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SUBMISSION TO:

2012-2013 INVESTMENT PLAN FOR THE ALTERNATIVE AND RENEWABLE FUEL AND VEHICLE TECHNOLOGY PROGRAM

CALIFORNIA ENERGY COMMISSION

PROPOSAL FOR:

2012 EV LEADERSHIP PROJECT: LAUNCHING A ROBUST, DYNAMIC AND INDUSTRY TRANSFORMING EV ECOSYSTEM IN NORTHERN CALIFORNIA

BY ELECTRIFICATION LEADERSHIP COUNCIL (ELC)

ALTERNATIVE AND RENEWABLE FUEL AND TECHNOLOGY PROGRAM

The **Alternative and Renewable Fuel and Vehicle Technology Program** was established to provide financial incentives for businesses, vehicle and technology manufacturers, and workforce training partners, fleet owners, consumers and academic institutions to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policy objectives.

By distributing as much as \$100 million annually through competitive grants and other means, the Energy Commission has been able to leverage large federal and private investments to help grow the nation's energy security through fuel diversity, while encouraging long-term economic development and advanced transportation employment opportunities.

Recognizing there is no "silver bullet" or single solution, funded projects have included commercial vehicle demonstrations and deployment, vehicle manufacturing, fuel production and

research of innovative technologies. Additionally, critical functions such as outreach and marketing, workforce training and studies that focus on sustainable industry practices reinforce the goals of the program.

ELECTRICAL VEHICLE (EV) ECOSYSTEM

The **Electrification Leadership Council (ELC)** proposes a comprehensive multi-year project to help the **Alternative and Renewable Fuel and Vehicle Technology Program** by creating an **Electrical Vehicle (EV) Ecosystem** to help the OEMs, the industries and companies that serve these manufacturers, as well as the state and local governments seeking to promote their introduction understand what would actually be needed to create the technological, economic and political environment to make them a productive part of our transportation, transport and economic systems.

Specifically, the ELC seeks to generate from a variety of public and private sources a **\$225,000,000** program to:

To create, refine and perfect a process that fosters market-to-market EV deployment effectively, efficiently and on a nationally replicable scale.

To create a fully integrated EV Ecosystem that serves as a comprehensive solution; which ensures that the vehicles, infrastructure, and the full network of support services and technologies work together in a well-defined and well-prepared market.

To establish an Education Program where training, knowledge, product service reliability would serve to increase user acceptance.

The Project would include:

- Deployment of up to 1,500 electric vehicles in 2012-2014 timeframe.
- Collection of data, operator and community feedback which will lead to greater understanding to develop a better process for electric vehicle expansion
- Utilization of grant funds to subsidize individual purchase costs of vehicles and infrastructure
- Creation of a platform that will drive the national electric vehicle industry forward
- Avoiding emission of 53,200,500 pounds of greenhouse gases (GHG)
- Saving 2,632,000 gallons of diesel and gasoline fuel.
- Community education program and outreach to generate universal understanding and acceptance of EVs.
- Development of vehicle internal and external maintenance as well as driver training program

The ELC is made up of committed corporations and organizations who would partner with the Energy Commission by participating in and helping to underwrite the project. Its members are:

- A123 Systems
- Automatiks
- Azure Dynamics
- Coda Automotive
- ECOtality
- FedEx Express
- GE Capital
- Hertz
- Navistar
- Pacific Gas and Electric Company

