California Energy Commission

Clean Transportation Program

FINAL PROJECT REPORT

RACER: Robust Airport Charging for Electric Ride Hail Fleets

September 2026 | CEC-600-2026-030

California Energy Commission

BP Products North America Inc
Primary Author(s)

BP Products North America Inc.
30 S Wacker Drive, Suite 900N
Chicago, IL 60606
www.bppulse.com

Agreement Number: ZVI-22-003

Kathryn Reid
Commission Agreement Manager

Elizabeth John
Branch Manager
Commercial and Industrial ZEV Technologies and Infrastructure Branch

Spencer Reeder
Director
FUELS AND TRANSPORTATION

Drew Bohan
Executive Director

PREFACE

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Clean Transportation Program. The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the Clean Transportation Program through January 1, 2024, and specifies that the CEC allocate up to $20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational.

The Clean Transportation Program has an annual budget of about $100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce-training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

To be eligible for funding under the Clean Transportation Program, a project must be consistent with the CEC's annual Clean Transportation Program Investment Plan Update. The CEC issued GFO-21-601 to support electric vehicle (EV) charging infrastructure for high mileage on-demand transportation services including services such as ride-hailing, taxis, and meal or grocery delivery. In response to GFO-21-601, the Recipient submitted application #4 which was proposed for funding in the CEC's Notice of Proposed Awards on February 14, 2022 and the agreement was executed as agreement number ZVI-22-003 on August 19, 2022.

ABSTRACT

This report describes the California Energy Commission funded Robust Airport Charging for Electric Ride Hail Fleets (RACER) project. The RACER project deployed 48 ultrafast Electric Vehicle (EV) charging bays equipped with a mix of 400kW and 150kW direct-current fast chargers (DCFC) and Combined Charging System (CCS) and North American Charging Standard (NACS) connectors. The Los Angeles International Airport (LAX) charging hub is designed to meet the needs of ride-hail drivers, local EV drivers and rental car customers, providing them with fast and convenient charging options on the go. In addition to the charging bays, convenient amenities including a lounge, vending machines, restrooms, and free Wi-Fi are also open to the public.

Keywords: electric vehicles, electric vehicle charging, ride hail, fleets

BP Products North America Inc. 2026. *RACER: Robust Airport Charging for Electric Ride Hail Fleets*. California Energy Commission. Publication Number: CEC-600-2026-030.

TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

Robust Airport Charging for Electric Ride Hail Fleets (RACER) project represents a significant milestone for bp pulse in partnership with the California Energy Commission (CEC). This Task 1.6 Final Report (Agreement Number: ZVI-22-003) documents the complete lifecycle of the Los Angeles International Airport (LAX) Electric Vehicle (EV) charging hub project, from initial planning through operational launch. The project successfully delivered bp pulse's largest EV charging hub in the United States, strategically located just two miles from LAX. The facility features 48 ultrafast charging bays equipped with a mix of 400 kilowatt (kW) and 150 kW DC fast chargers (DCFC), along with customer amenities including a lounge, vending machines, restrooms, and free Wi-Fi.

The RACER project was originally awarded to support the electrification of ride-hail and taxi fleets serving LAX by installing and operating direct current fast charging equipment capable of supporting 48 electric vehicles simultaneously at one charging site. The original concept envisioned a fleet-focused charging hub located on airport property and designed primarily for ride-hail and taxi drivers completing airport pick-ups and drop-offs. Following bp's acquisition of AMPLY in December 2021 and AMPLY's subsequent rebrand to bp pulse in September 2022, the project evolved in several important ways while remaining aligned with the underlying intent of the CEC's Charging Access for Reliable On-Demand Transportation Services initiative. The final project was delivered at 9150 Aviation Blvd, Inglewood, California, close enough to LAX to continue serving airport-related driver demand while providing a more executable development pathway and expanding to serve a greater population of EV drivers.

The completed LAX charging hub includes 48 ultrafast charging bays equipped with a mix of 400 kW and 150 kW DCFC and both Combined Charging System (CCS) and North American Charging Standard (NACS) connectors. The dual-connector configuration allows the site to serve a broad range of EV models, including vehicles using Tesla-compatible NACS charging. The site also requires approximately 5 megawatts (MW) of utility service and demonstrates the feasibility of deploying multi-megawatt charging capacity in a dense, airport-adjacent urban environment. Development required extensive coordination with utility partners, local permitting authorities, contractors, partners, and the CEC. The project advanced through site development and engineering in 2022 and 2023, utility design and permitting in 2024, construction and equipment installation in late 2024 and early 2025, and commissioning and operational launch in mid-2025. Public charging began in late June 2025, followed by an official opening ceremony on July 22, 2025.

The hub was designed not only as a charging installation, but as a customer-oriented mobility facility. In addition to chargers, the site includes driver-focused amenities such as a lounge, vending machines, restroom facilities, on-site support, and free Wi-Fi. These amenities materially enhanced the original project concept by recognizing the practical needs of ride-hail, taxi, rental, and consumer EV drivers who may spend meaningful time on-site during charging sessions. bp's experience in convenience retail operations helped shape this customer experience, making the LAX hub a flagship example of how high-power EV charging can be paired with amenities that support driver comfort, safety, and productivity.

Early performance outcomes indicate that the site is scaling successfully. Since entering operation, daily charging sessions increased more than fourfold over the reporting period, while daily energy dispensed increased by approximately 4.5 times. At its current activity level, the

site delivers more than 7 Megawatt-hours (MWh) per day and supports nearly 200 charging sessions per day. Average charging power remained relatively stable at approximately 70 to 75 kW as utilization increased, suggesting that the site's infrastructure has maintained consistent charging performance while serving a growing customer base. Average energy delivered per session also increased by approximately 10 percent since launch, indicating that drivers are increasingly using the hub for meaningful charging events rather than short top-off sessions. A temporary spring break promotional offer, which provided a $0.10 per kilowatt-hour (kWh) discount, contributed to higher customer activity and provided useful insight into price sensitivity and charging behavior at an airport-adjacent ultrafast charging site.

The project also advanced understanding of large-scale EV charging deployment in several important ways. It demonstrated the technical feasibility of deploying 48 high-power charging points in a single location with redundant capacity, multiple connector types, flexible payment options, and 24/7 public access. It validated the importance of charger commissioning, network integration, monitoring, and customer support in maintaining reliable operations at a high-throughput site. It also provides a replicable model for airport-adjacent charging hubs that can serve both professional high-mileage drivers and the broader public. Following the LAX charging hub opening, bp pulse continued expanding on airport charging hub concepts with additional sites located nearby Houston Hobby Airport and Chicago O'Hare Airport, demonstrating the scalability of the model established through RACER.

The project also generated important lessons for future high-power charging deployments. RACER demonstrated the need for flexible procurement and design planning as charging technology, connector standards, customer access models, and payment expectations continue to evolve. It also reinforced the importance of incorporating site security, proactive charger reliability management, clear customer-use guidance, and disciplined project documentation into the full project lifecycle, particularly for long-duration infrastructure programs involving multiple partners and personnel transitions.

For future projects, bp pulse recommends early and direct engagement with utilities, authorities having jurisdiction (AHJ), site hosts, original equipment manufacturers (OEM), and other delivery partners, robust schedule contingencies for permitting, utility interconnection, equipment procurement, and construction risks. Future CEC-funded projects would also benefit from structured knowledge-sharing across recipients, streamlined reporting processes, and continued flexibility to adapt project scope and timelines as market conditions, technology standards, and customer needs change. Together, these recommendations can help accelerate delivery, reduce execution risk, and improve customer experience at future public charging hubs.

CHAPTER 1:
Project Background and Purpose

Program Foundation

The project was established under Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), which created the Clean Transportation Program. This legislation authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain California's climate change policies.

Initial Announcement and Vision

The CEC issued a notice of proposed award of the Robust Airport Charging for Electric Ride Hail Fleets (RACER) project to AMPLY Power, Inc. (AMPLY) on February 14, 2022 to install and provide direct current fast charging (DCFC) equipment capable of supporting 48 electric vehicles simultaneously at one charging site exclusively for use by ride-hail and taxi fleets servicing Los Angeles International Airport (LAX). In December 2021, BP Products North America Inc. (bp) announced its acquisition of AMPLY. AMPLY's legal name was changed to BP Pulse Fleet North America Inc. and rebranded under the commercial market name 'bp pulse' in September 2022, becoming part of bp's global electrification brand.

