

Date: April 2, 2024

To: Thomas B. Modica, City Manager *dm*

From: Kevin Riper, Director of Financial Management *KR*

For: Mayor and Members of the City Council

Subject: **Annual Report—State of the City Fleet’s EV Transition**

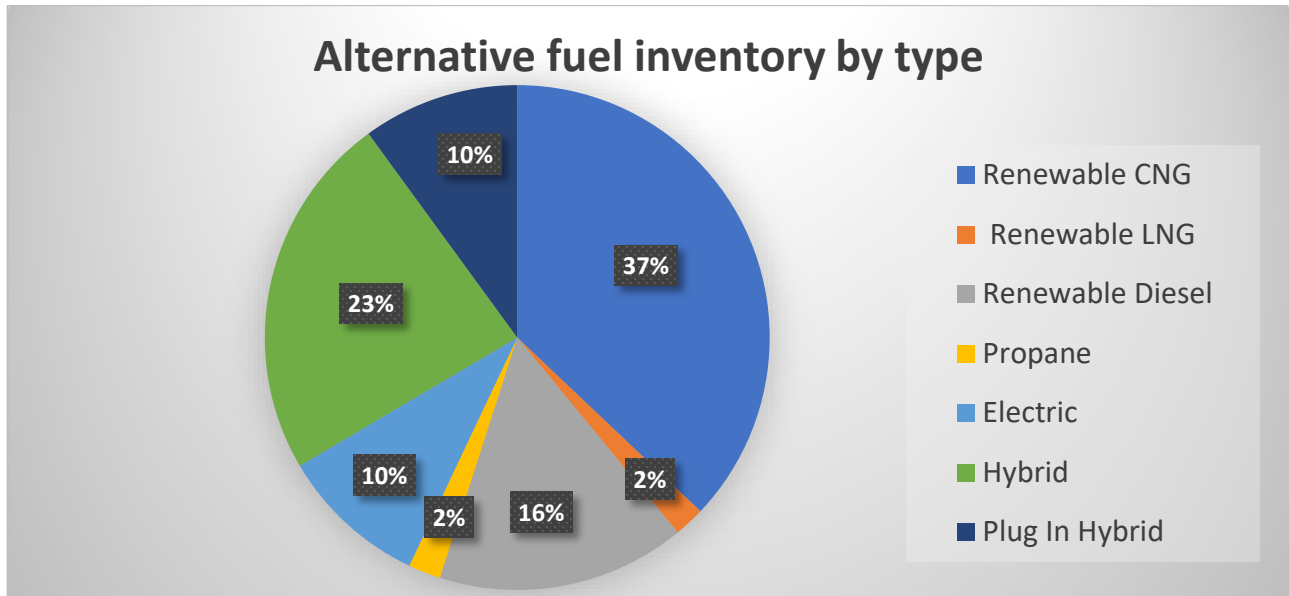
---

This is the first annual report on the state of the City of Long Beach (City) fleet’s transition to zero-emissions, primarily through the adoption of electric vehicles (EV). The transition is complex, resource-intensive, and impacted by not only regulation but also technology availability and supply chain challenges. The purpose of this report is to inform City stakeholders on EV transition progress, challenges, and compliance with extensive new State regulations.

### **City’s Alternative Fuel Journey**

Since 2015, the Fleet Services Bureau (Fleet) has utilized a multifaceted approach to sustainable operations by procuring and operating alternative fuel vehicles, including renewable compressed natural gas (CNG), renewable diesel, propane, and hybrids wherever possible. The City was an early adopter of renewable diesel in 2015, with 100 percent renewable diesel fuel in all diesel trucks and equipment, followed in 2017 with the adoption of 100 percent renewable compressed natural gas (RNG). Electrifying our light-duty fleet was a natural evolution of the program, starting in 2018, and we now have 91 fully electric vehicles operating in the City fleet, and 10 dedicated fleet vehicle charging ports have been installed at various locations throughout the City.

Currently, 57 percent of the City’s fleet is comprised of alternative fuel vehicles, with 98 percent of new purchases being alternatively fueled when available and meeting operational need. These benchmarks effectively displace over one million gallons annually of fossil fuel consumption, thereby significantly reducing the City’s greenhouse gas emissions. Crediting the City’s aggressive fleet sustainability efforts, in 2022 the City’s fleet was ranked #2 Green Fleet in the U.S. by the National Association of Fleet Administrators (NAFA), as well as recognized as a leading Green Fleet by Heavy Duty Trucking Magazine. And in 2024, the City’s clean fleet efforts were again recognized by NAFA, through its “Green Garage” award, placing #2 in the U.S., recognizing its environmentally committed maintenance operations.



