, Section 7 of these provisions shall apply.

3. SCOPE OF WORK

The Green Omni Terminal project will incorporate zero and near-zero emissions vehicles and cargo handling equipment to move goods from ships through the terminal to clean truck transportation to their final destinations, while providing the terminal operations with solar power generation and battery storage. The electrified cargo handling equipment includes five yard tractors, three 21-ton forklifts, and two on-road drayage trucks. An at-berth vessel emissions control system (ShoreKat) will be integrated into the project to address the largest source of greenhouse gas and priority pollutant emissions at the terminal. A one megawatt rooftop solar photovoltaic array will be added to the terminal to supplement current power usage and to help meet 100% of the electricity demands for terminal operations.

Additional Scope of Work detail is in Exhibit B and Exhibit D Grantee Application Package Attachment 3.

3.1 General Responsibilities.

3.1.1. CARB is responsible for the following:

a. Participation in regular meetings with Grantee to discuss project refinements and guide the administration of the project.

b. Reviewing and approving project deliverables and milestones associated with reimbursement provided by Grantee, such as permitting, infrastructure design and construction, vehicle and cargo handling equipment procurement, ShoreKat emissions treatment system design and fabrication, equipment demonstration, data collection and analysis.

c. Review and approve all grant disbursement requests (Form MSCD/ISB-90) and distribute funds to Grantee.

d. Provide project oversight in conjunction with Grantee.

e. Ensure compliance with applicable requirements of:

i. Fiscal Year 2014-2015 Funding Plan for the Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments (FY 2014-15 Funding Plan)

ii. Fiscal Year 2014-15 Grant Solicitation Advanced Technology Freight Demonstration: Multi-Source Facility Demonstration Project

3.1.2. Grantee's responsibilities include all CEQA requirements, project development, project administration, project reporting, including but not limited to the following tasks:

a. All CEQA requirements must be completed prior to the execution of the grant agreement.

b. Grantee's key project personnel will participate in an initial meeting with CARB staff before work on the project begins. The purpose of the initial meeting will be to discuss the overall plan, details for performing the tasks, the project schedule, and any issues that may need to be addressed. Grantee's key personnel will also participate in meetings to discuss progress to be held at least quarterly beginning three months after the initial meeting. Additional meetings may be scheduled at the sole discretion of the CARB Project Liaison.

c. Grantee must submit numbered status reports accompanying grant disbursement requests to CARB at least every three months, but may submit on a monthly basis if necessary for more frequent invoicing with prior CARB approval. These reports must be approved by CARB and must contain the following, at a minimum, in either Microsoft Word or PDF, as a single electronic file:

   i. Project Status Report number, title of project, name of Grantee, date of submission, and project grant number.

   ii. Summary of work completed since last progress report, noting progress toward completion of tasks and milestones identified in the work plan.

   iii. Statement of work expected to be completed by the next progress report.

   iv. Notification of problems encountered and an assessment of their effects on the project's outcomes.

   v. Data collected from vehicles and equipment since the last data reporting, as deemed necessary by CARB or its designated third-party data analysis provider.

   vi. Itemized invoice showing all costs for which reimbursement is being requested.

   vii. Discussion of the project's adherence to the project timeline.

d. A final report is required at the end of the project and must include:

   i. A description of the project's goals and objectives, methods, results of the demonstration, and future application of the technology.

   ii. An update on the commercialization prospects.

e. Infrastructure design and construction will be done by Burns and McDonnell, which includes the following elements:

   i. Burns and McDonnell will work with the Grantee to acquire necessary permits for construction of the infrastructure.

ii. Burns and McDonnell will develop designs for the integration of solar, battery storage and charging infrastructure at the terminal.
iii. Burns and McDonnell will manage the installation of energy generation, storage, and charging infrastructure.
iv. Burns and McDonnell will provide the sequences of operation for the electrical monitoring and controls system.

f. Cargo handling equipment and vehicles will be developed in two phases.
   i. Phase one, TransPower will manufacture and deliver two drayage trucks, two yard tractors, and one 21-ton forklift. BYD will manufacture and deliver two yard tractors.
   ii. Phase two, TransPower will manufacture the second two 21-ton forklifts. **Kalmar will manufacture and deliver one yard tractor.**

g. Clean Air Engineering Maritime will manufacture the new ShoreKat emissions treatment system followed by delivery of the system, at-berth assembly, and commissioning. Emission testing will be conducted to validate system performance.

h. The demonstration phase will show how multiple zero and near-zero equipment can operate together. The ShoreKat emissions treatment system will be connected to at-berth vessels. The electric drayage trucks and cargo handling equipment will be placed into operation alongside baseline diesel equipment operating continuously for an 8-hour shift for a period of two years.

i. During the two year demonstration period, data will be collected from baseline and electrified vehicles and equipment for hours of use, energy storage, vehicle performance, type of operation and application, vehicle and equipment maintenance, and general feedback on operator acceptance. All vehicles and equipment will be equipped with a health activity monitoring system as part of the chassis module control. The vehicles will also have data loggers with data logging performed by the third-party CARB contractor for a period of two years. Note that when this grant agreement is signed by the parties, CARB will not have yet entered into a contract with the third-party CARB contractor. Therefore, Grantee must be flexible in scheduling the vehicles and equipment for testing. All data collected will be included in the final report.

4. FISCAL ADMINISTRATION

Budget

4.1 The maximum amount of this grant is $14,510,400. Under no circumstances will CARB reimburse the Grantee for more than this amount. A written Grant

Agreement amendment is required whenever there is a change to lower the amount of this grant.

4.2 The budget for this project is shown in Exhibit B, Attachment I.

4.3 The total funding may only be reallocated in the event that the Grantee requests less administrative funding than the amount stated in the budget.

4.4 No grant funds may be used to purchase equipment or computers that would be required to be returned to the State at the completion of this project.

Grant Disbursements

4.5 Requests for payment shall be made with the Grant Disbursement Request Form (Form MSCD/ISB-90) and conform to the instructions identified in the Fiscal Year 2014-15 Air Quality Improvement Program and Low Carbon Transportation GGRF Investments Multi-Source Facility Demonstration Solicitation (Solicitation). Grant payments shall be made only for reasonable costs incurred by the Grantee and only when the Grantee has submitted a Grant Disbursement Request Form, milestones stipulated in Exhibit B, Attachment II and the instructions found in the Solicitation have been accomplished, documentation of accomplishment has been provided to CARB in the form of the Status Report, and any associated deliverables (if applicable) have been provided to CARB. CARB will have sole discretion to accelerate the timeline for allowable disbursements of administration and project funds identified in Exhibit B, Attachment II (with the exception of the final project administration disbursement), necessary to assure the goals of the project are met.

The Grantee shall submit the Grant Disbursement Requests to CARB Accounting Section at accountspayable@arb.ca.gov with a CC to the CARB project liaison. The Grantee must submit this electronically, based on CARB's current electronic submission guidance at the time of request. Requests for payment must be made with the Grant Disbursement Request Form and contain all documentation required with the form.