In November 2022, bp pulse announced exciting plans to launch the bp pulse Gigahub network, a series of large electric vehicle (EV) fast-charging hubs designed to serve ride-hail and taxi fleets near U.S. airports and high demand locations across the nation. The LAX hub was identified as the first site in this strategic network, built in collaboration with Hertz and partially funded by the CEC grant.

Project Significance

This initiative represented a huge milestone for bp pulse, positioning the company to deliver convenient fast charging to drivers in one of the nation's busiest transportation corridors.

CHAPTER 2:
Project Goals and Objectives

AMPLY's RACER submission was designed to support the electrification of ride-hail and taxi fleets through the deployment and operation of a cost-effective fleet charging hub with access designed for ride-hail and taxi fleets serving LAX. This would be accomplished by installing and providing DCFC equipment capable of supporting 48 electric vehicles simultaneously at one charging site for use by ride-hail and taxi fleets servicing LAX.

Success was envisioned, first and foremost, as a single, large-format, modular charging hub at LAX capable of accommodating the rapid growth of electrified ride-hail and taxi fleets serving the airport. The chargers were specified as containerized DCFCs deployed via AMPLY's INRUSH Containerized Solution, equipped with Combined Charging System (CCS) standards-based and Tesla connectors, with a DCFC dispenser provided for each parking space and the site as a whole requiring approximately 5 megawatts (MW) of utility power from the Los Angeles Department of Water and Power (LADWP). AMPLY's original hub was proposed at 5455 W. 111th Street (Economy Parking Lot E), Los Angeles, CA 90045, occupying two double parking rows in a 278' × 66' footprint, with 64 parking spaces dedicated to provide charging for 48 vehicles simultaneously. The location of the hub would ultimately change to 9150 Aviation Blvd, Inglewood, CA 90301 after AMPLY's acquisition by bp.

AMPLY's operational vision emphasized a "pull-in, plug-in, charge-up, unplug, and depart" driver experience underpinned by simple and automatic pricing, authentication and payment via integration with rideshare apps and credit card readers. Charging sessions were expected to last 15 to 40 minutes between airport pick-ups and drop-offs, with the explicit intent of eliminating the "deadhead" mileage that drivers would otherwise incur traveling to off-site public chargers. Charging operations were to be managed by AMPLY's proprietary OMEGA Charge Management System, which would provide real-time visibility, automatic load management, demand-response capability, and reporting outputs aligned with utility and regulatory programs.

Technical Performance Targets

The site was to host 48 charging bays capable of supporting 48 EVs charging simultaneously, deployed with CCS standards-based connectors and communications. The site was specified to require approximately 5 MW of utility power delivered by LADWP. Installation was required to be performed by a licensed contractor in accordance with all applicable laws, ordinances, regulations, and standards, including codes, permitting, and licensing requirements set by the relevant Authorities Having Jurisdiction (AHJs); the project was required to submit an AB 841 Certification confirming compliance with the requirements of AB 841 (2020), and to provide Electric Vehicle Infrastructure Training Program (EVITP) Certification Numbers for each EVITP-certified electrician who installed EV charging infrastructure.

Operational Performance Targets
The operational performance targets outlined below were proposed by AMPLY. Upon bp's acquisition of AMPLY, bp pulse inherited agreed upon terms and conditions between the CEC and AMPLY.

Operate. AMPLY would install, test, commission, and operate the 48 charging bays, and would ensure continued operation, monitoring, and maintenance of the chargers for the remainder of the project term in coordination with Los Angeles World of Airports (LAWA), utility providers, and other stakeholders.

Pricing. AMPLY proposed pricing to the driver was targeted at $0.15/kWh, equivalent to approximately $1.10 per dollar-per-gallon-equivalent (DPGe), and bp expected this to be achievable by leveraging other incentive programs, and OMEGA's automatic load management.

Utilization. AMPLY's projected utilization in the GFO-21-601 application narrative, was modeled to ramp from 6 percent station utilization in 2023 (≈240 transportation network company (TNC) EVs/day, 3 in-use dispensers, ≈5,400 kWh/day) to 100 percent utilization by 2027 (≈6,400 TNC EVs/day across all 48 dispensers, ≈90,720 kWh/day), with total energy dispensed projected at 340,953,210 kWh through 2040.

Programmatic Targets
Under this GFO, AMPLY would be required to complete a series of program targets including attendance at a CEC Kick-off Meeting, participation in monthly progress calls, submission of Quarterly Progress Reports, hosting a Critical Project Review meeting, and completing a Final Meeting and Final Report at least 60 days before the end of the Agreement Term.

In addition to these program requirements, AMPLY was required to collect and report a minimum of 12 months of operational data on the deployed charging equipment. The data elements would include: the number of charging sessions; average charger station downtime; peak power delivered (kilowatts (kW)); duration of active charging (hourly); duration of charging session (hourly); average session duration; energy delivered (kWh); average kWh or kg dispensed; types of vehicles using the charging equipment; applicable price to the driver or user for charging; payment method; and normal operating hours, uptime, downtime, and explanations of variations.

Outcome Changes
The outcomes of the RACER project evolved materially from those anticipated at the time of the original GFO-21-601 application submitted by AMPLY in November 2021. Three corporate and strategic developments — bp's acquisition of AMPLY Power (December 2021) and the subsequent rebrand of AMPLY Power to bp pulse (September 2022), the establishment of a new site partnership with Hertz (October 2022), and a strategic decision to open the charging hub to the public rather than restrict access to fleets — together reshaped the project's site, customer-access model, and on-site customer experience while remaining fully aligned with the underlying intent of the CEC's Charging Access for Reliable On-Demand Transportation Services (CARTS) initiative.

bp's Acquisition of AMPLY Power and Rebrand to bp pulse
The acquisition and rebrand brought to the RACER project the financial and operational depth of a global integrated energy company, including bp pulse's UK and European public charging expertise, and bp's broader Mobility & Convenience (M&C) operating capability — all of which subsequently shaped the technology, amenities, and access model deployed at the LAX site.

Site Partnership with Hertz and Final Site Location
The second material change to the project was the establishment of a new commercial relationship with Hertz that enabled a different site location than the one contemplated in the original AMPLY submission.

The final RACER site was delivered by bp pulse and is located at 9150 Aviation Blvd, Inglewood, CA 90301, approximately two miles from LAX airport property, on a Hertz-owned parcel under a long-term lease arrangement. While the site location ultimately moved off of LAX property itself, the project continued to fulfill the original LAX-serving intent: the hub is positioned within minutes of the airport and is purposefully designed to serve the ride-hail and taxi drivers traveling between airport pick-ups and drop-offs that the original project narrative identified as the primary intended users. The Hertz site collaboration provided a development pathway that proved more executable than the original on-airport configuration, while extending the project's reach to two additional high-demand customer segments — rental-car customers and the broader local EV-driving public — in addition to the original ride-hail and taxi audience.

Strategic Decision to Expand from Fleet-Only to Public Access
The third material change was expanded site access beyond fleet-only use to include the general public. Under bp pulse, the LAX charging hub was designed and operated as a 24/7 publicly accessible site open to ride-hail drivers, rental-car customers, and the broader Los Angeles EV-driving community.

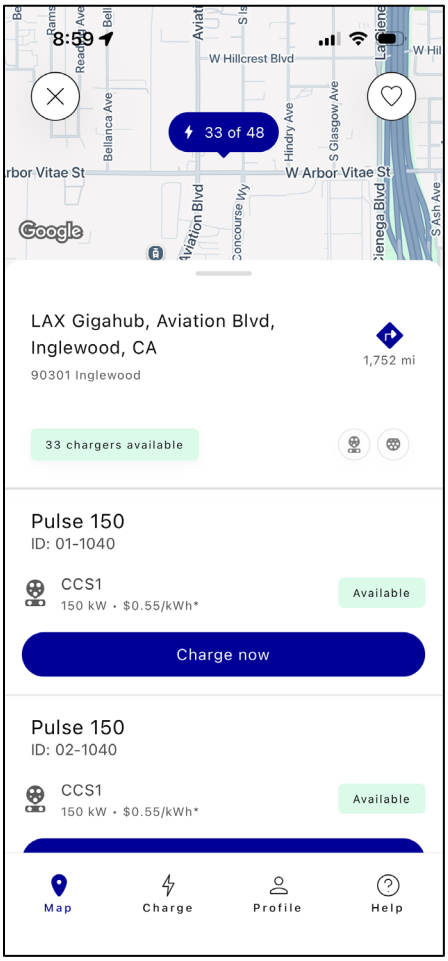
This shift was both a customer-access decision and an operational simplification. Opening the site to the public expanded the charging availability for the local community in a region with one of the largest EV vehicle populations in the United States, while simultaneously reducing the operational and site-management complexity that would otherwise have been required to authenticate, gate, and continuously verify a restricted fleet-only user base.

