CALIFORNIA ENERGY COMMISSION

CALIFORNIA NATURAL RESOURCES AGENCY

California Energy Commission

Clean Transportation Program

FINAL PROJECT REPORT

Innovate & Empower the Inland Empire to the Ports

Empower Disadvantaged Communities to Eliminate Thousands of Diesel Trucks through Onsite Holistic Planning, Systems Innovation and Workforce Development

Prepared for: California Energy Commission

Prepared by: InCharge Energy

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California Energy Commission

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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 126 (Reyes, 2023) reauthorized the Clean Transportation Program through July 1, 2035, 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, until at least 100 publicly available hydrogen-fueling stations are operating in the state.

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-20-601 to accelerate the deployment of MDHD ZEVs and ZEV infrastructure with a holistic and futuristic view of transportation planning through the development of a MDHD Blueprint. In response to GFO-20-601, the recipient submitted an application which was proposed for funding in the CEC's notice of proposed awards 04/08/2021 and the agreement was executed as ARV-21-019 on 08/11/2021.

ABSTRACT

This is the final project report for the Agreement ZVI-21-019 with InCharge Energy Inc. The project team created a Medium- and Heavy-Duty (MDHD) Vehicle Blueprint for The Inland Empire and I-710 Corridor – California's most diesel-pollution-impacted communities. The project team innovated processes and products to streamline fleet electrification, reduce costs, enhance environmental and grid benefits through conservation, and accelerate the electrification process. The team empowered California's communities most affected by diesel pollution through targeted outreach, workforce development, and training initiatives. By leveraging existing and upcoming plans for Los Angeles, tribal lands, port communities, and public and private fleet charging, the team ensured that the final product could be easily scaled statewide.

Keywords: Electrification, EVSE, charging infrastructure, 710 corridor, electric vehicles, medium-duty vehicles, heavy-duty vehicles, port, Interstate 710, corridor, blueprint, disadvantaged community, workforce development, InCharge Energy

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EXECUTIVE SUMMARY

As California accelerates its transition to zero-emission vehicles (ZEVs) to meet climate and air quality goals, electrification of medium- and heavy-duty (MDHD) vehicles is essential for reducing harmful diesel pollution, particularly in areas with the highest exposure. The Inland Empire and I-710 Corridor, some of California's most diesel-pollution-impacted communities, face significant health and environmental burdens due to high truck traffic and poor air quality. Electrification of fleets in these regions is not only critical for meeting the state's Advanced Clean Trucks (ACT) regulation but also plays a vital role in improving public health outcomes for vulnerable, disadvantaged communities. By eliminating diesel trucks and investing in clean, sustainable infrastructure, this project aims to create environmental justice by providing direct, community-driven benefits, including job opportunities, workforce development, and long-term economic empowerment. The effort ensures that these communities are not left behind in the shift toward a green economy, giving them access to cleaner air, healthier environments, and a more equitable future.

The team created a Medium- and Heavy-Duty Vehicle Blueprint for The Inland Empire and I-710 Corridor – California's most diesel-pollution-impacted communities.

This project aimed to empower disadvantaged communities to eliminate thousands of diesel trucks through direct, onsite, holistic electrification. It had the following key attributes:

Innovative – Remote site assessments and surveys reduced time and cost of planning while also minimizing Covid-19 risks. Financial products turned capital costs into operational savings. Software for cost forecasting increased the speed and accuracy of fleet management decisions. Facility plans followed a process that prioritized conservation before adding load.

Scalable – Over 1,000 trucks were addressed by the Blueprint in the project area, but these fleet operators had many thousands of vehicles statewide, providing built-in scalability to the remaining vehicle fleet. Additionally, by working with Ryder Truck's customer base, the team had access to customer fleets elsewhere in the state.

Workforce Development Economic Benefits – At least 10 community members from impacted communities in the plan area were recruited, trained, and connected to career resources and onsite fleet and facilities managers by trusted community partners.

The Blueprint produced measurable objectives which included:

- Site designs, load studies, and utility surveys for 50 fleet locations harboring more than 1,000 MDHD vehicles eligible for electrification.
- 10 impacted community members joined a workforce training program, participating in site walks, training, and plan development.
- A master potential timeline for fleet infrastructure deployment in the plan.
- All sites were located in communities with a greater than 75% pollution rating on CalEnviroScreen 3.0.
- A Charging-As-A-Service finance model was developed at one demonstration site incorporating finance, maintenance, and operations.

- Lasting educational resources were created to empower the community to continue fighting pollution.

InCharge led a highly qualified and experienced team of partners:

- Ryder Truck, premier partner to InCharge Energy, operated over 10,000 trucks in California and served thousands of fleet customers. A survey was disseminated, and site plans were implemented for customers interested in electrification.
- Southern California Association of Governments (SCAG), the regional Metropolitan Planning Organization (MPO) in Southern California, included lessons learned from this project in its Regional Roadmap to support goods movement, mitigate impacts, and help the region meet air quality attainment goals.
- Anti-Recidivism Coalition (ARC) is an organization dedicated to ending mass incarceration in California by providing comprehensive reentry services and support networks for formerly incarcerated individuals, helping them reintegrate into society and advocate for policy change.

The project timeline has been structured to support utilities, municipalities, and fleets as more vehicles became available to meet the Advanced Clean Trucks deadlines. This ambitious partnership required state funds to integrate community members early in the process and develop lasting processes for scalability and replicability.

CHAPTER 1:
Project Background

As California works to meet its climate and air quality goals, accelerating the shift to zero-emission vehicles (ZEVs) is key, particularly for medium- and heavy-duty trucks. These vehicles are major contributors to diesel pollution, which disproportionately impacts communities like the Inland Empire and I-710 Corridor—areas already suffering from high levels of truck traffic and poor air quality. Electrifying fleets in these regions is not only essential for meeting the state's Advanced Clean Trucks (ACT) regulation but also critical for improving health outcomes in underserved communities. By replacing diesel trucks with cleaner alternatives and investing in sustainable infrastructure, this project aims to deliver direct, community-focused benefits, including new job opportunities, workforce development, and long-term economic growth. It ensures that vulnerable populations aren't left behind in the green economy transition, providing them with cleaner air, healthier living conditions, and greater equity in the future.

InCharge Energy, a leading provider of electric vehicle supply equipment (EVSE) solutions, is fully committed to advancing California's transition to zero-emission vehicles and addressing the needs of disadvantaged communities. With extensive experience in fleet electrification and a long history of supporting sustainable infrastructure, InCharge Energy is dedicated to delivering innovative, scalable solutions that help reduce diesel pollution and promote clean, reliable transportation options. Working alongside trusted partners, the project team is focused on creating tangible, lasting impacts. By providing the technical expertise, financial models, and community engagement necessary for success, InCharge and its partners are helping to ensure that this ambitious electrification initiative not only meets state regulatory goals but also drives economic empowerment, job creation, and improved public health outcomes in the communities that need it most.

The project team innovated processes and products to streamline fleet electrification, reduce costs, enhance environmental and grid benefits through conservation, and accelerate the electrification process. The team empowered California's communities most affected by diesel pollution through targeted outreach, workforce development, and training initiatives. By leveraging existing and upcoming plans for Los Angeles, tribal lands, port communities, and public and private fleet charging, the team ensured that the final product could be easily scaled statewide.

Project Geography

The following figure shows the project area map stretching from San Bernardino to the Port of Long Beach to cover the Inland Empire and the I-710 Corridor. The specific zip codes of the targeted area are listed below.

Figure 1: Project Area Map

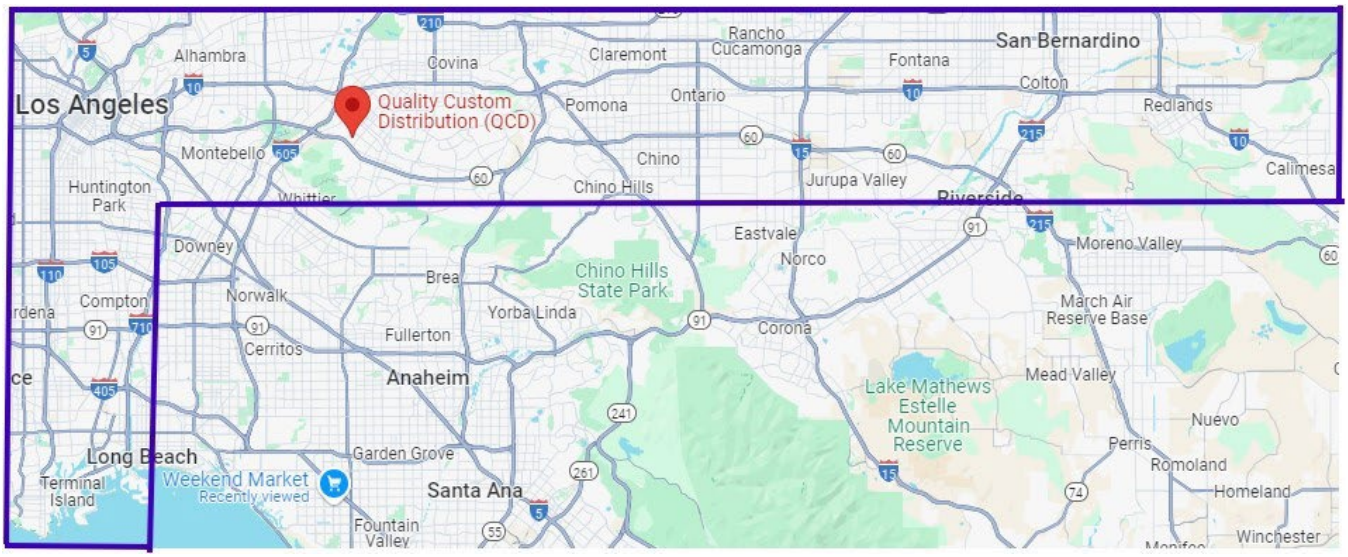


Image displays map of project area.