4.6 Grant payments are subject to CARB's approval of Status Reports and any accompanying deliverables (see Section 6 Reporting). A payment will not be made if the CARB Project Liaison deems that a milestone has not been accomplished or documented, a deliverable meeting specification has not been provided, claimed expenses are not documented, not valid per the budget, or not reasonable, or the Grantee has not m et other terms of the Grant Agreement.

The Chief of the Mobile Source Control Division or designee of CARB may review the Project Liaison's approval or disapproval of a Grant Disbursement Request. No reimbursement will be made for expenses that, in the judgment of

the Chief of the Mobile Source Control Division, are not reasonable or do not comply with the Grant Agreement.

4.7 The Grantee shall mail Grant Disbursement Requests to the Project Liaison.

4.8 CARB retains the right to withhold up to ten percent of administrative funds until completion of all work and submission of a Final Report to CARB, as identified in the Solicitation. It is the Grantee's responsibility to submit a Grant Disbursement Request for this final disbursement of funds.

4.9 CARB shall disburse funds in accordance with the California Prompt Payment Act, Government Code, Section 927, et seq.

Oversight and Accountability

4.10 The Grantee shall comply with all oversight responsibilities identified in the Solicitation and this Grant Agreement.

4.11 CARB or its designee reserves the right to audit at any time during the duration of this Grant Agreement the Grantee's costs of performing the grant and to refuse payment of any reimbursable costs or expenses that in the opinion of CARB or its designee are unsubstantiated or unverified. The Grantee shall cooperate with CARB or its designee including, but not limited to, promptly providing all information and documents requested, such as all financial records, documents, and other information pertaining to reimbursable costs, and any matching costs and expenses.

4.12 The Grantee shall retain all financial records referred to above and provide them for examination and audit by the State for three years after final payment under this Grant Agreement.

4.13 The Grantee shall develop and maintain accounting procedures in accordance with Section 9 to track reservation and expenditures by grant award, fiscal year, and of all funding sources.

4.14 The Grantee shall store all records in a secured and safe storage facility that provides fire and natural disaster protection (see Section 9 in the Sample Grant Agreement). Files must be retained during the term of the Grant Agreement plus three years.

4.15 CARB or its designee may recoup funds which were received based upon misinformation or fraud, or for which a Grantee, manufacturer (including truck equipment manufacturer), technology provider, or vehicle purchaser is in significant or continual non-compliance with the terms of this grant or State law. CARB also reserves the right to prohibit any entity from participating in the Advanced Technology Demonstration Projects due to non-compliance with

project requirements, in which event the parties agree that this Grant Agreement may be modified in order to modify the scope, budget or schedule to accommodate the change.

5. PROJECT MONITORING

Meetings

5.1 Initial meeting: A meeting will be held between key project personnel and CARB staff before work on the project begins. The purpose of the first meeting will be to discuss the overall plan, details of performing the tasks, the project schedule, and any issues that may need to be resolved.

Review meetings: Meetings to discuss progress must be held at least quarterly beginning three months after the initial meeting. Additional meetings may be scheduled at the sole discretion of the Project Liaison. Such meetings may be conducted by phone, if deemed appropriate by the Project Liaison.

Technical Monitoring

5.2 Any changes in the scope or schedule for the project shall require the prior written approval of the CARB Project Liaison.

5.3 The Grantee shall notify the CARB Project Liaison and Grant Coordinator in writing immediately after any circumstances arise (technical, economic, or otherwise), which might place completion of the project in jeopardy. The Grantee shall also make such notification if there is a change in key project personnel (see Exhibit B, Attachment IV).

5.4 The Grantee shall notify the Project Liaison if the project technology will pursue official verification/certification during the term of this agreement and all documentation in support of the verification/certification must be submitted to the Project Liaison concurrently with the verification/certification submittal.

5.5 In addition to Status Reports (see Section 6 Reporting); the Grantee shall provide information requested by the Project Liaison that is needed to assess progress in completing tasks and meeting the objectives of the project.

5.6 Any change in budget allocations, re-definition of deliverables, or extension of the project schedule must be requested in writing to the CARB Project Liaison and approved by CARB in writing, in its sole discretion.

6. REPORTING

Status Reports

6.1 The Grantee shall submit Status Reports at a minimum of three-month intervals. The Status Reports shall be provided in a format agreed upon between the CARB Project Liaison and the Grantee and meet the requirements of the Solicitation.

6.2 Every Grant Disbursement Request Form (Form MSCD/ISB-90) shall be accompanied by a Status Report that documents the completion of a milestone specified in Exhibit B, Attachment II.

6.3 If the project is behind schedule, the Status Reports must contain an explanation of reasons and how the Grantee plans to resume the schedule.

Final Report

6.4 When the project is complete, the Grantee shall submit a draft Final Report. The draft Final Report must be submitted to CARB in an appropriate format agreed upon between the CARB Project Liaison and the Grantee. The Final Report must meet the requirements of the Solicitation. Upon approval of the draft Final Report by the Project Liaison, the Grantee shall provide a written copy of the final version, plus an electronic file.

7. TERMINATION AND SUSPENSION OF PAYMENTS

7.1 CARB reserves the right to terminate this Grant Agreement upon thirty days' written notice to the Grantee, if CARB determines that the project has not progressed satisfactorily during any previous three months and the Grantee and CARB have been unable to agree on modifications to the project. In case of early termination, the Grantee will submit a Grant Disbursement Request Form, a Status Report covering activities up to, and including, the termination date and comply with the requirements in Sections 4 and 6 of these provisions. Upon receipt of the Grant Disbursement Request Form, Status Report, a final payment will be made to the Grantee. This payment shall be for all CARB-approved, actually incurred costs that are justified in conformance with this Grant Agreement. However, the total amount paid shall not exceed the total grant amount.

7.2 CARB reserves the right to issue a written grant suspension order in the event that a dispute should arise. The grant suspension order will be in effect until the dispute has been resolved or the Grant Agreement has been terminated. If the Grantee chooses to continue work on the project after receiving a grant suspension order, the Grantee will not be reimbursed for any expenditure incurred during the suspension in the event CARB terminates the Grant Agreement. If CARB rescinds the suspension order and does not terminate the Grant Agreement, CARB will reimburse the Grantee for any expenses incurred during the suspension that are determined reimbursable in accordance with the terms of the Grant Agreement.

8. CONTINGENCY PROVISION

8.1 In the event this Grant Agreement is terminated for whatever reason, the CARB Executive Officer or designee reserves the right in his or her sole discretion to award a grant to the next highest scored applicant, and if an agreement cannot be reached, to the next applicant(s) until an agreement is reached. If CARB is unable to award a grant under these circumstances, CARB may award a grant to other projects.

