

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

Hydee Feldstein Soto (SBN 106866)  
Steven Y. Otera (SBN 155471)  
sotera@portla.org  
Justin M. Houterman (SBN 211703)  
jhouterman@portla.org  
John T. Driscoll (SBN: 204092)  
jdriscoll@portla.org  
Deborah Dorny (SBN 204391)  
Ddorny@portla.org  
OFFICE OF THE CITY ATTORNEY OF LOS ANGELES  
425 South Palos Verdes Street  
San Pedro, CA 90731  
Telephone: (310) 732-3750  
Facsimile: (310) 831-9778

EXEMPT FROM FILING FEES  
GOV'T CODE § 6103

Amrit S. Kulkarni (SBN: 202786)  
akulkarni@meyersnave.com  
Julia L. Bond (SBN: 166587)  
jbond@meyersnave.com  
Shaye Diveley (SBN: 215602)  
sdiveley@meyersnave.com  
MEYERS NAVE  
707 Wilshire Blvd., 24<sup>th</sup> Floor  
Los Angeles, California 90017  
Telephone: (213) 626-2906  
Facsimile: (213) 626-0215

Attorneys for Respondents/Defendants CITY OF  
LOS ANGELES, LOS ANGELES CITY  
COUNCIL, PORT OF LOS ANGELES, THE  
CITY OF LOS ANGELES HARBOR  
DEPARTMENT, and THE LOS ANGELES  
BOARD OF HARBOR COMMISSIONERS

**SUPERIOR COURT OF THE STATE OF CALIFORNIA**  
**COUNTY OF SAN DIEGO, CENTRAL DIVISION**

NATURAL RESOURCES DEFENSE  
COUNCIL, INC., SAN PEDRO AND  
PENINSULA HOMEOWNERS  
COALITION, SAN PEDRO PENINSULA  
HOMEOWNERS UNITED, INC., EAST  
YARD COMMUNITIES FOR  
ENVIRONMENTAL JUSTICE and  
COALITION FOR CLEAN AIR, INC.,  
nonprofit corporations,

Petitioner/Plaintiffs

Case No. 37-2021-00023385-CU-TT-CTL

Assigned For All Purposes To:  
Hon. James Mangione, Dept. C-75

**EXHIBIT B, PART 3 TO  
DECLARATION OF LISA OCHSNER**

Actions Filed: September 16, 2020

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

v.

CITY OF LOS ANGELES, PORT OF LOS ANGELES, LOS ANGELES BOARD OF ANGELES and LOS ANGELES BOARD OF HARBOR COMMISSIONERS, public entities,

Respondents.

CHINA SHIPPING (NORTH AMERICA) HOLDING CO. LTD, a Delaware corporation; COSCO SHIPPING (NORTH AMERICA), INC., a California corporation; WEST BASIN CONTAINER TERMINAL LLC, a Delaware corporation; CHINA COSCO SHIPPING CORPORATION LIMITED, a corporation; and DOES 1 THROUGH 50, inclusive,

Real Parties in Interest.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, a Public Entity,

Petitioner,

v.

CITY OF LOS ANGELES, a Public Entity; LOS ANGELES CITY COUNCIL, a Public Entity; the CITY OF LOS ANGELES HARBOR DEPARTMENT, a Public Entity; and the LOS ANGELES BOARD OF HARBOR COMMISSIONERS, a Public Entity,

Respondents.

CHINA SHIPPING (NORTH AMERICA) HOLDING CO. LTD, et al.

Real Parties in Interest.

Consolidated Case

# **EXHIBIT B**

## **Part 3**

Top Handler Detail Tab

| No. | Eq Type     | Asset No. | Tag No. | Serial No.  | Engine Serial No. | Engine Make | Engine Type       | Engine Family Name | Engine Year | Model    | Model Year | Manufacturer | Fuel   |
|-----|-------------|-----------|---------|-------------|-------------------|-------------|-------------------|--------------------|-------------|----------|------------|--------------|--------|
| 1   | Top Handler | 6415      | 15      | S-HD-35277  | 35218522          | Cummins     | QSM11             | 8CEXL0661AAF       | 2008        | TXC-976  | 2008       | Taylor       | Diesel |
| 2   | Top Handler | 6416      | 16      | S-HB-36705  | 35281694          | Cummins     | QSM11             | ACEXL019.AAD       | 2011        | TXLC-976 | 2011       | Taylor       | Diesel |
| 3   | Top Handler | 6417      | 17      | S-HB-36706  | 35284232          | Cummins     | QSM11             | ACEXL019.AAD       | 2010        | TXLC-976 | 2011       | Taylor       | Diesel |
| 4   | Top Handler | 6418      | 18      | S-HB-36707  | 35284233          | Cummins     | QSM11             | ACEXL019.AAD       | 2011        | TXLC-976 | 2011       | Taylor       | Diesel |
| 5   | Top Handler | 6419      | 19      | G117E01615M | 22111066          | Cummins     | QSL-9             | DCEXL08.9AAH       | 2014        | H1150-HD | 2014       | Hyster       | Diesel |
| 6   | Top Handler | 6420      | 20      | H117E01616R | 22254285          | Cummins     | QSL-9             | HCEXL08.9AAK       | 2017        | H1150-HD | 2017       | Hyster       | Diesel |
| 7   | Top Handler | 6421      | 21      | H117E01617R | 22260169          | Cummins     | QSL-9             | HCEXL08.9AAK       | 2017        | H1150-HD | 2017       | Hyster       | Diesel |
| 8   | Top Handler | 6422      | 22      | H117E01621R | 22262872          | Cummins     | QSL-9             | HCEXL08.9AAK       | 2017        | H1150-HD | 2017       | Hyster       | Diesel |
| 9   | Top Handler | 6423      | 23      | H117E01622R | 60349441          | Cummins     | QSL-9             | HCEXL08.9AAK       | 2017        | H1150-HD | 2017       | Hyster       | Diesel |
| 10  | Top Handler | 6424      | 24      | H117E01626R | 22266485          | Cummins     | QSL-9             | HCEXL08.9AAK       | 2017        | H1150-HD | 2017       | Hyster       | Diesel |
| 11  | Top Handler | 6425      | 25      | H117E01627R | 22272176          | Cummins     | QSL-9             | HCEXL08.9AAK       | 2017        | H1150-HD | 2017       | Hyster       | Diesel |
| 12  | Top Handler | 6426      | 26      | S-HB 41170  | 2013686550        | Volvo       | TAD1371VE - 12.8L | HVPXL12.8CJA       | 2017        | XLC-976E | 2017       | Taylor       | Diesel |
| 13  | Top Handler | 6427      | 27      | S-HB 41172  | 2013693457        | Volvo       | TAD1371VE - 12.8L | HVPXL12.8CJA       | 2017        | XLC-976E | 2017       | Taylor       | Diesel |
| 14  | Top Handler | 6428      | 28      | S-HB-46423  | 20132070693       | Volvo       | TAD1371VE - 12.8L | MVPXL12.8CJA       | 2021        | XLC-976  | 2021       | Taylor       | Diesel |
| 15  | Top Handler | 6429      | 29      | S-HB-49091  | 20132325636       | Volvo       | TAD1371VE - 12.8L | PVPXL12.8CJA       | 2023        | XLC-976  | 2024       | Taylor       | Diesel |
| 16  | Top Handler | 6430      | 30      | S-HB-49092  | 20132295023       | Volvo       | TAD1371VE - 12.8L | PVPXL12.8CJA       | 2023        | XLC-976  | 2024       | Taylor       | Diesel |
| 17  | Top Handler | 6431      | 31      | S-HB-49093  | 20132340756       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 18  | Top Handler | 6432      | 32      | S-HB-49158  | 20132345922       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 19  | Top Handler | 6433      | 33      | S-HB-49159  | 20132345930       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 20  | Top Handler | 6434      | 34      | S-HB-49160  | 20132354941       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 21  | Top Handler | 6435      | 35      | S-HB-49161  | 20132352792       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 22  | Top Handler | 6436      | 36      | S-HB-49162  | 20132357673       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 23  | Top Handler | 6437      | 37      | S-HB-49163  | 20132368267       | Volvo       | TAD1371VE - 12.8L | RVPXL12.8CJA       | 2024        | XLC-976  | 2024       | Taylor       | Diesel |
| 24  | Top Handler | 6438      | 38      | S-HB-49594  | 20132314992       | Volvo       | TAD1371VE - 12.8L | PVPXL12.8CJA       | 2023        | XLC-976  | 2024       | Taylor       | Diesel |

