Public Fleet EV Adoption

NASEO's 2017 Mid-Atlantic Regional
State Energy Officials Meeting

June 27, 2017

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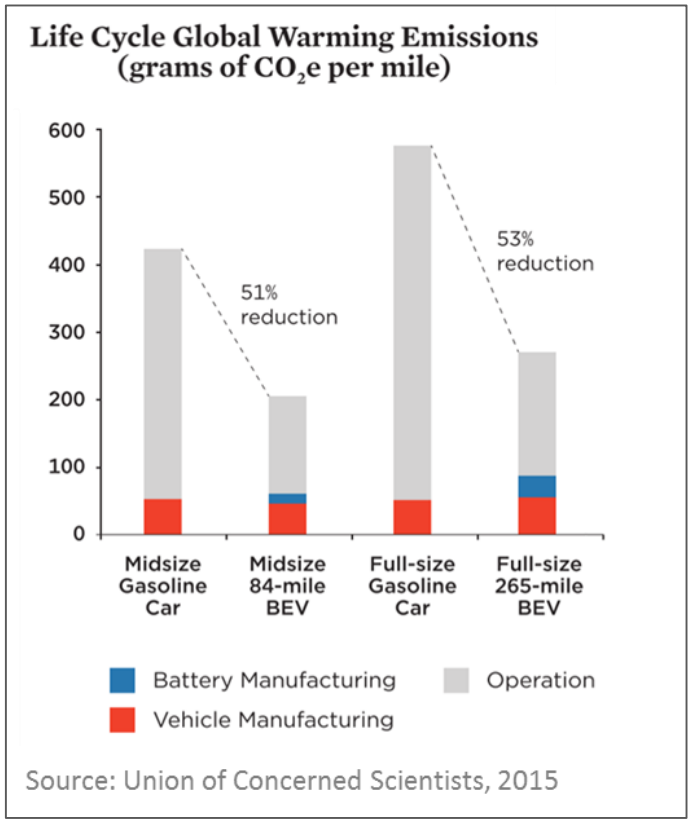
Georgetown Climate Center

GEORGETOWN CLIMATE CENTER
A Leading Resource for State and Federal Policy

Georgetown Climate Center:
A Resource for State and Federal Climate Policy

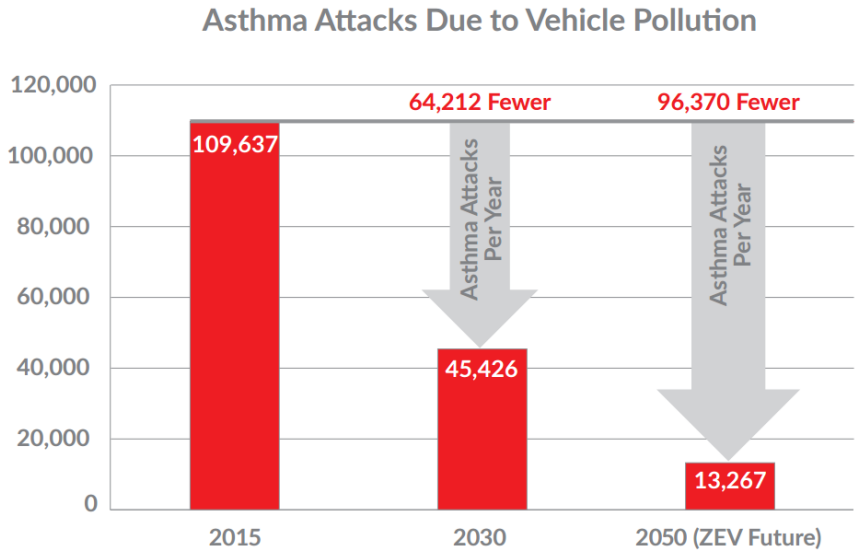
- Launched in 2009 as a resource to states
- Works at the nexus of federal-state policies
- Supports states and other stakeholders through research, facilitation and convening