9. PROJECT RECORDS

Grantee Record

9.1 As further described in Section 9.3, project records includes but is not limited to Grantee, financial, and other records. All project records must be retained for a period of three (3) years after the term of this Grant Agreement. All project records are subject to audit pursuant to Section 10.27 of this Grant Agreement. At the end of the third year after the term of this Grant Agreement, CARB will make a written request for all project records, and the Grantee shall submit all project records to CARB in response to that request.

9.2 The Grantee shall retain a file for the Multi-Source Facility Demonstration Project containing:

a. Original executed copy of the Multi-Source Facility Demonstration Project Grant Agreement and Grant Agreement Amendments (if applicable).
b. Copies of Grant Disbursement Request Forms.
c. Documentation of earned interest generation and expenditure.

Financial Record

9.3 Without limitation of the requirement to maintain project accounts in accordance with generally accepted accounting principles, the Grantee shall:

a. Establish an official file for the Multi-Source Facility Demonstration Project which shall adequately document all significant actions relative to the project.
b. Establish separate accounts which will adequately and accurately depict all amounts received and expended on the Multi-Source Facility Demonstration Project.
c. Establish separate accounts which will adequately and accurately depict all income received which is attributable to the Multi-Source Facility Demonstration Project, including cash and in-kind match.

d. Establish an accounting system which will adequately depict final total costs of the Multi-Source Facility Demonstration Project, including both direct and indirect costs.

10. GENERAL PROVISIONS

10.1 **Amendment:** No amendment or variation of the terms of this Grant Agreement shall be valid unless made in writing, signed by the parties and approved as required. No oral understanding or agreement not incorporated in the Grant Agreement is binding on any of the parties.

10.2 **Assignment:** This Grant Agreement is not assignable by the Grantee, either in whole or in part, without the consent of CARB.

10.3 **Compliance with laws, regulations, etc.:** The Grantee agrees that it will, at all times, comply with and require its contractors and subcontractors to comply with all applicable federal and State laws, rules, guidelines, regulations, and requirements.

10.4 **Computer software:** The Grantee certifies that it has appropriate systems and controls in place to ensure that State funds will not be used in the performance of this Grant Agreement for the acquisition, operation or maintenance of computer software in violation of copyright laws.

10.5 **Conflict of interest:** The Grantee certifies that it is in compliance with applicable State and/or federal conflict of interest laws.

10.6 **Damages for breach affecting tax exempt status:** In the event that any breach of any of the provisions of this Grant Agreement by the Grantee shall result in the loss of tax exempt status for any State bonds, the Grantee shall immediately reimburse the State in an amount equal to any damages paid by or loss incurred by the State due to such breach.

10.7 **Disputes:** The Grantee shall continue with the responsibilities under this Grant Agreement during any dispute, unless CARB has issued a written grant suspension order pursuant to Section 7. Grantee staff or management may work in good faith with CARB staff or management to resolve any disagreements or conflicts arising from implementation of this Grant Agreement. However, any disagreements that cannot be resolved at the management level within 30 days of when the issue is first raised with CARB staff shall be subject to resolution by the CARB Executive Officer, or his designated representative. Nothing contained in this paragraph is intended to limit any rights or remedies that the parties may have under law.

10.8 **Environmental justice:** In the performance of this Grant Agreement, the Grantee shall conduct its programs, policies, and activities that substantially

affect human health or the environment in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low-income population of the State.

10.9 **Fiscal management systems and accounting standards:** The Grantee agrees that, at a minimum, its fiscal control and accounting procedures will be sufficient to permit tracing of grant funds to a level of expenditure adequate to establish that such funds have not been used in violation of State law or this Grant Agreement. Unless otherwise prohibited by State or local law, the Grantee further agrees that it will maintain separate Project accounts in accordance with generally accepted accounting principles.

10.10 **Force majeure:** Neither CARB nor the Grantee shall be liable for or deemed to be in default for any delay or failure in performance under this Grant Agreement or interruption of services resulting, directly or indirectly, from acts of God, enemy or hostile governmental action, civil commotion, strikes, lockouts, labor disputes, fire, or other casualty, etc

10.11 **Governing law and venue:** This grant is governed by and shall be interpreted in accordance with the laws of the State of California. CARB and the Grantee hereby agree that any action arising out of this Grant Agreement shall be filed and maintained in the Superior Court in and for the County of Sacramento, California, or in the United States District Court in and for the Eastern District of California. The Grantee hereby waives any existing sovereign immunity for the purposes of this Grant Agreement.

10.12 **Indemnification:** The Grantee agrees to indemnify, defend and hold harmless the State and the Board and its officers, employees, agents, representatives, and successors-in-interest against any and all liability, loss, and expense, including reasonable attorneys' fees, from any and all claims for injury or damages arising out of the performance by the Grantee, and out of the operation of equipment that is purchased with funds from this Grant Agreement.

10.13 **Grantee's responsibility for work:** The Grantee shall be responsible for work and for persons or entities engaged in work, including, but not limited to, contractors, subcontractors, suppliers, and providers of services. The Grantee shall be responsible for any and all disputes arising out of its contract for work on the Project, including but not limited to payment disputes with contractors, subcontractors, and providers of services. The State will not mediate disputes between the Grantee and any other entity concerning responsibility for performance of work.

10.14 **Independent actor:** The Grantee, and its agents and employees, if any, in their performance of this Grant Agreement, shall act in an independent capacity and not as officers, employees or agents of CARB.

10.15 **Nondiscrimination:** During the performance of this Grant Agreement, the Grantee and its contractors shall not unlawfully discriminate against, harass, or allow harassment against any employee or applicant for employment because of sex, race, religion, color, national origin, ancestry, disability**,** sexual orientation, medical condition, marital status, age (over 40), or allow denial of family-care leave, medical-care leave, or pregnancy-disability leave. The Grantee and its contractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment.

10.16 **No third party rights:** The parties to this Grant Agreement do not create rights in, or grant remedies to, any third party as a beneficiary of this Grant Agreement, or of any duty, covenant, obligation or undertaking established herein.

10.17 **Prevailing wages and labor compliance:** If applicable, the Grantee agrees to be bound by all the provisions of State Labor Code Section 1771 regarding prevailing wages If applicable, the Grantee shall monitor all agreements subject to reimbursement from this Grant Agreement to ensure that the prevailing wage provisions of State Labor Code Section 1771 are being met.

10.18 **Professionals:** For projects involving installation or construction services, the Grantee agrees that only licensed professionals will be used to perform services under this Grant Agreement where such services are called for and licensed professionals are required for those services under State law.

10.19 **Severability:** If a court of competent jurisdiction holds any provision of this Grant Agreement to be illegal, unenforceable or invalid in whole or in part for any reason, the validity and enforceability of the remaining provisions, or portions of those provisions, will not be affected.

10.20 **Termination:** CARB may terminate this Grant Agreement by written notice at any time prior to completion of projects funded by this Grant Agreement, upon violation by the Grantee of any material provision after such violation has been called to the attention of the Grantee and after failure of the Grantee to bring itself into compliance with the provisions of this Grant Agreement.

