

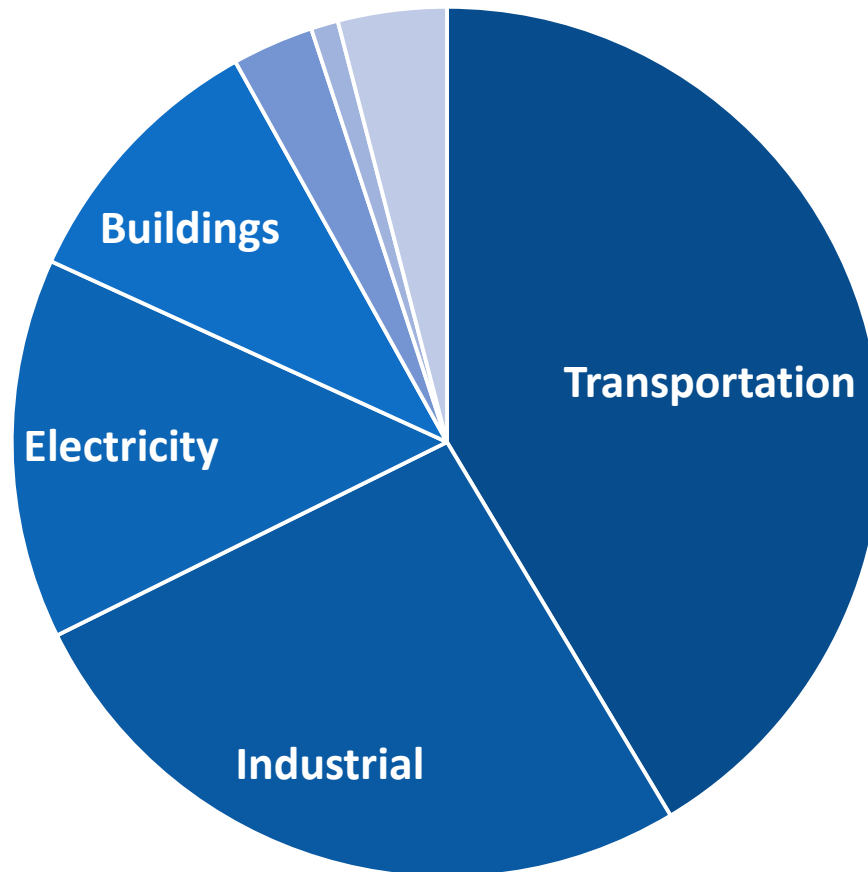
# Technology Implementation Office (TIO) Overview



Technology Implementation Office Steering Committee Meeting  
October 4, 2019

Derrick Tang  
Acting Technology Implementation Officer  
Technology Implementation Office