Source: *InCharge Energy, 2022*

Zip codes in the planning area:

Inland Empire: 90022, 90023, 90058, 90063, 91706, 91709, 91710, 91722, 91723, 91724, 91731, 91732, 91733, 91746, 91754, 91765, 91766, 91768, 91770, 91773, 91776, 91789, 91790, 91791

I-710 Corridor: 90032, 90040, 90201, 90201, 90220, 90221, 90240, 90241, 90242, 90262, 90270, 90280, 90723, 90731, 90744, 90745, 90746, 90747, 90805, 90806, 90807, 90810, 90813, 90831, 91803

CHAPTER 2:
Task 2 - Fleet Facility Verification and Qualification

As part of a comprehensive effort to support zero-emission vehicle (ZEV) infrastructure, In-Charge Energy collaborated with Ryder and SCAG (Southern California Association of Governments) on several initiatives. These included a customer survey, the development of a remote site assessment tool, and detailed onsite assessments, all aimed at preparing the region for medium and heavy-duty electric fleet transitions.

Ryder Customer Survey

InCharge Energy conducted a survey of customers in the region, including our project partner, Ryder to gather insights into fleet needs, with responses shared to provide visibility into regional fleet requirements. The survey supported SCAG's broader regional roadmap for ZEV MDHD trucks and included questions on fleet growth projections, technology preferences, electrification timelines, and interest in publicly accessible charging stations.

However, reaching fleets to complete the survey proved challenging despite extensive outreach efforts. The team marketed the survey at conferences, sent email blasts, posted on LinkedIn, and offered small incentives like InCharge marketing gifts, but participation remained lower than anticipated. This hurdle highlighted the difficulties of obtaining engagement from fleets, especially those with competing priorities in a challenging economic environment. Ryder soft-launched the survey to about 75 customers but did not receive any responses. To supplement the Ryder Survey, InCharge launched a survey outreach campaign through email blasts and QR code scans at events, to almost 2000 additional customers. We only received 8 responses, which did not allow for us to draw any valuable conclusions.