10.21 **Timeliness:** Time is of the essence in this Grant Agreement. Grantee shall proceed with and complete the Project in a reasonably expeditious manner.

10.22 **Waiver of Rights:** Any waiver of rights with respect to a default or other matter arising under the Grant Agreement at any time by either party shall not be considered a waiver of rights with respect to any other default or matter. Any

rights and remedies of the State provided for in this Grant Agreement are in addition to any other rights and remedies provided by law.

10.23 **Availability of funds:** CARB's obligations under this Grant Agreement are contingent upon the availability of funds. In the event funds are not available, the State shall have no liability to pay any funds whatsoever to the Grantee or to furnish any other considerations under this Grant Agreement.

10.24 **Confidentiality:** The parties agree that each party is a California public agency subject to the California Public Records Act ("Act") and each party is obligated to comply with the Act in effectuating the terms of this Grant Agreement. The parties agree that records which are designated as confidential by CARB, may not be disclosed by the Grantee if such non-disclosure is authorized by the Act. In the event that Grantee submits any confidential information or data to CARB pursuant to this Grant Agreement it may be shared with other divisions within the CARB.

10.25 **Personally Identifiable Information:** Information or data that personally identifies an individual or individuals is confidential in accordance with California Civil Code Section 1798, et seq. and other relevant State or Federal statutes and regulations. The parties agree that to the extent each is required, each shall comply with California Civil Code Section 1798 et seq.

10.26 **Ownership:** All information or data received or generated by the Grantee under this agreement shall become the property of CARB. Except to the extent the Grantee shall be required to comply with the California Public Records Act, information or data received or generated under this agreement shall not be released without CARB's approval.

10.27 **Audit:** Grantee agrees that CARB, the Department of General Services, Department of Finance, the Bureau of State Audits, or their designated representative shall have the right to review and copy any records and supporting documentation pertaining to the performance of this Grant Agreement and all State funds received. Grantee agrees to maintain such records for possible audit for a minimum of three (3) years after the term of this Grant Agreement, unless a longer period of records retention is stipulated. Grantee agrees to allow the auditor(s) access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records. Further, Grantee agrees to include similar right of the State audit records and interview staff in any agreement related to performance of this Agreement.

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EXHIBIT B

Work Statement

Budget Summary (Attachment I)
Project Milestones and Disbursement Schedule (Attachment II)
Project Schedule (Attachment III)
Key Project Personnel (Attachment IV)

EXHIBIT B, Attachment I

Budget Summary

Grantee: Los Angeles Harbor Department **Grant No.: G14-LCTI-08**
Amendment 4

Project: Port of Los Angeles Green Omni Terminal

Total Costs & Funding

Costs	Grant	Applicant Match Funding		Total
		Cash	In-Kind	
1. Demonstration Technology Funds	$13,784,880	$5,547,000	$6,545,000	$25,876,880
2. Administrative Funds[1]	$725,520	$0	$0	$725,520
Total	$14,510,400[2]	$5,547,000	$6,545,000	$26,602,400

[1]Administrative funds may not exceed 10% of the total project cost and only 5% of CARB-awarded funds may be used for administrative purposes.
[2]Total grant funds is $540,000 less than requested amount due to elements of the project not eligible for funding under the solicitation.

Additional budget details are in Exhibit D, Grantee Application Package Attachment 5.

Disbursement of Funds:

Demonstration Technology Funding
The Grantee shall receive funds in accordance with the 2014-15 Grant Solicitation for the Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund (GGRF) Investments: Multi-Source Facility Demonstration Project.

Project Administration
The Grantee shall receive project administration funding in accordance with the 2014-15 Grant Solicitation for the Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund (GGRF) Investments: Multi-Source Facility Demonstration Project.

EXHIBIT B, Attachment II

Project Milestones and Brief Task Descriptions with Disbursements Schedule

Grantee: Los Angeles Harbor Department **Grant No.: G14-LCTI-08**
Amendment 4

Project: Port of Los Angeles Green Omni Terminal

Milestone	Task Description	Project Funding	
		Project Funds	Administrative Funds
1.0	**Administration & Project Management**	n/a	n/a
1.1	Conduct Kick Off Meeting	$0	$0
1.2	Recurring Milestone: Monthly Project Update Meetings & Reports	$0	$625,500
1.3	Final Report*	$0	$100,020
2.0	**Infrastructure Design & Construction**	n/a	n/a
2.1	Permitting	$10,080	$0
2.2	Infrastructure Design	$90,000	$0
2.3	Infrastructure Construction	$0	$0
2.3.1	Solar PV Installation	$0	$0
2.3.1.1	Solar PV Electrical Service Equipment Procurement	$540,000	$0

2.3.1.2	Solar PV Electrical Service Installation	$638,400	$0
2.3.1.3	Solar PV Array Installation	$0	$0
2.3.2	Battery Storage System	$0	$0
2.3.2.1	Battery Storage System Manufacture and Delivery	$1,313,000	$0
2.3.2.2	Battery Storage System Infrastructure Procurement	$378,800	$0
2.3.2.3	Battery Storage System Installation	$695,255	$0
2.3.3	Charging Equipment	$320,000	$0
2.3.4	Energy Management/Microgrid Control System	$0	$0
2.3.4.1	System Procurement	$560,000	$0
2.3.4.2	System Installation	$575,400	$0
2.3.5	Wharf Crane Drive Upgrades	$0	$0
2.4	Testing and Commissioning	$60,000	$0
3.0	**Vehicles & Cargo Handling Equipment**	n/a	n/a
3.1	Design Adaptation to Forklifts	$0	$0
3.1.1	Performance Analysis	$200,000	$0

3.1.2	Drive System Design	$600,000	$0
3.2	Drayage Truck and Yard Tractor Procurement	$0	$0
3.2.1	Determination of Final Vehicle Specifications	$100,000	$0
3.2.2	Vehicle Purchases	$450,000	$0
3.3	Subsystem Assembly	$0	$0
3.3.1	Order Externally-Sourced Components – Phase 1	$900,000	$0
3.3.2	Subsystem Assembly – Phase 1 Vehicles	$500,000	$0
3.3.3	Order Externally-Sourced Components – Phase 2	$200,000	$0
3.3.4	Subsystem Assembly – Phase 2 Vehicles	$150,000	$0
3.4	Vehicle Integration and Commissioning	$0	$0
3.4.1	Phase 1 Vehicle Integration – TransPower Drayage Truck, Yard Tractor, and First Forklift; and BYD 2 Yard Tractors	$0	$0
3.4.1.1	TransPower Vehicle Integration – Drayage Truck, Yard Tractor, and First Forklift	$600,000	$0
3.4.1.2	BYD Delivery of 2 Yard Tractors	$600,000	$0
3.4.2	Phase 1 Vehicle Commissioning	$200,000	$0
3.4.3	Phase 2 Vehicle Integration – Two Forklifts,	$100,000	$0