# TIO Target: Bay Area Greenhouse Gases (GHGs)



# TIO Steering Committee Members



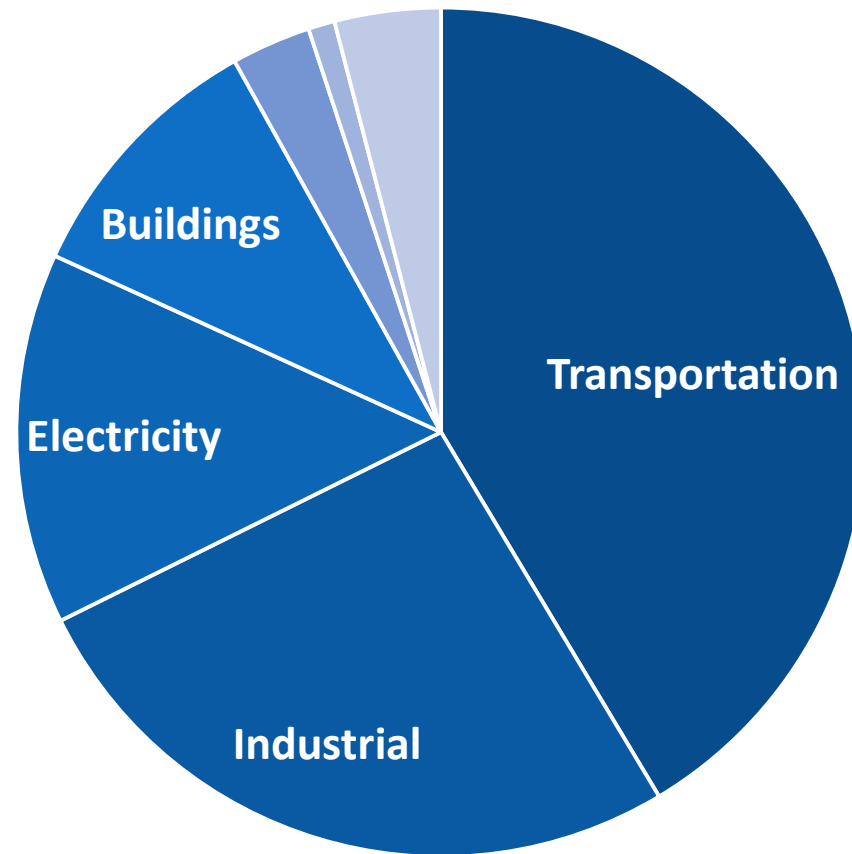
<b>Bud Beebe</b>	Sacramento Municipal Utility District (Retired)
<b>Cindy Chavez</b>	Air District Board of Directors (Committee Chair)
<b>Mark Cupta</b>	Prelude Ventures
<b>Ahmad Ganji</b>	San Francisco State Industrial Assessment Center
<b>Dave Hudson</b>	Air District Board of Directors
<b>Michael Montgomery</b>	San Francisco Bay Regional Water Board
<b>Janea Scott</b>	California Energy Commission
<b>Marilyn Waite</b>	Hewlett Foundation
<b>Jetta Wong</b>	JLW Advising

# TIO Steering Committee Structure



- **Provides recommendations and support on:**
  - Vision and strategy
  - Execution of the strategy and resolving challenges
  - Technology readiness, business readiness, market and emissions reduction impact
  - Strategies to maximize effectiveness of TIO budget and financing programs
  - Raising profile of office and identifying new partnerships
- **Semiannual meetings**
- **Brown Act guidelines**

# TIO Mission: Reduce GHGs by Scaling Climate Technologies



# TIO Incentive Programs



## ***Charge!***

Grants for publicly accessible electric vehicle (EV) infrastructure



## **CLEAN CARS FOR ALL**

Grants for low-income residents to trade in cars for cleaner transportation



## **CLIMATE TECH FINANCE**

Loans and loan guarantees for facilities adopting climate technologies

# TIO Outreach & Partnerships



## **Bay Area EV Coordinating Council**

Quarterly meetings to coordinate and leverage EV programs across the Bay Area

## **Bay Area EV Acceleration Plan**

Implementation tools to move EV market from early to majority adopters

## **Climate Tech Network**

Quarterly meetings to bring together technology developers and customers



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

# Climate Tech Finance

*Accelerating Adoption of Lower-Carbon Technology*

Technology Implementation Office Steering Committee Meeting  
October 4, 2019

Chad White, PhD  
Program Lead, Climate Tech Finance  
Technology Implementation Office

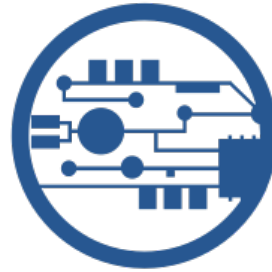
# Climate Tech Finance

Socialize



Support mutual learning between technology vendors and technology users to reduce adoption risk and **spur climate action**

Identify



Identify and encourage **commercialization of emerging technologies** that reduce greenhouse gas emissions

Support



Provide **attractive and competitive financing** to support the adoption of cost-saving climate technologies