PROJECT SUMMARY

NAME OF APPLICANT	ELECTRIFICATION LEADERSHIP COUNCIL
PROJECT DIRECTOR	MARK AUBRY
PROJECT TITLE	THE 2012 EV LEADERSHIP COMMUNITY PLAN: LAUNCHING A LARGE-SCALE, ROBUST, DYNAMIC AND INDUSTRY TRANSFORMING EV DEMONSTRATION PROJECT IN NORTHERN CALIFORNIA
PROJECT VALUE	\$ 250,000,000
OBJECTIVES OF PROJECT	<ol style="list-style-type: none">1. TO CREATE, REFINE AND PERFECT A PROCESS THAT FOSTERS MARKET-TO-MARKET ELECTRIC VEHICLE (EV) DEPLOYMENT EFFECTIVELY, EFFICIENTLY AND ON A NATIONALLY REPLICABLE SCALE.2. TO CREATE A FULLY INTEGRATED EV ECOSYSTEM THAT SERVES AS A COMPREHENSIVE SOLUTION; WHICH ENSURES THAT THE VEHICLES, INFRASTRUCTURE, AND THE FULL NETWORK OF SUPPORT SERVICES AND TECHNOLOGIES WORK TOGETHER IN A WELL-DEFINED AND WELL-PREPARED MARKET.3. TO ESTABLISH AN EDUCATION PROGRAM WHERE TRAINING, KNOWLEDGE, PRODUCT SERVICE RELIABILITY WOULD SERVE TO INCREASE USER ACCEPTANCE.
DESCRIPTION OF PROJECT	
METHODS	<ul style="list-style-type: none">▪ DEPLOYMENT OF UP TO 1,500 COMMERCIAL ELECTRIC VEHICLES IN 2012-2014 TIMEFRAME.▪ COLLECTION OF USAGE DATA, OPERATOR AND COMMUNITY FEEDBACK WHICH WILL LEAD TO GREATER UNDERSTANDING TO DEVELOP A BETTER PROCESS FOR ELECTRIC VEHICLE EXPANSION.▪ UTILIZATION OF INCENTIVES TO SUBSIDIZE INDIVIDUAL PURCHASE COSTS OF VEHICLES, INFRASTRUCTURE, EDUCATION AND TRAINING.
POTENTIAL IMPACT	<ul style="list-style-type: none">▪ CREATION OF A PLATFORM THAT WILL DRIVE THE NATIONAL ELECTRIC VEHICLE INDUSTRY FORWARD▪ 53,200,500 POUNDS OF GREENHOUSE GAS EMISSIONS AVOIDED▪ 2,632,000 GALLONS OF COMBINED DIESEL AND GASOLINE SAVINGS▪ COMMUNITY EDUCATION PROGRAM AND OUTREACH▪ MAINTENANCE AND DRIVER TRAINING PROGRAMS
MAJOR PARTICIPANTS	THE ELECTRIFICATION LEADERSHIP COUNCIL: A123 SYSTEMS FEDEX EXPRESS AUTOMATIKS GE CAPITAL AZURE DYNAMICS HERTZ CODA AUTOMOTIVE NAVISTAR ECOTALITY PACIFIC GAS AND ELECTRIC COMPANY

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EXECUTIVE SUMMARY

The United States possesses a strong history of fostering new technology and innovations. With the recent concerns over energy dependence, climate change and health policies dominating the political landscape, it is no wonder America is looking toward innovations within the technological sphere to solve some of these pressing issues. Petroleum dependence is one of the nation's foremost concerns regarding national security, climate change, public health and economic strength. Because the U.S. transportation sector accounts for about 66% of the nation's total oil usage, the implementation of alternative fuels is a promising place to start addressing the aforementioned concerns¹.

Recent federal funding has significantly assisted the development of electric vehicle (EV) technologies as a means to secure energy independence, reduce greenhouse gas emissions and improve quality of life for citizens. However, no single electric vehicle vendor or market participant can unilaterally provide the whole EV package as it is currently called for by consumers and industry alike. This fact means that a collaborative effort is needed on the part of electric vehicle and equipment manufacturers, policymakers and communities to create a model by which electric vehicles can be introduced and successfully integrated into the American transportation and goods movement industry.

"This is about developing a more efficient, effective and environmentally friendly EV Ecosystem. We work with many companies across the EV Ecosystem, have learned a lot and are hungry to further share our learning, expand collaboration and further the future of transportation electrification with this large-scale, cross-industry project. It is the responsible thing to do across the board – environmentally, economically and for our national security as we reduce our dependence on oil and move towards environmentally friendly technologies."

- Dennis Beal, Vice President of Global Vehicles for FedEx Express, an ELC member company

Thus, the Electrification Leadership Council (ELC) was formed. This group of top executives from blue chip companies and representatives from national, state and local agencies has come together to design a large-scale electric vehicle (EV) demonstration project that will help create a comprehensive national model for EV deployment. The ELC is a coalition of key stakeholders throughout the EV supply chain who have the expertise and resources required to engage federal, state, regional and local agencies and coalitions, utility companies, vehicle manufacturers and financial institutions to help overcome the barriers to broad scale EV deployment.