This expansion of access is fully consistent with the CARTS program's underlying objective. The original CEC announcement of the project highlighted that "vehicles employed by California's ride-hailing fleets make up 2.5 percent of the vehicle population, but consume 30 percent of all public fast charging," and described the charging hub initiative as one that helps "electrify ride-hailing and rental fleets and cut pollution in communities." By transitioning to

public access, the project broadened the community charging benefit while preserving its focus on the high-mileage ride-hail driver segment.

Enhanced Tools, Technology, and On-Site Customer Experience

bp's ownership of the project also enabled the deployment at the LAX charging hub of additional tools, technology, and customer-facing capabilities that were not available within the original AMPLY scope. Most notably, the site is supported by the bp pulse mobile application — the U.S. consumer "On-the-Go" app designed to find and plan routes to chargers; start and stop charging; and keep track of billing with capabilities for real-time charger availability, station filtering by power level, and payment management. The bp pulse app provides drivers at the LAX site with an alternative, integrated digital payment and account-management option to complement on-charger payment terminals, expanding the range of authentication and payment methods available to drivers.



bp's deep experience in convenience retail — operating more than 8,000 retail fuel locations in the United States across multiple brands — also enabled bp pulse to introduce an on-site "convenience experience" that materially exceeded the driver experience originally scoped.

The completed LAX charging hub features a driver lounge, restroom facilities, vending machines, and free Wi-Fi, available to the charging public, with the vending offer specifically developed in collaboration with bp's Mobility & Convenience for the Americas (M&CA) team. The amenities are designed to support the realities of the ride-hail driver workflow — providing a comfortable, climate-controlled space, clean restrooms, and reliable Wi-Fi during charging sessions — and to differentiate the site as a flagship customer experience for both professional and consumer EV drivers.

CHAPTER 3:
Project Approach and Methodology

Strategic Impact and Network Expansion

Following the LAX opening, bp pulse has continued expanding with additional airport hubs:

- Houston Hobby Airport: 40 ultrafast charging bays, opened October 2025
- Chicago O'Hare Airport: 40 ultrafast charging bays, opened December 2025

This network expansion demonstrates the scalability and replicability of the LAX model across high-demand airport locations nationwide.

Target Customer Segments

The LAX charging hub strategically serves multiple EV user groups:

1. Ride-hail drivers: Primary target market for airport-proximate charging
2. Taxi fleets: Professional drivers requiring fast turnaround times
3. Rental car customers: Supporting vehicle returns and pickups
4. Local EV owners: Community access to ultrafast charging

California Energy Benefits

The project could lead to supporting California's climate and transportation electrification goals by:

- Reducing barriers to EV adoption: Providing reliable, accessible fast charging infrastructure
- Supporting professional drivers: Enabling ride-hail and taxi fleet electrification
- Demonstrating scalable solutions: Creating a replicable model for airport charging hubs
- Creating economic opportunities: Jobs in construction, operations, and maintenance

Charging Equipment Configuration

The LAX charging hub features a mix of charging equipment to accommodate various EV needs:

- High-power DCFC: 400kW capacity for rapid charging
- Standard DCFC: 150kW capacity for flexible charging options
- 32 CCS connectors, 16 NACS connectors
- Total capacity: 48 charging bays

Customer Amenities

Beyond charging infrastructure, the hub provides comprehensive amenities designed to enhance the driver experience:

- **Comfort lounge**: Dedicated waiting area for charging customers
- **Vending machines**: Developed in collaboration with bp's mobility and convenience teams.
- **Restroom facilities**: Clean, accessible facilities for all users
- **Free Wi-Fi**: Connectivity throughout the charging period

Stakeholder Engagement and Partnerships

Opening Ceremony Participants

The July 2025 official opening featured participation from key stakeholders, demonstrating strong public-private collaboration:

- **Sujay Sharma** and other bp pulse leadership team members
- **Southern California Edison** representatives
- **Senator Richardson's office** representatives
- **Multiple community and EV partners**

Collaborative Partnerships

The project benefited from strategic partnerships:

1. **Hertz**: Site host, fleet customer, and project collaborator
2. **SoCal Edison**: Utility partner for power infrastructure
3. **California Energy Commission**: Grant funding and regulatory oversight
4. **BP’s Mobility and Convenience Team** Convenience and amenity expertise

CHAPTER 4:
Project Activities Performed

Project Design and Site Development (2022–Early 2024):

The LAX EV Charging Hub's journey from concept to reality began in early 2022 with an intensive design and planning phase. After securing CEC grant funding in 2021–2022, the project moved quickly into site selection and engineering design. By late 2022, bp pulse announced plans to launch a flagship "Gigahub" network, identifying LAX as the first site in this series—a 48-chargepoint ultra-fast hub near Los Angeles International Airport, developed in partnership with Hertz and backed by a $2 million CEC grant. With the Hertz partnership, the final site location at 9150 Aviation Blvd in Inglewood (approximately two miles from LAX) was secured via a long-term lease, ensuring proximity to the airport while simplifying development logistics.

Throughout 2022 and 2023, bp pulse's project team advanced detailed site and electrical design. They conducted utility engineering studies with Southern California Edison (SCE) to confirm sufficient grid capacity and engaged contractors and architects for site surveys and renderings. By mid-2023, bp pulse was working closely with the City of Inglewood to address new transit-oriented zoning constraints; this effort resulted in an administrative plan approval in mid-2023 that allowed the project to proceed without a prolonged rezoning process. In parallel, utility design plans were finalized by mid-2024 – coordinating with SCE on a Rule 29 service extension to secure a high-capacity (approximately 5 MW) grid connection needed for the 48 charging bays.

Permitting, Construction, and Equipment Installation (Mid-2024–Early 2025):

With detailed designs and stakeholder alignment in place, the project entered the implementation phase. The City of Inglewood granted construction permits in August 2024 for the charging hub's site and electrical infrastructure. Soon afterwards, by September 2024, on-site construction commenced with site clearing, grading, and installation of underground utilities. The civil and electrical works progressed in stages: foundations were poured, conduit and wiring laid, and support structures (including canopy footings and equipment pads) built over the fall of 2024. Long-lead electrical equipment – such as switchgear and transformers – was ordered in advance; these critical components were delivered to site by December 2024, keeping the power infrastructure on schedule. In early 2025, the EV charging stations (a mix of 400 kW and 150 kW DCFCs) were installed and integrated with the completed electrical system. Licensed contractors performed comprehensive commissioning tests on each charger and the overall system to verify safety, code compliance, and performance. All required inspections and approvals were obtained at this stage, including sign-off by local authorities and receipt of a Permission to Operate letter from the utility prior to energizing the facility. By spring 2025, the LAX charging hub's construction was substantially finished, with all 48 charge points in place and successfully commissioned in readiness for launch.

Operational Launch and Ramp-Up (Mid-2025):

The LAX charging hub achieved operational status in mid-2025, marking the culmination of the project's development phase. Public charging service began in late June 2025 immediately after final commissioning, with the hub entering continuous 24/7 operations. The official grand opening was celebrated the following month on July 22, 2025. bp pulse hosted a high-profile ribbon-cutting event at the site with participation from project partners and local leaders. Key stakeholders such as bp pulse leadership, representatives from Southern California Edison and the California Energy Commission, and local officials attended the ceremony, highlighting the strong public–private collaboration behind the project. In the weeks following launch, the site smoothly ramped up to full operational capacity. Early outreach efforts – including a pre-launch "stress test" event for local EV drivers and continued marketing in the Los Angeles area – helped drive traffic to the new hub. By the end of summer 2025 the LAX charging hub was consistently serving ride-hail drivers, rental car fleets, and the broader EV public, establishing itself as bp pulse's largest U.S. charging site and a flagship demonstration of reliable, high-demand EV fast charging at an airport location.