Significant Pollution Reduction from EVs



Over Life of Vehicle, EVs Provide Significant GHG Reductions per mile

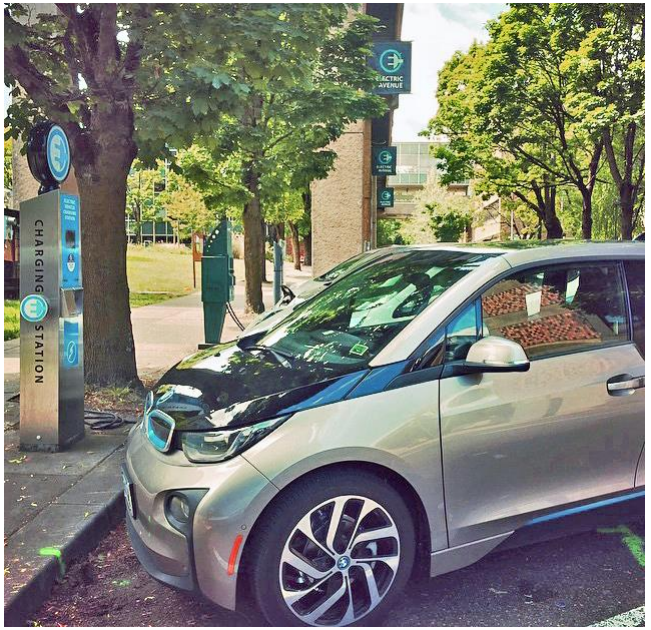
- Reduced criteria pollutants & GHG emissions
- Significant health and economic benefits
- Benefits increase with a cleaner grid



Source: American Lung Association (2016)

Policies and Strategies to Enable Electric Vehicles Adoption

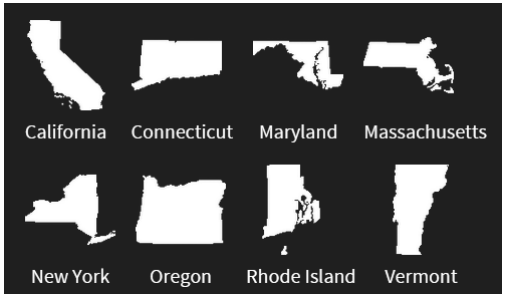
- ZEV sales requirement
- Federal and state incentives
- Multi-state collaboration
- Infrastructure investment and planning
- Utility regulation and investment
- **Lead-by-example fleet adoption**



Lead-by-Example Fleet Adoption

MULTI-STATE

ZEV TASK FORCE



WEST COAST

ELECTRIC

FLEETS

EV Smart Fleets

Making Electric Vehicles Affordable for Fleets through a Multi-State Procurement

EV Smart Fleets

- **Multi-state electric vehicle procurement**
- **Goal to increase public fleet EV adoption:**
  - Cost savings for fleets
  - Increase access to a wider range of EV models
  - Replicable in future years
  - Useful to a wide variety of state and local fleets