The City’s transition to electric vehicles started with the Battery Electric Vehicle (BEV) Task Force in 2018. It was formed to lead the City’s EV transition, introduce City staff to EVs to create buy-in for the technology, and was also a means of collaborating with Public Works (PW) to synchronize infrastructure needs and EV deployments. The Task Force enabled the City to set the pace of its ZEV conversion, maximize market opportunities for EV deployment, and quickly build the necessary charging infrastructure for light-duty vehicles. However, in 2023, the California Air Resources Board (CARB) mandated fleet conversion to zero-emissions in the form of the Advanced Clean Fleets (ACF) regulation, which drastically changed the scope and pace of the City’s shift to ZEVs. The ACF requires medium/heavy-duty vehicle conversion to zero emissions starting in 2024. With the initial deployment of EVs accomplished, and the need shifting to regulatory compliance, it was determined that the Task Force had outlived its usefulness and should be replaced by a regular reporting structure. This memo serves as the first report under this change.

### Zero-Emission Vehicle Transition

The City’s policy is to purchase all-electric, hybrid-electric, or other zero-emission vehicles, purchasing alternative fuels vehicles when ZEV options are not viable. The introduction of the electric Ford F150 truck and E-Transit van marked a significant shift in our fleet electrification efforts. Our fleet has a considerable number of trucks in these categories and the deployment of them has overcome many operational challenges that previously restricted EV applications to the work truck fleet. The City’s recently developed EV blueprint further supports the rollout of medium- and heavy-duty electric vehicle infrastructure planning and implementation. This blueprint offers a crucial framework for our future widespread fleet electrification and is a valuable projection of energy requirements.

Fleet routinely participates in pilot programs of emerging ZEV technologies that can potentially replace current, traditional Internal Combustion Engine (ICE) vehicles. The purpose of a recent refuse truck pilot program was to determine how well EV refuse trucks could meet the demanding operational need of refuse collection, with their varied routes and high-duty cycles. While initial results were mixed, the demonstration proved to be a significant step in a longer-term pilot in daily working conditions. City Council authorized the purchase of two EV refuse trucks for use by the Public Works Department's Environmental Services Bureau on March 21, 2023. In addition, the purchase of two heavy-duty BEV dump trucks was authorized by Council on October 3, 2023. Other medium/heavy-duty demos have been conducted, and more orders are pending as the market availability of EV technology expands for medium/heavy-duty vehicle deployment.



EV Sweeper Demo at Fleet



EV Refuse Truck Ride & Drive

### **Advanced Clean Fleet (ACF) Mandate**

As a strategic response to the pressing environmental concerns posed by ICE vehicle emissions, the ACF regulation aims to change vehicle fleets by requiring ZEV adoption. This regulation applies to vehicles over 8,500 pounds Gross Vehicle Weight and has a direct impact on over 500 medium and heavy-duty vehicles in the City's fleet. The regulation is applicable to most fleets throughout the state, including those owned by State, local, and federal government agencies. The regulation extends beyond fleet operators and includes original equipment manufacturers (OEM), utility partners, and service providers. Within the City, partners such as PW are crucial to develop and implement infrastructure upgrades to support the growing EV fleet, which will have a very significant electrical demand.

### **Key Components of ACF**

The ACF regulation is transformative in the breadth of its change to California's fleets. It requires 50 percent of the City's vehicle purchases to be zero-emission vehicles (ZEV) beginning in 2024 and rising to 100 percent by 2027. Our fleet currently has 525 medium- and heavy-duty trucks that are subject to the regulation. While the shift to electrification and sustainable fleets is commendable, compliance with the new regulation will be expensive, demand allocation of City personnel resources, and will be potentially disruptive to City operations.

Fleet Services has actively engaged stakeholders on the requirements of this regulation, as well as the necessary measures for compliance. Fleet originally went to City Council on May 17, 2021, with initial notice of the pending regulations, followed by a September 26, 2023, memo once the ACF regulation had been finalized. Fleet Services continues active engagement with FM management, the Budget Office, Department of Public Works, SCE Utility, and other vital partners in compliance.

### *Current EV Charging Infrastructure*

Charging stations have been installed at several City-owned facilities specifically for charging City Fleet vehicles to support the growing EV fleet. Current charging infrastructure dedicated to the City's fleet consists of 107 Level II ports, 1 Level III fast charger port, and 12 Level II solar charger ports.