3.4.4	Phase 2 Vehicle Commissioning	$50,000	$0
3.5	Vehicle Deployment	$0	$0
3.5.1	Vehicle Delivery – First Two 21-ton Forklifts	$0	$0
3.5.1.1	Vehicle Delivery- Third 21-ton Forklift	$0	$0
3.5.2	Personnel Training	$134,745	$0
3.6	Kalmar Delivery of Yard Tractor	**$386,535** ~~$397,939~~	$0
4.0	**ShoreKat Emissions Treatment System**	n/a	n/a
4.1	Design, Fabrication, and Delivery	$0	$0
4.1.1	Design	$70,000	$0
4.1.2	Emission Control System Procurement	$985,327	$0
4.1.3	Infrastructure Equipment Procurement	$553,305	$0
4.1.4	Crane/Extraction System Procurement	$1,329,621	$0
4.1.5	ShoreKat Delivery	$64,706	$0
4.2	Equipment Installation and Commissioning	$0	$0
4.2.1	Core Emissions Treatment System Equipment Installation and Commissioning	$299,102	$0

4.2.2	Carbon Treatment System 1 Equipment Installation and Commissioning	$0	$0
4.3	Performance Verification and Emissions Testing	$0	$0
5.0	**Equipment Demonstration**	n/a	n/a
5.1	Microgrid, Energy Management System, Efficiency Retrofits	$0	$0
5.2	Vehicles and Equipment	$0	$0
5.2.1	Phase 1 Vehicles and Equipment	$0	$0
5.2.2	Phase 2 Cargo Handling Equipment	$0	$0
5.3	ShoreKat Demonstration	$0	$0
6.0	**Data Collection and Analysis**	$0	$0
6.1	Field Data Collection	$0	$0
6.2	Laboratory Data Collection	**$130,604** ~~$119,200~~	$0
6.3	Data Analysis	$0	$0
Subtotal of Project Funds and Administrative Funds		**$13,784,880**	**$725,520**
Grant Total Funding Amount		**$14,510,400**	

*CARB will not reimburse for the Final Report until approval of the Final Report

EXHIBIT B, Attachment III

Project Schedule

Grantee: Los Angeles Harbor Department **Grant No.: G14-LCTI-08 Amendment 4**

Project: Port of Los Angeles Green Omni Terminal

Detailed Scope of Work and Schedule

Work Task	**Start Date**	**Completion Date**
Task 1 – Administration and Project Management	June 1, 2016	**June 30, 2022** ~~March 15, 2020~~
1.1 Kick-off Meeting - The project team will meet with CARB and third-party data analysis provider to discuss the work plan, details of task performance, schedule, and resolution of issues.	June 1, 2016	June 1, 2016
1.2 Monthly Project Update Meetings and Reports - The Harbor Department will coordinate monthly project update meetings to discuss progress with the project team. The meetings will follow a defined agenda that will cover project status update, difficulties encountered, upcoming deliverables, pending disbursement requests, and schedule of the next update meeting.	June 1, 2016	**June 15, 2022** ~~March 15, 2020~~
1.3 Final Report - At the completion of the project, the Harbor Department will submit a final report to CARB that describes the project's goals and objectives, methods, results of the demonstration, future application of the technologies, commercialization prospects, and data analysis.	**November 1, 2021** ~~February 1, 2020~~	**June 2, 2022** ~~March 2, 2020~~
Task 1 Deliverables: Monthly Agenda, Monthly Project Status Reports, Disbursement Requests, Final Report	June 1, 2016	**June 2, 2022** ~~March 15, 2020~~
Task 2 – Design and Construction of Infrastructure	June 1, 2016	**February 28, 2022** ~~July 31, 2018~~

2.1 Permitting - Burns & McDonnell will work with the Harbor Department to acquire permits necessary for construction of infrastructure at the Pasha terminal, including an Engineers Permit, Parallel Cogeneration Interconnection Agreement, PV Interconnection Agreement, City of Los Angeles Department of Building and Safety Permits, and will have worked with the Harbor Department to obtain CEQA approval before execution of grant agreement.	June 1, 2016	**November 30, 2021** ~~October 31, 2016~~
2.2 Infrastructure Design - Burns & McDonnell will develop designs for the integration of solar, battery storage, and charging infrastructure at the terminal. An assessment of the existing infrastructure determined that the substation on the terminal has a dedicated transformer and switchboard that is more than sufficient to handle the demonstration project's proposed load.	July 1, 2016	December 31, 2016
2.3 Infrastructure Construction - Burns & McDonnell will manage the installation of energy generation, storage, and charging infrastructure along with efficiency upgrades and system integration for the following components: Solar PV installation, battery storage system, charging equipment, energy management and microgrid control system, and wharf crane drive upgrades. The infrastructure integration is for grant approved equipment only.	January 1, 2017	**February 28, 2022** ~~July 31, 2018~~
2.3.1 Solar PV Installation - Following the retrofit and reroofing of the Berth 181 Warehouse by the Harbor Department, PermaCity will install a 1.03 MW (DC) solar PV system on the rooftop. The PV system will be connected to a 1500kVA pad-mounted transformer at the existing building, which will feed to a 3000A switchboard with two breakers – 1200A for the new PV and 400A for the existing building. A single 5kV feeder will be run from the warehouse to the existing substation.	April 1, 2018	**February 28, 2022** ~~July 31, 2018~~
2.3.1.1 Solar PV Electrical Service Equipment Procurement – Burns & McDonnell will procure the 1500kVA pad-mounted transformer, 3000A switchboard with two breakers – 1200A for the new PV and 400A for the existing building, and 5kV feeder	February 1, 2018	June 19, 2018
2.3.1.2 Solar PV Electrical Service Installation – Burns & McDonnell will install the electrical service equipment to support PV system	April 19, 2018	**November 30, 2021** ~~July 5, 2018~~

2.3.1.3 Solar PV Array Installation – PermaCity will install a 1.03 MW (DC) solar PV system on the rooftop	April 5, 2018	**February 28, 2022** ~~July 27, 2018~~
2.3.2 Battery Storage System - BYD will manufacture two battery storage systems (BSS) to Pasha within 7 months of project kickoff. The BSS will include batteries, power conversion system (PCS), container, and supporting systems. The BSSs are housed in 40-foot containers, which will be positioned adjacent to the existing substation. Burns & McDonnell will procure and construct the required infrastructure to connect the BSS to the terminal's substation and incorporate the BSS into the terminal's microgrid. Each unit will be rated for 500kW/1.3MWh and will be fed from the reefer switchboard using new, 800A breakers. To prevent sheet-flow runoff from entering the BSS, containers will be mounted on a pad designed by Burns & McDonnell. Each BSS will also need to be connected to a new power meter in the 4160V switchgear in order to perform peak shaving functions. A #4/0 ground ring shall be supplied around the pad and bonded to opposite corners of each shipping container.	June 1, 2016	**February 28, 2022** ~~March 31, 2017~~
2.3.2.1 Battery Storage System Manufacture and Delivery – BYD will manufacture and deliver two BSSs.	September 1, 2016	February 15, 2017
2.3.2.2 Battery Storage System Infrastructure Procurement – Burns & McDonnell will procure the required infrastructure to connect the BSS to the terminal's substation and incorporate the BSS into the terminal's microgrid.	August 1, 2016	September 30, 2017
2.3.2.3 Battery Storage System Installation – Burns & McDonnell will install the two BSSs and integrate them into the terminal microgrid.	November 1, 2017	**February 28, 2022** ~~March 31, 2018~~
2.3.3 Charging Equipment - TransPower will provide seven charging units and BYD will provide two charging units for proposed vehicles and equipment. Both systems will connect to standardized electrical infrastructure. The TransPower system consists of a 75kVA transformer, EV support equipment, and cable to connect to the on-board inverter charger unit. BYD will install a 200kW charger that uses 480V 3-phase supply and 240A input current charger charging equipment.	September 1, 2016	March 31, 2018