Project Partners

CALSTART
calstart.org

Northeast States for Coordinated Air Use Management
nescaum.org

Georgetown Climate Center
georgetownclimate.org

Ross Strategic
rossstrategic.com

California Department of General Services
dgs.ca.gov

Atlas Public Policy
atlaspolicy.com

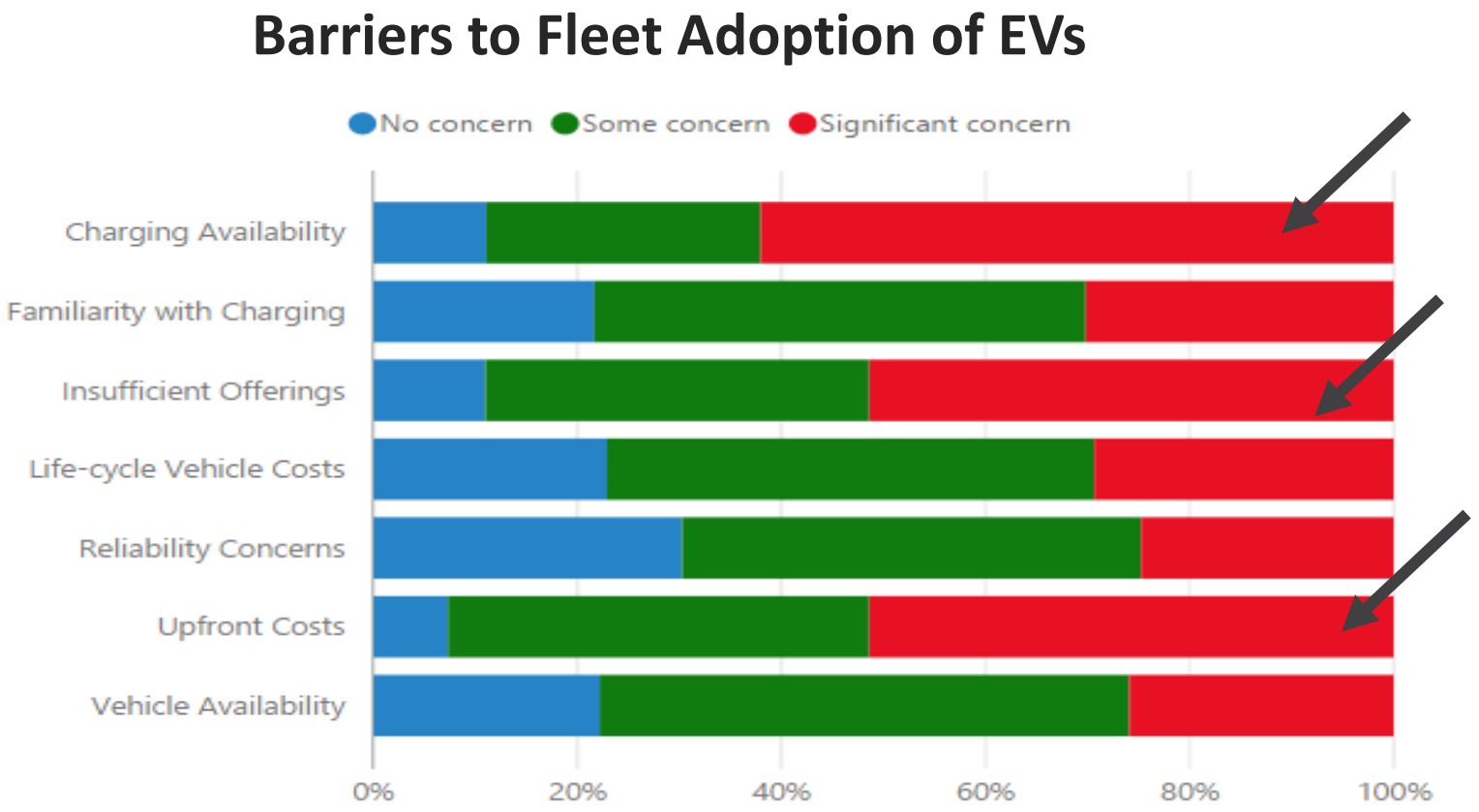
Greater New Haven Clean Cities Coalition
Ocean State Clean Cities Coalition
Sacramento Clean Cities
Western Washington Clean Cities

Columbia-Willamette Clean Cities Coalition
Denver Metropolitan Clean Cities Coalition
Granite State Clean Cities Coalition
Long Beach Clean Cities Coalition
New Jersey Clean Cities Coalition

EV Smart Fleets Update

- Outreach and survey: identify barriers to EV adoption
- Research and analysis on EV procurement strategies
- EV Fleet Procurement Analysis Tool
- Case studies of public fleet procurements