RTG Detail Tab

| No. | Eq Type | Asset No. | Tag No. | Serial No.         | Engine Serial No. | Engine Make | Engine Type | Engine Family Name | Engine Year | Model            | Model Year | Manufacturer | Hybrid |
|-----|---------|-----------|---------|--------------------|-------------------|-------------|-------------|--------------------|-------------|------------------|------------|--------------|--------|
| 1   | RTG     | 9075      | 29      | JL92-05-814        | 74987550          | Cummins     | QSB5-G11    | NCEXL04.5AAJ       | 2022        | RC40.6/56        | 2005       | ZPMC         | Yes    |
| 2   | RTG     | 9076      | 30      | JL92-05-815        | 74978303          | Cummins     | QSB5-G11    | NCEXL04.5AAJ       | 2022        | RC40.6/56        | 2005       | ZPMC         | Yes    |
| 3   | RTG     | 9081      | 31      | 3436               | 88111186          | Caterpillar | C7.1 ACERT  | PPKXL07.0BN1       | 2023        | RT4023-81-5HL    | 2015       | Paceco       | Yes    |
| 4   | RTG     | 9082      | 32      | 3437               | 88100611          | Caterpillar | C7.1 ACERT  | EPKXL07.0BN1       | 2015        | RT4023-81-5HL    | 2015       | Paceco       | Yes    |
| 5   | RTG     | 9083      | 33      | 3438               | 88100613          | Caterpillar | C7.1 ACERT  | EPKXL07.0BN1       | 2015        | RT4023-81-5HL    | 2015       | Paceco       | Yes    |
| 6   | RTG     | 9084      | 34      | 3439               | 88111185          | Caterpillar | C7.1 ACERT  | PPKXL07.0BN1       | 2023        | RT4023-81-5HL    | 2015       | Paceco       | Yes    |
| 7   | RTG     | 9085      | 35      | 3440               | 88100615          | Caterpillar | C7.1 ACERT  | EPKXL07.0BN1       | 2015        | RT4023-81-5HL    | 2015       | Paceco       | Yes    |
| 8   | RTG     | 9086      | 36      | 4231               | 22605809          | Cummins     | QSB5-G11    | PCEXL04.5AAJ       | 2023        | RT4023TA-8I-5NZE | 2024       | Paceco       | Yes    |
| 9   | RTG     | 9087      | 37      | 4232               | 22607905          | Cummins     | QSB5-G11    | PCEXL04.5AAJ       | 2023        | RT4023TA-8I-5NZE | 2024       | Paceco       | Yes    |
| 10  | RTG     | 9088      | 38      | 4233               | 22607911          | Cummins     | QSB5-G11    | PCEXL04.5AAJ       | 2023        | RT4023TA-8I-5NZE | 2024       | Paceco       | Yes    |
| 11  | RTG     | 9089      | 39      | 4234               | 22607887          | Cummins     | QSB5-G11    | PCEXL04.5AAJ       | 2023        | RT4023TA-8I-5NZE | 2024       | Paceco       | Yes    |
| 12  | RTG     | 9090      | 40      | 4235               | 22607908          | Cummins     | QSB5-G11    | PCEXL04.5AAJ       | 2023        | RT4023TA-8I-5NZE | 2024       | Paceco       | Yes    |
| 13  | RTG     | 9091      | 41      | 4236               | 22607402          | Cummins     | QSB5-G11    | PCEXL04.5AAJ       | 2023        | RT4023TA-8I-5NZE | 2024       | Paceco       | Yes    |
| 14  | RTG     | 9092      | 42      | 424010724202495501 | 7005377211        | Volvo       | TAD580VE    | PVPXL05.1CJB       | 2023        | RTG 41t          | 2024       | ZPMC         | Yes    |
| 15  | RTG     | 9093      | 43      | 424010724202495502 | 7005377212        | Volvo       | TAD580VE    | PVPXL05.1CJB       | 2023        | RTG 41t          | 2024       | ZPMC         | Yes    |

## Sweeper Detail Tab

| Equipment Type | Asset Tag No. | Ops No. | Serial No.        | Engine Serial No. | Engine Make | Engine Type | Engine Family Name | Engine Year | Fuel Type | Hybrid | Model  | Model Year | Manufacturer |
|----------------|---------------|---------|-------------------|-------------------|-------------|-------------|--------------------|-------------|-----------|--------|--------|------------|--------------|
| Street Sweeper | 23010         | N/A     | 1FVACWFC7PHUF2829 | 99041981          | Cummins     | B6.7 200    | NCEXH0408BCA       | 2022        | Diesel    | No     | RegenX | 2022       | Elgin        |



#### **2019 MMRP MM GHG-1 LED Lighting**

##### **Mitigation Measure:**

All lighting within the interior of buildings on the premises and outdoor high mast terminal lighting will be replaced with LED lighting or a technology with similar energy-saving capabilities within two years after the effective date of the new lease amendment between the Tenant and the LAHD or by no later than 2023.

##### **WBCT Statement:**

WBCT already replaced all lighting with the LED lighting. No further action.



## **2019 MMRP LM AQ-1\_Cleanest Available Cargo Handling Equipment**

### **Mitigation Measure:**

Subject to zero and near-zero emissions feasibility assessments that shall be carried out by LAHD, with input from Tenant as part of the CAAP process, Tenant shall replace cargo handling equipment with the cleanest available equipment anytime new or replacement equipment is purchased, with a first preference for zero-emission equipment, a second preference for near-zero equipment, and then for the cleanest available if zero or near-zero equipment is not feasible, provided that LAHD shall conduct engineering assessments to confirm that such equipment is capable of installation at the terminal. Starting one year after the effective date of a new lease amendment between the Tenant and the LAHD, tenant shall submit to the Port an equipment inventory and 10-year procurement plan for new cargo handling equipment, and infrastructure, and will update the procurement plan annually in order to assist with planning for transition of equipment to zero emissions in accordance with the foregoing paragraph. LAHD will include a summary of zero and near-zero emission equipment operating at the terminal each year as part of mitigation measure tracking.

### **WBCT Statement:**

No change to update, the same as below of the last reporting period.

WBCT has implemented this review and has executed purchases based on available information (See MM AQ-17 for 18 Ton Forklifts). This measure is Continuing. WBCT is also looking into converting the Year 5 purchases for Yard Tractors & Top Handlers to zero emission units which also exceeds the SEIR replacement requirement in regards to emissions technology. Beyond the SEIR requirements, WBCT will begin retiring certain equipment fleets and replace with zero emission units in years 8 thru 10 after the conclusion of the mitigation measures in the SEIR replacement schedule. Current plan will be to begin replacing yard tractors at a rate of 20 per year, top handlers at a rate of 4 per year and RTG's at a rate of 3 per year. (see Tab: 10 Year Rolling Purchase Plan)

10 Year Rolling Purchase Plan

| A                          | B         | C         | D         | E          | F               | G            | H          | I                      | J                        | K                        | L                        | M                        | N                        | O                        | P                        | Q                        | R                         |
|----------------------------|-----------|-----------|-----------|------------|-----------------|--------------|------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| Equipment Type             | 2003-2007 | 2008-2011 | 2012-2015 | 2016-2025  | Leased from WBC | Fuel type    | Total      | Total Compliant Year 1 | Pending Purchases Year 1 | Pending Purchases Year 2 | Pending Purchases Year 3 | Pending Purchases Year 5 | Pending Purchases Year 6 | Pending Purchases Year 7 | Pending Purchases Year 8 | Pending Purchases Year 9 | Pending Purchases Year 10 |
| Forklift to 5 tons         |           | 2         |           | 2          |                 | LPG          | 4          | 4                      | 0                        | 2                        | 0                        | 0                        | 0                        | 0                        | 0                        | 0                        | 0                         |
| Forklift 5 tons to 18 tons | 3         |           |           |            |                 | Diesel       | 3          | 3                      | 0                        | 2                        | 1                        | 0                        | 0                        | 0                        | 0                        | 0                        | 0                         |
| Yard Hustler(UTR) - LPG    |           | 34        |           | 103        |                 | LPG          | 137        | 137                    | 23                       | 0                        | 0                        | 34                       | 0                        | 0                        | 0                        | 0                        | 0                         |
| Yard Hustler (UTR) - BEV   |           |           |           | 10         |                 | Electric     | 10         | 10                     | 2                        | 0                        | 0                        | 0                        | 0                        | 0                        | 20                       | 20                       | 20                        |
| Top Handler                |           | 4         | 1         | 19         |                 | Diesel       | 24         | 24                     | 0                        | 0                        | 0                        | 5                        | 0                        | 0                        | 4                        | 4                        | 4                         |
| RTG                        | 2         |           | 5         | 8          |                 | Diesel       | 15         | 15                     | 0                        | 0                        | 0                        | 0                        | 0                        | 2                        | 3                        | 3                        | 3                         |
| Personnel Vans             |           |           |           |            | 3               | Gasoline     | 3          | 3                      | 0                        | 0                        | 0                        | 0                        | 0                        | 3                        | 0                        | 0                        | 0                         |
| Sweeper                    |           |           |           | 1          |                 | Diesel       | 1          | 1                      | 0                        | 0                        | 0                        | 0                        | 1                        | 0                        | 0                        | 0                        | 0                         |
| <b>Total</b>               | <b>5</b>  | <b>40</b> | <b>6</b>  | <b>143</b> | <b>3</b>        | <b>Total</b> | <b>197</b> |                        |                          |                          |                          |                          |                          |                          |                          |                          |                           |

Purchase battery electric units in Year 5 for Yard Tractors & Top Handlers  
 Replace Low-Nox yard tractors, Tier 4 Final Diesel top handlers and hybrid RTG's to zero emission



## 2019 MMRP LM AQ-2\_Priority Access for Drayage

### Mitigation Measure:

A priority access system shall be implemented at the terminal to provide preferential access to zero- and near-zero-emission trucks.

### WBCT Statement:

WBCT has created signage both physical (at the ingate lane #12) and digital (through our website) to inform the drayage community of the ingate lane dedicated to zero or near zero emissions. Please see below:

Ingate signage placed on lane 12 for Zero or Near Zero Emissions



WBCT Website broadcast available to the public showing the zero/near zero emissions lane



## TOS Web Portal

Welcome to WBCT Los Angeles

Priority Daily Message

WBCT is now offering a Low/Zero Emission Express Lane. Trucks may use Lane 12 Inbound for access

Wheeled Imports do NOT need appointments

\*\*\* All transactions must have an accompanying EIR Ingate pass and EIR Outgate pass (unless bobtail out). Drivers are responsible for making sure their transaction matches their gate pass. \*\*

If a driver is found without a gate pass attempting to pick up a chassis, they and their company will be banned from WBCT. ZERO tolerance for chassis stealing/misuse

For any Emergency on terminal please dial (310) 519-2378

NEW INFORMATION AND TERMS/CONDITIONS RELATING TO DEMURRAGE AND DETENTION INVOICE -- LEGAL REQUIREMENTS- Please see bottom of page for updates



### **2019 MMRP LM AQ-3: Demonstration of Zero-Emissions Equipment**

#### **Lease Measure:**

Tenant shall conduct a one-year zero emission demonstration project with at least 10 units of zero-emission cargo handling equipment. Upon completion, tenant shall submit a report to LAHD that evaluates the feasibility of permanent use of the tested equipment. Tenant shall continue to test zero-emission equipment and provide feasibility assessments and progress reports in 2020 and 2025 to evaluate the status of zero emission technologies and infrastructure as well as operational and financial considerations, with a goal of 100% zero-emission cargo handling equipment by 2030.

#### **WBCT Action:**

Please refer to the monthly progress report for ARV-17-049 in June 10, 2025.