# Climate Tech Finance

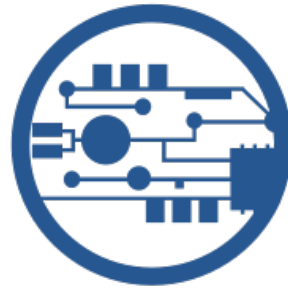
## Climate Technology Review

An Assessment of Opportunities to Reduce  
Greenhouse Gas Emissions at Stationary Sources  
in the Bay Area

**188** technologies reviewed

**33** highlighted in report

Identify



- Identified *Industry* focus:  
wastewater treatment
- Identified *Technology* focus:  
advanced energy storage

# Climate Tech Finance

**Loans**  
for Public Organizations

$\$500k \leq \text{loans} \leq \$30$   
Million (M)

Up to 30 years

Rate = 2.5-3.5%

Free technical assistance

**Loan Guarantees**  
for Small Businesses

Eligible loans of  $\leq \$20M$

Max = 90% or \$2.5M

Free technical assistance



# Climate Action

Tech

Finance

Socialize



- **Mass Communication:** public webinars, open houses, meetings at Air District  
(Reach: over 300 in-person attendees, outreach database around 1,000 contacts)
- **Targeted Communication:** speaking engagements, teleconferences  
(Reach: significant penetration into wastewater sector one-on-one and through trade associations)  
(Reach: multiple Climate Tech Network events related to energy storage and microgrids)

- **Calls Coming In:** response through website, calls, referrals  
(Interest regarding: bio-polymer, methane catalysis, carbon capture, resource recovery, energy recapture)

outbound

inbound

# Progress to Date



# Progress Examples

## Loans

***Microgrid Implementation at Medium Wastewater Treatment Plant (WWTP):***  
financing for a \$4M project to begin in December 2019

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## Loan Guarantees

***Residential Battery Storage Systems:***  
revolving loan to enable 4000+% scaleup by end of 2021

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## Matchmaking

***Methane to Bioplastics:***  
networking to connect startup and WWTP to utilize biogas

# Feedback Suggestions

- Outreach Efficacy
- Financing Attractiveness
- Product Strategy

# Outreach Efficacy

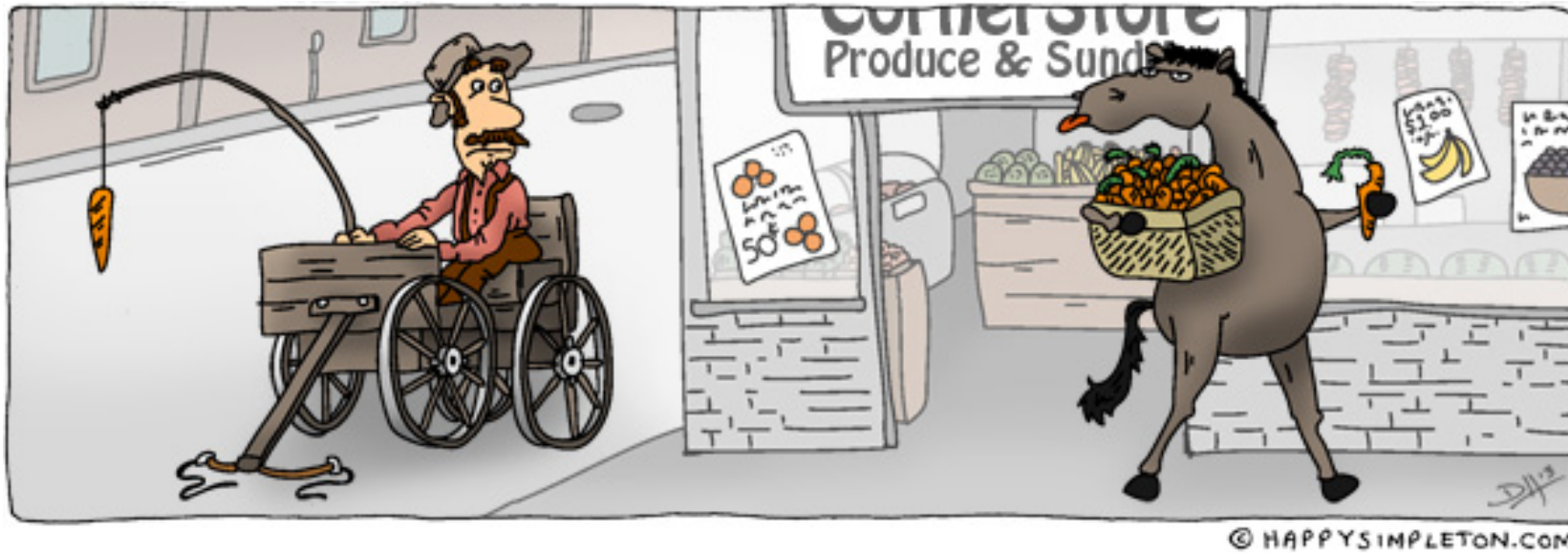
**Observation:** economic sectors require targeted engagement approach