Fleet Survey: Barriers to EV Adoption

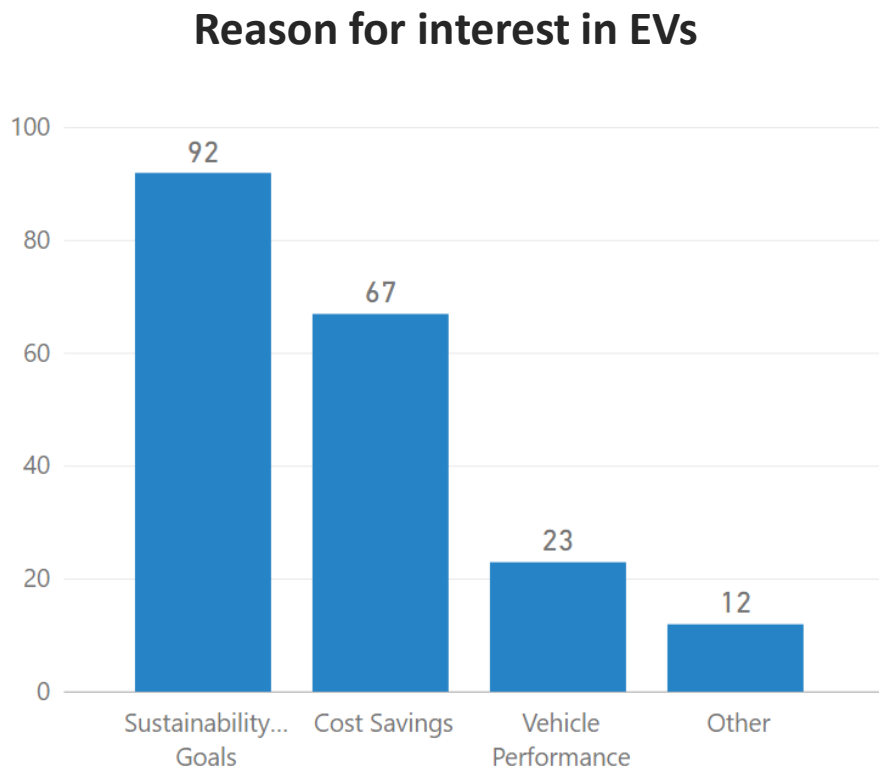


Access to charging, lack of vehicle models, and upfront costs are top concerns for fleets.

Fleet Survey: Interest in EVs

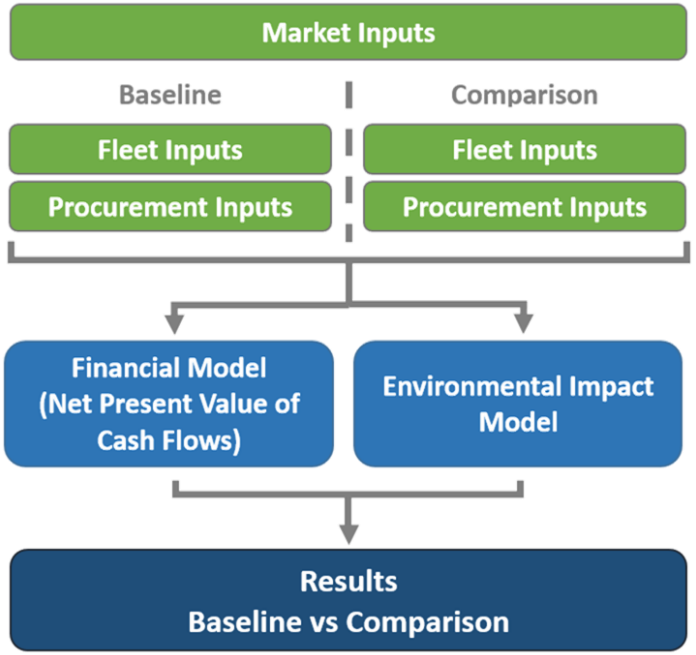
- Reason for interest in EVs:
  - **sustainability goals**
  - **cost savings**

- **Fleet Procurement Analysis Tool** allows assessment of both cost savings and emission reductions



Fleet Procurement Analysis Tool

- Total cost of ownership fleet procurement comparison
  - Evaluates several procurement structures
  - Compares two procurement scenarios side by side
- Easy to use, flexible, available to fleets



Vehicle Inputs

Procurement 1 (Baseline)	
Type Of Vehicle	2017 Chevrolet Bolt BEV
Fuel Economy Gas City (MPG)	-
Fuel Economy Gas Highway (MPG)	-
Fuel Economy Electric City (MPGe)	128.0
Fuel Economy Electric Highway (MPGe)	110.0
Expected Years of Use/Ownership (Years)	7
Annual Vehicle Mileage (VMT/Year)	15,000
% of Annual Miles on Gasoline	0%
% of Annual Miles City Driving	55%
Cost to Insure ($/Year)	$ 869
Maintenance Cost ($/Mile)	$ 0.0415
Repair Cost ($/Mile)	$ 0.0148
Reoccurring Taxes and Fees ($/Year)	$ 100

Procurement 2 (Comparison)	
Type Of Vehicle	2016 Chevy Malibu ICE
Fuel Economy Gas City (MPG)	27.0
Fuel Economy Gas Highway (MPG)	37.0
Fuel Economy Electric City (MPGe)	-
Fuel Economy Electric Highway (MPGe)	-
Expected Years of Use/Ownership (Years)	7
Annual Vehicle Mileage (VMT/Year)	15,000
% of Annual Miles on Gasoline	100%
% of Annual Miles City Driving	55%
Cost to Insure ($/Year)	$ 823
Maintenance Cost ($/Mile)	$ 0.04880
Repair Cost ($/Mile)	$ 0.01130
Reoccurring Taxes and Fees ($/Year)	$ 100