ELC member companies will work together to create the nation's first comprehensive and robust EV Ecosystem: a local environment in which market participants operate within a concentrated, well-defined geographic area where the physical components of the environment, such as commercial electric vehicles, charging stations, electrical grid infrastructure, energy storage devices, communication systems and support networks allow the operators to interact, communicate and optimize the operations of EVs. Participants will work within the EV Ecosystem

to validate the usage of electric vehicles, collect data, discuss strategy and collaborate with policy officials and communities to develop a comprehensive EV deployment model, titled "The EV Leadership Community Plan," by which to implement electric vehicle technology on a broad scale throughout the nation.

On a relatively large scale with up to 1,500 vehicles in a single market, the first demonstration project will study the EV Ecosystem in both a holistic and detailed way, identifying barriers that might not have been otherwise apparent in previous, smaller EV research & development projects. Real working solutions will be established, documented and folded into a deployment model, which will then be transferred to more test markets across the country.

¹ [http://www.eia.gov/pub/oil_gas/petroleum/analysis_publications/oil_market_basics/demand_text.htm#U.S. Consumption by sector](http://www.eia.gov/pub/oil_gas/petroleum/analysis_publications/oil_market_basics/demand_text.htm#U.S.Consumption%20by%20sector)

Large-scale vehicle deployment, detailed data collection, open participation to all fleet operators and OEMs as well as collaboration between market experts and policy officials are all unique aspects of this project that will drive its success. This initiative will serve as a very important step toward addressing issues such as energy independence, climate change and public health. The nation is asking for viable alternative energy solutions and the ELC 2012 EV Leadership Community Plan is designed to answer that call.

1. SCOPE OF WORK

1.1. INTRODUCTION AND BACKGROUND

The United States is the largest consumer of petroleum in the world. Knowing what we do today about the impact of fossil fuel consumption on our economy, national security and the environment should give us all great pause. However; the United States is also one of the top technology innovators and the largest producer of manufactured goods globally.^{2,3} Thus, we are in the perfect position right now to make a break from the unhealthy, petroleum-centric paradigm of today and lead the world into a cleaner, more innovative tomorrow.

In 2010, the United States consumed 19.1 million barrels of petroleum a day.⁴ At nearly \$100 per barrel of crude oil, on average, this tallies to over \$1.8 trillion spent on imported oil in a single year. And while the United States is responsible for exporting about 2.3 million barrels of crude oil per day, almost half of the petroleum we consume annually (49%) is imported, mainly from Canada and Saudi Arabia.⁵ About 18% of these imports come from the Persian Gulf. Due to our dependence on the oil from these sources, any lengthy supply disruptions from this region, caused by future geopolitical or military upheaval, would spell disaster for the U.S. economy. Defense of these resources comes at a great cost to American lives and income. Simply put, our dependence on foreign oil is not sustainable.

Beyond the risks to national security, the burning of petroleum threatens many aspects of our livelihood and environment. In the year 2007, the transportation sector was responsible for approximately 2,580 million metric tons of carbon dioxide emissions, representing 34% of the nation's total carbon emissions output that year.⁶ This level of oil consumption is unsustainable in the long term due to limited resources globally and it threatens the Earth's many fragile ecosystems through unconventional drilling practices and the release of greenhouse gases. Although a global consensus regarding the stabilization and reduction of harmful emissions has not yet been reached, it is becoming increasingly apparent that action on regional and national levels is the key to eliminating environmentally destructive practices such as unrestrained burning of fossil fuels.

Ozone and particle pollution released from petroleum-burning engines not only harms the environment, but also threatens public health. Ozone pollution can shorten life, enflame diabetes

² United Nations Development Program. Human Development Report 2001. New York: Oxford University Press, 2001, Table A2.1. via [ciesin.org](http://www.ciesin.org)

³ 2011 Index of Economic Freedom. <http://www.heritage.org/index/Country/UnitedStates>.

⁴ US Energy Information Administration. http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm.

⁵ US Energy Information Administration. http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm.

⁶ US Energy Information Administration, Carbon Dioxide Emissions by Sector and Source.

<http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2011&subject=0-AEO2011&table=17-AEO2011®ion=1-0&cases=ref2011-d020911a>

and asthma and cause respiratory disease.^{7,8,9,10} The good news, however, is that the reduction of air pollution actually extends life expectancy and creates real economic gain.¹¹ Fortunately, technology exists that can assist with the dramatic reduction of air pollution caused by the burning of petroleum. America need not choose between healthy citizens and a healthy economy.

