Brownfields to Electric Vehicle Charging Stations

Evaluating the viability of building EV fast charging infrastructure in **Alameda County, California**

Project Summary

Community: Alameda County, San Francisco Bay Area, California

Technical Assistance: Economic Analysis

Former Use: Gas Station

Future Use: Electric Vehicle Charging Station

Building an Electric Vehicle Charging Network

In 2020 the California Governor's Office set a state goal of 5 million zero-emission vehicles (ZEVs) on roadways by 2030 and 250,000 electric vehicle (EV) chargers deployed by 2025. To meet this goal, consumer adoption of ZEVs throughout the state will need to increase significantly, as will the EV charging network that supports ZEVs. Broad adoption of ZEVs reduces greenhouse gas emissions and other air toxics, especially in communities adjacent to freeways. Brownfields, particularly abandoned gas stations, provide an opportunity to transform underutilized properties into the EV charging infrastructure needed to support a growing ZEV vehicle fleet.

East Bay Community Energy (EBCE) is a nonprofit joint power authority that is helping meet California's goals by providing renewable energy electricity to customers in Alameda County in the San Francisco Bay Area. In addition, EBCE is assessing the market potential for developing EV charging stations. As a first step in the process, EBCE identified two potential brownfield sites to support charging of light-duty vehicles (e.g., renters, commuters, rideshare users) and medium-duty commercial vehicles.

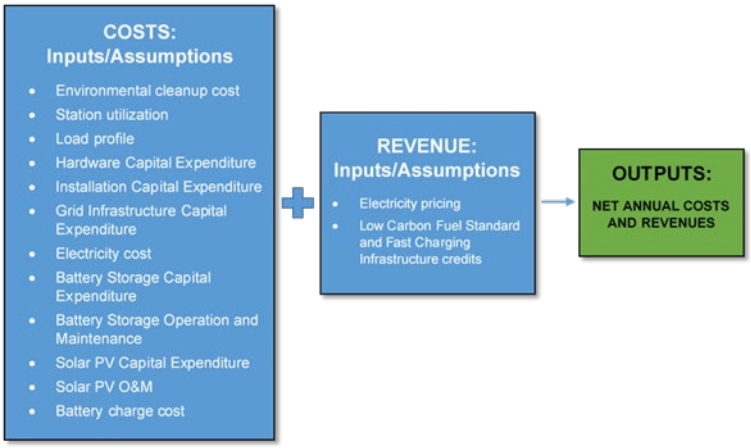
The Community's Challenge

Before undergoing brownfields redevelopment, EBCE needed to understand the viability of transforming contaminated lands into profitable EV fast charging stations. Understanding this will help EBCE make the case to purchase the property and better understand funding needs/sources.

EPA's Land Revitalization Technical Assistance

In 2021, the U.S. Environmental Protection Agency (EPA) Land Revitalization Program provided contractor technical assistance (TA) to determine the environmental and economic feasibility of redeveloping two brownfield sites along Interstate 880 into flagship fast charging stations. The analysis involved the development of a financial pro-forma model that evaluated redevelopment costs and benefits under best, moderate, and worst-case scenarios. The model considered critical factors such as environmental cleanup costs, EV equipment costs, station utilization rates, electricity pricing, low-carbon fuel credits, and options involving the co-location of solar photovoltaics and battery storage. The analysis outlined the key variables that EBCE needed to understand to make the stations profitable.

Deployment of these stations would help achieve the goal of increasing publicly accessible charging infrastructure, reducing criteria air pollutants and greenhouse gas emissions from the transportation and goods movement sector, and reducing legacy toxic exposure from brownfields to nearby neighborhoods. By utilizing EPA's TA, EBCE is one step closer to making its EV charging station vision a reality.



Inputs and outputs to consider when evaluating a potential EV site.

For more information, contact Eric Byous, EPA Region 9 Brownfields Program, at Byous.Eric@epa.gov.

United States Environmental Protection Agency

Office of Brownfields and Land Revitalization

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