- Technologies, priorities, consulting networks, and subsectors
- Capital planning approach, decision makers and cycles, and available funding channels

## Next Steps

- Continue sector-specific outreach – breweries, vineyards, and dairies
- Build partnership channels thru consulting ecosystem(s)

# Financing Attractiveness



# Financing Attractiveness, cont.

**Observation: IBank interest rate = 3.0-3.5%**

(current commercial borrowing < 3%)

- Availability of bonding authority → own bond issuance for projects > \$5-10M
- Availability of other financing: e.g., Clean Water State Revolving Fund (SRF), 1.3%; Water Infrastructure Finance and Innovation Act (WIFIA), 3%

## Next Steps

- **Explore increasing fund size** – reduce interest % for larger projects

# Product Strategy

**Observation:** loans are not “an umbrella on a rainy day”

- Outbound marketing – labor intensive and slow; shows limited ability to drive design decisions
- Inbound marketing – long capital planning cycles; interest may trickle when time is right

## Next Steps

- **Explore a lease model** – reduce risk with a “*Try Before You Buy*” approach

# Thank you for your support.



**Chad White, PhD**

Program Lead, Climate Tech Finance

Bay Area Air Quality Management District

 [cwhite@baaqmd.gov](mailto:cwhite@baaqmd.gov)

 [baaqmd.gov/CTF](https://baaqmd.gov/CTF)

 (415) 749-8619



# Programs to Accelerate Electric Vehicle (EV) Adoption

Technology Implementation Office Steering Committee Meeting  
October 4, 2019

Rebecca Fisher, Staff Specialist II  
Tin Le, Staff Specialist I  
Technology Implementation Office



# BAY AREA

## ELECTRIC VEHICLE TRENDS AND GOALS



7,148 public charging ports currently



20,000 public charging ports needed (NREL)