ELECTRIFICATION OF TRANSPORTATION

One promising solution to America's dependence on oil has emerged over the last few years – the electrification of vehicles used in everyday passenger and commercial transportation. Electrification of transportation offers various advantages over the traditional petroleum-based system, such as domestic production, diversity of sources, scalability and zero direct emissions. At scale, the electrification solution could help stabilize America's economy, strengthen national energy security and improve the health of the environment and its inhabitants.

Electricity is a portable domestic energy. It can be generated from coal, natural gas, nuclear fission, the movement of water and renewable resources such as wind and the sun.¹² The current grid is flexible to increases and decreases in demand and thus, is capable of accommodating the adoption of electric vehicles. Possibly the most striking difference between petro-transport and electric transport is that the vehicles themselves emit no harmful chemicals into the atmosphere, make virtually no sound, have far fewer moving parts and, in practice, have turned their drivers into real believers. In all, electricity as a fuel allows for better control over our wellbeing as a nation.

⁷ Committee on Estimating Mortality Risk Reduction Benefits from Decreasing Tropospheric Ozone Exposure, National Research Council. Estimating Mortality Risk Reduction and Economic Benefits from Controlling Ozone Air Pollution, 2008. www.nap.edu/catalog/12198.html.

⁸ Emmerechts J et al. Air pollution related prothrombotic changes in persons with diabetes. *Environ Health Perspect* 2010; 118(2):191-196

⁹ Dales R, Chen L, Frescura AM, Liu L, Villeneuve PJ. Acute effects of outdoor air pollution on forced expiratory volume in 1 s: a panel study of schoolchildren with asthma. *Eur Respir J* 2009; 34: 316-323.

¹⁰ Medina-Ramon M, Zanobetti A, Schwartz J. The effect of ozone and PM10 on hospital admissions for pneumonia and chronic obstructive pulmonary disease: a national multicity study. *Am J Epidemiol* 2006; 163: 579-588.

¹¹ Pope CA, Ezzati M, Dockery DW. Fine Particulate Air Pollution and Life Expectancy in the United States. *N Engl J Med* 2009; 360:376-86.

¹² BP plc, Statistical Review of World Energy 2009, at 12 (2009).