**MONTHLY PROGRESS REPORT for ARV-17-049**  
**Port of Los Angeles (POLA)**  
**Reporting Period (June 2025)**

Recipient Project Manager: Laura Hunter  
Commission Agreement Manager: Marc Perry

### **Project Overview**

The City of Los Angeles Harbor Department (Port of Los Angeles, Port, POLA, Harbor Department) grant agreement with the California Energy Commission (CEC) implements the Zero Emission Freight Vehicle Advanced Infrastructure Demonstration Project (AID). The project team will design and install wireless inductive charging infrastructure, including ten base chargers and two opportunity chargers, as well as a peak shaving battery energy storage system (BESS) to support the demonstration of 10 battery-electric yard tractors at the Port of Los Angeles. Lead project demonstration partners include West Basin Container Terminal (WBCT) and Wireless Advanced Vehicle Electrification, LLC (WAVE). This project also includes a grant agreement between WBCT and the South Coast Air Quality Management District (South Coast AQMD) to help fund the purchase of the battery-electric yard tractors.

### **What We Planned to Accomplish This Period**

During June, POLA Engineering and Construction and Maintenance (C&M) planned to support Schneider Electric's team while they completed commissioning activities, Underwriters Laboratories (UL) certification, and final permitting for Area 2 (Task 3). BYD and WAVE planned to collaboratively resolve outstanding issues with yard tractors 1 – 10 as the demonstration progressed (Task 4). The data collection team planned to work with WAVE and BYD to resolve outstanding data communication issues (Task 4). Project management and the CAM planned to conduct the monthly team progress meeting to discuss status updates, questions, and concerns via Teams meeting (Task 1). Project management planned to conduct weekly internal team meetings to discuss action items, questions, and concerns via Teams (Task 1).

### **What We Actually Accomplished This Period**

Below is a summary of project activities and accomplishments.

#### **Task 1 – Administration**

POLA's Board of Harbor Commissioners approved the Agreement on June 20, 2019. The Agreement was executed by all parties as of July 29, 2019. The Subrecipient Agreement was approved by the POLA Board of Harbor Commissioners (Board) on February 6, 2020 and executed March 24, 2020. Amendment #1 to the Agreement was presented to the Board on March 10, 2022. The Amendment was signed by all parties and fully executed on March 30, 2022.

Project management received documents from the CEC in early December 2022 for approval of Amendment #2 to the Agreement authorizing milestone and term extensions, due to excessive supply chain delays. Agreement Amendment #2 was approved by the Board on April 27, 2023 and executed May 12, 2023. Amendment #1 to the Subrecipient Agreement was approved by the Board at the same meeting on April 27, 2023. The Subrecipient Agreement was executed on October 21, 2023.

Amendment #3 to the Agreement, a no-cost time extension, passed by the Board on May 23, 2024 and executed on June 5, 2024. In order to align with the main Agreement, Amendment #2



was added to the Subrecipient Agreement and passed by the Board on May 23, 2024. The Subrecipient Agreement received Los Angeles City Council approval and was executed on September 23, 2024.

One project team meeting with the CAM was held this month on June 17, 2025. Attachment B provides documentation of the meeting's discussions. Three internal team meetings were conducted in order to facilitate collaboration among project partners. Meeting notes and a list of action items were emailed to the project team after each meeting.

#### Task 1.1 – Attend Kick-off Meeting

The project kick-off meeting was held on September 19, 2019. In attendance were Jacob Goldberg (POLA), Marc Perry (CEC), Phil Dyer (CEC), Dac Hoang (POLA Engineering), Tim DeMoss (POLA), Willy Won (WBCT), Quintin Yang (WBCT), and Mike Masquelier (WAVE) via phone.

#### Task 1.2 – Critical Project Review (CPR) Meetings

The first CPR meeting was held on April 5, 2021. The CEC acknowledgment to continue with the project was received on May 3, 2021. Continuation of the BESS portion of the project was placed at risk. The partial Stop Work Order (SWO) placed on the BESS was lifted on March 30, 2022.

The second CPR took place on October 15, 2024. The meeting was hybrid with in-person and virtual options. After the presentation and Q&A, the 15 in-person attendees travelled to WBCT for a site visit and tour of the demonstration equipment. Presentation slides were shared with the CAM. CEC acknowledgment to continue with the project was received on October 21, 2024.

#### Task 1.3 – Final Meeting

No work required for this task during this reporting period

#### Task 1.4 – Monthly Progress Reports

This June report is the 69<sup>th</sup> monthly project report.

#### Task 1.5 – Final Report

The Final Report outline is in process and will be submitted to the CAM for review in July 2025.

#### Task 1.6 – Identify and Obtain Matching Funds

The project has met and exceeded the match share commitment. Match share commitment totals \$3,405,784; \$3,538,345 in match share spending was accepted by the CEC.

#### Task 1.7 – Identify and Obtain Required Permits

Clearance from the California Oil Wells Agency was received in July 2021. With this clearance, the structural permits were issued by the Los Angeles Department of Building and Safety (LADBS) on August 10, 2021. The structural permits are as follows: #20020-10000-01656, #20020-10000-01657, #20020-10000-01658, #20020-10000-01659, #20020-10000-01660, and #21030-10000-05206. Electrical permit #20041-10000-22204 was approved July 26, 2021. Permit copies were emailed to the CAM August 2021. Area #1 equipment passed LADBS inspection on March 17, 2022. Area #2 WAVE charging equipment passed UL Certification on February 22, 2023. Revised electrical permits for Area #2 were sent to the CAM in January 2024. Structural permits were shared with the CAM in April 2024. Plan revisions to include the isolation transformer were approved November 13, 2024. On April 14, 2025 the WAVE gear at Area 2 passed final UL



Certification and passed LADBS permitting inspection on April 27, 2025. Final documents will be emailed to the CAM once received.

#### Task 1.8 – Obtain and Execute Subcontracts

The Subrecipient Agreement was approved by the POLA Board of Harbor Commissioners on February 6, 2020 and executed March 24, 2020. Amendment #1 to the Subrecipient Agreement was approved by the Board on April 27, 2023. The Subrecipient Agreement Amendment 1 was executed on October 21, 2023. Amendment 2 to the Subrecipient Agreement was passed by the Board on May 23, 2024. The Subrecipient Agreement received Los Angeles City Council approval and was executed on September 23, 2024.

#### Task 2 – Design and Development

The goal of this task is to conduct preliminary design work that will prepare for the installation of advanced inductive charging infrastructure and battery storage for demonstration at the Port of Los Angeles' West Basin Container Terminal.

#### Engineering and Construction designs

POLA Management approved the proposal to perform the infrastructure development project in-house with POLA C&M, alleviating the need for a lengthy RFP process. POLA Engineering and C&M completed all designs and plan checks for the in-house infrastructure construction. Electrical and structural permits were approved, as detailed under Task 1.7. In October 2021, LADBS identified a methane gas issue thought to require methane mitigation modification to the electrical design. POLA Engineering resolved the issue with LADBS in December 2021 and the project moved forward as planned.

Engineering continued to move forward with plans to expedite procurement for the Area #2 transformer, switchgear, and BESS. The Purchase Order (PO) was approved by the POLA Board on June 23, 2022 and confirmed by the Los Angeles City Council late July, per Los Angeles City Charter. With the PO approved, Schneider Electric was expected to prepare shop drawings for the transformer, switchgear, and BESS. Shop drawings for the transformer and switchgear were received in August, circulated through Engineering and C&M, and approved. The BESS shop drawings were received on December 5, 2022. Engineering and C&M reviewed the shop drawings and returned them to Schneider Electric with comments and questions. Responses were received late January 2023. After review by Engineering and C&M, a request for additional clarification on layout and conduit placement was sent back to Schneider Electric.

Carrying into September 2023, Engineering and C&M continued to refine information from Schneider Electric to gain clarity needed to move forward with design plans. On May 23, 2023, Schneider Electric representative, Philip Abad and later Troy Vanhoesen, joined the weekly internal team meeting. Schneider Electric agreed to work with the team to resolve design questions in the coming weeks. Questions posed by the team included wiring and conduit placement for the BESS, decoupling the BESS cabinet from the batteries to pre-set the cabinet, possibility of battery drain based on delivery date of BESS, and possibility of expediting switchgear delivery. The project team gained additional support from Schneider Electric in July, August, and September of 2023. Clarification was needed on the CAN bus wiring, control cables, grounding, and DC cables. While much of the information on wiring placement and interconnection of gear, necessary to complete the design plan revisions, was expected in Q4 2023, some elements of the wiring schematics were still missing as of January 2024. In February,



additional information required C&M to reorder wiring and conduit to fit with the equipment specifications.

Permitting for infrastructure design plan revisions was delayed, due to modifications to the construction footprint and equipment interface, based on information received from the equipment supplier. Engineering submitted plans for the electrical and structural designs in December 2023. Electrical plans were approved and emailed to the CAM in January 2024. There were some minor adjustments to the electrical plans in February. Structural permits were approved on April 29, 2024 and documentation was emailed to the CAM.

#### Purchase necessary equipment to support WAVE installations

Throughout the project, POLA Engineering and C&M continued to move forward with equipment procurement with extended lead-times, due to global supply chain issues. As of November 2022, all WAVE ground equipment was delivered to WBCT. WAVE delivered the first two charging system tub units and materials for installation of the opportunity charging infrastructure in August 2021. Once on site, there were some design discrepancies that C&M and WAVE resolved in September. Ten charging system tub units and all five cooling cabinets were delivered to WBCT in April 2022. By early August 2022, all five power supply units were delivered. By October 2022, the final of the five primary cabinets was delivered. In November 2022, the last of the ten primary pads was delivered and the tuning caps for the control board were received.

The PO for Area 2 switchgear and transformer was tied to the PO for the BESS, which was put on hold, due to the SWO. Delayed delivery of the switchgear and transformer resulted in delays energizing the Area 2 equipment corral chargers. The PO for the Area 2 transformer, switchgear, and BESS was presented to the POLA Board on June 23, 2022. The PO was approved by the POLA Board on June 23, 2022 and confirmed by the Los Angeles City Council late July, per LA City Charter. With approval of the PO, the equipment provider and vendor were announced. Schneider Electric, the equipment provider, was expected to provide shop drawings late July 2022 for the transformer, switchgear, and BESS; however, the drawings were delayed, as detailed in the section above. Shop drawings for the transformer and switchgear were received in August 2022, circulated through Engineering and C&M, and approved. The BESS shop drawings were received on December 5, 2022. With pending questions regarding layout and conduit placement, system design plans were still in process as of November 2023. Designs were submitted for permitting in December 2023.

