

## Battery-Electric Charging Infrastructure

### What is this measure?

This measure would fund additional publicly accessible charging infrastructure to support widespread adoption of battery electric vehicles. Examples of suitable locations include multi-unit dwellings, workplaces, shopping centers, recreation centers, and sites along key travel corridors, highways and freeways.

### Why would someone do this as mitigation?

Increasing the charging infrastructure for BEVs and PHEVs reduces GHG emissions by supporting the local adoption and use of the vehicles. Widespread adoption of battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), together known as plug-in electric vehicles (PEVs) is contingent upon having well-sited charging stations that are readily available and meet user needs. A tri-county EV readiness plan was developed to assist communities in preparing for this new vehicle population.<sup>1</sup>

PEVs are very energy-efficient; much of the energy from the fuel (electricity, in this case) is used to propel the vehicle with very little energy lost as waste heat. Reducing fuel consumption results in direct reductions of GHG emissions from the transportation sector. And, as California's electricity supplies become more renewable, the carbon intensity of the transportation fuel (electricity, in this case) is reduced, so the "carbon footprint" of PEVs is expected to improve even further over time. The electrification of California's transportation system is a key strategy in helping California meet its climate goals.<sup>2</sup>

Longer-range vehicles with higher battery storage capability are expected over the next few years. Some manufacturers have announced the intent to include all-electric crossover SUVs, and a broader range of all-electric cars, by 2020. The charging equipment will need to meet a variety of charging speed and capacity requirements to meet the needs of this growing user population. Local public charging stations have shown consistently higher usage over the last 3 years.<sup>3</sup> As charging station utilization increases with the number of PEVs in the county, station availability is expected to decrease, which could in turn affect adoption rates.

BEVs do not have tailpipe emissions; tailpipe emissions from PHEVs can vary depending on how much the car is driven on electricity from the grid, as compared to electricity derived from the car's internal combustion engine. In addition to greenhouse gas benefits, increased local adoption of BEVs reduces local and regional emissions of toxic and criteria pollutants. These reductions provide direct health benefits within the region.

---

<sup>1</sup> See the District's website for more information about the [Electric Vehicle Readiness Plan for Ventura, Santa Barbara, and San Luis Obispo Counties](#).

<sup>2</sup> California Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015: *"Reducing emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 will require widespread transportation electrification."*

<sup>3</sup> Based on data from several locations that received APCD grant funding, as well as public charging equipment located at APCD and other SB County locations.

## How would you implement this measure?

### *Implementing Agency*

The District has an EV charging infrastructure program<sup>4</sup> that could be modified to accommodate additional funds and project types; or, a separate measure, with different parameters, could be established by the District or another entity. The existing District program provides reimbursement for equipment and/or installation of equipment that meets specific siting and public access requirements.

### *Enforceability*

The most important aspects to ensuring that this measure yields the anticipated GHG reductions are ensuring that charging stations are well-located, are continually accessible to their anticipated user population, and are maintained in good working order. Typically, these requirements are enforced through grant agreements or memoranda of understanding between project funders and project operators. If the provider of the EV charging station assesses a fee for the fuel provided, this can be an incentive for the station to remain accessible and functional.

### *Interaction with Existing Programs*

There are already many different programs being implemented to improve EV charging infrastructure and accelerate adoption of PEVs, locally and throughout California:

- Recargo, Inc. is currently in the process of installing “fast chargers” along the US 101 to support travel between Buellton and the San Francisco Bay Area.<sup>5</sup>
- The California Air Resource Board recently approved an initial investment plan for the VW settlement that prioritizes the San Francisco Bay Area, San Joaquin Valley, and Southern California. No local projects were identified in this initial round of settlement investments.<sup>6</sup>
- San Luis Obispo, Santa Barbara, and Ventura air districts are collaborating on ZEV implementation in the region under a California Energy Commission grant. This will provide funds for outreach, site assessments, and fleet transition planning, but does not provide funds for purchasing or installing charging infrastructure.
- The California Center for Sustainable Energy is expected to receive a \$15,000,000 grant from the California Energy Commission to expand the state’s charging network.
- California’s zero emission vehicle (ZEV) Regulation<sup>7</sup> includes requirements on the automotive manufacturing and sales side to increase the availability and purchase of vehicles such as PEVs. California’s ZEV Action Plan lays out a variety of strategies to meet the state’s ambitious goals for ZEVs.<sup>8</sup>
- The District’s Old Car Buy Back Program<sup>9</sup> is designed to accelerate the retirement of older, more polluting cars, to help turn over Santa Barbara County’s passenger vehicle fleet to newer, cleaner engines and technologies.