### *Electric Vehicle and Infrastructure Funding*

Electric vehicles and associated charging infrastructure are expensive and we endeavor to take advantage of the multiple grant and incentive opportunities that are available. While there are many, research, preparation, and competition for these grants is complex and time consuming. We are working closely with Southern California Edison (SCE) and have four active Charge Ready Transport applications filed for fully funded EV infrastructure design and build (supporting the City's medium- and heavy-duty electric vehicles). City staff have also successfully secured grant funding opportunities to subsidize the increased cost of the Fleet EV transition including AB 32, Carl Moyer, AB 2766, Cal HVIP, Volkswagen Mitigation Trust, and others, totaling \$10 million in the last 4 years.

### *Electric Vehicle Training and Job Opportunities*

The transition to a fully electric fleet has added additional training and safety requirements for staff. In FY 24, permission from Council was requested, and received, to add a new Equipment Mechanic III classification to meet the challenge of maintaining EVs and associated new technologies. Additionally, Fleet has begun sourcing EV training classes and adding EV mechanic interns to the shop. The training courses educate Fleet staff on emerging EV technologies and safety precautions to be taken when working with EVs. Fleet also created customer EV user manuals to facilitate a smooth transition to EVs, eliminate ambiguity, and ensure that staff can confidently navigate the intricacies of new EV technologies. We are developing more manuals as more specialized EV vehicles/equipment arrive, especially in the medium/heavy-duty applications

### *Compliance Reporting*

In addition to the procurement of ZEVs and unprecedented deployment of charging infrastructure, this regulation requires substantial annual reporting. New filings are to be submitted by April 1<sup>st</sup> of each year, through 2045, intended to ensure compliance and assess penalties for non-compliance. Extensive reporting and record-keeping will be submitted to CARB with the required vehicle information. Fleet operations are required to report any changes to the fleet to CARB within 30 calendar days. Recordkeeping of all vehicle

documentation, including purchase orders, must be kept for a minimum of five years and be made available to CARB upon request. Internal ongoing analysis of the fleet composition must be done to determine any exemption needs due to the lack of ZEV availability, delivery delays, and or infrastructure delays. Exemptions, as defined by CARB, will be challenging to justify, detailed, and complex in nature.

## **Compliance and Implementation Challenges**

### *Funding*

As Fleet continues to plan compliance with the ACF mandate, we recognize the financial implications of the zero-emissions journey. Estimated upfront costs of EV replacement vehicles are now 25-40 percent higher than their traditional ICE vehicle equivalents, which themselves are 20-40 percent higher than previous replacement cycles. As a result, Fleet raised vehicle capital collections by 59 percent in FY 24, with an additional 8 percent planned increase for FY 25. Despite this increase of capital collections, future electrification goals will require even more additional funding.

On the infrastructure side, Fleet is working with SCE and PW on site assessment and design using a 4-phase charging infrastructure plan through 2035. Calculations using data from previous EV infrastructure projects estimate an additional \$34 million will be needed. The lack of site design thus far has resulted in missed potential funding opportunities. Grant funding initiatives are aggressively being pursued to help offset the additional costs of these projects; however, they are not sufficient to cover all costs. Our assessment is that a higher overall Citywide priority must be given to the requisite charging infrastructure projects if ACF compliance is to be achieved and maintained.

### *Program Management Capacity*

With ongoing efforts to electrify the City's Fleet, additional staff have been added to focus on EV procurement, infrastructure planning, and other needs to support the growing EV Fleet. The Fleet Services Bureau added a retired annuitant, who is responsible for coordinating with PW to determine infrastructure needs at the various City departments and assessing EV procurement in alignment with the ACF mandate. PW has assigned a project manager to assist in designing and building the needed infrastructure as determined by Fleet. However, the project management capacity in both Fleet and Public Works has not proven sufficient to meet the demand for infrastructure and planning of the incoming vehicles in the coming years. Despite the additional, initial support for these projects, extensive planning, compliance, reporting, feasibility, and design requirements need to be met to initiate construction and delivery of infrastructure promptly.

### *Infrastructure*

Many of the City's Fleet parking locations need to be individually evaluated for the potential upgrade of aging infrastructure. Installing high-voltage level II and III chargers requires a stronger electrical grid support that may not be readily available at all sites. Some sites will require more powerful chargers to accommodate our larger heavy-duty fleet. Assessments

have been conducted to calculate the energy needed for charging an EV fleet similar in size and scope to ours. It was calculated that more than 60 Megawatts of additional power was needed daily to support a fleet of our size; the equivalent of the daily energy consumption of 2,000 homes. Meeting the high-power demand is feasible but will require considerable stakeholder engagement and collaboration with our public utility agency.