The transformer was delivered to WBCT on September 19, 2023. Engineering personnel staffing challenges were encountered at Schneider Electric's plant in Rojo, Mexico, delaying manufacture of the switchgear. Additionally, the switchgear required a new main breaker, which was shipped to Rojo from Schneider Electric's factory in Missouri mid-December 2023. With receipt of the breaker, it was expected to take about two weeks to complete the switchgear and another week for transportation to WBCT. Manufacturing completion was anticipated by December 27, 2023 and delivery to WBCT the first week of 2024; however, additional delays were reported. The switchgear was delivered to WBCT January 29, 2024. Two small transformers (isolation and small control) and an integration hub were delivered in February 2024. These small parts were needed to connect the BESS to the charging system.

In order to preserve the batteries from degradation, delivery of the BESS was placed on hold, and formally requested for shipment in February 2024. In March, the batteries were prepped and conditioned for shipping, with an expected ship date April 29<sup>th</sup>; however, shipping was further



delayed. The BESS arrived at APM terminal Berth 400 on June 11, 2024. After debarkation and United States Customs processing, the BESS was delivered to WBCT on July 11, 2024.

#### Design, fabricate, and build components, systems, and subsystems

The WAVE prototype unit build was completed in early June 2021. Initial power-up tests were conducted, and the unit successfully transferred power. Additional configuration testing was performed. The prototype unit was validation tested in July and pre-certified at the WAVE facility. The prototype unit was delivered to the BYD Lancaster facility in early August. System integration was slightly delayed, while BYD waited for brackets to be shipped from China. The brackets were received on August 23, 2021. Mechanical fit-up and integration of the charging equipment with the battery-electric yard tractor took place at the BYD Lancaster facility with a WAVE technician on-site. The process began in late August. In early September, a software update was requested from the BYD engineers in China and received mid-September. In August, two charging system tub units were delivered to WBCT in coordination with POLA Engineering and C&M.

WAVE and BYD collaborated on a detailed testing plan for the prototype, which was delivered to the WAVE facility in Salt Lake City on October 11, 2021. Validation testing included vehicle communication systems, manual and automatic charging cycles, and charging performance metrics. Testing was successfully completed, and the yard tractor sent back to BYD's Lancaster facility on October 27, 2021. The second WAVE system was sent out to BYD on October 7 and by mid-October, a WAVE technician was on-site to assist with the integration process. The second truck was completed December 17, 2021.

In parallel with the vehicle side equipment, WAVE was preparing gear for installation at the Area 1 opportunity charging station. By November 17, 2021, the primary pads, primary cabinet, and cooler were ready to ship to WBCT. The power supply was shipped directly from the supplier. Due to construction delays, exacerbated by excessive December rain, construction team members who tested positive for COVID-19 in January 2022, and supply chain issues, delivery of the charging equipment to complete the two opportunity chargers was delayed until the week of January 17, 2022. Installation of the two primary pads and anchoring the equipment began the week of February 7, 2022. UL inspection for certification took place on February 16. The final certification report was received on February 28, and documentation sent to the CAM. The equipment passed LADBS inspection on March 17, 2022.

WAVE delivered two secondary system vehicle side charging units to BYD by mid-July 2022, for integration with yard tractors 3 and 4. Production at the BYD Lancaster facility was behind schedule, due to raw materials and personnel limitations, resurgence of COVID-19, and new staff training. In November 2022, the WAVE team sent technical assistance to the facility to assist BYD with the integration process, since the institutional knowledge of the previous integration was lost. Integration of yard tractor 3 was completed late November and 4 was completed in late December. In February 2023, WAVE installed software upgrades to yard tractors 3 and 4 at the BYD facility.

Vehicle side charging pads for yard tractors 5 and 6 were shipped to BYD on January 20, 2023. BYD completed and delivered the yard tractors to WBCT on January 2 and 4, 2024. The remaining four vehicle-side charging pads were delivered to BYD on November 27, 2023. During February and March 2024, the WAVE technician went to BYD's Lancaster facility three times to integrate yard tractor 7, but the yard tractor was still on the production line. Integration was completed in late March. Yard tractors 8, 9, and 10 were thought to be completed and integrated in June 2024. Yard tractors 7 and 8 were delivered to WBCT June 24, 2024. Yard tractors 9 and 10 required



additional attention: one required a change in the hydraulic system and the other needed some wiring from the cab to the motor. They were scheduled for final Quality Control check and delivery to WBCT in August 2024; however, a software update and communication verification was needed by WAVE. Due to challenges at WAVE and the need to train a new team of technicians, completion and delivery of the final two yard tractors were delayed. All ten yard tractors were onsite by October 2024.

#### Design and construct the Battery Storage System

A peak-shaving battery storage system with ~1.0 MW capacity was designed in the original proposal to align with the needs of terminal operations and to interface with equipment specifications. Battery suppliers, identified in the original project application and the subsequent provider selection, discontinued production of battery storage systems. The project team explored contingency solutions that would still provide proof of concept for the BESS. Demonstration of the BESS is expected to provide significant value for gaining understanding of power management and operational benefits.

In April 2021, design plans were revised to reflect this new direction and submitted to LADBS for plan check review; design plans were approved by LADBS August 10, 2021. In June, POLA Engineering met with distributors to discuss system specifications and expedited delivery. In August 2022, POLA Engineering and C&M circulated and approved shop drawings received from Schneider Electric for the transformer and switchgear. Shop drawings for the BESS were received on December 5, 2022, circulated through Engineering and C&M, and returned to Schneider Electric with questions and comments. In late January 2023, responses were received. Additional questions and clarification on layout and conduit placement were needed, so sent back to Schneider Electric. During Q3 and Q4 2023, Q1 2024, collaborative efforts were still underway. In February and March 2024, the BESS was prepped for shipping. Due to further delays with the shipping company, the BESS arrived at APM terminal on June 11, 2024. The BESS cleared Customs and was delivered to WBCT on July 11, 2024.

#### **Task 3 – Build, Install, and Commission Equipment**

The goal of this task is to install infrastructure for twelve charging stations, including ten base chargers and two opportunity chargers, to power ten battery-electric yard tractors for demonstration at the Port of Los Angeles' West Basin Container Terminal.

#### Construction and installation of infrastructure

In July 2021, POLA C&M team was deployed to Berth 100 at WBCT and began the process to survey, trench, and lay conduits for the electrical development, while trying to minimize impact to terminal operations. During August, Phase One of the project moved forward as the team potholed, identified interfering substructures, mapped, surveyed conduit paths, and placed k-rail and fencing to secure work areas. In September, C&M laid conduit, poured concrete, and restored the area to allow WBCT to resume operational use. During October, the C&M team installed and backfilled the main substructure for the electrical feed from the substation to the WAVE charger location at Area 1 and cut concrete for placement of the WAVE chargers and the substation. In November, Area 1 construction was placed on hold, due to the methane issues addressed under Task 2. During December, the methane gas issue was resolved, and construction resumed. The team planned to pour concrete during the week of December 20, but several days of heavy rains delayed the project. The concrete pour was rescheduled for the week of January 10, 2022; however, construction team members tested positive for COVID-19. Concrete was successfully poured the week of January 24, 2022.



Area 1 installation of WAVE's two primary pads and anchoring the equipment was completed by mid-February 2022. Construction for Area 1 was nearly completed in February, except the section needed to remain open for final power connection during inspection by LADBS. On March 17, LADBS inspection required power shutoff for a three hour period, in coordination with WBCT. The equipment passed LADBS inspection on March 17, 2022.

Construction of Area 1 was scheduled for completion the week of March 21, 2022. The WAVE team travelled to California for commissioning and operator training the week of March 28. Due to a missed communication, on March 28, concrete and asphalt finishing was not done and the chargers were not energized. The WAVE team cancelled the weeks' activities and returned to Salt Lake City. Area 1 was completed the following week. Commissioning and training activities were rescheduled and successfully took place the week of April 11, 2022.

As mentioned under Task 2, the PO for Area 2 switchgear and transformer was tied to the PO for the BESS, which was put on hold, due to the SWO. Although the SWO was lifted on March 30, 2022, extended lead-times for delivery of the switchgear and transformer caused delays energizing the Area 2 corral chargers.

During May 2022, the C&M team worked on the underground sections of Area 2 and laid conduit for the northern-most set of gear and charging pads, referred to as gear pad 5. They moved onto the next set of pads, which is referred to as gear pad 4. This included the WAVE electrical pad and charging plates. WAVE reviewed conduit placement for approval. Electrical inspection was scheduled June 2 and grading inspection June 3. C&M poured slurry for those sections the week of June 8, followed by the rebar cages and structural components. WAVE signed off on placement of gear pads 4 and 5 on June 29, prior to the concrete pour. WAVE inspected each section for conduit placement prior to pouring slurry and gear pad placement prior to pouring concrete. By the end of July 2022 all underground installation was complete.

Concrete pours were completed over several days between August 1-10, 2022 for gear pads 1, 2, and 3 and 4 of the charging pads. In September, two WAVE primary cabinets arrived, the gear was set, and bollards placed around the back side of the gear. This process continued as the primary cabinets arrived. Due to WAVE production delays, the scheduled concrete delivery was cancelled, resulting in revised dates extending three-four weeks past delivery of the final primary cabinet. During November, the final WAVE gear was mounted, bollards placed around the front and back of the gear, and the concrete pours nearly completed and cured. Concrete pours between the bollards and gear pads were delayed, due to an administrative hold up. In December, the final concrete pour was completed and cured. On December 21, 2022 the asphalt was laid and then the primary pads were set to avoid damage.

The week of January 17, 2023, WAVE was onsite to pull remaining conduit, install the control board, and prepare for UL inspection. Due to some cleanup needed after heavy rains, the installation was not completed. The WAVE team returned the week of February 13 to complete installation. UL inspection and certification was completed on February 22, 2023. In February, C&M consulted with WBCT regarding removal of the fencing and k-rail to reduce the footprint and return access to WBCT until delivery of the switchgear and BESS.