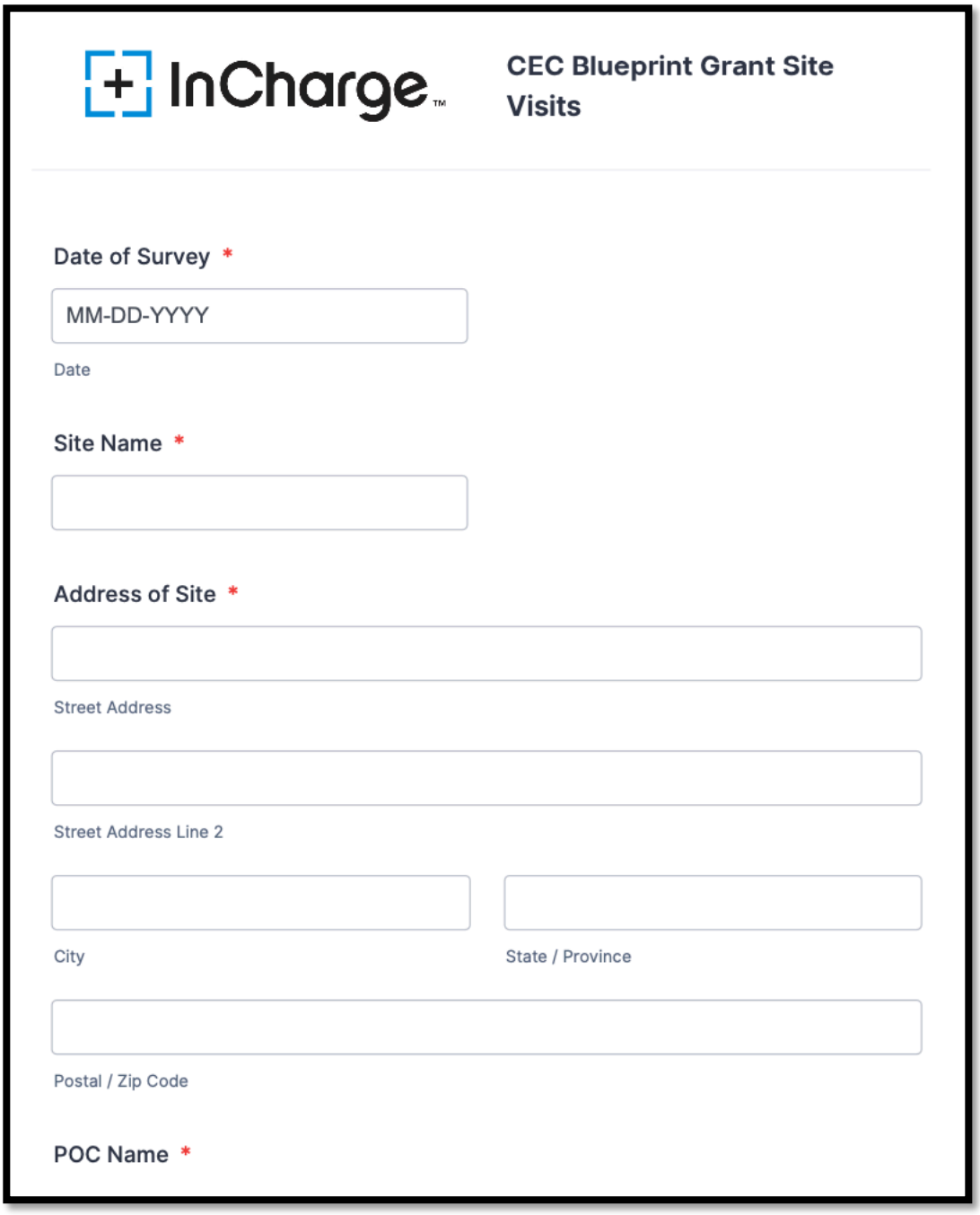
Ryder Project Involvement and Timeline

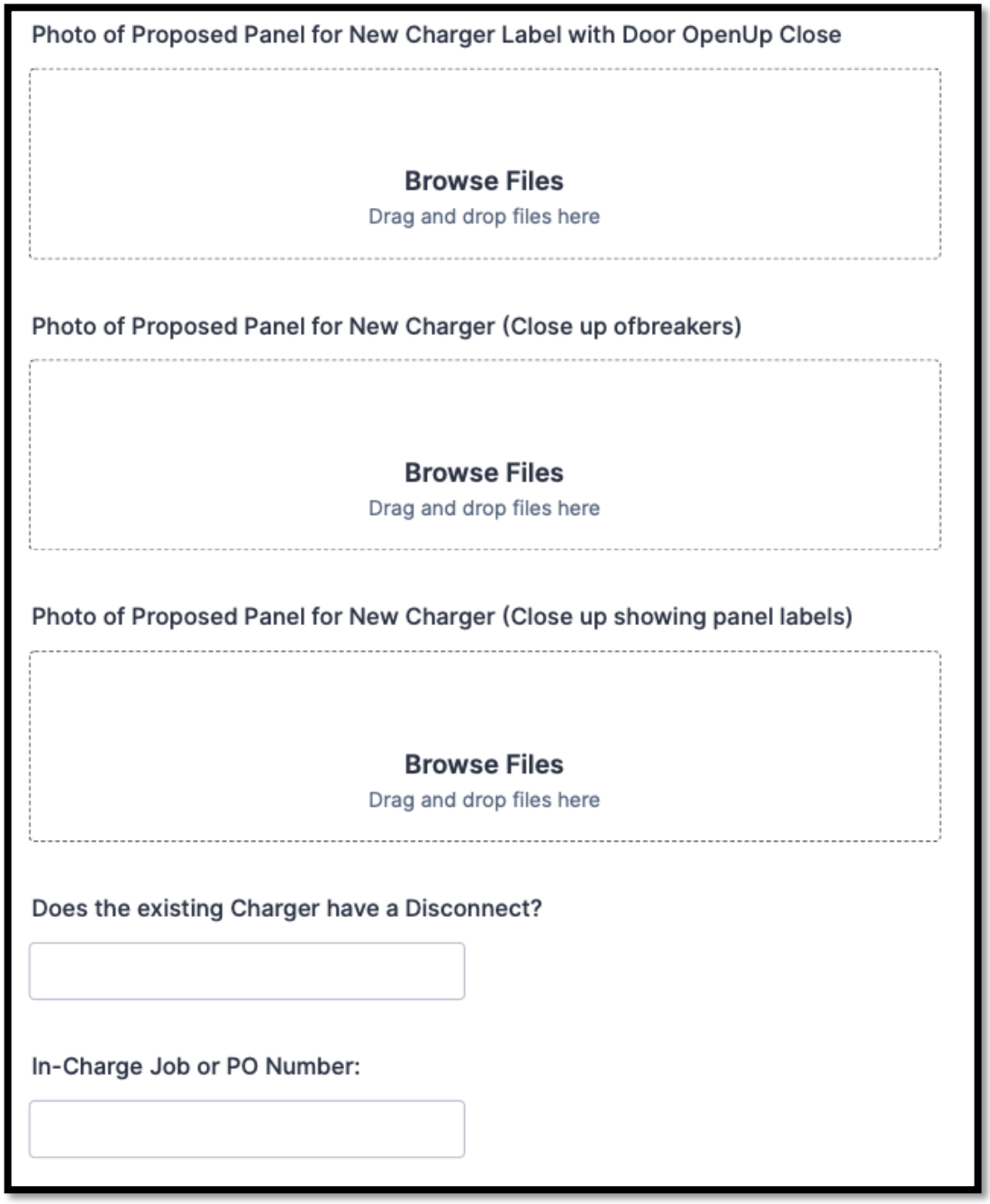
- May – July 2023: Worked with the sales team to identify customers in inland empire area eligible for site assessments. Sales team sent surveys directly to the customers identified.
    - Received 16 responses to the survey.
    - 10 Ryder customers proceeded with site assessments.
- March 2024: Identified potential incentive opportunity for survey.
- April 2024: Engaged with internal survey team to begin survey process.
- May 2024: Survey and email invitation draft created by internal survey team.
- June – September 2024: Internal stakeholder review process.
- October 2024: Survey approved with modifications. We could not offer the sweepstake incentive that was identified earlier in the year after our legal team identified this was not legal in California.
- November 2024: Survey launched to 75 California customers. We did not receive any responses.

Remote Site Assessment Tool

In-Charge Energy created a remote site assessment tool to expedite and reduce the cost of evaluating MDHD fleet sites for electrification. The tool enabled the engineering team to work with onsite facilities representatives to assess each site and gather necessary documentation for further evaluation. Information collected through the tool was shared with the engineering team to schedule in-person visits as needed, ensuring that the right solutions were considered, and our account executive could include any additional teammates. A screenshot of the tool is shown below, showing the information fleet owners must fill out such as Date of Survey, Site Name, and Address of Site. The tool also allows customers to upload a video walk of the sites along with photographs.

Figure 2: Remote Site Assessment Tool





Description: This graphic displays the Remote Site Assessment Tool developed.

Source: *InCharge Energy, 2024*

Qualified Facilities

The following table shows the qualified facilities that were assessed with the Remote Site Assessment Tool.

Table 1: Qualified Facilities List

Organization	Remote Site Assessment	Site Assessment	Fleet Size	Site Plan Complete	Quote Completed
KW International (Samsung) Santa Fe Springs	Y	N		Y	Y
KW International (Samsung) - Norco	Y	Y	10	Y	Y
Tricon Transportation Inc.	Y	Y	3	Y	Y
Tricon Transportation Inc.	Y	Y	3	Y	Y
Westcoast Trucking Inc.	Y	Y	2	Y	Y
Westcoast Trucking Inc.	Y	Y	2	Y	
UNFI Commerce Distribution Center	Y	Y	N/A	Y	
UNFI Santa Fe Springs Distribution Center	Y	Y	N/A	Y	
UNFI Moreno Valley & Riverside Distribution Center	Y	Y	N/A	Y	
RoadEx	Y	N			
US Air	Y	N	10		
Cookes Crating Inc.	Y	Y	4	N	
Cookes Crating Inc.	Y	Y	3	N	
Cookes Crating Inc.	Y	Y	3	N	
Saddleback College	Y	N			
Second Harvest Food Bank of Orange County	Y	N			
King Kong Production Vehicles	Y	N			
Talon Logistics Inc – 2022-12-21	Y	N			
RNDC – 2022-03-30	Y	Y	5		
Goodwill SOLAC	Y	Y	3		
Domino’s	Y	Y	62		Y
IKEA West Covina	Y	N			
IKEA Burbank	Y	N			
Payless 4 Plumbing – 2022-07-08	Y	N	15		
Griley Airfreight	Y	Y	15		

US Foods	Y	N	20		
Lamps Plus	Y	N	10		
Eagle Freight LTD	Y	N	20		
Prem Pack	Y	Y	10		Y
WPD Corp	Y	Y	13		Y
WPD Corp	Y	Y	13		Y
Serta Simmons	Y	N	15		

Description: Table of the qualified facilities with key information. Sites that are denoted in red resulted through our partnership with Ryder.

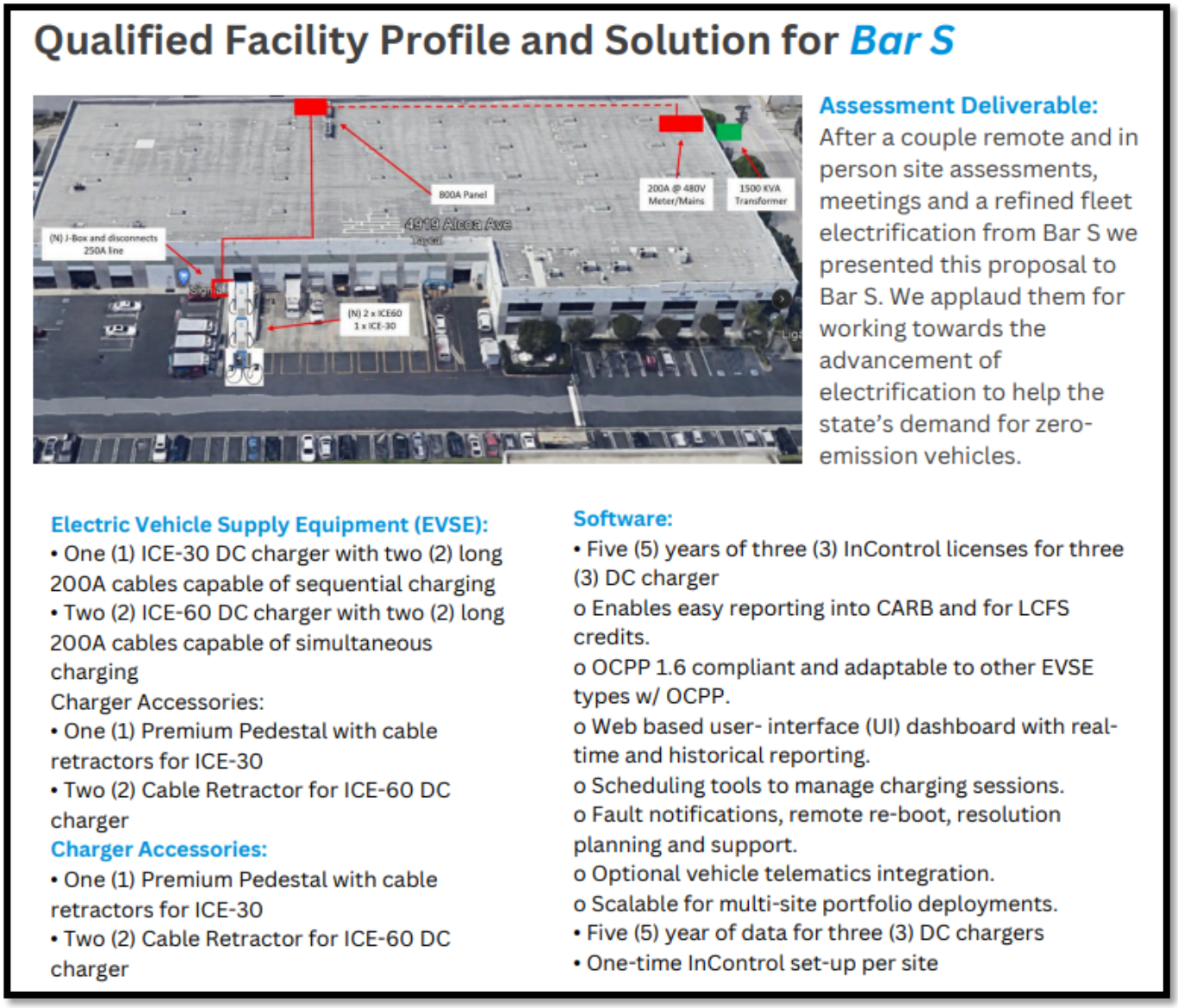
Source: InCharge Energy, 2024

Onsite Assessments

In-person assessments were conducted at selected qualifying facilities. Prior to these assessments, In-Charge Energy prepared detailed packages for onsite teams, which included results from the Ryder Customer Survey, findings from the Remote Site Assessment, summaries of actions taken by local authorities affecting MDHD deployment, bios of local community trainees assisting with assessments, safety protocols, and other relevant data.

