# The Greater Bay Area EV Corridor Project

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**Representing the Association of Bay Area Governments and Bay Area EV Corridor Project Partners**

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# Mission

- **To establish the greater San Francisco Bay Area as the EV Capital of the U.S.**

  **by accelerating the deployment of EV-ready infrastructure and EV-friendly policies & incentives.**

# Partnership

- **Lead:** Association of Bay Area Governments (fiscal), EV Communities Alliance (program)
- **8 Counties:** Alameda, Contra Costa, Santa Clara, Santa Cruz, Monterey, San Francisco, Marin, San Benito + **San Jose, SF, 15 cities**
- **Industry Partners:** Better Place, Coulomb, Clean Fuel Connection (turn-key installation)
- **Regional Agencies:** BAAQMD, MTC, ABAG
- **NGO Partners:** Bay Area Climate Collaborative/S. Valley Lead. Group, Ecology Action, Monterey Bay EV Alliance, IBEW, Marin & Santa Cruz Community Foundations

# Bay Area EV Infrastructure Phase One (10/10 – 12/11)

**CEC FUNDING**

- **$1.9M requested, $504K awarded in 5/10**
- **$1M+ local match**

**2011 EV Corridor Project Goals (subject to refinement)**

- **337 EVSE -- with 540 Charge Points**
  - **133 @ Level 1 (110 volt)**
  - **407 @ Level 2 (240 volt)**

# Bay Area EV Infrastructure - Phase One

## MTC Funding for Infrastructure

**$2.3M from MTC placed in a "funding reserve" pending EV plan development with ABAG, MTC, BAAQMD, ICF**

- **Possible uses include:**
- **CEC "backfill" (~400 charge points)**
- **EV information infrastructure**
  - **EV station operational status**
  - **EV parking spot occupancy status (SF pilot)**
  - **EV reservation system**
- **EV installation process streamlining**

# Bay Area EV Infrastructure

## MTC Funding for Other EV Initiatives

- Taxi battery-swap (Better Place, SF, S. Jose) $6.9M
- Local Gov't EV Fleet (80 Leafs + EVSE) $2.8M
- EV Car Sharing $1.7M

# Regional EVSE Infrastructure – The Bigger Picture

- **Coulomb DOE – CEC (~$5M for Chargepoint)**
  - $ for ~280 public EVSE in region (free/low-cost)
  - Locals must provide funds for installation
- **BAAQMD - $5M for regional EVSE grants**
  - Exact deployment strategies TBD. One scenario:
  - ~500 home EVSE, ~300 Lev. 2, ~50 Fast Chargers
  - Emphasis on private sector deployment w/ tax credit
- **Clipper Creek**
  - ~100 in legacy locations

# Regional EV & GHG Goals

- **2020**: 20% of new LDVs will be PEVs
- **2030**: 50% of new LDVs will be PEVs
- **2040**: 70% of LDV miles = "electric miles"
- **2050**: 70% of all new LDVs will be PEVs
- **2050**: LDV GHGs = 80% < 2005 levels

# EV Corridor Workplan (2010-2011)

**1. Develop EVSE operating standards to ensure interoperability, demand mg't capability**

- Coulomb & Better Place to collaborate with other EVSPs on subscription & roaming/billing
- Coulomb awarded $1M from CEC to integrate multiple EVSE brands into software network for demand mg't and web/mobile info access
- Partnership supports installation of networked EVSEs regionwide to ensure capability for smart grid integration, demand response capability

# EV Corridor Workplan (2011)

**2. Establish robust road access, parking, and policy incentives for PEVs**

- MTC has commissioned an EV strategy plan by ICF/Kaiser – due in January, 2011
- The California Climate Data Integration Project to produce GHG impact estimates of alternative EV policy, deployment, and charging scenarios – due in June, 2011
- SB 375 stakeholders to get "credit" for shifting EV adoption curve beyond state avg.

# EV Corridor Workplan (2011-2012)

## 3. Demonstrate V2G and SmartGrid integration

- Target partners: Two local utilities, Cal ISO, local EVSE vendors, auto OEM, and smart grid software integration
- Funding partnership with Marin Community Foundation

## 4. Establish E-bike demonstration projects

- $4M MTC regular bike demo project in South Bay (co-led by BAAQMD) will create prototype infrastructure
- City CarShare looking closely at E-Bikes
- New biz. models & cheaper bikes coming via EU & China

# EV Corridor Workplan (2010 - 2011)

## 5. Develop "EV-ready" auto tech workforce

- CEC / ARRA grant to College of Marin has expanded EV auto tech courses

## 6. Streamline installation processes

- Corridor Project partnered with ICC's Tri-Chapter Uniform Code Council (80+ cities) to develop common code guidance on EVSE
- ADA guidance in development with EPRI support
- Grant pending with CEC to streamline installation processes in 6 metro areas statewide via "Ready, Set, Charge" collaborative

# EV Corridor Workplan (2010 - 2011)

**7. Develop "EV-friendly" building codes & public works guidelines**

- Bay Area Climate Collaborative developing model building code and public works guidance
- CEC funding pending for statewide rollout via "Ready, Set, Charge" & regional EV coalitions

# The public charging imperative

- If we are serious about supporting BEVs and gaining positive early adopter reports, we must develop a robust public charging network ASAP
- TEPCO's Tokyo study shows that lots of public chargers may NOT increase daytime charger utilization – but it WILL relieve range anxiety
- "Studying first" risks suppressing BEV sales, self-fulfilling prophecy of non-utilization of EVSE = no need for EVSE

# The equity imperative & garageless consumers

- **"Publicly funded charging" MUST include streetside and publicly accessible MDU charging for residential use by the 50% of Californians who don't own their own home and/or don't have a garage.**
- **Early adopter EV consumers with garages DON'T NEED MORE SUBSIDIES (in general)**
- **We DO need to systematically tackle MDU charging with public funding NOW, to prepare for 2nd wave of EV owners to cross the EV adoption "valley of death"**

# How many public EVSE is enough?

**Electrification Coalition**

2010-2015: 1.5 – 3.5 public EVSE per car

2030+: .5 – 1.5 public EVSE per vehicle

**RMI**

Now: .6 public chargers per vehicle

**Bay Area**

2010-12: ~3000 to support 15,000 PEVs, including 7500 BEVs? (e-miles is key)

2010-11: ~1000 planned. MORE NEEDED!

# EV Deployment Estimates (12 County Area)

| Type | 2011 | 2012 | 2013 |
|---|---|---|---|
| BEVs | 4,314 | 13,392 | 31,150 |
| PHEVs | 3,837 | 17,301 | 31,656 |
| PEVs | 8,151 | 30,693 | 62,806 |

# Project Impact on Fuel Use & GHGs: 2010 - 2013

- Cumulative savings for EV deployment in 2010-2013, based on 12K miles/year and 85 MPG avg. for PHEVs, with ~50/50 BEV vs. PHEV split:
- CO2 – Reduction of 226,000 metric tons
- Gas – Savings of 26 million gallons
- Fuel Cost savings: $1,300 per BEV/year **($2.75 gas vs. .09 kwh avg. x 12K mi/yr.)**