In November 2023, the construction team was reformed and site construction resumed. Temporary fencing was installed, bollards were prepped, trenching excavation began, and chipping progressed. During December 2023 and January, February, March 2024, construction



progressed steadily, while mitigating the impact of heavy rains. In February, conduits on the south side were laid and encased in slurry and the team moved forward with rebar cages. However, the size of the rebar changed from 6 to 7, requiring last-minute ordering of rebar couplers, which tie the main electrical gear into the existing pad. As of March, vendor leadtime was about 7-8 weeks. During April 2024, alternate rebar couplers were sourced and received. Rebar cages were formed and set in May and June. The C&M team poured concrete pads in May and June.

By the end of July 2024, the BESS, switchgear, and transformer were set on the pads. Concrete was poured and cured in early August. The crane was onsite August 12, pulling wires and high voltage cable splicing took place the week of August 13, and welders were onsite the following three weeks. In September and into October, C&M pulled wire and terminated the system. Schneider Electric's team conducted pre-commissioning activities throughout September and into October. Due to a faulty breaker that required wiring replacement, power needed to be cut off from a section of the terminal for a four hour window. This was scheduled for Sunday, October 6, to avoid impacting terminal operations, as much as possible. Also addressed in October were the LADBS Inspection punchlist items and procurement of connectors.

In November 2024, connectors for the BESS communication control wiring were received from China. The C&M team continued working through the punchlist corrective items. The Inspector noted that some components of the BESS did not have the UL certification stickers required to energize the unit. UL is unable to complete certification unless the unit is temporarily energized. The team worked with UL and LADBS to reach a solution. By mid-December, the C&M team had worked through the punchlist items and received permission to temporarily energize the system for pre-commissioning activities and UL field certification of the BESS.

During January 2025, there were intermittent Schneider Electric technician delays, due to inclement weather and lack of a specific crimp tool. C&M was able to provide an adequate tool, although unable to control the weather. A connector to the BESS hub was listed incorrectly on the manufacturer's plans, so needed to be rewired. Schneider Electric's Digital Power group performed pre-commissioning activities throughout January and February 2025.

In February, the Digital Power group completed the control power connection, ethernet connection, and digital startup for the substation metering. Termination wiring for the chargers, communication, air conditioners, and DC cables were all completed. The trouble light on the main breaker was nuisance tripping, which was thought to be resolved and verified, however, resurfaced in March. The 4160 breaker was temporarily shut off in mid-March while technicians worked on the gear. Technicians discovered a faulty trip unit and ordered a replacement, which arrived and was installed in April. The Digital Power team wrote new programming for the BESS gear to interface with the WAVE equipment. CATL updated the IP address in the battery cabinets. Services repaired the cooling system and ordered connector pins for the battery cabinets, which arrived and were installed in April.

The BESS system continued to have nuisance tripping issues in May and June 2025. C&M came to the site at 6PM to check on the power each evening. In June, Schneider Electric's Digital Power Team procured and installed the neutral CT expected to resolve the issue. However, tripping continued through June. Engineers and technicians are reviewing data to diagnose and expect to resolve in July. Additionally, the microgrid is enacting a safety shut down, so the battery is not pulling and pushing the power properly. Dyna Power



(inverter/software) and Digital Power (Schneider) mostly resolved the issue in June, with a software update expected to be installed in July.

Temporarily energizing the area was also critical for testing readiness of the WAVE gear, since the completed system was sitting dormant for more than a year. During January and February 2025, newly trained WAVE technicians were onsite to troubleshoot communication issues and commission the final yard tractors, and to run standard readiness tests on the pads. The challenge grew when it was determined that three of the five primary cabinets were offline. By the end of January, four of the five were operating and the fifth, which required a new modem, was expected to be completed early February. However, by the end of February other issues occurred, leaving three of the five primary cabinets functioning. By the end of March, all five primary cabinets were online and all ten charging pads functioning at 100%.

On April 14, 2025 the WAVE gear at Area 2 passed final UL Certification and passed LADBS permitting inspection on April 27, 2025. Area 2 was commissioned and permanently energized, independently of the BESS (Attachment B; Figure 1).

C&M buttoned-up the site on March 21, 2025, after completing water mitigation and site monitoring. The water mitigation was completed prior to the February rains. Due to the rains, the asphalt pour was pushed to February 24. The fencing went up on the 25<sup>th</sup>. C&M completed demobilization of the site by the end of the month. During April, May, and June C&M continued to provide as needed support to the onsite commissioning for the BESS and monitoring the nuisance tripping.

#### Purchase/delivery of 10 WAVE-compatible electric yard tractors

The initial Purchase Order between WBCT and BYD was executed mid-April 2021. The builds were completed for the 10 yard tractors, the agreed upon specifications included, and the WAVE integration and validation testing of the prototype unit was successfully completed in October. Integration of yard tractor 2 was completed in December, with final programming finished by December 17, 2021.

As mentioned above (Task 2), two of the ten battery-electric yard tractors were scheduled for earlier deployment in conjunction with the two opportunity chargers. Integration of the prototype charging equipment with the battery-electric yard tractor was performed at the BYD Lancaster facility with a WAVE technician onsite, with a similar process for the second unit. Two fully integrated yard tractors and the charging equipment were scheduled for delivery to WBCT the week of January 10, 2022. Due to infrastructure delays detailed above (Task 3), and ECN modifications taking place at the BYD factory in Lancaster, the first integrated yard tractor was delivered to WBCT on February 26, 2022. Materials to complete requested beavertail modifications were received in May. Delivery of the second yard tractor was on June 13, 2022.

Area 1 opportunity chargers and both yard tractors completed commissioning and were placed into service on June 16, 2022. Two operators, with rover duties that provided a good mix of long travel runs and varying container weights, were assigned to the units. Both units ran a full shift the following day, as well, with the same operators. The yard tractors were pulled after the second day's shift to address a few items for correction identified by WBCT: issues raising the fifth wheel, back-up warning device too quiet, and charging indicator tree lights did not engage.



On a positive note, the operators favored the power curve and ride quality of the units, driver visibility to their surroundings was excellent, and AC system was great on a warm and humid day.

BYD ordered materials from China to reinforce the beavertails, which were delivered late July. Modifications of yard tractors 1 and 2 were completed during August. Yard tractor 1 was delivered to WBCT on August 9 and 2 was delivered August 28. The equipment resumed operational duties in September 2022.

On September 16, 2022, both units were red-tagged for safety concerns. Neither unit had functioning backup alarms and one unit did not have a functioning engine noise simulator (ENS). Technicians determined that one ENS was not installed on the yard tractor. The backup alarms had been removed, due to previous specifications requested by WBCT. Those specifications had later been changed to increase the sound of the backup alarms, but the change order was not properly administered. BYD technicians resolved these issues in early October. BYD agreed to meet these conditions at the factory for the additional eight yard tractors.

On October 18, 2022, both units were again red-tagged. Unit 1 was losing hydraulic pressure in the fifth wheel lift cylinder. When the unit was raised, the cylinder drifted lower. Technicians were sent out the following day and by October 31 had resolved the problem. One of the pressure sensor's parameters was too sensitive. The technician reset the parameter, which is expected to keep the fifth wheel in the designated position when operating.

The operator of unit 2 noticed the door was difficult to open. The issue grew progressively worse until she could not open the door and called for assistance. The technician resolved the issue by rearranging the door latches. BYD stated that these yard tractors are not designed to be driven with the rear door open. WBCT stated that drivers are used to leaving them open, since they often are in and out of the cab to hook up the cargo. BYD Engineers considered possible methods to stabilize the door alignment. WBCT agreed to train the drivers to close the rear door, until BYD could provide a practical solution that accommodates the needs of terminal operations. As noted by WBCT, the terminal will not compromise on operator safety. The yard tractors were delegated to operate mostly against the rail, since the unit is attached to a bombcart for the entire shift, reducing the need to keep the door open.

WAVE delivered two secondary system vehicle side units to BYD mid-July 2022 for integration with yard tractors 3 and 4. In November 2022, the WAVE team sent technical assistance to BYD's Lancaster facility to assist with the integration process, since the institutional knowledge of the previous integration was lost. Integration of yard tractor 3 was completed late November and 4 completed in December. Delivery of yard tractors 3 and 4 to WBCT are expected to minimize utilization downtime, since yard tractors 1 - 4 may be rotated, as needed, for routine maintenance and repairs.

In December 2022, BYD Engineers designed a manual door to be retrofitted to yard tractor 3. BYD shared the engineering plans with WBCT on January 3, 2023 and WBCT agreed to move forward with this potential solution on January 10. Once the door changes to the manual version, BYD will be unable to change the unit back to the hydraulic door system. The door retrofit to yard tractor 3 was completed February 16, 2023. BYD's validation testing included opening and closing the door 1,500 times. Once delivered, WBCT tested and approved of the unit's operational viability. In February, BYD ordered materials from China to retrofit the remaining nine yard tractors



with the manual door assembly. Door retrofit materials were received on June 20, 2023. Yard tractors 1, 2, and 4 began the door retrofit process the following week and were completed in July 2023. All subsequent yard tractors were assembled with the manual door.

On January 31, 2023, an issue with the hour meters was reported by WBCT. Yard tractor 1 recorded only 4 hours of operation. Yard tractor 2 did not have an hour meter. BYD remedied the issue on February 23 and will ensure hour meters are properly installed on the remaining equipment. At the time of repair, an issue with the state of charge (SOC) was noted by the BYD technician. WAVE evaluated and determined the cause to be a faulty WAVE LV box, which was repaired the following week.

In conjunction, WAVE and BYD continued to collaborate on resolving issues surrounding the charging toggle switch and charging indicator tree lights. During September 2022, engineering design plans were drawn and parts acquisition set in motion. In November, the toggle switch was successfully eliminated. WAVE continued to perfect the software and installed a software upgrade the week of January 17, 2023. BYD engineers prepared a software upgrade for the charging indicator tree lights. Testing in November was unsuccessful, so an additional software upgrade was prepared and installed in January 2023. Additional software upgrades were installed in February and another in March. The issue remained unresolved in April and was resolved on May 25. Additionally, in March, an issue was reported with the data link connector on the truck side of unit 3. This was causing incorrect controller area network (CAN) data. BYD technicians were onsite twice in May 2023 to repair both the charging tree indicator lights and the data link connector. A WAVE technician was onsite to support the repairs.