The following figure shows a sample onsite assessment report for Bar S after a couple of remote and in-person site assessments, suggesting EVSE, software and charger accessories needed to electrify the site, along with an design of the site layout.

Figure 3: Sample Onsite Assessment Report



Description: Sample Onsite Assessment Report for customer, Bar S.

Source: InCharge Energy, 2024

Working with Utilities and Authorities Having Jurisdiction (AHJs)

For the case study site mentioned above, there was no need to engage with the AHJ at the site assessment stage, but as projects mature, this is a necessary step. When InCharge self-performs installation work, we are subject to local licensing requirements as indicated by the state or local government, or the authority having jurisdiction. They could be either a licensed general or electrical contractor. InCharge is qualified to perform work across all 50 US States and Canada and possesses electrical contractor licenses in California, Canada, Texas, Florida, Ohio, Virginia, Missouri, Maryland, and Delaware, with applications underway in many more US states. Combined with our contractor network, all necessary licenses will be secured. To acquire necessary permitting, InCharge's engineers and project management professionals follow local permitting and licensing processes for construction and installation, continually

managing communications with the AHJs until final design approval is received. As a full-service team that provides turnkey and Charging-as-a-Service (CaaS) solutions for electric vehicle charging stations, InCharge has a wealth of experience to draw upon, having conducted permitting and moved forward on construction and installation for thousands of sites. Should the site require a new service, our team will handle the entire utility coordination process, from initial application submittal to utility shutdown and tie-in. Our team has experience working with local utilities and can coordinate the submission and obtain approval.

Safety Protocols and Best Practices

The in-house training team is comprised of two instructional designers, five content specialists, and a Health, Safety, and the Environment (HSE) lead. They are responsible for developing requirements, creating content, and certifying staff contractors and customers. Training requirements promulgated by this team are based on job function, including but not limited to, warehouse operators, medium-voltage technician, maintenance technician, customer support specialist, project manager, etc. Subcontractor standards are also tracked and managed via the Avetta platform and requirements are promulgated by this team. The training classroom at our Research & Development facility in Richmond, Virginia serves as the basis for in-person training. All technicians are required to complete onboarding coursework with staff in this facility. In the field, training is augmented through hand-held tools and augmented reality training goggles.

An InCharge in-house team completes three key site assessment activities: route analysis to assess miles driven, dwell time, and operational flow, vehicle review to assess charging rates, electric rates/demand, and thermal load, and lastly, an in-person visit to assess all site conditions, including available power, panel location, logistics, charging port locations, and future proofing analysis. Combined, this allows our team to make the most efficacious recommendations that optimize the location of the chargers based on cost, customer's operations, and OEM requirements.

InCharge provides training on InControl for users with Admin and Member roles. InControl is InCharge's own fleet management platform designed to increase uptime and lower the cost of operating a fleet. InControl is a cloud-based Subscription-as-a-Service (SaaS) product that does not require IT integration The platform is designed for the scalability of fleets, facilities, and vehicles with a GraphQL API that increases performance, reliability, and customization. InControl manages charging stations' access control, usage data, remote management, network operations, and advanced load management capabilities.

Live remote training for InControl covers log in, dashboard and report customization, familiarity with the chargers list and charger detail, creating notifications, load and energy management, access control management, vehicle management, and user management. We also provide a library of short training videos. With each software release, we host free live webinars providing training on new features and capabilities, as well as a newsletter detailing changes to our software. For developers, we offer a dedicated developer site, a GraphQL playground with interactive API documentation, and access to our test environment. We can provide either live or pre-recorded demos. In-person training on software is available as a premium offering.

Once the initial site assessment is complete, our engineering team validates the data, provides initial single lines/drawings, confirms electrical calculations, and completes value engineering to reduce the cost of the installation and meet local requirements. Electrical engineering is an in-house capability. We believe it is critical to have in-house staff providing direct service to achieve the turnaround and quality that customers like Bar S require. These production capabilities are one key arena that provides added value. We design, engineer, and build EV charging and behind-the-meter infrastructure harnessing all available federal, state, local tax/unit incentives, and grants. Our engineering capabilities include, but are not limited to: turnkey engineering, permitting & utility upgrades, operations workflow support, value engineering (reduction in up-front costs & ongoing operating expenses as well as improvement in overall redundancy & site reliability), construction supervision, microgrid & energy storage integration, energy management & demand response support, weather-specific site adaptations (including snow, flooding, high temperature, low temperature, sea/salt spray, high dust), and field construction & commissioning support. To ensure complete execution of hardware and software offerings, InCharge offers complete installation & commissioning assistance for all products. This includes site development, engineering (described in detail above), permitting, and self-performance capabilities. Alternatively, for customers conducting their own make-ready infrastructure, InCharge offers a bolt down service that includes field commissioning to ensure the equipment is installed correctly and operational. Our network of subcontractors can be brought in where necessary to address any coverage gaps. A bolt down service is the process of connecting the charging unit with wiring and infrastructure that has been put in place by a subcontractor or other provider. To ensure proper connection of the charger to the wiring, in Charge can come and "bolt down" the unit. This completes final infrastructure connection with the charger up to ready-made infrastructure and wiring.

Lessons Learned

Several best practices emerged from this initiative:

1. **Design Surveys with Scalability and Regional Insights in Mind**: By including questions that aligned with SCAG's larger Regional Roadmap, the survey attempted to provide actionable insights for regional planning. Unfortunately, we found survey engagement difficult. We have listed some of our challenges in this engagement but still believe that attempting surveys is key to ensure inclusion.
2. **Develop and Leverage Remote Assessment Tools for Efficiency**: The remote site assessment tool significantly cut down on time and costs, improving resource allocation and reducing the logistical complexities associated with in-person assessments.
3. **Prepare Comprehensive Pre-Assessment Packages**: Equipping onsite teams with detailed data—such as prior assessments, survey insights, and summaries of relevant local authority actions—streamlined the onsite process and enhanced the overall effectiveness of the evaluations.
4. **Engage Local Stakeholders to Build Community Buy-In**: The inclusion of local community trainees in onsite assessments helped build local expertise and support, fostering a collaborative approach to ZEV infrastructure deployment.
5. **Anticipate Challenges in Survey Participation**: Low survey participation, despite extensive outreach efforts, highlighted the importance of early planning for effective engagement. Future projects might benefit from testing outreach channels and refining incentive strategies to increase response rates among targeted fleets.

Through these practices, the project provided a model for efficient site assessments and targeted outreach, paving the way for an effective, scalable transition to MDHD electric fleets.

CHAPTER 3:
Task 3 - Financial Analysis

Our team utilized site information gathered during the project to develop a Financial Analysis Tool designed to quickly link customer interests with available state, local, federal tax, and utility programs. This tool identified key factors such as grid and site constraints, fleet size, route requirements, and proximity to disadvantaged communities (DACs). Additionally, In-Charge Energy compiled a comprehensive review of California fleet electrification incentives and facility energy efficiency incentives, including details on application requirements, evaluation criteria, funding levels, timelines, points of contact, and essential program policies.

By aligning the data collected through the analytical tool with the relevant funding programs, InCharge Energy aimed to streamline and clarify the electrification process, making it more transparent and accessible for fleet partners. The Financial Analysis Tool's aim is to connect customer interests with state, local, federal tax, and utility programs, while identifying grid and site constraints, fleet size, route needs, and proximity to DACs. Customers can input city of operation, vehicle type, charger type, and utility provider to identify funding sources. We also developed a California Grants and Incentives Review Report to be used as educational material. Below is a snapshot of the tool showing a list with program names, funding entity, region, amount and status:

Figure 4: Financial Analysis Tool Example

Name	Sponsoring Entity	Specific Region	Amount	Open/Closed/ Pending
Carl Moyer Program	CA Air Resources Board, through AQM Districts	Statewide	$60,000,000	Closed at this time
CA School Bus Replacement Program	California Energy Commission (CEC)	Statewide	$78,700,000	Closed at this time
CALeVIP Alameda	CSE (For CEC)	Alameda County	$3,142,000 remaining	Open
CALeVIP Central Coast	CSE (For CEC)	Central Coast	$791,797 remaining	Open
CALeVIP Inland Counties	CSE (For CEC)	Inland Counties	$4,258,500 remaining	Open
CALeVIP Northern CA	CSE (For CEC)	Northern CA	$782,827 remaining	Open
CALeVIP South Central Coast	CSE (For CEC)	South Central Coast	$1,311,851 remaining	Open
CALeVIP Southern California L2	CSE (For CEC)	Southern CA	$23,000,000	Open
HVIP (Hybrid and Zero-Emission Truck and Bus Voucher and Incentive Program)	California Air Resources Board, CALSTART	Statewide	$12,000,000 (anticipated)	Recurring Funds
EnergIIZE MD/HD Commercial Vehicles	CALSTART	Statewide	$50,000,000	Open, several funding lanes

Description: A screenshot of the developed Financial Analysis Tool Example.