2.3.4 Energy Management/Microgrid Control System - The microgrid control system is a single, NEMA 4X, stainless steel enclosure with redundant programmable controllers, internal UPS, and a touch-screen HMI. This enclosure will be located adjacent to the batteries (outside of the substation fence line). It will communicate to each of the EVs (for charge control), the batteries, and the new power meter in the 4160V switchgear.	October 1, 2016	March 31, 2018
2.3.4.1 System Procurement – Burns & McDonnell will procure the microgrid control system components.	October 1, 2016	September 30, 2017
2.3.4.2 System Installation – Burns & McDonnell will install the microgrid control system.	November 1, 2017	March 31, 2018
2.4 Testing and Commissioning - Burns & McDonnell will provide the desired sequences of operation for the electrical monitoring and controls system. This will include both grid-tied as well as islanded operation of the system. Once all of the equipment is fully operational, Burns & McDonnell will lead the commissioning effort of the overall system being installed under this project. This will include operation for peak shaving and islanded operation. The commissioning procedures and results will be documented in a final commissioning report to be included in the reports to be submitted to CARB.	**March 1, 2022** ~~August 1, 2018~~	**March 31, 2022** ~~August 30, 2018~~
Task 2 Deliverables: As-Built Drawings, Testing and Commissioning Report	June 1, 2016	**March 31, 2022** ~~August 30, 2018~~
Task 3 – Vehicles and Cargo Handling Equipment - Cargo handling equipment and vehicles will be developed in two phases. During Phase 1, TransPower will manufacture and deliver the two drayage trucks, two yard tractors, and one 21-ton forklift; and BYD will manufacture and deliver two yard tractors. In Phase 2, TransPower will manufacture the two additional 21-ton forklifts to build on the lessons learned during the manufacturing and commissioning of the Phase 1 forklift. BYD will deliver its two yard tractors within 6 months of receiving an order. Charging infrastructure will arrive in early 2018, well before the arrival of vehicles. **In 2021, Kalmar will provide one yard tractor.** The following tasks provide details on the	October 1, 2016	**November 30, 2021** ~~September 28, 2018~~

delivery process of TransPower vehicles and equipment		
3.1 Design Adaptation to Forklift - Pasha will provide TransPower with three Kalmar 21-ton forklifts for conversion from diesel engines to battery electric drives. TransPower will use propulsion systems that are similar to the ElecTruck™ drives installed in drayage trucks and yard tractors to power this equipment. This will include a design effort to lay out how the drive systems will be installed into the Kalmar equipment. The first forklift design will be completed in Phase 1, and the second two forklift designs will be completed in Phase 2.	October 1, 2016	June 30, 2018
3.1.1 Performance Analysis – TransPower will evaluate the performance of diesel forklifts.	October 1, 2016	December 31, 2016
3.1.2 Drive System Design - TransPower will use propulsion systems that are similar to the ElecTruck™ drives installed in drayage trucks and yard tractors to power this equipment. This will include a design effort to lay out how the drive systems will be installed into the Kalmar equipment.	October 1, 2016	January 31, 2017
3.2 Drayage Truck and Yard Tractor Procurement - TransPower will take possession of the base drayage trucks from Navistar and base yard tractors from Cargotec. The base vehicles can take up to 3-4 months to receive from issuance of purchase order, so they will be ordered following project kick off.	October 1, 2016	January 31, 2017
3.2.1 Determination of Final Vehicle Specifications – TransPower will minimize technical risks by using the existing TransPower drayage truck and yard tractor integration concepts. The design improvement process offers the option of customizing vehicles to any unique operating requirements TransPower might encounter at a given location.	October 1, 2016	June 30, 2018
3.2.2 Vehicle Purchase – TransPower will receive the base trucks from Navistar and base yard tractors from Cargotec.	December 1, 2016	January 31, 2017
3.3 Subsystem Assembly - The first step in this process is to order major externally-sourced drive system components. Most purchased components are already elements of TransPower's standard drive system bill of material and can be procured efficiently from known suppliers. Once components are acquired or, when appropriate, manufactured in-house, TransPower will assemble the major subsystems. These are the Motive	October 1, 2016	August 31, 2018

Drive Subsystem, Power Control and Accessory Subsystem, and Energy Storage Subsystem.		
3.3.1 Order Externally-Sourced Components – TransPower will order externally-sourced subsystem components for Phase 1 Vehicles. Most purchased components are already elements of their standard drive system bill of material and can be procured efficiently from known suppliers.	October 1, 2016	November 30, 2016
3.3.2 Subsystem Assembly – Once components are acquired or, when appropriate, manufactured in-house for Phase 1 Vehicles, TransPower will assemble the major subsystems. These are the Motive Drive Subsystem, Power Control and Accessory Subsystem, and Energy Storage Subsystem.	November 1, 2016	March 31, 2018
3.3.3 Order Externally-Sourced Components – TransPower will order externally-sourced subsystem components for Phase 2 Vehicles. Most purchased components are already elements of their standard drive system bill of material and can be procured efficiently from known suppliers.	October 1, 2016	June 30, 2018
3.3.4 Subsystem Assembly – Once components are acquired or, when appropriate, manufactured in-house for Phase 2 Vehicles, TransPower will assemble the major subsystems. These are the Motive Drive Subsystem, Power Control and Accessory Subsystem, and Energy Storage Subsystem.	February 1, 2017	July 31, 2018
3.4 Vehicle Integration and Commissioning - TransPower will install subsystems into the demonstration vehicles in two phases, as previously described in Task 3. During commissioning, TransPower will test all drive system components on the integrated vehicle and then test the entire system to ensure it functions properly. TransPower will then undertake a series of drive tests to validate the basic functionality and safety of the system and to optimize vehicle controls.	February 1, 2017	August 31, 2018
3.4.1.1 TransPower Phase 1 Vehicle Integration – TransPower will install power control and accessory subsystems (PCAS) and inverter charger units (ICU) into the Drayage Trucks, Yard Tractors, and first Forklift.	February 1, 2017	June 30, 2018
3.4.1.2 BYD Vehicle Delivery – BYD will design, manufacturer and deliver 2 electric yard tractors	June 1, 2016	December 31, 2017
3.4.2 Phase 1 Vehicle Commissioning – TransPower will test all drive system components on the integrated	March 1, 2018	July 31, 2018