In July 2023, the data collection team noticed an anomaly in the data from yard tractor 3. Although the yard tractor was not in operation, the data indicates dozens of repetitive ignition starts. As a safety precaution, the yard tractor was removed from the charging pad and relocated to a remote area of the terminal. The team reviewed the information and determined that the problem stemmed from the GeoTab data logger interface with the yard tractor. BYD engineers and technicians worked closely with GeoTab to resolve the issue. Both GeoTab and BYD were confident that the issue was data logger-based and did not pose a risk to equipment performance or operator safety. Once resolved, all ten yard tractors were updated accordingly.

On October 3 and 4, yard tractor 4 was delivered and 1 and 2 were redelivered to WBCT. Due to the data anomaly issue, the equipment remained out of service until November 20, 2023, at which time issues were discovered. Yard tractor 1 (35400) had a monitor panel that was not held by screws and the display was cutting out intermittently. 2 (35401) would not charge, displayed a fault code, and the display was cracked. 3 (35402) would not start and appeared to have a drained battery. A WAVE technician inspected and made a preliminary review of the equipment on November 30. Necessary parts were ordered. During February and March 2024, one yard tractor was functioning, a second was functioning intermittently, and four others required commissioning and/or repairs, indicating 0% SOC. Discussions were underway regarding procurement of a portable battery charger to bring the yard tractors up to a sufficient charge (about 7-10% SOC) to allow the WAVE system to charge the yard tractors. In Q3 2024, WBCT purchased a Heliox mobile 50 kW DC battery charger.

On January 20, 2023, WAVE shipped vehicle side charging pads for yard tractors 5 and 6 to BYD. BYD began working on modifications in May 2023 and incorporated the manual door retrofit. The retrofit was scheduled for completion in early October and the WAVE team was scheduled to



assist with integration on October 17; however, additional issues were revealed, delaying integration. BYD dealt with a cooling leak and some minor issues during November. Yard tractors 5 and 6 were integrated with the WAVE vehicle-side charging pads in December and delivered to WBCT on January 2 and 4, 2024.

During June 2024, WBCT reported an issue with the 5<sup>th</sup> wheel. The height of the 5<sup>th</sup> wheel plate, in the fully lowered position, is not level with the leading edge of the dovetail ramp. As the unit is disconnecting from a bombcart or inter-modal chassis, the bolsters are getting caught up on the lip. There appears to be an inch to inch and a half gap introducing a new contact mode. BYD Engineering reviewed the information to determine a resolution. In September, the repair was implemented onsite at WBCT by a BYD technician. This seemed to be an issue on units 1-3 only.

In July 2024, WBCT reported an issue with asset 5 (35404). There was a problem with the battery cooling system and there were lug nuts missing from the rear wheel. On August 9, the BYD technician repaired the cooling system and put in an order for the lug nuts. By September, the lug nuts had not arrived. The WBCT mechanics decided to repair the wheel, but found one of the lug nut studs embedded in the brake line. BYD completed repairs in late November.

Yard tractors 7 - 10 moved onto the production line in mid-December and were expected to be integrated and delivered to WBCT by January 31, 2024. (Per the US EPA Targeted Air Shed Grant, funding part of the yard tractor purchase, all integrated yard tractors were targeted for delivery to WBCT by January 31, 2024.) Due to BYD's production line challenges, the final four yard tractors were delayed. Yard tractor 7 was integrated in late March and 8 in June; both were delivered to WBCT on June 24, 2024. Yard tractors 9 and 10 encountered BYD production line challenges, which were resolved in July. The yard tractors required WAVE technicians to install a final software update and perform signal verification, which took place in October. By October 2024, all ten integrated yard tractors had been delivered to WBCT.

With the Area 2 WAVE charging infrastructure permitted and permanently energized on April 14, 2025, WAVE directed full attention to preparing the yard tractors for demonstration. Software updates, communication issues, and any troubleshooting were addressed to ensure operation-readiness. By the end of April seven of the 10 yard tractors were operational. Three of the yard tractors were experiencing CAN communication issues, which were resolved by BYD in early May. WAVE completed software updates for those three yard tractors the following day. Demonstration began May 19, 2025 (Attachment B; Figure 2).

#### LAHD match for yard tractors\*

All yard tractors were purchased and invoiced prior to February 29, 2024. Yard tractors were purchased through the US EPA Targeted Airshed Grant awarded through the South Coast AQMD. Cost-share funds were also committed by LAHD and WBCT under that grant agreement. Invoice submittals to AQMD and EPA were completed and final documentation and reporting for the CEC will be shared with EPA upon project completion.

#### **Task 4 – Demonstration, Data Collection and Analysis**

The goal of this task is to collect operational data from the project, to analyze that data for economic and environmental impacts, and to include the data and analysis in the Final Report. Plans were approved to utilize Tetra Tech and the University of California at Riverside (UCR) for data collection and analysis. A kick-off meeting took place on August 4, 2022.



The data team consulted frequently with project management and project partners regarding data parameters and data collection tools, in order to meet expectations, set forth in the CEC grant agreement. The data collection team prepared a draft Data Collection Test Plan, which was reviewed by project management and circulated to the project team on September 22, 2022. The draft Data Collection Test Plan was submitted for CAM review October 11, 2022. The CAM provided comments on October 12. The team integrated the CAM's comments in a revised report that was submitted to the CAM on November 22. Comments were returned on January 11, 2023. The team submitted revisions in February, with minor changes requested by the CAM. The Data Collection Test Plan was approved by the CAM on March 5, 2023. In July, the team agreed on revised baseline vehicle metrics. The Data Collection Test Plan was rewritten to incorporate the revision and was accepted by the CAM.

The data team continues to work with the project team to refine and perfect the data streams. The team is working with WAVE for the charging equipment data and with BYD on GeoTab yard tractor data. In January, February, and March 2024, two of the yard tractors indicated some days of operational duty, which allowed the data team to work on perfecting data stream collection and analysis. Due to light cargo volume at the terminal operational data was minor during May. In June, the data collection team recorded the following operational data: 4 (35403) odometer readings increased from 3 miles to 299 miles; 5 (35404) odometer readings increased from 471 miles to 643 miles; the two vehicles recently delivered 7 (35406) and 8 (35407) increased from 121 to 221 and 0 to 96 miles. During July 2024, 2 (35401) and 4 (35403) indicated operational activity, each with over 100 miles. In August, 6 (35405) was the only operational yard tractor and was logged by WBCT as in-service for several shifts; however, this yard tractor was not registering data in the GeoTab system. During September, it was determined that several of the data loggers were offline. Although there was some operational use of the yard tractors the data loggers did not register any activity. BYD worked with the data collection team and with GeoTab to resolve the issue. The final yard tractor with this issue, 35409, was found to have a misinterpreted digit in the serial number, so finally brought online in June 2025.

In March 2025, the data team provided a compilation of yard tractor mileage driven to date. This data provides an idea of the mileage accumulated while testing and troubleshooting the equipment. A combined total of 5,850.2 miles were accumulated on the yard tractors. During April, there was some slight movement, likely due to repairs, but no operational data. The demonstration began in May 19, 2025, with all 10 yard tractors operating in-service for at least one shift. During the two weeks of demonstration in May there were a few equipment challenges: two units had dead low-voltage batteries, one unit had door and hinge problems, and one unit damaged the undercarriage.

During June, six yard tractors had mechanical issues: two needed fuse replacements, three had blown over power protection (OVP) boards, and charge switch modifications were made on four with new lock nuts and will be proactively modified on the other yard tractors. 35401 is under repairs for door and hinge problems as well as damage to the vehicle side charging and undercarriage. The vehicle side charging will be sent to WAVE for damage assessment and diagnosis. Table 1 lists the maintenance and repair issues for June (Attachment B; Table 1). Estimated dates for materials or components to be ordered and repairs completed, as well as actual return to service dates are included in the table.

The data collection team presented some operational data for June. Table 2 indicates the yard tractor asset tag, number of days in operational duty, miles travelled, hours of operation, energy



output in kilowatt hours (kWh), and the average state of charge (SOC). Note that there are some data anomalies expected to be resolved in July. Two of the yard tractors indicate negative kWh readings, which are excluded from the column “Totals” count (Attachment B; Table 2).

During June, the WAVE gear experienced intermittent charging communication issues. Gearmen were challenged to align the yard tractors properly with the pads and once aligned the system often shut down charging after a few minutes. Technicians are working on modifications and potential software upgrades to resolve. Additionally, the two pads associated with primary cabinet 4 were offline after a weekend nuisance tripping event. It is still to be determined if the incidents are related, and if so, how this will be remedied. Both pads were back online within the week.

### **How We Are Doing Compared to Our Plan**

The WAVE and BYD teams successfully collaborated on integration for the inductive charging units and the vehicle mounting system. Construction for Area 1 was completed and passed LADBS inspection. The WAVE and BYD teams conducted commissioning and training for operators and mechanics. Successful commissioning of the first two yard tractors and Area 1 chargers took place on June 16, 2022, with operation beginning the same day. However, as detailed under Task 3, the yard tractors then experienced several challenges and returned to BYD’s Lancaster facility for retrofits. By October 2024, all ten yard tractors had been retrofitted, integrated, and delivered to WBCT. BYD and WAVE resolved many challenges and continue collaborating to prepare the yard tractors and charging gear for demonstration.

Construction for the Area 2 main charging corral progressed in 2022. WAVE completed installation of the control board, conduits, and pads in February 2023 and the system passed UL certification on February 22, 2023. The site was then closed up to wait for delayed delivery of the switchgear, transformer, and BESS. In November 2023, construction resumed while Engineering and C&M continued working on equipment and materials procurement with extended lead-times, due to global supply chain issues and PO constraints, as detailed under Task 2. The transformer was delivered to WBCT on September 19, 2023. The switchgear was delivered January 28, 2024. The BESS was delivered to WBCT on July 11, 2024. Area 2 WAVE charging system passed UL Certification April 14, 2025 and LADBS permitting inspection April 27, 2025. The WAVE system is commissioned and fully energized. During June 2025, the BESS remained inoperable and unable to connect to the WAVE charging system. Nuisance tripping remained a challenge.

The Task 3 section presents the many issues encountered over many months with the ten yard tractors and chargers. The project experienced several setbacks with equipment development from both BYD and WAVE. Persistent staff turnover, lengthy parts procurement, and excessive repair times resulted in project delays.