3% of the cars are EVs



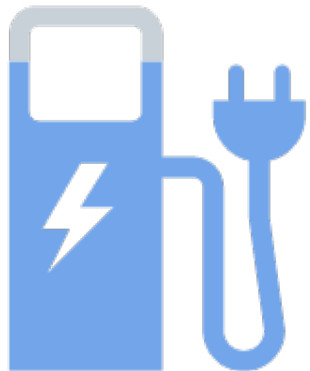
10+ EV Incentive Programs



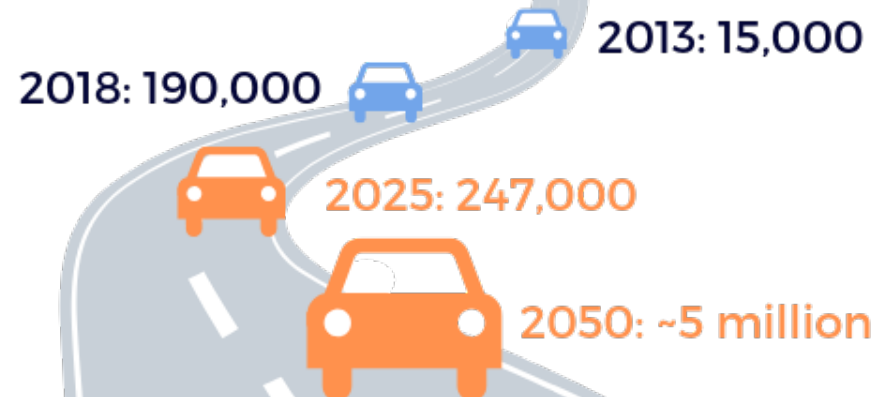
### Public charging ports

11% DC Fast

87% Level 2



### Progress towards our EV Adoption Goals

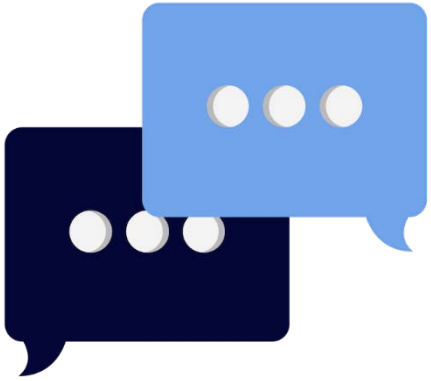




# Bay Area EV Acceleration Plan



# Acceleration Plan Timeline



**Stakeholder Consultation**  
Completed



**EV Market Research Study**  
Underway



**Acceleration Plan Release**  
Winter 2019 – 2020

# EV Market Research Study



- Understand majority adopters to move market beyond early adopters: **apartment residents, low-income households, fleet managers, ride hailing drivers, property owners, and dealership sales personnel**
- Understand priorities and barriers of key market actors that affect EV market and infrastructure