Source: InCharge Energy, 2024

Introduction to Funding Sources

There are over 75 agencies in California, including state agencies, air quality districts, regional councils of government that offer funding opportunities such as grants, incentives, rebates, and loans for vehicle electrification and supporting EV infrastructure. These agencies operate at the state, regional and local levels to comprehensively address fleet electrification needs.

Lessons Learned on EVSE Incentives in California

In exploring electric vehicle supply equipment (EVSE) incentives across California, several critical lessons emerged regarding the availability and structure of funding.

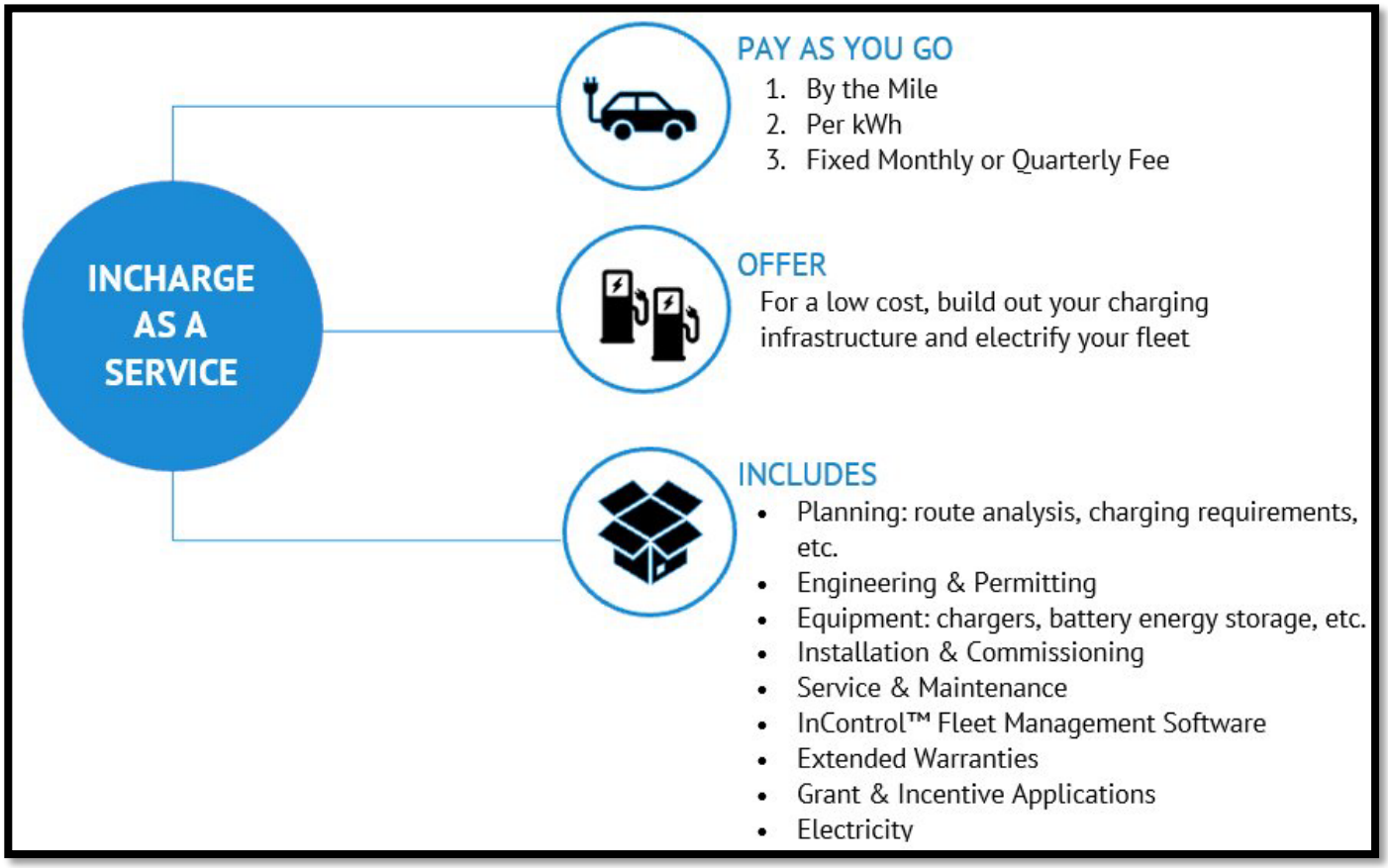
1. **Imbalance Between Vehicle and Charger Funding**: A significant disparity exists between funding available for electric vehicle purchases and funding for electric vehicle (EV) charging infrastructure. While incentives for EV purchases are often readily accessible and substantial, the availability of funds for chargers, particularly for larger, multi-vehicle fleet operations, is more limited. This imbalance creates a bottleneck for fleets seeking comprehensive electrification solutions.
2. **Complexity of Navigating Multiple Programs**: California's EVSE incentives involve various state, local, and utility programs, each with its own application processes, evaluation criteria, funding levels, and timelines. The diversity of these programs can make it challenging for fleet operators to identify the right mix of incentives for their specific needs, especially when EV and EVSE incentives are not directly aligned.
3. **Lack of Consistent Funding Levels**: EVSE funding levels vary greatly across programs, often depending on the geographic area, utility service territory, or whether the location qualifies as a disadvantaged community (DAC). This inconsistency can make long-term planning difficult for fleets looking to scale their EV operations across multiple locations.
4. **Need for Streamlined Processes and Support**: With so many different programs, fleets often require additional guidance to successfully apply for and combine EVSE incentives. Simplifying the application processes or providing more accessible technical assistance could help increase program uptake and support more efficient deployment of charging infrastructure.
5. **Importance of Aligning Funding Timelines and Incentive Compatibility**: In some cases, funding timelines for vehicles and chargers do not align, creating challenges for fleets trying to phase in electric vehicles alongside adequate charging infrastructure. Additionally, certain EVSE programs are not compatible with one another, which limits the stacking of incentives and reduces funding potential.

To encourage electrification efforts, future incentive programs could benefit from better alignment between vehicle and EVSE funding, streamlined application processes, consistent funding levels, and flexible, aligned timelines. This would make it easier for fleets to pursue complete electrification solutions.

CHAPTER 4:
Task 4 - Financial Product Development

InCharge developed a Financial Product Offering based on the data gathered in Tasks 2 and 3. The product allows fleets to convert capital expenses into operating expenses, instantly leveraging the Total Cost of Ownership (TCO) advantage of electrification. InCharge-as-a-Service wraps everything required to electrify a fleet into a utilization based or fixed fee. The customer can choose to pay by the miles driven by their EV fleet, per kWh utilized by the chargers, or a monthly/quarterly fee similar to a utility bill. Below is a figure describing the InCharge-as-a-service tool with its payment options, what it offers and the various services it includes, such as planning, engineering and permitting or service and maintenance:

Figure 5: InCharge as a Service Graphic



The figure describes the offering of InCharge as a Service financial product.

Source: InCharge Energy, 2024

The following figure shows the InCharge-as-a-service flyer describing the service and providing contact information to learn more.

Figure 6: InCharge as a Service Informational Flyer

Description: Image of InCharge as a Service Informational Flyer developed for fleets.