Project management continues to facilitate discussions with the Project Partners and held the monthly team meeting with the CEC in June 2025. POLA project management held three weekly team collaboration meetings.

### **Significant Problems or Challenges**

As mentioned in previous sections, POLA Engineering encountered challenges while designing parameters for the battery storage system, resulting in delays for integration of the system into the infrastructure designs. Once the designs were submitted, COVID-19 restrictions,



compounded by unprecedented California wildfires, caused lengthy delays for the LADBS plan review. This caused an eight-month delay in the infrastructure construction schedule. As a means to alleviate these delays, POLA decided to take the infrastructure construction in-house.

Adding to the infrastructure delay, as the design process neared completion, the battery supplier most closely aligned with the project needs and specifications ceased production of battery storage units. The project team viewed this challenge as an opportunity to explore contingency solutions that will retain proof of concept for the battery storage system. POLA expects value added, for gaining understanding of power management and operational benefits of a peak-shaving battery storage system.

As mentioned above, with the SWO for the BESS lifted on March 30, 2022, equipment and materials procurement moved forward for that portion of the project. The switchgear and transformer, needed to energize the WAVE chargers for Area 2, were tied to the PO of the BESS. Extended lead times and delays impacted the demonstration schedule. Detailed design schematics from the vendor were expected by August 2022, with complete and accurate information still pending in January 2024. With the gear installed and pre-commissioning activities underway from August 2024 through January 2025, Area 2 WAVE system was completed in April 2025.

The BESS system is targeted for completion in July 2025. The system continued to have nuisance tripping issues in May and June. C&M came to the site at 6PM to check on the power each evening. In June, Schneider Electric's Digital Power Team procured and installed the neutral CT expected to resolve the issue. However, tripping continued through June. Engineers and technicians are reviewing data to diagnose and expect to resolve in July. Additionally, the microgrid is enacting a safety shut down, so the battery is not pulling and pushing the power properly. Dyna Power (inverter/software) and Digital Power (Schneider) mostly resolved the issue in June, with a software update expected to be installed in July.

Although Area 1 was energized and the first two yard tractors were placed in-service on June 16, 2022, the yard tractors operated for two shifts before being taken out of service for modifications, as detailed under Task 3. The yard tractors experienced several challenges over the past year, with limited operational duty in between retrofit modifications and repairs. The team anticipates product improvement moving forward. The issues were expected to be remedied by the time Area 2 was energized, commissioned, and the project in full demonstration mode; however, as of the end of April 2025 three of the 10 yard tractors were not operational. Demonstration began May 19, 2025.

Personnel turnover and other challenges at BYD resulted in delays modifying the first two yard tractors and continued to challenge completion of the third and fourth yard tractors. Engineers, technicians, and other staff experienced a steep learning curve to meet project expectations. Additionally, extended lead times delayed materials delivery from China. Modifications and system integration of the remaining yard tractors were also impacted. With the heavy personnel turnover, institutional knowledge was lost, resulting in elimination of certain design features necessary for long-term usage in terminal operations. The design elements were evaluated and resolved by BYD.

The WAVE equipment performed well during initial charging events. Some challenges arose regarding positioning of the vehicle over the pad and percentage of coverage required to initiate



charging. There are also some charger communication issues and readings of 0% SOC. However, WAVE lost a large portion of their technical staff in August 2024. Training new technicians and bringing them up to speed with needs of this project proved to be challenging. Although the situation resulted in additional delays, the team collaborated to resolve these challenges prior to energizing Area 2. The WAVE team is committed to project completion and successful demonstration of the technology.

The challenges detailed in this section are part of the lessons learned expected from demonstration projects and the team anticipates more consistent operation of the chargers and yard tractors moving forward.

### **What We Expect to Accomplish During the Next Reporting Period**

During July, POLA Engineering and C&M plan to support Schneider Electric's team while they complete commissioning activities, UL Certification, and final permitting inspections for the BESS (Task 3). BYD and WAVE plan to collaboratively resolve outstanding issues with yard tractors 1 – 10 as the demonstration progresses (Task 4). The data collection team plans to work with WAVE and BYD to resolve outstanding data communication issues (Task 4). Project management and the CAM plan to conduct a monthly team progress meeting to discuss status updates, questions, and concerns via Teams (Task 1). Project management plans to conduct weekly internal team meetings to discuss action items, questions, and concerns via Teams (Task 1).



### Current and Cumulative Budget Expenditures

Table 1 provides a summary of the project’s task-by-task budget and cumulative expenditure.

**Table 1: Project Budget Overview**

| Task No. | CEC Budget  | Match Funding Budget | CEC <u>Current</u> Expenditures | Match <u>Current</u> Expenditures | CEC Cumulative Expenditures | Match Cumulative Expenditures |
|----------|-------------|----------------------|---------------------------------|-----------------------------------|-----------------------------|-------------------------------|
| 1.0      | \$0         | \$0                  | \$0                             | \$0                               | \$0                         | \$0                           |
| 2.0      | \$3,896,950 | \$0                  | \$0                             | \$0                               | \$3,896,950                 | \$0                           |
| 3.0      | \$3,945,320 | \$3,405,784          | \$0                             | \$0                               | \$3,923,637                 | \$3,538,345                   |
| 4.0      | \$0         | \$0                  | \$0                             | \$0                               | \$0                         | \$0                           |
| Total:   | \$7,842,270 | \$3,405,784          | \$0                             | \$0                               | \$7,820,587                 | \$3,538,345                   |

### Status of Milestones and Products

Table 2 provides an at-a-glance update of the project status on a task-by-task basis. Note: The Schedule of Products and Due Dates is currently under revisions with Project Management and the CAM.

**Table 2: Project Status Overview**

| Task   | Planned Completion Date | Status (% complete) |
|--|-------------------------|---------------------|
| Task 1 – Administration  | 6/30/2026               | 47%                 |
| Task 2 – Design and Develop Charging Infrastructure                            | 2/7/2024                | 100%                |
| Task 3 – Build, Install, and Commission Infrastructure; Deliver Yard Tractors* | 4/1/2025                | 97%                 |
| Task 4 – Demonstration, Data Collection, and Analysis                          | 3/18/2026               | 8%                  |

\*Yard tractors were purchased through a grant awarded by the US EPA and managed by the South Coast Air Quality Management District. Cost-share funds were contributed by LAHD and WBCT under that grant agreement.



**ATTACHMENT A**  
**SCHEDULE OF DELIVERABLES AND DUE DATES**  
***Schedule of Products and Due Dates***

Note: The Schedule of Products and Due Dates is currently under revisions with Project Management and the CAM.

**Agreement Term: 6/15/2018 - 06/30/2026**

| Task Number | Task Name                               | Product(s)   | Due Date   |
|-------------|---|--|--|
| <b>1.1</b>  | <b>Attend Kick-off Meeting</b>          |  |  |
|             |   | Updated Schedule of Products   | 9/19/19  |
|             |   | Updated List of Match Funds  | 9/19/19  |
|             |   | Updated List of Permits  | 9/19/19  |
|             |   | Kick-Off Meeting Agenda (CEC)  | 9/19/19  |
| <b>1.2</b>  | <b>Critical Project Review Meetings</b> |  |  |
|             | 1st CPR Meeting                         | CPR Report   | 3/31/21  |
|             |   | Written determination (CEC)  | 4/7/21   |
|             | 2nd CPR Meeting                         | CPR Report   | 10/15/24   |
|             |   | Written determination (CEC)  | 10/30/24   |
| <b>1.3</b>  | <b>Final Meeting</b>                    |  |  |
|             |   | Written documentation of meeting agreements                                    | 3/30/26  |
|             |   | Schedule for completing closeout activities                                    | 3/30/26  |
| <b>1.4</b>  | <b>Monthly Progress Reports</b>         |  |  |
|             |   | Monthly Progress Reports   | The 10th calendar day of each month during the approved term of this Agreement |
| <b>1.5</b>  | <b>Final Report</b>                     |  |  |
|             |   | Final Outline of the Final Report  | 5/14/2025  |
|             |   | Draft Final Report (no less than 60 days before the end term of the agreement) | 11/12/25   |
|             |   | Final Report   | 3/18/26  |
| <b>1.6</b>  | <b>Identify and Obtain Match Funds</b>  |  |  |
|             |   | A letter regarding match funds or stating that no match funds are provided     | 1/31/19  |



|            |  |  |
|------------|--|--|
|            | Copy(ies) of each match fund commitment letter(s) (if applicable)  | 1/31/19  |
|            | Letter(s) for new match funds (if applicable)  | Within 10 days of identifying new match funds              |
|            | Letter that match funds were reduced (if applicable)   | Within 10 days of identifying reduced funds                |
| <b>1.7</b> | <b>Identify and Obtain Required Permits</b>  |  |
|            | Letter documenting the permits or stating that no permits are required                                   | 1/31/19  |
|            | A copy of each approved permit (if applicable)   | Within 10 days of receiving each permit                    |
|            | Updated list of permits as they change during the term of the Agreement (if applicable)                  | Within 10 days of change in list of permits                |
|            | Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable) | Within 10 days of change in schedule for obtaining permits |
| <b>1.8</b> | <b>Obtain and Execute Subcontracts</b>   |  |
|            | Letter describing the subcontracts needed, or stating that no subcontracts are required                  | 12/31/19   |
|            | Draft subcontracts   | 15 days prior to the scheduled execution date              |
|            | Final subcontracts   | Within 10 days of execution                                |
| <b>2</b>   | <b>DESIGN AND DEVELOPMENT</b>  |  |
|            | Final equipment list   | 12/9/22  |
|            | Executed BESS technical agreement  | 2/7/24   |
|            | WAVE System Test Report  | 4/1/22   |
|            | Copy of approved infrastructure designs  | 2/7/24   |
| <b>3</b>   | <b>BUILD, INSTALL AND COMMISSION</b>   |  |
|            | Task 3 Summary Report with Photographs   | 4/1/25   |
| <b>4</b>   | <b>DEMONSTRATION, DATA COLLECTION AND ANALYSIS</b>   |  |
|            | Data Collection Test Plan  | 10/21/22   |
|            | Data collection information and analysis will be provided in the final report (Task 1.5)                 | 3/18/26  |

\*Yard tractors were purchased through a US EPA grant awarded through the South Coast Air Quality Management District. Cost-share funds were contributed by LAHD and WBCT under that grant agreement.