Emergency backup power infrastructure such as solar, battery storage, and backup generators is necessary in order to meet the City's full regular and emergency charging needs. This technology would be used during an extended power outage or emergency and is vital in allowing City operations to continue. To provide emergency power, four portable solar chargers with 12 charging ports have been purchased and deployed, with two additional solar chargers on order. The solar chargers can also provide interim charging while infrastructure is in the planning and design phases.



Solar Powered Level II EV Chargers at Fleet.



Nissan Leaf Plugging into a Level III Charger

Additional logistical challenges include but are not limited to:

- Multiple designated parking locations within the same site areas add to the complexity of site design.
- Non-City-owned properties may have specific lease guidelines or require involvement of governing entities and landlord approvals. Tenancy longevity is also necessary for EV infrastructure to be considered at these sites.
- Advanced planning (sometimes years) is required for EV orders due to supply chain delays and manufacturer backlog.

### *Electric Vehicle Availability*

Complexities in meeting departments' operational needs along with current EV technology limitations have required careful placement of electric vehicles throughout the fleet. While some more common heavy-duty vehicles can be electrified now or in the immediate future, there are no commercially viable EV options for the specialized (and less-common) municipal vehicles. Per regulation, these specialized vehicle types must eventually be electrified; therefore, this will slow the transition somewhat as we wait for market availability. Fleet has also experienced prolonged delivery times for EV technology replacing standard ICE vehicles. Vehicle purchases

are being placed a year and more in advance to accommodate ongoing supply chain delays and backlog.

### Overall Goals

Establishing specific, achievable goals is critical to ACF compliance and meeting the City’s climate objectives. Fleet Services includes the following goals amongst its objectives:

- A Green Fleet Action Plan is in the planning stages to help guide the City's ongoing efforts in transitioning to a zero-emission fleet.
- Emerging medium/heavy-duty EV procurement options and technologies are being carefully evaluated, with plans to deploy a wider range of EVs in FY 24.
- Maintain 100 percent compliance with ACF-mandated ZEV purchases and required reporting.
- A comprehensive 4-phase infrastructure plan has been developed to project the charging ports needed to support current and future EV procurement by the year 2035. Approximately 350 ports are projected to be completed through FY25 at multiple using departments throughout the city, with 50 percent of those completed in FY24.
- For infrastructure projects that are currently in the works, Fleet Services is primarily working with partners in PW and SCE on site designs and charger installations. Currently, there are four SCE-funded design projects that are in various stages of development and expected to begin construction in FY 24:

Project Site	Level II Ports	Level III Ports
El Dorado Park / Tree Farm	34	3
Public Service Yard	47	1
Animal Control	8	0
Energy Resources	63	2

### Next Steps

The Advanced Clean Fleet (ACF) regulation mandates an aggressive transition to ZEVs for medium and heavy-duty vehicles, starting in 2024. The City is actively pursuing funding sources and vehicle pilot programs to support the transition. Furthermore, we are seeking solutions to overcome challenges in increased vehicle replacement costs, technology limitations, and infrastructure completion. Despite these challenges, we remain committed to sustainability and our goals for a greener fleet. There are significant challenges, however, that make attaining the goal difficult. Funding, vehicle availability, and staff capacity all are significant obstacles to overcome.

Annual Report—State of the City Fleet's EV Transition

April 2, 2024

Page 8

If you have any questions, please contact Dan Berlenbach, Fleet Services Manager, at (562) 570-5401.

CC: DAWN MCINTOSH, CITY ATTORNEY  
DOUGLAS P. HAUBERT, CITY PROSECUTOR  
LAURA L. DOUD, CITY AUDITOR  
APRIL WALKER, ASSISTANT CITY MANAGER  
TERESA CHANDLER, DEPUTY CITY MANAGER  
MEREDITH REYNOLDS, DEPUTY CITY MANAGER  
GRACE YOON, DEPUTY CITY MANAGER  
TYLER BONANNO-CURLEY, DEPUTY CITY MANAGER  
KEVIN LEE, CHIEF PUBLIC AFFAIRS OFFICER  
MONIQUE DE LA GARZA, CITY CLERK  
DEPARTMENT HEADS