Source: InCharge Energy, 2024

CHAPTER 5:
Task 5 - Fleet Energy Use Forecast

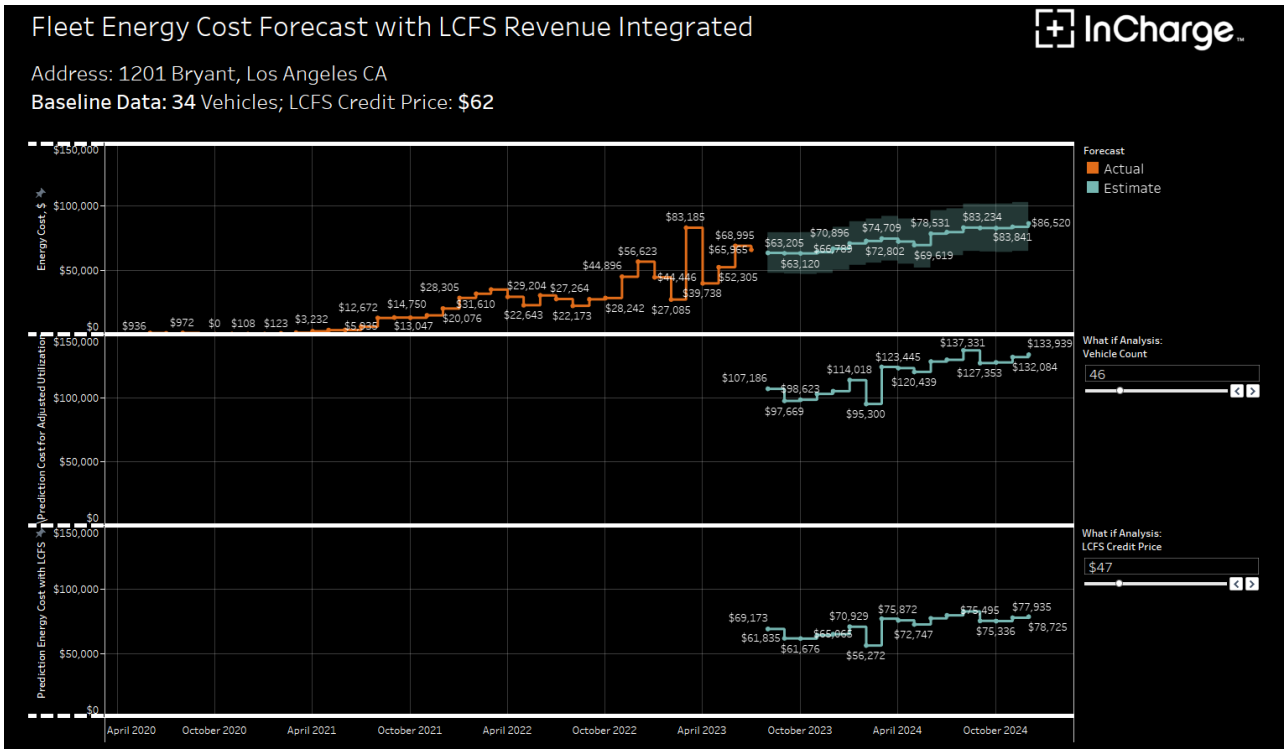
In-Charge Energy developed a Fleet Energy Use Forecast for selected sites, directly integrating it into two software platforms to provide fleets with accurate energy usage and cost projections. The first platform, Genability, was used to forecast energy usage, tariffs, microgrid costs, and scheduling impacts, as it is widely recognized in the EV and energy industries. The second platform, BTREnergy (or a similar alternative), was provided to forecast and manage Low Carbon Fuel Standard (LCFS) credits and operating costs. Together, these tools enabled fleets to make more informed financial and operational decisions regarding their electrification efforts.
The forecast uses a Tableau-based model with two "what-if" parameters (1. simulating change in site utilization and 2. change in LCFS credit price) that can be further integrated into customer's sites/dashboard or InControl (integration options are still under discussion). This is positioned within the context of our proprietary charge management system, InControl.

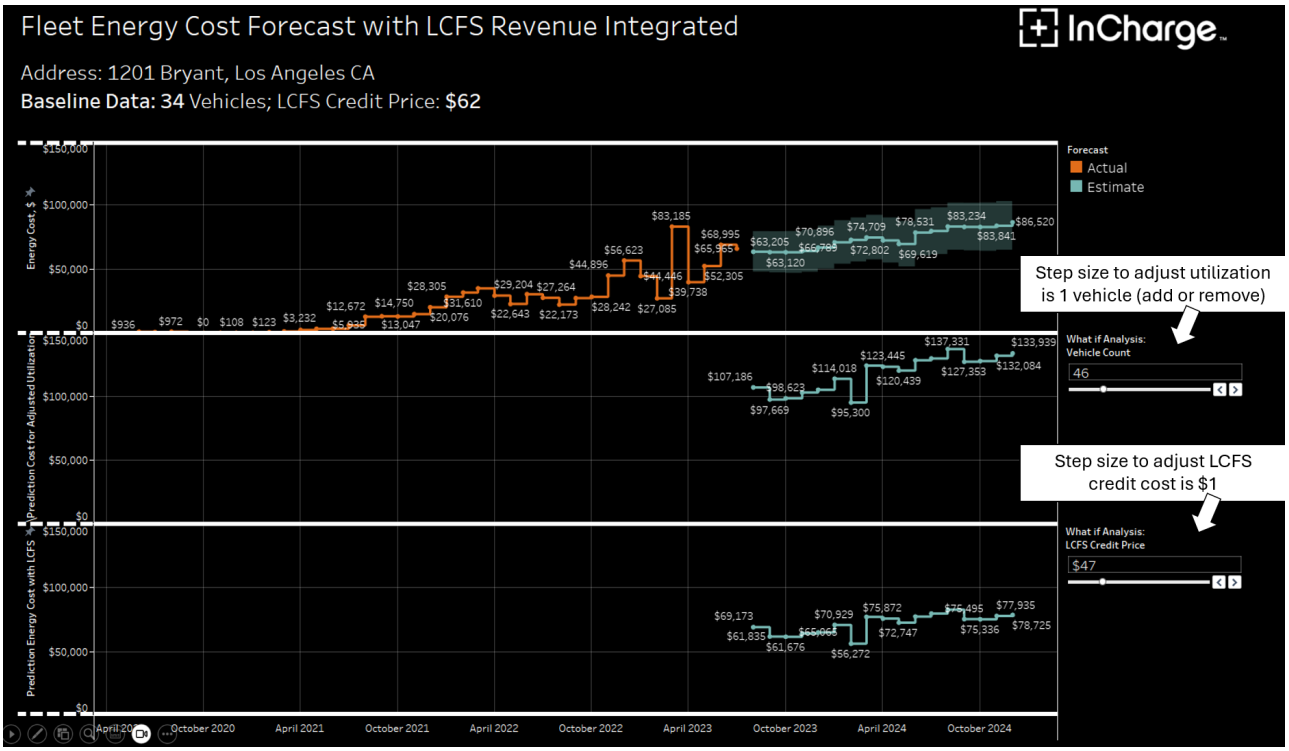
The tool can be used to answer the following questions:

1) What is the overall trend in energy usage? How will the energy usage look like if current trend continues?
2) How much did energy cost based on real tariff and utility rates data for this charging site? How much should be planned to budget in the future if current usage trend continues?
3) How would energy usage and cost look like (estimated forecast of kWh and in $) if we change charger utilization (add/remove more vehicles)? Step size for re-calculation is 1 vehicle (add or remove).
4) How much revenue comes from LCFS credit processing and how much revenue customer can account for if current energy usage continues?
5) What would revenue from LCFS credit processing be if site utilization changes (more/less vehicles)?
6) How revenue from LCFS credit processing would change if LCFS credit price changes? Step size for re-calculation is $1.
7) What is total and forecasted energy cost of the charging site with LCFS credit revenue applied?

The following figure shows a snapshot of the tool showing the energy cost forecast over time for two different fleets in Los Angeles, with LCFS revenue integrated. The red line shows the actual cost, and the blue line shows the estimated cost for the future.

Figure 7: Fleet Energy Forecast Tool Images





Description: Fleet Energy Forecast Tool snapshots.

Source: InCharge Energy, 2024

CHAPTER 6:
Task 6 - Facilities, Utilities, Localities Plans

The deliverable for this task was the creation of the following Facilities Development Memorandum to guide insight when developing facility plans.

Facilities Development Memorandum

InCharge Energy develops comprehensive deployment plans aimed at optimizing charger design efficiency, identifying necessary utility upgrades, incorporating onsite energy storage, and leveraging innovative power solutions. The goal is to minimize capital costs while maximizing environmental and operational benefits, particularly along the I-710 corridor.

Planning Considerations

Charger Design Efficiency

- KEY GOALS: Review of charging infrastructure to ensure that chargers are deployed in an energy-efficient manner. Focus on best-fit chargers that meet the demands of the fleet and users, enhancing efficiency, operations, and energy usage.
- To determine a tailored solution for fleets, InCharge Energy has an in-house analyst that assesses potential charging locations and fleet operations to develop an infrastructure and charging schedule recommendation.
- The process begins with site evaluation and analysis. This accounts for determining site capacity through the collection of utility bills, understanding site layout and potential restraints e.g. number of stalls, and site design.
- To best understand the needs of the fleet, our team gathers information on fleet operations. This process includes fleet mileage analysis (gathering route data and information on drivers in and out of the charging hub), accounting for vehicle dwell times, and the models of replacement vehicles and their range. Gathering this intel will allow our team to develop a personalized infrastructure recommendation and charging schedule.
- Our infrastructure recommendation is crafted with the considerations of fulfilling charger uptime and ensuring cost efficiency. Specifically, our analyst examines the kWh required to maintain daily operations, load capacity onsite, as well as the needs of the fleet, to determine the best-fit charger and power level of the charging infrastructure. Our team will assess charging station options and complete a cost analysis to ensure that the charger recommendation is most cost-efficient. We accompany our infrastructure recommendation with a charging

schedule to provide comprehensive service. The schedule process includes further fleet schedule and electricity cost analysis, accounting for available charging times and avoiding costly peak hours put in place by the utility.