Outreach, Stakeholder Coordination, and Reporting:

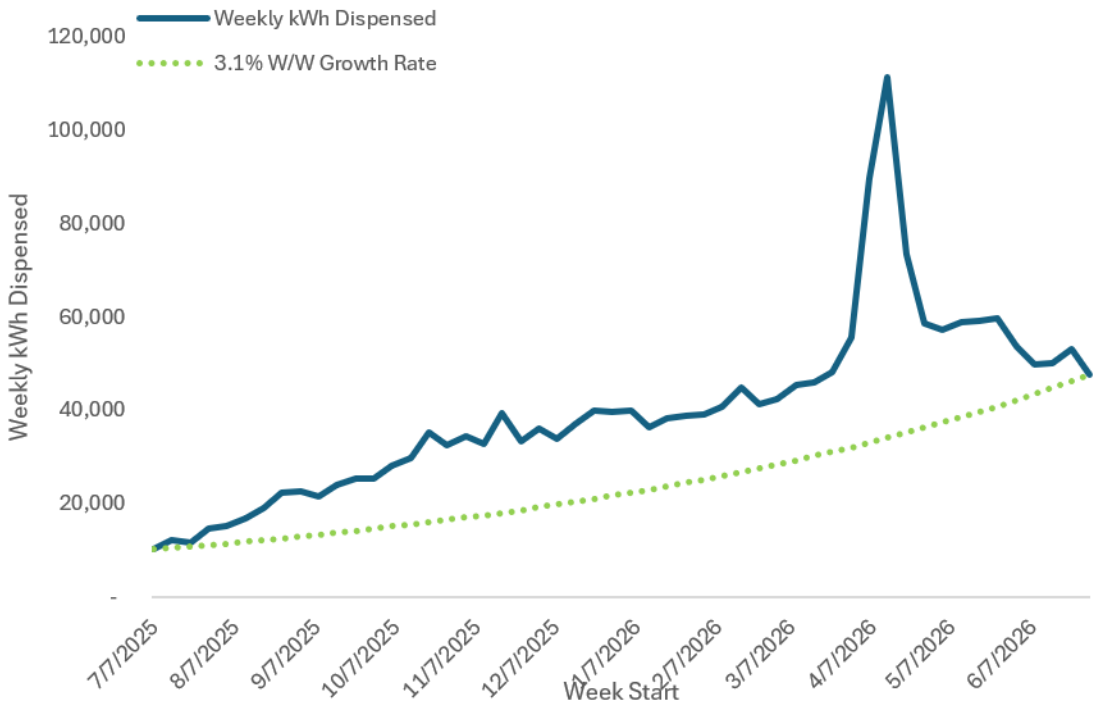
The success of the LAX charging hub's development was underpinned by robust stakeholder coordination and fulfillment of all programmatic obligations. The project team worked closely with local authorities (City of Inglewood planning/building departments) and utility partners (SCE) to secure the necessary permits, grid connections, and inspections in a timely manner. Regular engagement with the California Energy Commission (CEC) was maintained throughout construction via monthly update calls and quarterly progress reports, ensuring transparency and compliance with grant requirements. The team also coordinated extensively with site host partner Hertz to align construction activities and site access. Finally, as the hub transitioned to operation, bp pulse delivered all required project deliverables and data reports – including a Critical Project Review and this Final Project Report – to the CEC, fulfilling the project's reporting commitments while showcasing the hub's smooth launch and positive early performance.

CHAPTER 5:
Results and Performance Outcomes

Since entering operation, the LAX Charging Hub has demonstrated strong utilization growth and stable operating performance. Daily charging sessions increased more than fourfold over the project reporting period, while daily energy dispensed increased by approximately 4.5 times. These trends indicate that the site is attracting a growing customer base and that users are increasingly relying on the hub for substantial charging events rather than limited top-off charging.

A spring break promotional offer also contributed materially to the utilization trends observed during the reporting period. As part of this promotion, bp pulse offered drivers a discount of $0.10 per kWh at the LAX charging hub. The offer generated a meaningful increase in new customer activity, including customers who completed higher-energy charging sessions, and provided bp pulse with useful insight into consumer charging behavior and price sensitivity at a high-power, airport-adjacent public charging site. The dramatic peaks reflected in the tables below are therefore attributable in part to the temporary pricing promotion and the resulting increase in customer demand during the promotional period.

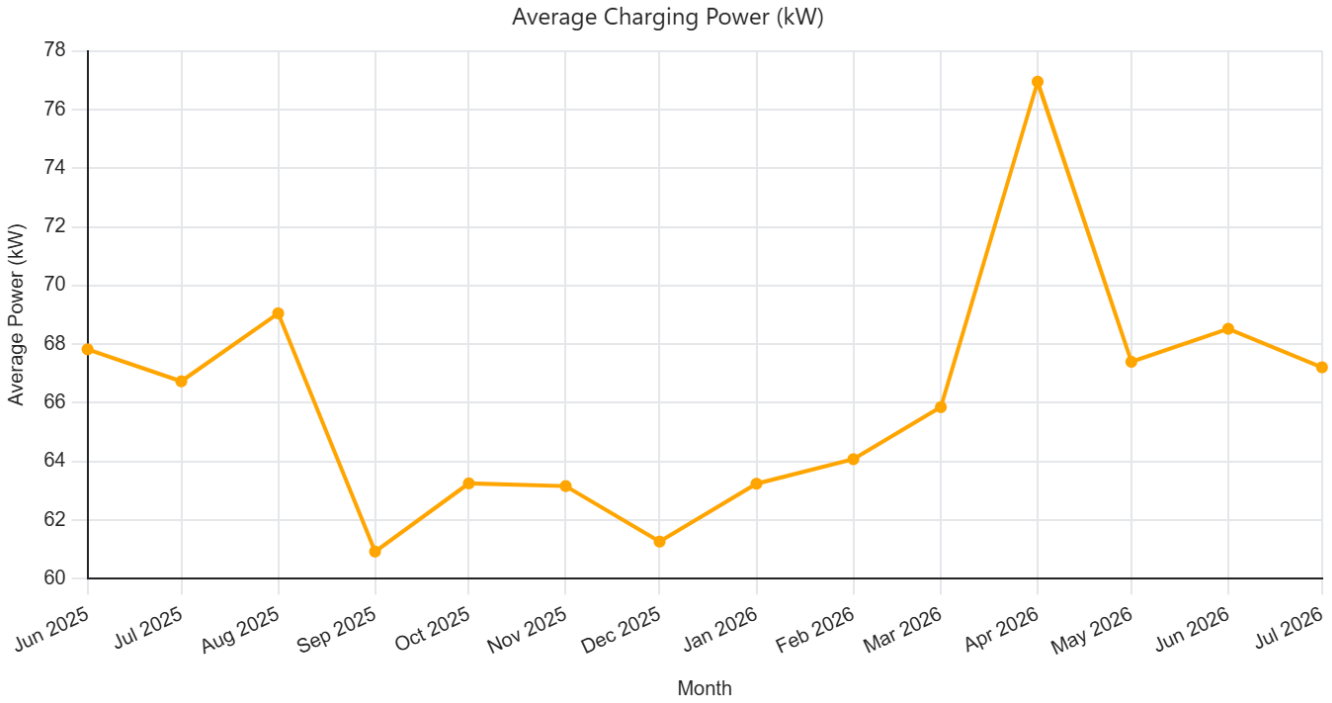
Table 1: Weekly kWh Dispensed at LAX vs Average Weekly Growth Rate



Charging performance remained consistent as utilization increased. Average charging power held at approximately 70 to 75 kW during the same period, indicating that the site infrastructure has scaled effectively without a corresponding degradation in charging quality or customer experience.