Anecdotes



Data



Outreach  
Messages

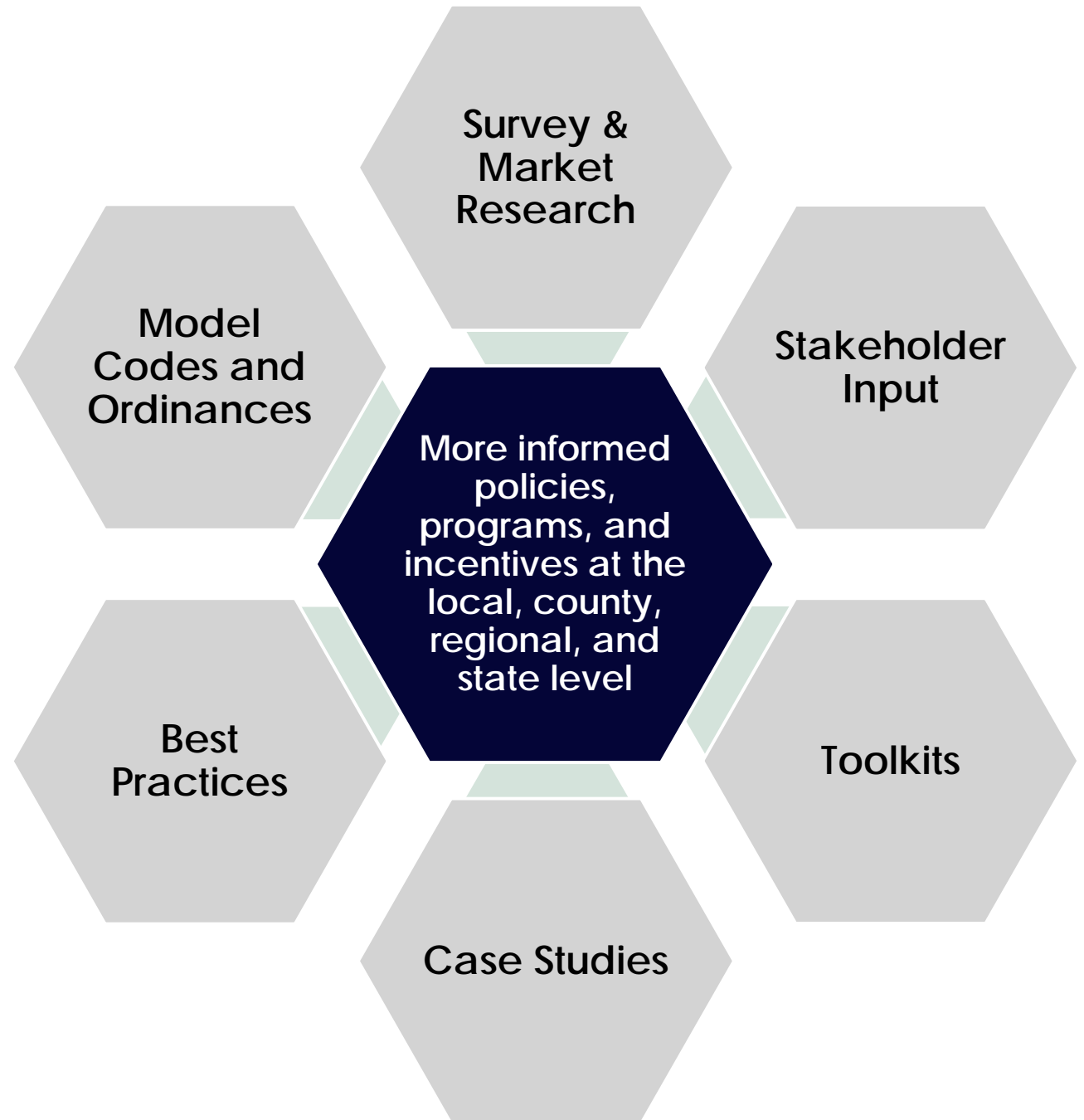




# Acceleration Plan Outline

1. EV Market Update
2. Market Research & Survey Results
3. Opportunities to Accelerate the EV Market
  - ✓ Air District Actions to Reduce Barriers to EV Adoption
  - ✓ Other Actions to Reduce Barriers to EV Adoption
4. Next Steps
5. Annexes (e.g. toolkits, best practices, model policies, etc.)

# Acceleration Plan in 2020





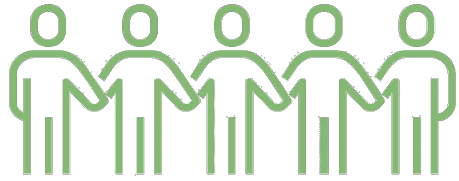
# Clean Cars for All Program (CCFA)



# Benefits from Equity



## For Consumers



- Benefit from fuel savings, lower maintenance, ride quality
- Improve air quality in disadvantaged communities and across Bay Area, aligned with Assembly Bill 617

## For Region & Climate

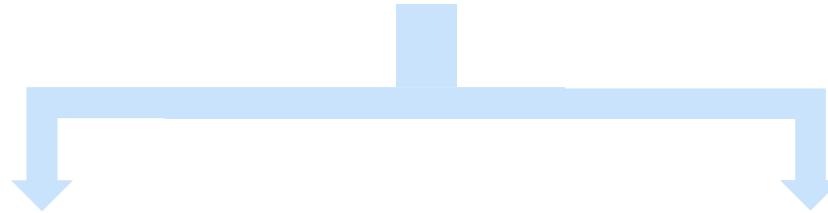


- Expand EV usage across the Bay Area, including expanded charging network
- Scale-up of EV market beyond early adopters
- Reduce demand and use of fossil fuels

# Clean Cars for All Program



Low-income residents\* in communities disproportionately burdened by pollution\*\* who turn in older vehicle



## Advanced Technology

- Purchase or lease
- Hybrid, plug-in, or electric vehicle



## Alternative Transportation

- Clipper card
- Card for bike sharing, car-sharing, vanpooling (future option)
- Electric bicycle (coming soon – Senate Bill 400)

<http://www.baaqmd.gov/cleancarsforall>

\* ≤400% Federal Poverty Level

\*\*CalEnviroScreen 3.0, Expanding to all Bay Area zip codes in Fall 2019

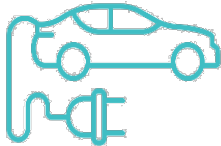
# Clean Transportation and Vehicle Options