Turnkey Model

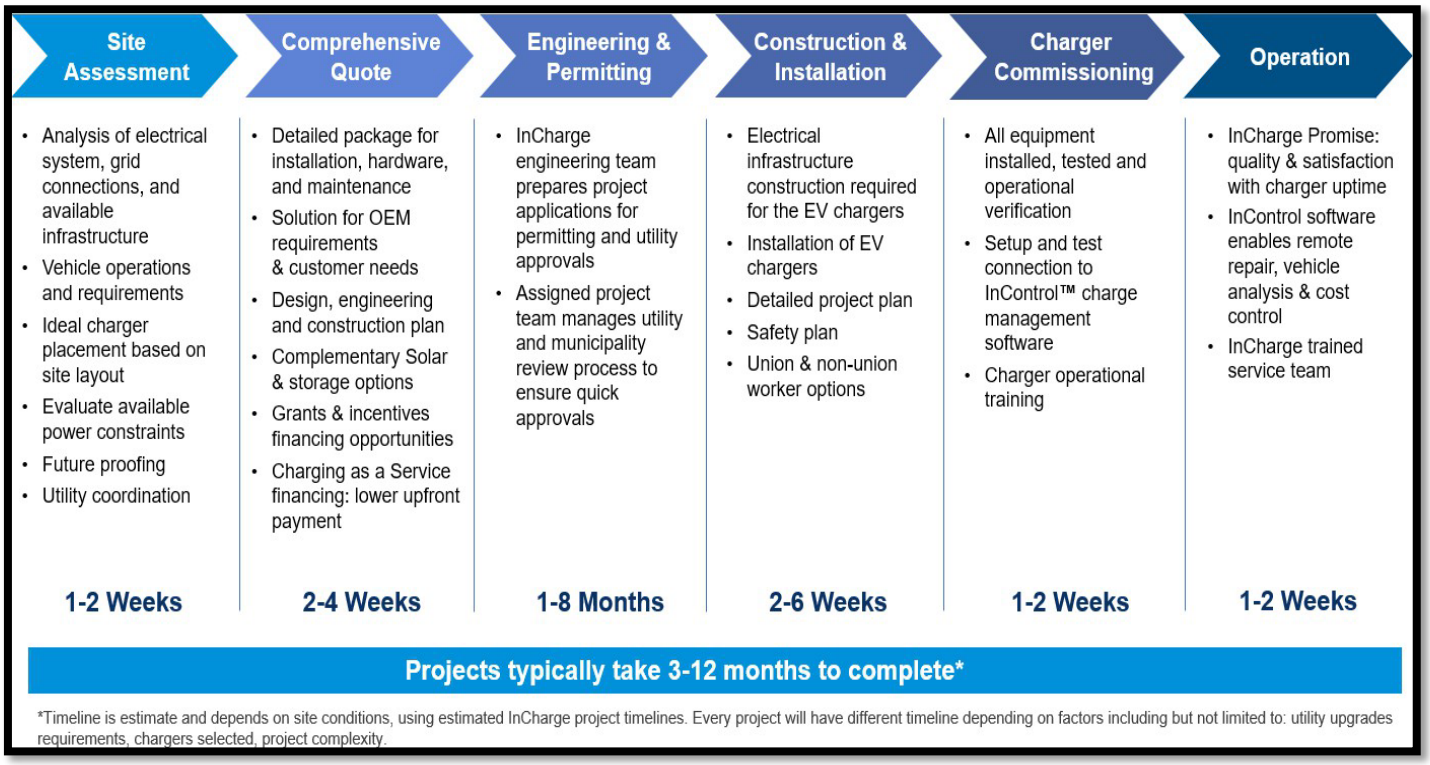
InCharge provides solutions to accelerate electrification of the industry. These solutions are scalable, turnkey, and end-to-end. Our offerings present four critical advantages:

- **Reduction**: Decreasing risk and the cost to operate a fleet through implementation of advanced load and energy management functions in our InControl software.
- **Production**: Designing, engineering, building EV charging and behind-the-meter infrastructure harnessing all available federal, state, local tax/unit incentives, and grants.
- **Operation**: Providing ongoing maintenance, certification, software integration and energy
management.
- **Savings**: Minimizing installation costs by utilizing low-cost mounting solutions, optimizing energy use, eliminating demand charges, and reducing operating expenses.

These core values, turnkey services, and vertical integration will help make the fleet's electrification process as seamless as possible. This includes the development of tools to accurately predict the needed kWh's to charge vehicles based on thousands of real-world data points for our OEM partners. We have completed interoperability testing with the major EV OEMs to ensure our chargers and load management functions will work for customers the first time. We keep over $20 million in inventory of chargers, parts, and electric infrastructure equipment to ensure projects are completed on time. Notably, we have an industry leading service department that fixes 75% of all issues remotely.

For the complete installation process, we will follow an implementation model similar to the one shown in the following Figure. The figure displays a complete Infrastructure Implementation Model which includes site assessment, comprehensive quote, engineering and permitting, construction and installation, charger commissioning and operation, along with estimated timelines to complete the work.

Figure 8: Infrastructure Implementation Model



Description: Graphic displays an infrastructure implementation model and estimated timelines.

Source: InCharge Energy, 2024

Utility Upgrades

- Detailed analysis to determine if utility upgrades (such as transformers or substations) are required to support the deployment of electric vehicle (EV) chargers and energy storage systems.
- Collaboration with local utilities (often SCE) to streamline upgrades and integrate them into the broader deployment plan.

Should the site require a new service, our team will handle the entire utility coordination process, from initial application submittal to utility shutdown and tie-in. We work with the customer to understand future goals and ensure the site is ready for the future. Our team has experience working with local utilities and can coordinate the submission and obtain approval.

Innovative Power Solutions

KEY GOALS: Exploration of onsite energy storage solutions, such as ICE's battery storage system, the ICE CUBE, to optimize energy use and reduce peak demand. Evaluation of renewable energy options (e.g., solar, wind) to offset power consumption from the grid, lowering emissions and costs.

Utility Collaboration

KEY GOALS: Work closely with utilities to develop site-specific plans tailored to

each customer's needs and the local grid's capacity. Provide technical assessments and recommendations for grid integration to support EV charging, energy storage, and renewable energy generation.

- When InCharge self-performs installation work, we are subject to local licensing requirements as indicated by the state, local, or the authority having jurisdiction (AHJ). They could be either a licensed general or electrical contractor.

- To acquire necessary permitting, InCharge's engineers and project management professionals follow local permitting and licensing processes for construction and installation, continually managing communications with the AHJs until final design approval is received. As a full-service team that provides turnkey and CaaS solutions for electric vehicle charging stations, InCharge has a wealth of experience to draw upon, having conducted permitting and moved forward on construction and installation for thousands of sites.

CHAPTER 7:
Task 7 - Education and Engagement

InCharge Energy's Medium- and Heavy-Duty Vehicle Blueprint for The Inland Empire and I-710 Corridor – California's most diesel-pollution-impacted communities was built to empower Disadvantaged Communities to eliminate thousands of Diesel trucks through direct, onsite, holistic electrification. One of the central goals of the Blueprint centered on Workforce Development Economic Benefits. InCharge proposed the inclusion of at least 10 community members from impacted communities in the project area. Community members were to be recruited, trained, and connected to career resources and onsite fleet and facilities managers. InCharge created a Workforce Development training that covered InCharge's turnkey business model, sustainability metrics, EV 101 overview, SC vs. DC charging overview, infrastructure deployment strategy, and training, certifications, career pathways, and additional resources. These activities had the goal of empowering the community to learn about careers in green technology, sustainability, and electrification while gaining a deeper understanding of how the industry is uniquely tied to public health and wellness.

Community Engagement Methodology

Training has always been a key part of InCharge Energy's model, and the team was eager to introduce the electrification industry to the local community. This was demonstrated by product team-led warehouse tours, in-house technicians servicing hardware, and sales team education on InCharge's offerings and competitive advantages.

Developing the Blueprint for electrification involved significant outreach, including site walks, electrical surveys, and utility engagement. These activities served as valuable entry points for employment training, offering community members hands-on experience and direct exposure to fleet managers and facilities considering electrification. This combination of training and networking was designed to launch careers in green technology.

InCharge aimed to integrate local community members into job walks, creating a hands-on training curriculum and providing a pathway into the electrification industry. The goal was to improve diesel-impacted, disadvantaged communities by connecting residents with training, career development resources, and direct access to hiring managers for permanent positions. However, despite outreach efforts, support from CALSTART and SCAG did not materialize as expected.

Additionally, the initial project partner, East Yard Communities, lacked the capacity to participate, prompting InCharge to quickly identify another local community organization, the Anti-Recidivism Coalition (ARC).

We developed an informational flyer, pictured below to provide to CBOs and community members. The flyer provides information about InCharge and the blueprint and invites the reader to attent a 1-hour training session that provides a 101 on electric vehicles and charging or a site visit in Southern California with the InCharge team.