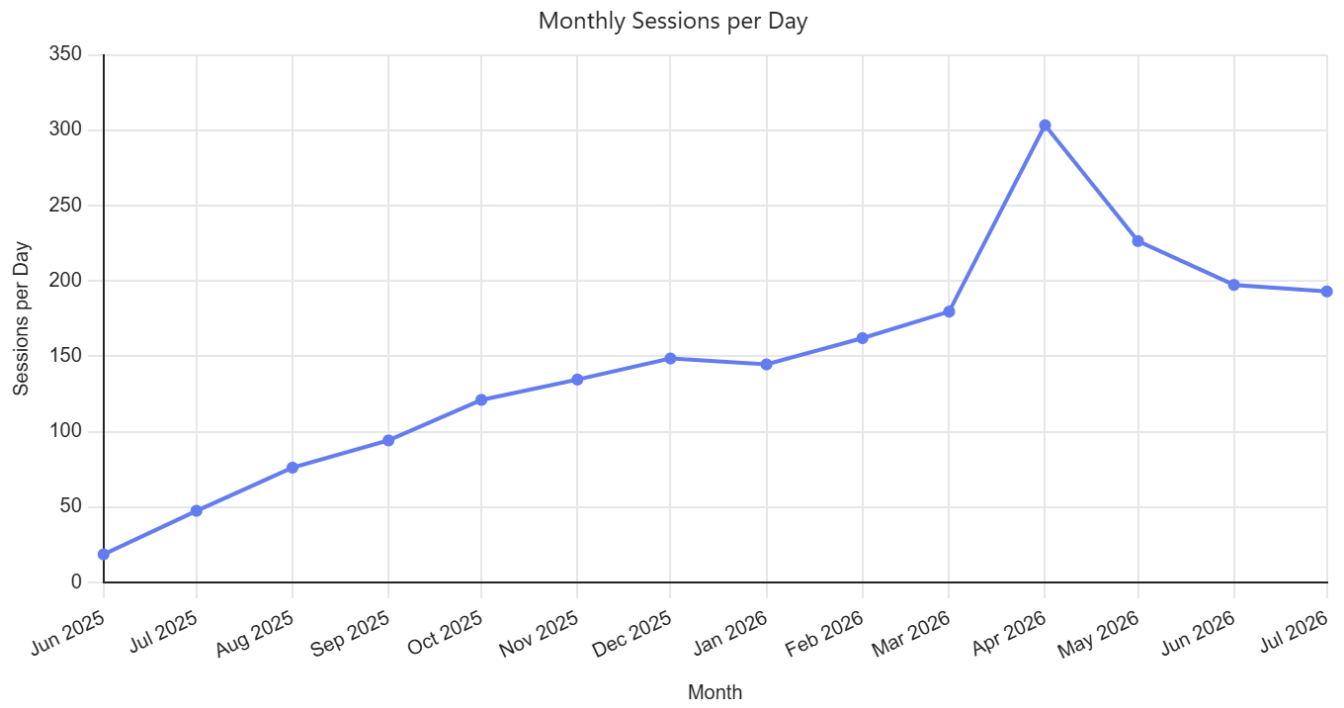
The data also suggests maturation in customer charging behavior. Average energy delivered per session increased by approximately 10 percent since site launch, which may reflect increased use by larger-battery vehicles and fleet or high-mileage drivers who depend on the site for meaningful energy replenishment.

Table 2: Average Charging Power (kW)



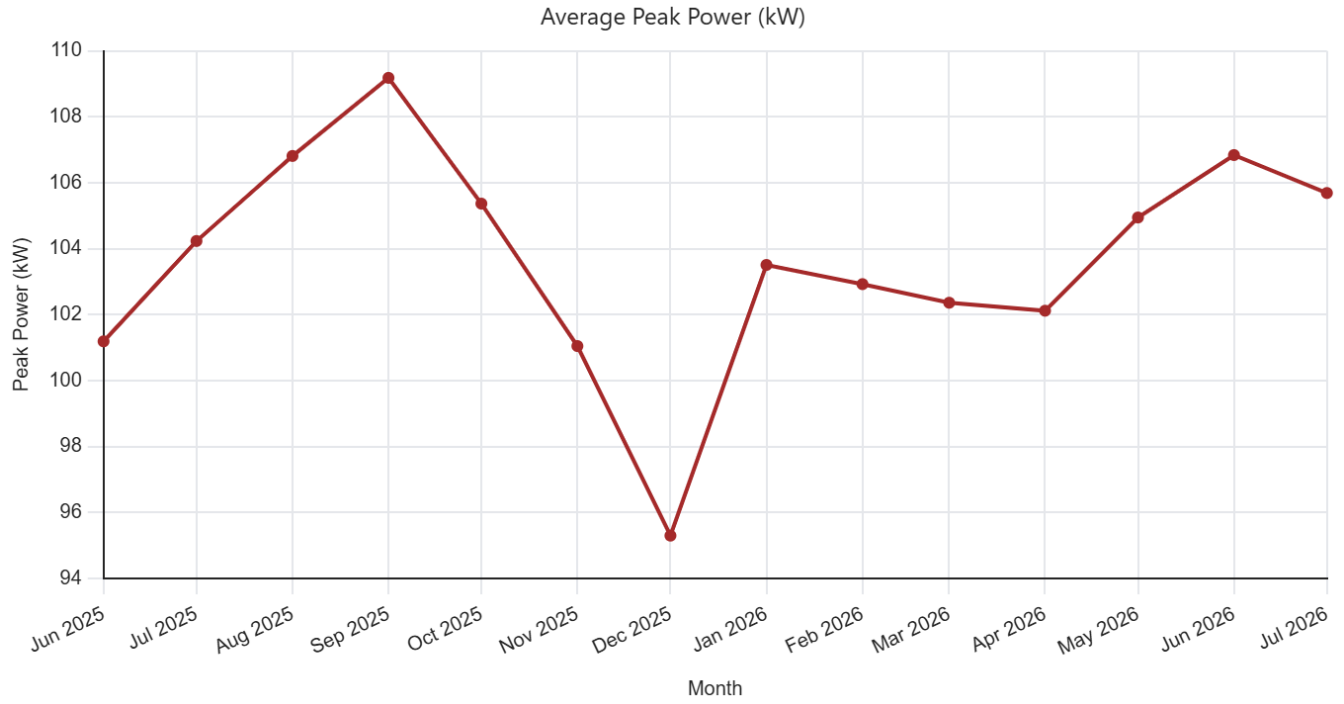
At its current level of activity, the site delivers more than 7 MWh of energy per day and supports nearly 200 charging sessions per day. This level of throughput demonstrates strong market adoption and positions the LAX charging hub as a productive public charging asset supported by CEC funding.

Table 3: Monthly Sessions per Day



Power demand trends further support this conclusion. Peak power demand continued to increase as customers used the site's high-power charging capabilities, while average power delivery remained stable. Together, these metrics indicate that the hub is maintaining reliable charging performance as demand grows.

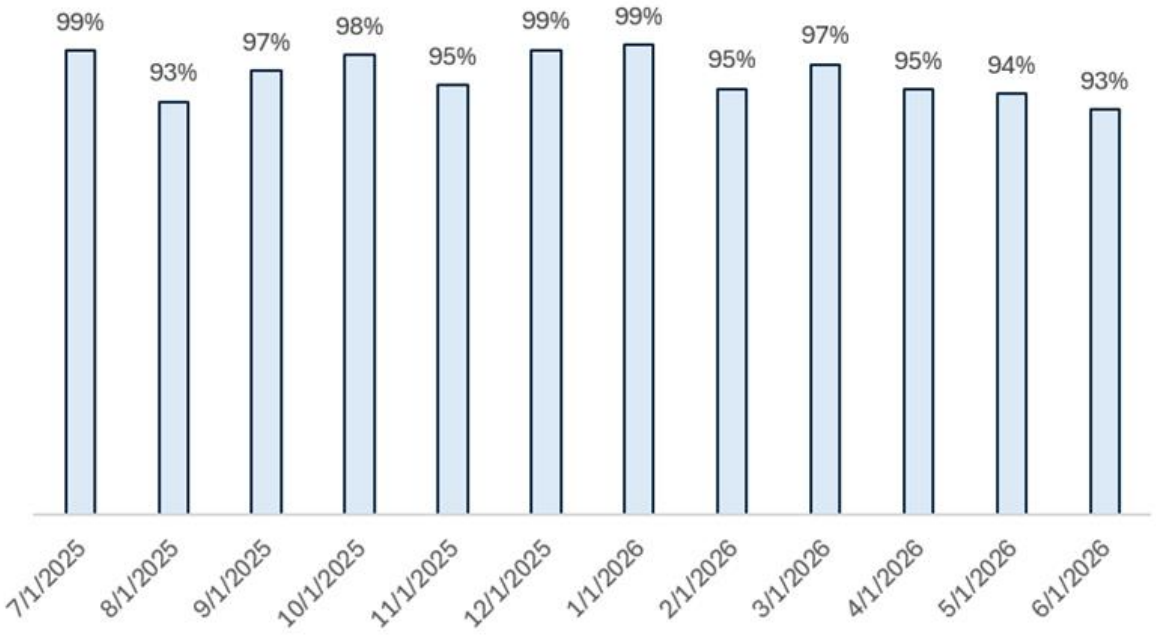
Table 4: Average Peak Power (kW)



While the LAX charging hub experienced typical equipment and maintenance needs during its transition from launch to sustained high-utilization operations, overall performance remained resilient. Uptime variability was primarily tied to isolated charger-level issues rather than site-wide disruptions. bp pulse proactively managed these events by disabling affected connectors when needed, escalating issues with partners, replacing components, and strengthening monitoring and maintenance practices. The site's 48-chargepoint configuration helped preserve customer access while individual connectors were serviced, demonstrating the value of high-capacity hub design.