vehicle and then test the entire system to assure it functions properly. They will then undertake a series of drive tests to validate the basic functionality and safety of the system, and to optimize vehicle controls.		
3.4.3 Phase 2 Vehicle Integration – TransPower will install power control and accessory subsystems (PCAS) and inverter charger units (ICU) into the two additional 21-ton Forklifts.	April 2, 2018	November 2019
3.4.4 Phase 2 Vehicle Commissioning - TransPower will test all drive system components on the integrated vehicle and then test the entire system to ensure it functions properly. They will then undertake a series of drive tests to validate the basic functionality and safety of the system and to optimize vehicle controls.	July 1, 2018	September 30, 2018
3.5 Vehicle Deployment - Upon delivery and deployment of vehicles at Pasha, charging infrastructure will be tested, and training of Pasha operational and maintenance crews will begin. BYD and TransPower will provide on-site and classroom training up to 40 hours for drivers of all the vehicles, as well as a printed and digital set of operator training manuals.	January 1, 2018	**November 30, 2021** ~~September 30, 2018~~
3.5.1 Vehicle Delivery – TransPower will deliver two Forklifts.	June 30, 2018	September 30, 2018
3.5.1.1 Vehicle Delivery – TransPower will deliver third Forklift.	January 1, 2018	September 30, 2018
3.5.2 Personnel Training - BYD and TransPower will provide on-site and classroom training up to 40 hours for drivers of all the vehicles, as well as a printed and digital set of operator training manuals.	July 1, 2017	September 30, 2018
3.6 Yard Tractor Delivery – Kalmar will deliver one battery electric yard tractor	**January 31, 2021** ~~2020~~	**August 31, 2021** ~~May 29, 2020~~
Task 3 Deliverables: Updated Design Package, Invoices for Vehicle Purchases, Photographs of Assembled Subsystems, operator training manual, and Vehicle Commissioning Report.	October 31, 2016	**November 30, 2021** ~~September 30, 2018~~
Task 4 – ShoreKat Emissions Treatment System - CAEM will manufacture the new ShoreKat system over a 20-week period followed by a 4-week period for delivery, at-berth assembly, and commissioning. Emission testing will be conducted over a month period to validate system performance.	October 1, 2016	March 15, 2020

4.1 Design, Fabrication, and Delivery - System design will include the packaging of the technology used in METS into a system that can be operated from and moved along a pier. Primary design considerations are the ability of the system to operate as a self-contained unit for a minimum duration that is equivalent to one vessel call. The system will also be enhanced to accommodate a wide variety of auxiliary engine stacks. Additional design improvements will include NO_x removal efficiency, improved energy efficiency, non-methane VOC and SO_2 reduction~~, and CO_2 capture~~. The primary focus of fabrication will be to greatly reduce construction time and level of effort in the field and reduce shipping costs from the factory. This will be accomplished by focusing on a modular type of design that incorporates many elements into a single integrated component. The goal is to shift labor delivered in the field to being delivered at the factory. Engineering designs will be completed; the as-built design package, emission control system, infrastructure equipment, and crane/extraction system will be procured; and equipment will be shipped to Pasha.	October 1, 2016	February 28, 2018
4.1.1 Design – CAEM will design the ShoreKat emissions control system and submit designs.	October 1, 2016	November 30, 2016
4.1.2 Emission Control System Procurement – CAEM will procure raw material for filter housings and steel filter elements controls.	October 1, 2016	November 30, 2016
4.1.3 Infrastructure Equipment Procurement – CAEM will procure the primary fan, ECS duct system, duct heater, system power generators, and system compressor.	October 1, 2016	November 30, 2016
4.1.4 Crane/Extraction System Procurement – CAEM will procure the boom tower system and ductwork for capture system.	October 1, 2016	November 30, 2016
4.1.5 ShoreKat Delivery – CAEM will ship the system to Pasha for inservicing.	August 1, 2016	March 16, 2018
4.2 Equipment Installation and Commissioning – The ShoreKat's modular design will facilitate a shipping and delivery approach that is greatly simplified over what was required for the METS-1 system. This approach will eliminate field construction and will convert those activities to a short assembly process. This approach will also allow full functional testing at the factory, greatly reducing troubleshooting in the field during	April 2, 2018	April 27, 2018

startup. The focus of commissioning activities will be operator training and system performance evaluations. Deliverables for this task are a list of equipment and commissioning report.		
4.2a Core Emissions Treatment System Equipment Installation and Commissioning at the Pasha Terminal	September 1, 2018	May 31, 2019
4.2b Carbon Treatment System 1 delivery, assembly, and commissioning	June 1, 2019	September 30, 2019
4.3 Performance Verification and Emissions Testing - ShoreKat will incorporate onboard monitoring systems to determine the removal efficiency of NO_x and corresponding ammonia slip. ~~The system will also have the ability to determine CO_2 capture on a continuous basis and fuel consumption. The performance demonstration period is expected to last four to six weeks. During that time, the system will collect continuous particulate efficiency data.~~ An independent source test company will be contracted to perform emission testing to validate all of the onboard measurements and to demonstrate SO_2 and non-methane VOC treatment efficiency. Deliverable is the emissions testing results.	April 30, 2018	March 15, 2020
Task 4 Deliverables: As-Built Design Package, Documentation of Procured Equipment, Delivery of ShoreKat, Commissioning Report, and Emission Testing Report	October 1, 2016	January 31, 2020
Task 5 – Demonstration - The demonstration phase will show how multiple zero and near-zero equipment can operate together to sustainably move break bulk and container cargo through the terminal to clean truck transportation. Following successful commissioning and deployment of equipment and training of staff on operation and maintenance, a two-year demonstration will begin. The four electric yard trucks, one 21-ton forklift, two on-road drayage trucks, and cargo handling equipment will be placed in operation alongside baseline diesel equipment. Once at berth, vessels will be connected to the ShoreKat treatment system to reduce emissions. Efficient wharf cranes, powered by solar energy, will offload vessels where electrified forklifts will move cargo to staging areas, yard tractors, drayage trucks, or rail for transport. It is anticipated that equipment will be capable of operating continuously for an 8-hour shift.	January 1, 2018	**March 31, 2022** ~~January 31, 2020~~
5.1 Microgrid, Energy Efficiency Retrofits - Burns & McDonnell will demonstrate energy efficiency and	September 1, 2018	**March 31, 2022**