Figure 9: Community Informational Flyer

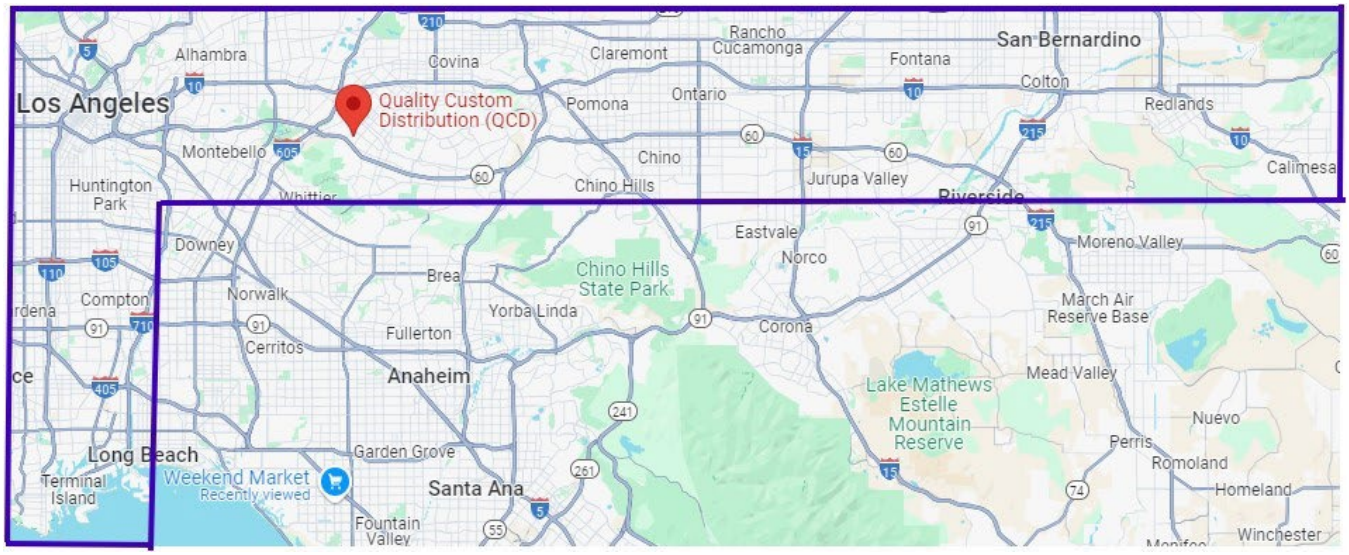
Description: Graphic displays an informational flyer we developed for community members and organizations. Source: InCharge Energy, 2024

Creating Partnerships

Anti-Recidivism Coalition is an organization dedicated to ending mass incarceration in California by providing comprehensive reentry services and support networks for formerly incarcerated individuals, helping them reintegrate into society and advocate for policy change.

InCharge invited ARC for a full-day immersion event at Quality Custom Distribution (QCD), a leader in quick-service restaurant logistics. QCD sits squarely in the Blueprint geographic zone of focus and the warehouse location is in the midst of an elaborate, innovative infrastructure installation led by InCharge that incorporates several of the components central to Blueprint, including CaaS, software, and infrastructure deployment. The following figure shows the location of QCD within the project are map.

Figure 10: QCD Location on Project Area Map



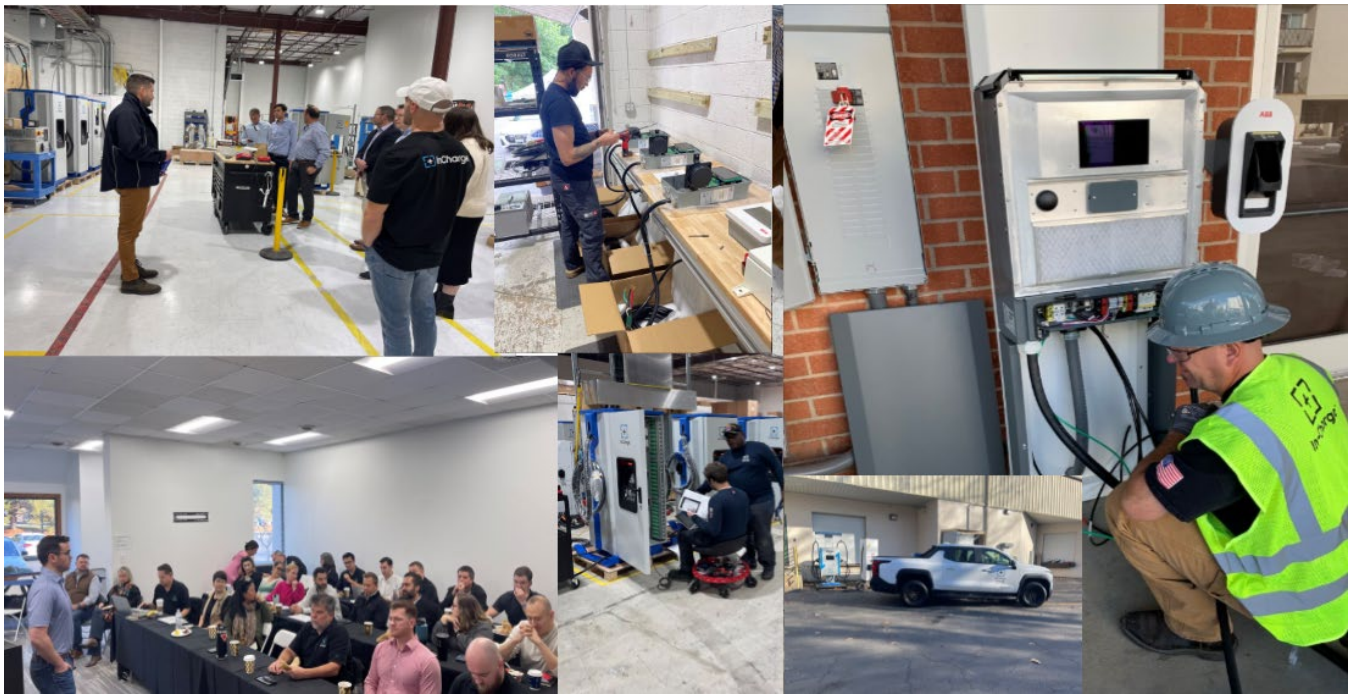
Description: Graphic displays the QCD site location on the project area map.

Source: InCharge Energy, 2024

The site was selected for the mock site assessment because InCharge is designing and implementing an innovative infrastructure solution including solar PV, BESS, and microgrid, allowing us to expose the members to multiple different green technologies.

Our Dir. Project Management walked the ARC members through our complete turnkey installation process. Once the initial site assessment is complete, we talked through the engineering and design phase. Members were able to learn about all these phases of the InCharge Energy turnkey model as well as learning from a customer why electrification matters and why they chose to partner with InCharge. The following figure shows a collage of pictures taken throughout the training.

Figure 11: Community Engagement in QCD site



Description: Community Engagement in collaboration with ARC

Source: InCharge Energy, 2024

12-Week EV and EVSE Training Program

With the success of this Blueprint workforce development program, ARC secured a training grant and approached InCharge to lead this pilot initiative. InCharge developed a training program that includes an expanded scope to support ARC with the tools to become skillful and qualified EV technicians and/or EVSE technicians. Fifteen (15) members will participate in an intensive, in-person, hands-on 12-week training course. The training course will provide hands-on safety, equipment, and vehicle handling content.

GLOSSARY

ALTERNATING CURRENT (AC)—Flow of electricity that constantly changes direction between positive and negative sides. Almost all power produced by electric utilities in the United States moves in current that shifts direction at a rate of 60 times per second.

APPLICATION PROGRAMMING INTERFACE (API)— A set of rules or protocols that enables software applications to communicate with each other to exchange data, features and functionality.

BATTERY ELECTRIC VEHICLE (BEV)—Also known as an "All-electric" vehicle (AEV), BEVs utilize energy that is stored in rechargeable battery packs. BEVs sustain their power through the batteries and therefore must be plugged into an external electricity source in order to recharge.

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.

DIRECT CURRENT (DC)—A charge of electricity that flows in one direction and is the type of power that comes from a battery.

ELECTRIC VEHICLE CHARGING STATION (EVSE) -- Infrastructure designed to supply power to EVs. EVSE can charge a wide variety of EVs including BEVs and PHEVs.4

ELECTRIC VEHICLES (EV) -- A broad category that includes all vehicles that are fully powered by Electricity or an Electric Motor.

MEDIUM-DUTY HEAVY-DUTY (MDHD) —Medium- and heavy-duty vehicles that have a gross vehicle weight rating of more than 10,000 pounds and include vans, buses, and trucks.

ZERO-EMISSION VEHICLE (ZEV) —Vehicles which produce no emissions from the on-board source of power (e.g., an electric vehicle).