## **ATTACHMENT B – CAM PROJECT MEETING NOTES, PROJECT DOCUMENTATION, ETC.**

**Project Team Meeting – for ARV-17-049  
Port of Los Angeles (POLA)  
June 17, 2025 1:00 - 2:00 PM  
Zero Emission Freight Vehicle Advanced Infrastructure Demonstration (AID)**

This meeting was held on Teams; a link was sent via the calendar invitation.

### **ATTENDEES**

CEC – Marc Perry  
POLA Environmental Management - Laura Hunter  
SCAQMD – Sam Cao  
POLA Construction & Maintenance (C&M) – Tom Patterson  
POLA Engineering – Dac Hoang (*not in attendance*)  
Ports America (WBCT) – Patrick Fink  
WAVE – Ross Lichtman, Macy Neshati, Ben Auslander, Jeff Harding  
BYD – Jonathan Polak, Graham Olson  
TetraTech / UCR – Eddy Huang, Erica Alvarado  
Schneider Electric (guest) – Troy Vanhoesen

Laura (POLA) opened the meeting with roll call and a brief update. Laura checked in with Marc regarding the Final Report Outline, which is nearing completion. Is the report limited to 25 pages or is this just the body? It is an approximation; however, Marc (CEC) and Laura agreed that there is a lot to discuss on this project and many lessons learned. Patrick (WBCT), Willy (WBCT), Tom (C&M), Jeff (WAVE), Macy (WAVE), Jonathan (BYD), Jerry (BYD), and Laura met at WBCT last week to work through issues as a team. There have been a lot of ups and downs with yard tractor performance since the demonstration began on May 19, 2025. WAVE and BYD were scheduled to be onsite today, as well; however, there was a scheduled power outage, so BYD and WAVE rescheduled for Thursday. Jeff was onsite yesterday and again tomorrow.

There are still challenges with the BESS, which continues experiencing nuisance tripping, shutting off the system at the substation. The repeated nuisance tripping was experienced during the spring, which seemed to be alleviated by replacing the breaker. It began again in May, at the secondary side of the substation. C&M is still going to the site each evening to check on the power.

Troy (Schneider Electric) reported that the neutral current transformer (CT) was received last week and two technicians are scheduled onsite for the 28<sup>th</sup>. Tom (C&M) will discuss scheduling power shut off with Troy offline. Also, there is a problem when the battery is pulling power from the grid to the BESS and pushing power from the BESS to the chargers. The Digital Power team and Dyna Power team are scheduled onsite June 24<sup>th</sup> and will work together to resolve. Additionally, Troy is coordinating scheduling with a different Digital Power technician to pull data from the server to analyze tripping events.

Tom reported that the system tripped again on Sunday, so he went to the site Monday morning to turn power on. He also wanted to discuss the hard line for the data connection. C&M has a pathway, but isn't sure what the plan is to wire it. Troy is working on ethernet with Dac



(Engineering), but isn't finalized. This is a loose end that needs to be resolved between Troy and Dac.

Jeff reported on the WAVE system and the yard tractor communication challenges. 35401 has damage to the undercarriage (discussed previously) and six yard tractors had mechanical issues. Jerry and Jeff were able to repair two yard tractors with fuse replacement and were able to then charge successfully. These two are fully functional. Yesterday, Jeff replaced the mother boards in two other trucks, one of which then charged successfully. The second mother board was not functioning properly, so a new one was ordered, with expected arrival tomorrow. Jeff was out today, even without power on, to work on some issues offline. Two BYD techs were also onsite. They all worked on the charge switch modifications with new lock nuts. All six could be operational tomorrow, but likely by end of week. Jeff also confirmed that the charging indicator tree lights were flashing green while charging. He will continue to observe and report back. Patrick requested a specific update, which Jeff will send out later this evening.

Recap of units:

- 35400 - operational
- 35401 – damage to undercarriage
  - Will be sent back to SLC to examine on the bench; perhaps \$3,500 and side rails damage
- 35402 - operational
- 35403 - operational
- 35404 – OVP board to be replaced tomorrow
- 35405 – fuse replaced; operational
- 35406 – intermittent switch; likely operational
- 35407 – fuse replaced; operational
- 35408 – intermittent switch; likely operational
- 35409 – OVP board replaced and intermittent switch; likely operational

The team discussed a refresher operator training course.

Eddy (TetraTech) reported seeing limited operation, with no operation from 35406 and 35409. Alex (UCR) and Tom (UCR) are working with GeoTab to resolve the negative kWh data issue. It is showing up on data for three of the yard tractors.

While onsite last Thursday, Jonathan went into the data logger and discovered that 35409 had a mistake in the serial number 5/S, which was likely the cause of previous data lacuna.

WBCT plans to resume operation of the yard tractors beginning Monday. WBCT requested WAVE and BYD to have a tech onsite for troubleshooting next Tuesday.

***The next Monthly Progress Meeting will be held on Tuesday, July 15, 2025 @ 1:00 pm PST via Teams.***

**FIGURE 1:** Main Equipment Charging Corral with five primary battery cabinets and 10 inductive charging pads.



**FIGURE 2:** Battery-electric yard tractors parked at the Main Equipment Charging Corral.





**TABLE 1:** Table 1 lists the yard tractors' maintenance and repair issues for June 2025. Estimated dates for materials/components to be ordered and repairs completed, as well as actual return to service dates are included in the table. This month of demonstration six yard tractors had mechanical issues: two needed fuse replacements, three had blown over power protection (OVP) boards, and charge switch modifications were made on four with new lock nuts and will be proactively modified on the other yard tractors. 35401 is under repairs for door and hinge problems as well as damage to the vehicle side charging and undercarriage.

| JUNE 2025 |  |                |                             |                          |
|-----------|--|----------------|-----------------------------|--------------------------|
| Asset Tag | Repair/Maintenance   | Out of Service | Estimated Return to Service | Actual Return to Service |
| 35400     | operational  | N/A            | N/A                         | N/A                      |
| 35401     | damaged undercarriage plate; rusted hardware and door damage | 5/19/25        | TBD                         | TBD                      |
| 35402     | operational  | N/A            | N/A                         | N/A                      |
| 35403     | operational  | N/A            | N/A                         | N/A                      |
| 35404     | OVP board  | 5/28/25        | June                        | 6/19/25                  |
| 35405     | LV battery, dash panel                                       | 5/25/25        | June                        | 6/12/25                  |
| 35406     | LV battery   | 5/29/25        | June                        | 6/19/25                  |
| 35407     | Fuse blown   | 6/2/25         | June                        | 6/12/25                  |
| 35408     | OVP board  | 5/28/25        | June                        | 6/19/25                  |
| 35409     | OVP board; intermittent charge switch                        | 6/10/25        | N/A                         | 6/19/25                  |

**TABLE 2:** Yard tractor operational data for June 2025. Table 1 indicates the yard tractor asset tag, number of days in operational duty, miles travelled, hours of operation, energy output in kilowatt hours (kWh), and the average state of charge (SOC). Note that data anomalies continue to be resolved. These include negative kWh readings, which are excluded from the column "Totals" count.

| JUNE2025      |                  |                   |                   |                     |             |
|---------------|------------------|-------------------|-------------------|---------------------|-------------|
| Asset Tag     | Operational Days | Operational Miles | Operational Hours | Energy Output (kWh) | Average SOC |
| 35400         | 2                | 64.8              | 10.72             | 145.4               | 80          |
| 35401         | 0                | 0.0               | 0.00              | 0.0                 | 0           |
| 35402         | 0                | 0.0               | 0.00              | 0.0                 | 0           |
| 35403         | 2                | 47.1              | 11.27             | 112.1               | 55          |
| 35404         | 2                | 16.1              | 2.59              | -34.3               | 18          |
| 35405         | 1                | 24.6              | 6.21              | -54.3               | 24          |
| 35406         | 1                | 11.4              | 5.79              | 24.6                | 30          |
| 35407         | 1                | 13.9              | 8.32              | 45.0                | 32          |
| 35408         | 2                | 34.9              | 7.89              | 77.4                | 48          |
| 35409         | 0                | 0.0               | 0.00              | 0.0                 | 0           |
| <b>Totals</b> | <b>11</b>        | <b>212.9</b>      | <b>52.78</b>      | <b>428.0</b>        | <b>287</b>  |



## **2019 MMRP LM GHG-1\_GHG Credit Fund**

### **Lease Measure:**

LAHD shall establish a Greenhouse Gas Fund, which LAHD shall have the option to accomplish through a Memorandum of Understanding (MOU) with the California Air Resources Board (CARB) or another appropriate entity. The fund shall be used for GHG reducing projects and programs approved by the Port of Los Angeles, or through the purchase of emission reduction credits from a CARB approved offset registry. It shall be the responsibility of the Tenant to make contributions to the fund in the amount of \$250,000 per year, for a total of eight years, for the funding of GHG reducing projects or the purchase of GHG emission reduction credits, commencing after the date that the SEIR is conclusively determined to be valid, either by operation of Public Resources Code Section 21167.2 or by final judgment or final adjudication (“Conclusive Determination of Validity Date”), as described below. The fund contribution amount is established as follows: (i) the peak year of GHG operational emissions (2030), after application of mitigation, that exceed the established threshold for the Revised Project, estimated in the SEIR to be 129,336 metric tons CO<sub>2</sub>e, multiplied by (ii) the current (2019) market value of carbon credits established by CARB at \$15.62 per metric ton CO<sub>2</sub>e. The payment for the first year shall be due within ninety (90) days of the Conclusive Determination of Validity Date, and the payment for each successive year shall be due on the anniversary of the Conclusive Determination of Validity Date. If LAHD is unable to establish the fund through an MOU with CARB within one year prior to when any year’s payment is due, the Tenant shall instead apply that year’s payment, using the same methodology described in parts (i) and (ii) above, to purchase emission reduction credits from a CARB approved GHG offset registry.

### **WBCT Action:**

WBCT will comply with the measure, as per the payment request, the 2<sup>nd</sup> payment due by 7/2/2025, so we’ll provide supporting document in next report period.