resiliency gained through the microgrid and energy management control systems. This will include peak shaving and islanded operation.		~~January 31, 2020~~
5.2 Vehicles and Equipment - The four electric yard tractors, three 21-ton forklifts, two on-road drayage trucks, will be placed in operation alongside baseline diesel equipment to demonstrate the operational viability and cost-effectiveness of operating multiple zero emission vehicles and equipment at one facility.	January 1, 2018	**March 31, 2022** ~~January 31, 2020~~
5.2.1 Phase 1 Vehicles and Equipment - Class 8 drayage trucks, yard tractors, and forklift will be placed in service during Phase 1. Electric drayage trucks will primarily be used to move cargo and personnel within the Port complex. Additional demonstrations will include longer hauls to distribution and processing facilities.	June 1, 2017	**March 31, 2022** ~~January 31, 2020~~
5.2.2 Phase 2 Cargo Handling Equipment - The two additional 21-ton forklifts will be placed in service during Phase 2.	April 1, 2018	**March 31, 2022** ~~January 31, 2020~~
5.3 ShoreKat Demonstration - Following emission testing, the ShoreKat system will continue to be used throughout the project demonstration period to test the long-term operation and maintenance of the system at the terminal. Pasha is an ideal terminal for testing this system because the vessels calling on the terminal are not equipped with alternative maritime power infrastructure.	April 1, 2018	**March 15, 2020** ~~January 31, 2020~~
Task 5 Deliverables: Monthly Status Reports on Equipment In-Service and Operation	July 1, 2017	**May 15, 2022** ~~January 31, 2020~~
Task 6 – Data Collections and Analysis - During demonstration, data will be collected from baseline and electrified vehicles and equipment for hours of use, energy usage, vehicle performance variables, type of operation/application, vehicle/equipment maintenance, as well as general feedback on operator acceptance.	January 1, 2018	**March 31, 2022** ~~January 31, 2020~~
6.1 Field Data Collection - EVs and equipment will be equipped with a health activity monitoring system (HAMS) as part of the chassis module control. This device is provided by I/O Controls, who will ensure that the data is available. The HAMS provides the ability to monitor all performance parameters in real-time from a cloud-based server, including fuel efficiency (miles/kWh), strength of charge (SOC),	January 1, 2018	**March 31, 2022** ~~January 31, 2020~~

mileage/odometer readings, runtime, idle time, battery temperature, speed, and charging current/voltage. All real-time and historical data will be available in chart form and as a download for analysis by the Harbor Department, PASHA, CARB, and CARB's chosen third party analysis company. Furthermore, the HAMS has the ability to coordinate the charging profile of all of the vehicles to smooth power demand. An algorithm will determine when to start/stop charging based on commands from the web server. Lastly, the HAMS has GPS capability, so it can identify where trucks are at any given time and also provide telematics information related to when the trucks are operating in disadvantaged communities. Demonstration and baseline vehicles will be equipped with CARB-specified data loggers to support collection of CARB-required data, in addition to the HAMS system.		
6.2 Laboratory Data Collection - UCR CE-CERT will evaluate representative EVs at their Heavy-Duty Chassis Dynamometer facility in Riverside, CA. Laboratory testing will include a BYD electric yard tractor, a TransPower drayage truck, and a 21-ton forklift. Dynamometer testing will evaluate power, energy efficiency, and fuel economy. These measurements will be made using a series of power consumption measurements over the range of cycles seen at Pasha and other Port terminals. The data will be collected for both integrated cycles and on a second-by-second basis.	**September 15, 2021** ~~September 1, 2018~~	**December 31, 2021** ~~September 30, 2018~~
6.3 Data Analysis - Data analysis will be accomplished by an independent third party that CARB selects. It is understood that all types of data to be collected will be determined in CARB's sole discretion, in consultation with the project team.	January 1, 2018	**March 31, 2022** ~~January 31, 2020~~
Task 6 Deliverables: Electronic data in the format required by CARB, Data Analysis Report will be included in the Final Report.	January 1, 2018	**May 3, 2022** ~~January 31, 2020~~

EXHIBIT B, Attachment IV

Key Project Personnel

Grantee: Los Angeles Harbor Department **Grant No.: G14-LCTI-08 Amendment 4**

Project: Port of Los Angeles Green Omni Terminal

Name	Position	Duties
Christopher Cannon	Director, Environmental Management Division	Provides overall leadership and executive oversight for the project
Teresa Pisano	**Acting Marine Environmental Supervisor** ~~Environmental Specialist III~~	Oversees grant administrative duties and coordination with CARB throughout the project.
Shaouki Aboulhosn	Harbor Engineer	Reviews infrastructure designs and construction specifications to determine compliance with City and Harbor Department building and operational needs.
Tim DeMoss	Marine Environmental Supervisor	Oversees and coordinates technology demonstration partners' participation in the project.
	Pasha Stevedoring & Terminals – End User Facility	
David VanWaardenburg	Vice President	Oversees equipment operators and maintenance personnel in the use of demonstration vehicles and equipment
	Burns and McDonnell Engineering Company - Subcontractor	
Matthew Wartian	Regional Global Practice Manager	Provides overall management of the project and subcontractors

	LADWP – Technical Advisor	
Scott Briasco	Power Engineering Manager	Provides utility advice on smart grid energy optimization scenarios
	SCAQMD – Technical Advisor	
Matt Miyasato	Deputy Executive Officer	Development and commercialization of clean air technologies advisor
	UCLA Luskin Center for Innovation – Technical Advisor	
J.R. DeShazo	Professor	Sustainable energy management, policy and economics advisor
	UC Riverside Center for Environment Research and Technology – Technical Advisor	
Wayne Miller	Associate Director	Vehicle performance testing and data collection and analysis advisor
	Coalition for Clean Air – Community Relations Advisor	
Joseph Lyou	President & CEO	Disadvantaged Community relations advisor
	BYD Motors – Technology Demonstrator	
~~Jack Symington~~ **Vincent Pellechia**	Project Manager	Oversees demonstration of OEM battery-electric drayage trucks, bus, and battery storage system
	Clean Air Engineering Maritime – Technology Demonstrator	

Nick Tonsich	Principal	Oversees implementation of the ShoreKat emissions treatment system
	PermaCity Construction Corp. – Technology Demonstrator	
Herb Mendelsohn ~~John Mason~~	**Vice President Sales & Marketing** ~~Commercial Sales Manager~~	Leads the installation of the 1 megawatt solar photovoltaic system
	Meritor - Transportation Power, Inc. – Technology Demonstrator	
Jerry Krug ~~Mike Simon~~	**General Manager – Operations Strategy at Meritor** ~~President & CEO~~	Assists TransPower project manager in project planning and financial administration, review and approve major supplier agreements, and lead outreach and commercialization activities

NOTE: Changes in Key Project Personnel may be made if approved by CARB in writing. Changes in Key Project Personnel do not require a written grant amendment.

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EXHIBIT C

2014-2015 GRANT SOLICITATION

Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund (GGRF) Investments

Advanced Technology Freight Demonstrations: Multi-Source Facility Demonstration Project

Mobile Source Control Division
California Air Resources Board
June 23, 2015

California Environmental Protection Agency
Air Resources Board

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EXHIBIT D

GRANTEE APPLICATION PACKAGE