---

<sup>4</sup> [EV Charging Station Infrastructure Program](#)

<sup>5</sup> [company.plugshare.com/news/2016/08/recargo-adds-more-fast-chargers/](http://company.plugshare.com/news/2016/08/recargo-adds-more-fast-chargers/)

<sup>6</sup> [www.arb.ca.gov/msprog/vw\\_info/vsi/vw-zevinvest/documents/california\\_zev\\_investment\\_plan\\_supplement\\_062917.pdf](http://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/california_zev_investment_plan_supplement_062917.pdf)

<sup>7</sup> [www.arb.ca.gov/msprog/zevprog/zevregs/zevregs.htm](http://www.arb.ca.gov/msprog/zevprog/zevregs/zevregs.htm)

<sup>8</sup> [www.gov.ca.gov/docs/2016\\_ZEV\\_Action\\_Plan.pdf](http://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf)

<sup>9</sup> [www.ourair.org/old-car-buy-back-program/](http://www.ourair.org/old-car-buy-back-program/)

## How would you quantify the benefits?

The California Air Resources Board has developed a *Greenhouse Gas Greenhouse Gas Quantification Methodology for Air Resources Board Low Carbon Transportation Program Consumer-Based Light-Duty Projects*.<sup>10</sup> This methodology includes a straightforward calculation that involves estimating the amount of emission reductions achieved, on a per-mile basis, when a conventional gasoline car is replaced with a zero emission/alternatively fueled vehicle. The beneficial impacts are equivalent to the difference in well-to-wheels emissions from operating an EV, vs. the well-to-wheels emissions from operating a conventional gasoline vehicle. By considering well-to-wheels emissions, the emissions associated with producing, refining, and distributing conventional gasoline and with generating the electricity used to power the vehicle are included, in addition to the tailpipe emissions from a conventional gasoline vehicle. The methodology is easily scaled to fit different charging station configurations, vehicle types, and utilization assumptions.

## Questions for Discussion

- Are there local site hosts interested in participating?
- Should a measure focus just on publicly accessible charging stations, or would some private/limited access projects be acceptable (examples – apartment buildings, workplaces, buildings with limited access hours)?
- What charging levels should be prioritized (Level 1 – slow, Level 2 – medium, Level 3 – fast)?

## Input Received

### *Comments Made at Workshops*

#### Opportunities:

- Prioritize installation of charging units at workplace locations.
- Prioritize installation of charging units at multi-unit dwelling locations.
- Subsidize the cost of charging to encourage wider usage of electric vehicles.
- Require BEV infrastructure be installed as part of CEQA mitigation.
- Provide incentives for land use projects if they install BEV infrastructure.
- Create a mitigation bank from developer fees to use for infrastructure.
- Decrease property development fees if BEV units are installed as part of the project.
- Build a large scale charging facility for concentrated heavy duty vehicle charging.
- Install EV infrastructure signage on freeway signs using a standardized icon.
- Raise more awareness of incentives available to purchase a BEV.

#### Challenges:

- Workplace charging locations that are leased may not have the right to install infrastructure.
- Incentives may be needed to encourage property owners/rental unit managers to install infrastructure.

---

<sup>10</sup> [www.arb.ca.gov/cc/capandtrade/auctionproceeds/arb\\_cblld\\_finalqm\\_16-17.pdf](http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/arb_cblld_finalqm_16-17.pdf)

### *Comments Submitted in Writing*

The Community Environmental Council (CEC) submitted a letter on July 5, 2017.<sup>11</sup> The full letter is available on the District's website. Below are the comments from the letter related to EV charging infrastructure:

- We encourage staff to consider offering grants of \$5,000 per port or a minimum of \$10,000 for a dual port station since this could help lower the cost of offsets and increase the return on investment for each dollar of mitigation funding.
- To capture the latest market trends, we encourage SBCAPCD staff to evaluate the cost of installations completed for the SBCAPCD charging station grant program and to look at installation costs in other regions. This information will help inform the amount of mitigation funding needed for different EV charging station installations.

### *Additional District Discussion*

Because the letter from the Community Environmental Council was sent before the September 20 and 21 workshops, District staff were able to consider and incorporate some of the comments in the materials that were posted prior to the workshop.

---

<sup>11</sup> Comments from the Community Environmental Council (CEC) were received July 5, 2017 (prior to the workshops), see [www.ourair.org/ghgmitigation-sbc/](http://www.ourair.org/ghgmitigation-sbc/).