Reliability continued to improve as bp pulse implemented targeted corrective actions, including a Tritium DCDC module replacement campaign, expanded spare-parts availability, planned annual inspections, proactive mystery-shop maintenance checks, and enhanced overnight security monitoring. Following replacement activity, bp pulse reported a 70 percent reduction in DCDC-related failures at LAX. These actions helped support continued utilization growth, stable throughput, and an improving customer experience as the site matured into regular operations.

Table 5: LAX charging hub uptime performance



Overall, the LAX charging hub is scaling successfully. Demand is increasing rapidly, customers are taking larger charges, energy sales are growing faster than session counts, and charging performance has remained strong throughout the utilization ramp.

These outcomes demonstrate that the CEC-supported infrastructure investment is converting into sustained utilization growth, higher-value charging behavior, and reliable service for ride-hail drivers, rental car customers, and the broader EV-driving public near LAX.

Table 6: Monthly kWh per Day

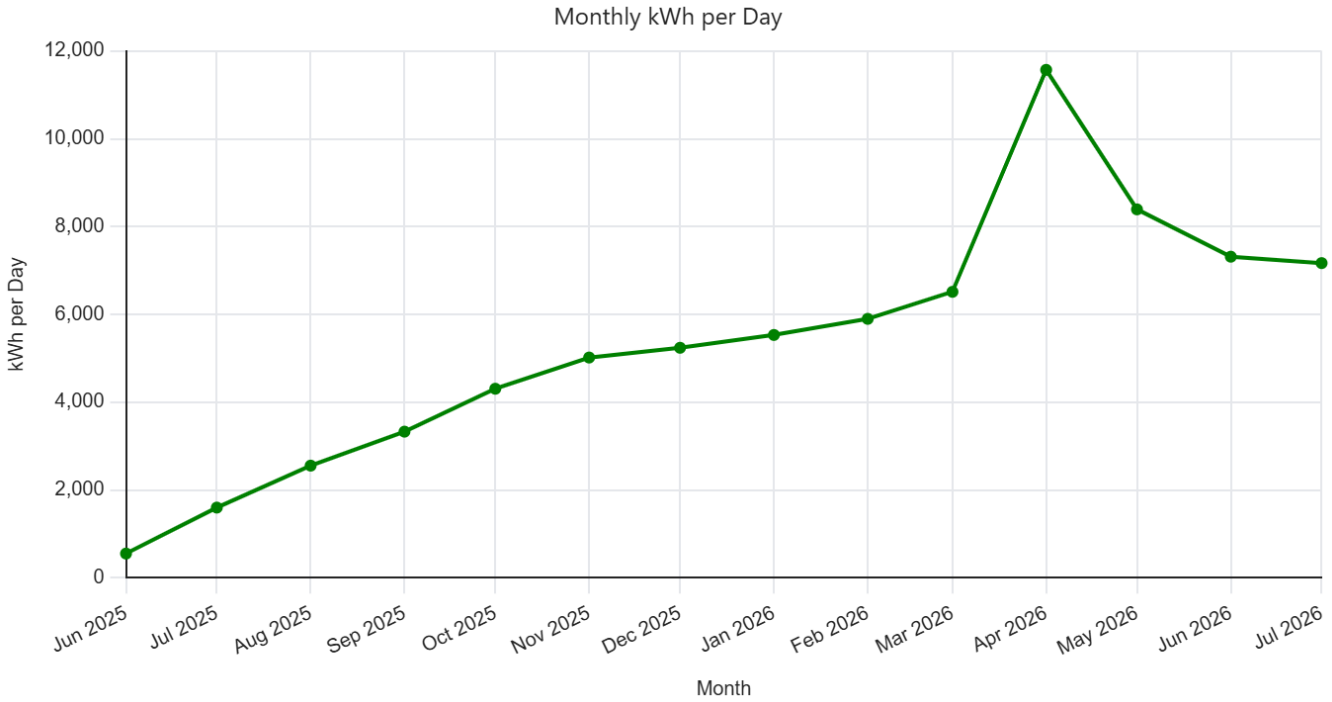


Table 7: Average Session Duration (minutes)

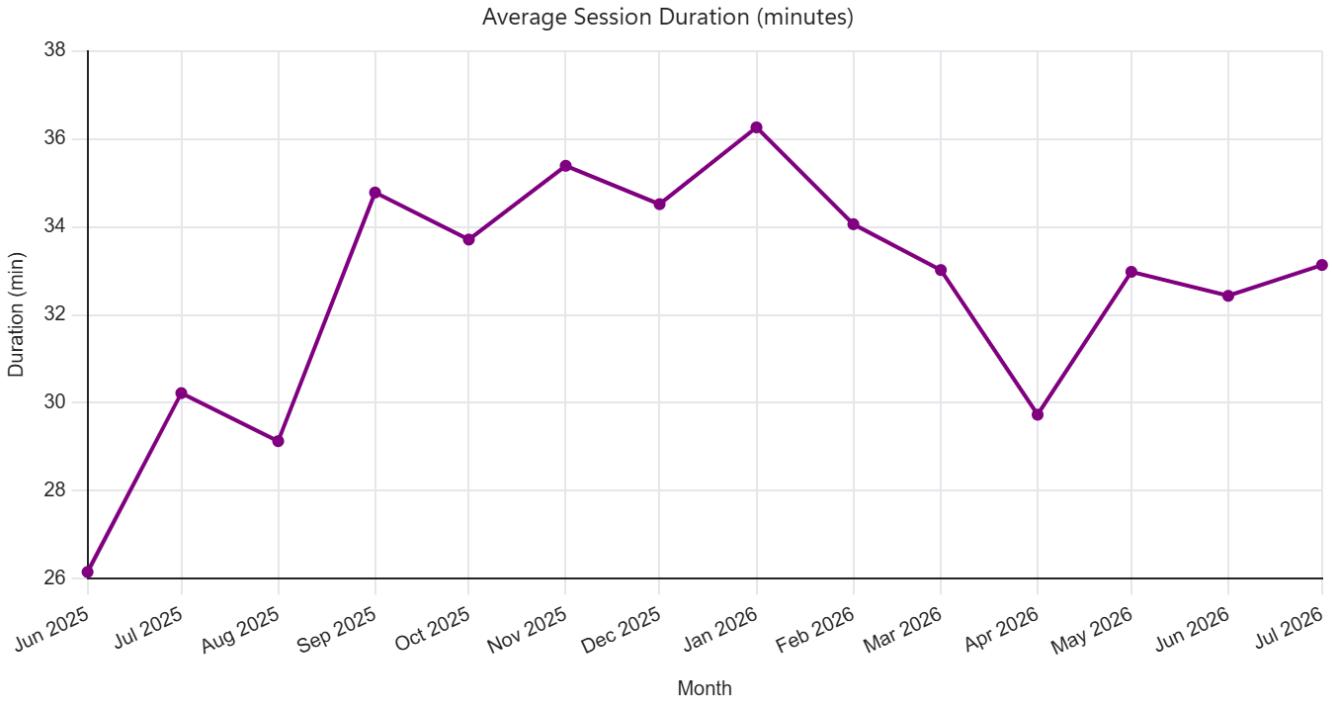


Table 8: Intended Targets and Actual Outcomes

Intended Targets	**Actual Outcomes**
48 charging bay hub located at LAX	48 charging bay hub located just outside of LAX property

Exclusive use for fleets, taxis, and ride hails	24x7 open to the public designed with TNC operators in mind
24/7 vehicle uptime commitment	As a public charging station operator, there is no ability to guarantee the uptime of a vehicle.
Integrated payment with ride hail platforms	Drivers can pay using the POS on charger or through the bp pulse app. Plug & Charge options continue to deploy today.
Pricing to drivers $0.15/kWh	The site uses a time of use (ToU) model offering savings to drivers when they charge at off-peak times.