Alternative Transportation Card  
/ Electric Bicycle

Incentive Amount Available

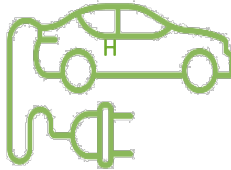
**\$7,500**



Battery Electric

**\$5,500 - \$9,500**

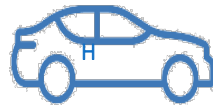
Plus \$2,000 rebate for charger or portable charger and charge card



Plug-In Hybrid

**\$5,500 - \$9,500**

Plus \$2,000 rebate for charger or portable charger and charge card



Hybrid

**\$5,000 - \$7,000**

# Status of Clean Cars for All Program

(September 24, 2019)



18

Community  
Events

10

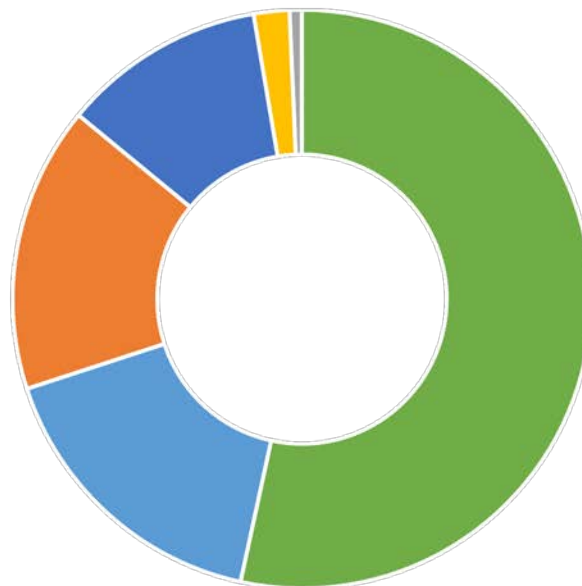
Press  
Mentions

231

Applications  
in Progress

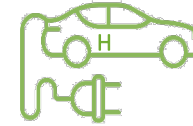
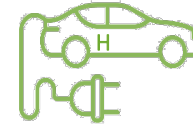
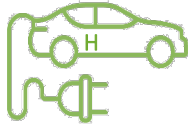
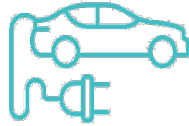
\$651,623

Awarded



- Battery electric vehicle
- Battery electric vehicle with home charging station
- Clipper Card
- Hybrid vehicle 28-34 MPG
- Hybrid vehicle 35+ MPG