EV Fleet Procurement Analysis Tool: Input Screen

Inputs - Fleet Procurement Analysis Tool

Market Inputs

Zip Code	98101	Gasoline Cost ($/Gallon)	$ 2.00	PADD Region	5	Include Cost of Carbon?	No
State	WA	Electricity Cost ($/kWh)	$ 0.1000	Egrid Region	NWPP	Cost of Carbon ($/ton)	$ -
		Inflation Rate (Excluding Fuel) (%/Year)	2.00%				

Vehicle Inputs

Procurement 1 (Baseline)		Procurement 2 (Comparison)	
Type Of Vehicle	2017 Nissan LEAF BEV	Type Of Vehicle	2015 Chevy Cruze ICE
Fuel Economy Gas City (MPG)	-	Fuel Economy Gas City (MPG)	22.0
Fuel Economy Gas Highway (MPG)	-	Fuel Economy Gas Highway (MPG)	35.0
Fuel Economy Electric City (MPGe)	124.0	Fuel Economy Electric City (MPGe)	-
Fuel Economy Electric Highway (MPGe)	101.0	Fuel Economy Electric Highway (MPGe)	-
Expected Years of Use/Ownership (Years)	7	Expected Years of Use/Ownership (Years)	7
Annual Vehicle Mileage (VMT/Year)	15,000	Annual Vehicle Mileage (VMT/Year)	15,000
% of Annual Miles on Gasoline	0%	% of Annual Miles on Gasoline	100%
% of Annual Miles City Driving	55%	% of Annual Miles City Driving	55%
Cost to Insure ($/Year)	$ 869	Cost to Insure ($/Year)	$ 838
Maintenance Cost ($/Mile)	$ 0.0415	Maintenance Cost ($/Mile)	$ 0.07010
Repair Cost, Not Including Damages ($/Mile)	$ 0.0148	Repair Cost, Not Including Damages ($/Mile)	$ 0.02260
Reoccurring Taxes and Fees ($/Year)	$ -	Reoccurring Taxes and Fees ($/Year)	$ -

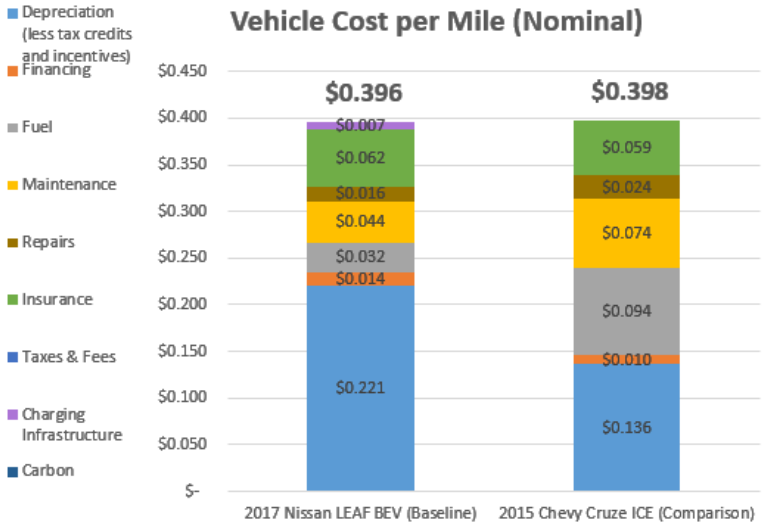
Vehicle Financing Inputs

Procurement 1 (Baseline)		Procurement 2 (Comparison)	
Discount Rate for NPV Calculations (%)	2.00%	Discount Rate for NPV Calculations (%)	2.00%
Number of Vehicles to Procure (#)	10	Number of Vehicles to Procure (#)	10
Pricing Approach (select one)	MSRP Less Discounts	Pricing Approach (select one)	MSRP Less Discounts
MSRP ($/Vehicle)	$ 30,680	MSRP ($)	$ 16,170
Value of Negotiated Discounts ($/Vehicle)	$ -	Value of Negotiated Discounts ($/Vehicle)	$ -
Dealer Triple Net Price ($/Vehicle)		Dealer List Price ($)	$ -
Dealer Markup ($/Vehicle)		Markup ($)	$ -
Total Base Price	$ 30,680	*Total Base Price*	$ 16,170