CHAPTER 6:
Advancements in Science and Technology

High-Power Charging Deployment at Scale:

The LAX hub represents a major technical advance in ultra-fast EV charging infrastructure, delivering 48 ultrafast charging points in one location. The site is equipped with a mix of 400 kW and 150 kW fast chargers, each supporting both CCS and NACS (Tesla-compatible) connectors. This dual-connector strategy ensures that all EV models can use the chargers, including the growing population of vehicles adopting the NACS standard. Before public opening, the project team implemented a rigorous commissioning process to verify performance and safety at full scale, including tests such as delivering 150 kW per port simultaneously across multiple chargers, validating redundancies and network connectivity under simulated outages, and confirming multiple payment and user interface methods. As a result, each charger was fully commissioned and integrated with bp pulse's network by early July 2025. System reliability and throughput have been excellent – in fact, the hub's initial months of operation experienced no unplanned downtime incidents, successfully demonstrating consistent high-power output to drivers in a 24/7, high-demand setting. This successful deployment of large-scale high-power charging illustrates a significant leap in EV charging technology capacity and reliability, highlighting the potential for multi-megawatt charging sites to serve future high-volume EV demand.

Fleet-Focused Charging at Scale:

The LAX charging hub was designed as a flagship model for serving fleet and high-utilization EV drivers such as ride-hail cars, taxis, and rental vehicles. The site layout incorporates multiple canopied bays and clearly demarcated parking, enabling smooth traffic flow and quick turnarounds for drivers who often charge between airport trips. In early operations, the hub proved that fleet-centric amenities – including a driver lounge, restrooms, and on-site staffing – can enhance the charging experience for professional drivers, supporting longer dwell times when needed but also allowing efficient plug-and-go usage for shorter sessions. A key strategic shift during the project was expanding the hub from an initially fleet-exclusive model to full public access. This broadened the user base to include local EV owners while still serving ride-hail and rental operators, and simplified operations by eliminating the need for access controls for specific user groups. Early utilization data indicates that the hub is attracting a diverse customer mix (including ride-hail, rental, and personal EV drivers), validating the scalability of the fleet-oriented design beyond its original target segment. Operational strategies such as redundant charger capacity (with many more charging ports than initially needed) and active monitoring through the bp pulse network have further ensured high uptime and resilience in a high-throughput setting. These insights provide a roadmap for optimizing fleet-oriented charging hubs, from managing high turnover to maintaining robust equipment uptime and driver satisfaction in a busy environment.

Integration in a Complex Airport-Adjacent Environment:

Developing the LAX charging hub required innovative integration of large-scale charging infrastructure into a dense urban and airport-adjacent location with multiple stakeholders. The

project team strategically located the hub just outside LAX on a long-term leased site in the City of Inglewood, which streamlined development compared to on-airport construction while preserving close proximity to terminals. The site was purpose-built with careful attention to traffic patterns and safety—dedicated approach signage and on-site wayfinding guide drivers to available charging bays without impacting nearby thoroughfares. Integrating the needed 5 MW electrical service required close collaboration with Southern California Edison (SCE) under its Rule 29 EV infrastructure program, which enabled an efficient service extension from the grid to support the 48 ultrafast charge points. The project navigated complex permitting and utility coordination challenges by engaging early and often with local officials and SCE engineers, resulting in timely approvals despite the site's urban constraints. The successful commissioning and public launch by July 2025 underscored the project's innovative integration of unprecedented EV charging capacity into a busy commercial area, offering a replicable model for future high-demand, urban charging hubs at airports and other transportation centers across California.

CHAPTER 7:
Energy-Related and Other Benefits to California

Expanding Public Charging Access and EV Adoption

The LAX charging hub was originally conceived as a fleet-only depot, but under bp pulse's leadership it was reimagined as a 24/7 publicly accessible fast-charging hub – a transformation that proved crucial to maximizing its public benefit. By opening the 48 charging bay site to all EV drivers (not just taxis or ride-hail vehicles), the project created a new charging resource in the Los Angeles region. This expanded access strategy directly supports California's transportation electrification goals by reducing infrastructure barriers for current and prospective EV owners. The hub's round-the-clock operations demonstrate a replicable model for high-demand public charging that can be reproduced at other strategic locations statewide. Crucially, leveraging a CEC grant to serve the broader public aligns with the Clean Transportation Program's social equity objectives. By mid-2025, the hub's flexible access had already enabled a wide mix of users – ride-hail and taxi drivers, rental car customers, and everyday EV drivers – to charge conveniently near LAX instead of detouring to distant stations. This enhanced charging availability around one of California's busiest travel corridors may support drivers to accelerate their EV adoption, reduce gasoline use, avoid thousands of "deadhead" combustion-vehicle miles, and improve air quality in the surrounding communities.

Benefits for High-Mileage Fleet Drivers and Local Communities

Ride-hail and taxi drivers gain vital operational support from the LAX charging hub. The ability to charge during downtime at LAX rather than driving in search of a charger may help eliminate off-route "deadhead" trips, saving drivers time and fuel while keeping them closer to their service area. With 48 high-power charge points on site, the hub's added charging capacity in the area helps to reduce charging queues and range anxiety for these high-utilization drivers. The hub's cost-competitive pricing and reliability also offer crucial financial stability to professional drivers. By maintaining transparent, time-of-use pricing with discounted off-peak rates, the site keeps charging costs predictable and generally below gasoline-equivalent fuel prices. Additionally, driver-focused amenities (a lounge, restrooms, and on-site staff) provide comfort and safety, which is especially valuable for ride-hail and delivery drivers who depend on public charging as part of their work routine. Together, these innovations position the LAX charging hub as a flagship example of EV infrastructure benefiting both the public at large and high-mileage EV drivers, simultaneously advancing California's electrification and clean air objectives.

CHAPTER 8:
Observations and Lessons Learned

The RACER project provided valuable observations and lessons learned across the full lifecycle of a large-scale, high-power charging infrastructure deployment. As bp pulse's first-of-kind airport-adjacent charging hub, the project required bp pulse to manage evolving technology requirements, complex procurement decisions, construction-phase security risks, early operational reliability issues, public-site management challenges, and long-duration project continuity needs. While these challenges added complexity to delivery, they also helped strengthen the final operating model and provide insights that can inform future high-utilization charging hubs.

One of the most significant challenges was the pace of change in EV charging technology and industry standards over the life of the project. Since AMPLY's original project narrative was developed, charger capabilities, connector standards, payment expectations, and customer access models continued to evolve, including the industry's broader transition toward NACS alongside CCS. These changes created unique procurement and design considerations. bp pulse extended portions of the design and engineering timeline to evaluate these developments and ensure the final charging hub would be fit for purpose, compatible with a broad range of vehicles, and capable of scaling over time. Although this added complexity to procurement and design decisions, it strengthened the long-term value of the site by ensuring the hub reflected current market needs rather than relying solely on assumptions from the original application.

Construction also presented security-related challenges. The site experienced recurring theft and vandalism, including incidents involving switchgear and other electrical equipment. These events required bp pulse to replace damaged or stolen equipment, add additional fencing, and hire onsite security staff to better protect the site while construction continued. Because replacement switchgear had to be procured and delivered before the project could proceed, these security-related impacts contributed to the need for an extension of the project schedule. This experience highlighted the importance of incorporating physical security planning, lead-time risk, and critical-equipment protection into construction plans for large charging infrastructure projects.

Once the site entered operation, charger uptime was affected by a limited number of discrete equipment and maintenance issues, as described in Chapter 5. These issues were generally isolated to specific connectors or chargers rather than site-wide performance issues. The hub's 48 charging bay configuration helped preserve customer access while individual chargers were inspected, repaired, or temporarily disabled. These corrective actions supported continued utilization growth and helped improve customer experience as the site matured into sustained operations.