# Examples of Vehicle Cost

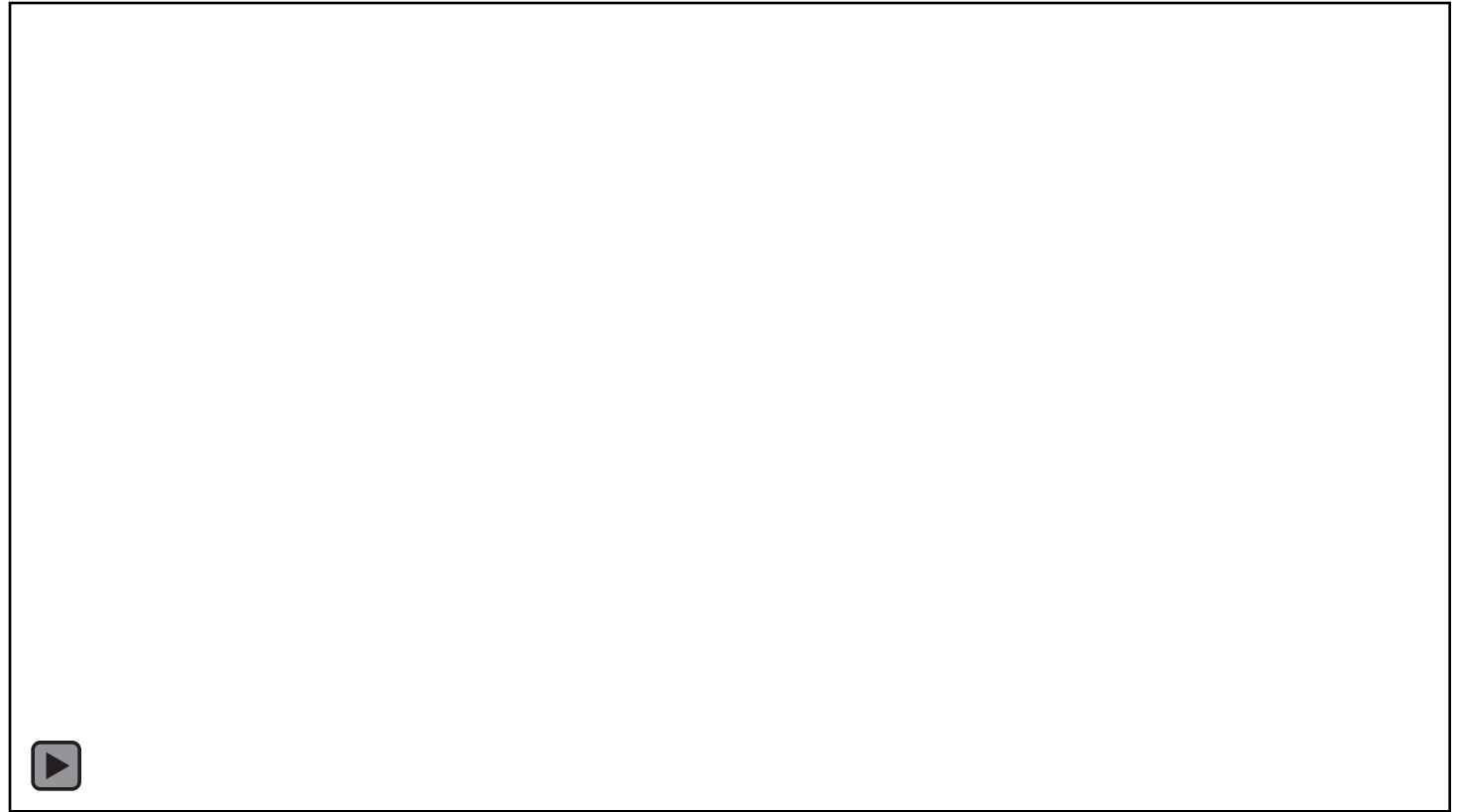


	New 2019 Nissan Leaf	New 2019 Prius Prime Plus	Used 2016 Chevrolet Spark	Used 2013 C-Max Energi	Used 2019 Chevrolet Volt
Price	\$29,900	\$29,548.00	\$8,250.00	\$10,600.00	\$11,999.00
Taxes*	\$2,691.00	\$2,659.32	\$742.50	\$954.00	\$1,079.91
Fees**	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00
Total	\$33,091.00	\$32,707.32	\$9,492.50	\$12,054.00	\$13,578.91
CCFA	(\$9,500)	(\$9,500)	(\$9,492.50)	(\$9,500)	(\$9,500)
PG&E Clean Fuel Rebate	(\$800)	(\$800)	-	-	-
Clean Vehicle Rebate Project (CVRP)	(\$4,500)	(\$3,500)	-	-	-
Manufacturer Rebates	(\$3,500)	(\$3,500)	-	-	-
<b>Total Cost After Incentives***</b>	<b>\$14,791.00</b>	<b>\$15,407.32</b>	<b>\$0</b>	<b>\$2,554.00</b>	<b>\$4,078.91</b>

\* Assume 9% tax  
 \*\* Assume \$500 in fees  
 \*\*\* Does not include Federal  
 Tax Credit or DriveForward  
 (Peninsula Clean Energy)



# Clean Cars for All Grant Recipient Testimonial



# Questions for Steering Committee



Feedback on Acceleration Plan: case studies, overlooked market segments



Best practices for regional plans: balancing state and local outreach and implementation



Outreach suggestions for Clean Cars for All expansion, including press event



Thank you!