Fleet Procurement Analysis Tool: Output Dashboard

Results - Fleet Procurement Analysis Tool

Procurement Summary

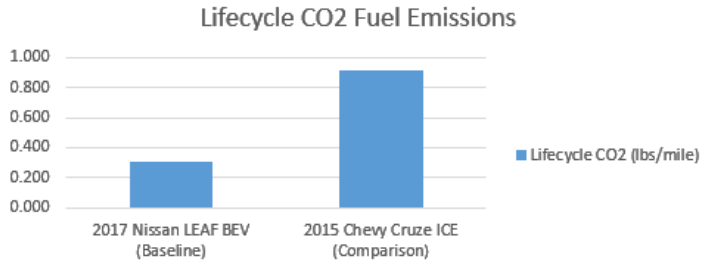


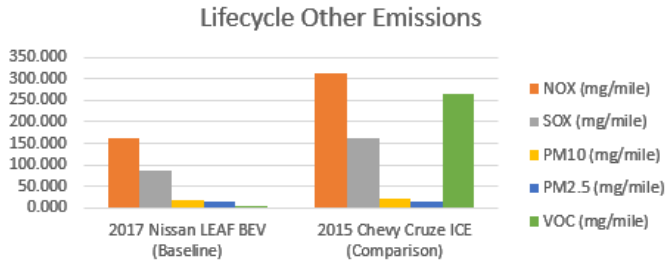
The baseline is 0.48% less expensive than the comparison vehicle

Procurement Details

	2017 Nissan LEAF BEV (Baseline)	2015 Chevy Cruze ICE (Comparison)
Procurement Type	Purchase (Loan)	Purchase (Loan)
Number of Vehicles Procured	10	10
Years of Use/Ownership	7	7
Miles Procured	1,050,000	1,050,000
Total NPV Vehicle and Operating Cost	$ 456,554	$ 389,875
Total Tax Incentives Captured	$ 75,000	$ -
Total Non-Tax Incentive Captured	$ -	$ -
Total Discounts Captured	$ -	$ -
NPV Vehicle Total Cost less Incentives and Discounts	$ 381,554	$ 389,875
NPV Total Cost of Infrastructure	$ 7,716	$ -
Total NPV Cost	**$ 389,269**	**$ 389,875**
Total NPV Cost / Mile	$ 0.371	$ 0.371

Societal Benefit Summary

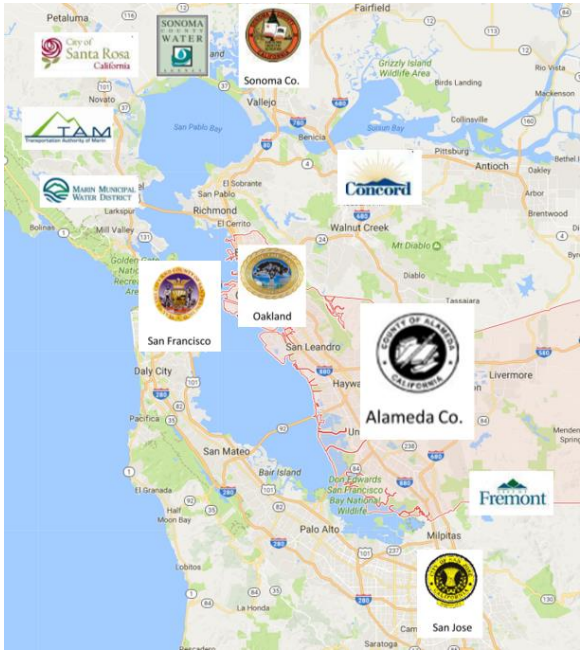




Public Fleet Procurement Case Studies

Key lessons learned:

- Opportunity to capture tax credit
- Successful integration into fleets
- Support from employees
- Reduced operating expenses & cost savings



Multi-county aggregate purchase

- EV purchase for 10 county and municipal public fleets

City of Seattle

NEW BEDFORD

Project Timeline

Summer/ Fall 2016	• Outreach and needs assessment • Formation of Automaker Advisory Group
Fall/Winter 2016/ 2017	• Analysis & Development of Procurement Principals
Winter 2016/ 2017	• Development of solicitation
Summer 2017	• Issuance of solicitation
Fall/Winter 2017/18	• Responses and fleet orders

EV Smart Fleets

Visit us at: http://evsmartfleets.com

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