The RACER project also demonstrated that some operational challenges are beyond the direct control of the charging station operator, particularly when they involve evolving hardware performance within the broader EV charging supply chain. Throughout the operations period, bp pulse experienced internal power module issues with charging equipment supplied by Tritium. This had an impact on the chargers availability throughout the reporting period. Tritium and bp pulse worked collaboratively to identify the issue, assess the pattern of failing

modules, and determine appropriate corrective actions. While bp pulse could not directly control the underlying module failure, proactive steps were taken to reduce customer impact while the issue was being diagnosed and remediated. In some cases, bp pulse temporarily removed one of the two connectors from the mobile application and other digital platforms to proactively indicate to customers that the port would not be available. We believed this approach would reduce customer frustration, preserve confidence in the site, and maintain access across the site while individual components were addressed. In a rapidly evolving market, successful operations depend on strong charging operator and OEM partnerships, transparent problem solving, and proactive customer facing mitigations when technical issues arise outside the charging operator's direct control.

The project also highlighted the importance of managing customer behavior in a public fast-charging environment. In one instance, bp pulse identified a high-volume driver using a faulty third-party cable adapter that caused connectors to overheat and require repair. bp pulse worked with its charger OEM to perform a root cause analysis and attempted customer outreach to provide information on appropriate adapter use. This experience reinforced the need for clear customer guidance, proactive monitoring, and operational processes to identify and address behaviors that can affect equipment performance.

As the site became more heavily used, bp pulse observed loitering and general maintenance concerns during periods when onsite attendants were not present. In response, bp pulse invested in a mobile security monitoring system to provide additional overnight visibility and improve site security outside staffed hours.

Finally, the length of the RACER project lifecycle created natural project-continuity challenges. Over the course of a multi-year effort, personnel changes occurred across internal project teams, external partners, vendors, and stakeholder groups. This type of attrition is a normal business reality for long-duration infrastructure projects, but it reinforced the importance of maintaining strong project records, decision logs, contract documentation, technical files, and reporting materials throughout the full project lifecycle. Clear documentation helped reduce the risk of knowledge loss during transitions and supported continuity as new team members or partner representatives became involved.

Overall, the challenges encountered during RACER were manageable and instructive. The project demonstrated that successful delivery of a large-scale public charging hub requires not only sound engineering and construction execution, but also flexible procurement planning, robust security measures, proactive charger reliability management, clear customer-use guidance, and disciplined documentation. These lessons can help improve the planning, delivery, and operation of future CEC-funded charging infrastructure projects and other high-utilization public charging hubs.

Additional Lessons Learned

The RACER project reinforced several practical lessons that should be incorporated into future large-scale charging infrastructure projects.

The project highlighted the importance of investing sufficient time and resources in design development and engineering reviews before construction begins. Large charging hubs require coordination across electrical design, civil works, utility interconnection, customer experience, equipment layout, safety, accessibility, and future scalability. Future projects should include structured design reviews with all relevant stakeholders and subject-matter experts to confirm

that the site design is technically sound, operationally practical, and aligned with current charging technology and customer needs.

Coordination with the AHJ should also begin early and occur directly wherever possible. While third-party contractors can support the permitting process, direct engagement with the AHJ helps confirm requirements, reduce misinterpretation, and identify potential permitting constraints before they affect the schedule. Future projects should request an official, comprehensive permitting process map from the AHJ early in the project lifecycle and use it to align internal milestones, contractor deliverables, inspection expectations, and grant reporting timelines.

Contractor and subcontractor selection was another important area of learning. Large-scale EV charging projects require contractors with the right combination of electrical infrastructure experience, utility coordination capability, civil construction discipline, and familiarity with charger technology. Future projects should allocate additional time and resources to evaluate engineering and construction contractors and subcontractors before award, including their experience with high-power charging sites, quality-control practices, staffing plans, safety performance, and ability to manage complex utility and equipment integration requirements.

Finally, utility coordination should remain tightly managed once construction begins. Utility design changes during construction can create schedule, cost, and sequencing risk, particularly when multiple utility connection points and site systems must be coordinated. Future projects should ensure that power, water, communications, and other utility connection designs are fully reviewed and coordinated before construction starts.

All together, these lessons reinforce the need for disciplined upfront planning, direct stakeholder coordination, robust contractor vetting, and strong control of design changes during execution.

CHAPTER 9: Recommendations for Future Project and Program Improvements

For Future CEC-Funded Projects

Based on the LAX charging hub experience, several recommendations emerge for future projects:

1. Early stakeholder coordination: Engage utility partners, government officials, and OEM partners early in project planning
2. Schedule contingencies: Build adequate buffer time into project timelines to accommodate unforeseen delays
3. Grant management resources: Dedicate specialized grant administration personnel from project inception
4. Documentation protocols: Establish clear procedures for handling commercially sensitive information in public reporting
5. Amenity integration: Include customer comfort amenities as core project components, not afterthoughts

Program-Level Improvements

To enhance future CEC Clean Transportation Program initiatives:

- Streamlined reporting processes: Continue automation efforts to reduce manual reporting burden
- Flexible contract amendment procedures: Enable responsive adjustments to project timelines without excessive administrative burden
- Knowledge transfer mechanisms: Facilitate sharing of lessons learned across grant recipients
- Standardized templates: Maintain consistency in reporting while allowing project-specific customization

GLOSSARY

AMPLY POWER INC (AMPLY)-the original grant recipient of ZVI-22-003.

AUTHORITIES HAVING JURISDICTION (AHJ)-is an organization, office, or person with the legal power to enforce building, fire, and safety rules.

ELECTRIC VEHICLE (EV)-Vehicles that derive all or part of the related power from electricity supplied by the electric grid. They include all-electric vehicles and plug–in electric vehicles.

BP PRODUCTS NORTH AMERICA INC (bp)-The parent company of BP Pulse Fleet North America Inc.

BP PULSE-the electrification brand of bp.

BP PULSE FLEET NORTH AMERICA INC.-The legal entity used after AMPLY's acquisition by bp, a wholly owned subsidiary of BP Products North America Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION (Caltrans)—Responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as that portion of the Interstate Highway System within the state's boundaries.

CALIFORNIA ENERGY COMMISSION (CEC)—The state agency established by the Warren-Alquist State Energy Resources Conservation and Development Act in 1974 (Public Resources Code, Sections 25000 et seq.) responsible for energy policy. The Energy Commission's five major areas of responsibilities are:

1. Forecasting future statewide energy needs
2. Licensing power plants sufficient to meet those needs
3. Promoting energy conservation and efficiency measures
4. Developing renewable and alternative energy resources, including providing assistance to develop clean transportation fuels
5. Planning for and directing state response to energy emergencies.

COMBINED CHARGING SYSTEM (CCS)-a standardized connector and communication protocol for electric vehicles.

DIRECT CURRENT FAST CHARGER (DCFC)-a high-power electric vehicle charging station.

ELECTRIC VEHICLE (EV)-Vehicles that derive all or part of the related power from electricity supplied by the electric grid. They include all-electric vehicles and plug–in electric vehicles.

KILOWATT (kW)-One thousand (1,000) watts. A unit of measure of the amount of electricity needed to operate given equipment.

KILOWATT HOUR (kWh)-The most commonly used unit of measure telling the amount of electricity consumed over time.

LOS ANGELES INTERNATIONAL AIRPORT (LAX)-an airport located in the Untied States.

LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP)-a utility company.

MEGAWATT (MW)- One million (1,000,000) watts. A unit of measure of the amount of electricity needed to operate given equipment.

MEGAWATT HOUR (MWh)-a unit of energy that measures the total amount of electricity produced or consumed over time.

NORTH AMERICAN CHARGING STANDARD (NACS)-officially designated as SAE J3400, is a unified electric vehicle (EV) charging connector and port system.

ORIGINAL EQUIPMENT MANUFACTURER (OEM)- makes parts or systems used in the final build of a product.

ROBUST AIRPORT CHARGING FOR ELECTRIC RIDE HAIL FLEETS (RACER)-the title of the project.

SOUTHERN CALIFORNIA EDISON (SCE)-the utility provider for the project.