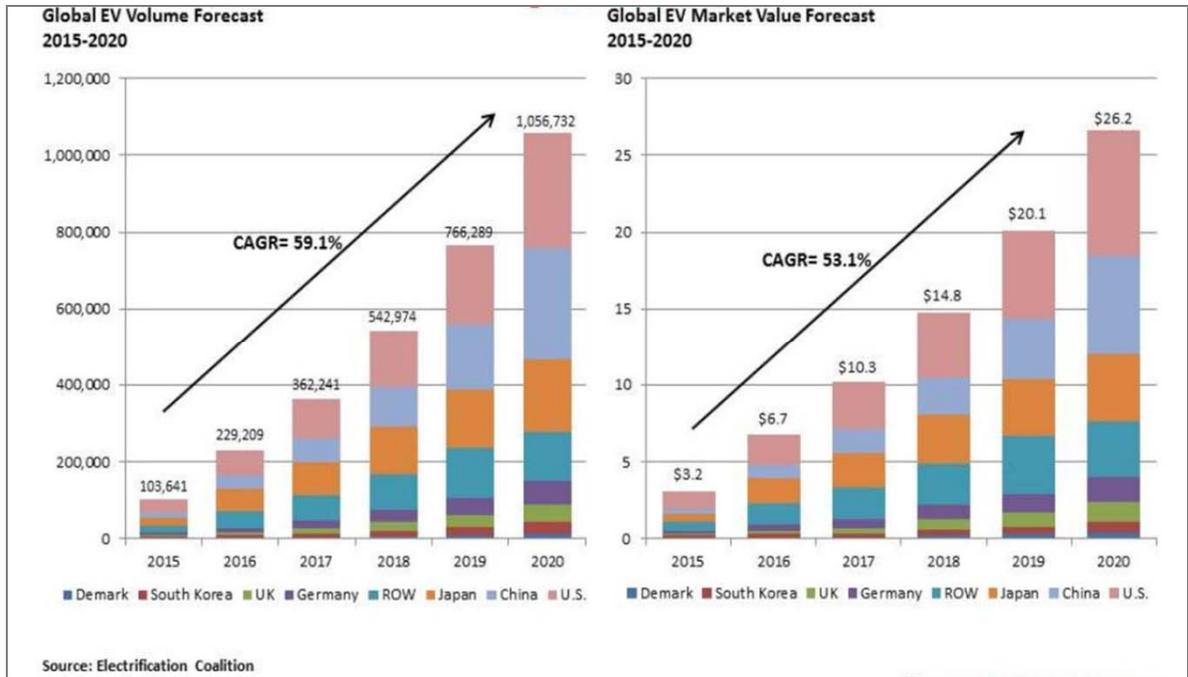


FIGURE 1: GLOBAL EV VOLUME FORECAST FOR YEARS 2015 THROUGH 2020.

And the last mile – where the EV interacts within and connects to its ecosystem - represents our greatest opportunity to reduce pollution, create innovations in transportation service, build a dependable and sustainable platform, and positively impact matters of energy security. As shown in Figure 1, the global EV market value is projected to increase rapidly over the next 10 years. It then follows that EV technology is a promising and potentially profitable technology that will improve the nation on a whole. In order to claim this economic goldmine and victory for American innovation, we must support strong, continuous plans to implement electric transportation.

THE ELECTRIFICATION LEADERSHIP COUNCIL

As of today, no single electric vehicle vendor or market participant can unilaterally provide the whole EV package as it is currently called for by the public. Therefore, a new level of cooperation and communication is mandated so that companies – not just products – can finally interoperate to create a complete solution. The Electrification Leadership Council (ELC) has a plan to develop this solution. By leveraging the technology gains and market development activities achieved by previous, federal and state-funded initiatives, the ELC plans to create a comprehensive EV deployment model to implement electric vehicle technology on a broad scale throughout the nation.

Unlike past demonstration projects, which involved evaluations of a few geographically dispersed vehicles, the ELC’s demonstration project intends to involve scaling the EV opportunity within a concentrated area and creating an EV Ecosystem to address the critical issues of cost, public policies and financial drivers, in-use experience, training along with knowledge and service reliability, outreach, education, user acceptance, and the interoperability of and interface between EVs and the electricity grid from commercial vehicle applications. Participation in the project will be open to

all commercial fleet operators and original equipment manufacturers (OEMs). The ELC believes that taking a fleet-first approach will resolve many problems faced by previous, smaller projects. The demonstration will be localized, business-oriented, and will require a large pull on manufacturers and utility services. The utilization of fleets will also allow for simple data and feedback collection. This local market demonstration project will be the key driving force to achieving a comprehensive EV deployment model that can be replicated nationwide. The ELC has titled this large-scale demonstration project and the creation of an EV Ecosystem “The EV Leadership Community Plan.”

The ELC seeks to create focus in the fragmented, yet burgeoning, electric vehicle market by creating a reusable market model, The EV Leadership Community Plan, and implement electric vehicle technology throughout a variety of markets. Never before has a demonstration project with such scale and comprehensive collaboration been executed. The ELC will leverage the experience of market leaders, policy officials and communities to target and discover solutions for problem areas that act as barriers to widespread electric vehicle adoption. Throughout this project, the ELC will act as a leader whose successes will inspire and guide communities as well as businesses to engage in the expanding industry of transportation electrification.

The ELC combines top executives from blue chip companies with representatives from national, state and local agencies who are key stakeholders throughout the EV supply chain. ELC board members have the expertise and resources required to engage federal, state, regional and local coalitions, utility companies, vehicle manufacturers and financial institutions to help overcome the barriers to broad scale EV deployment. While some market participants have already joined the ELC as board members, this coalition is not a closed partnership. The ELC seeks to continuously recruit relevant companies and experts in the market, providing a well-rounded and current representation of the EV industry across its membership. The following companies have already committed their expertise and experience to this promising project:

- A123 SYSTEMS
- AUTOMATIKS
- AZURE DYNAMICS
- CODA AUTOMOTIVE
- ECOTALITY
- FEDEX EXPRESS
- GE CAPITAL
- HERTZ
- NAVISTAR

Figure 2 illustrates the pathway by which the ELC intends to move into the market. The ELC will leverage government support and industry leadership to bring the EV Leadership Community Plan, a successful EV Ecosystem, into the focus of the EV industry.

ELC Pathway to Market

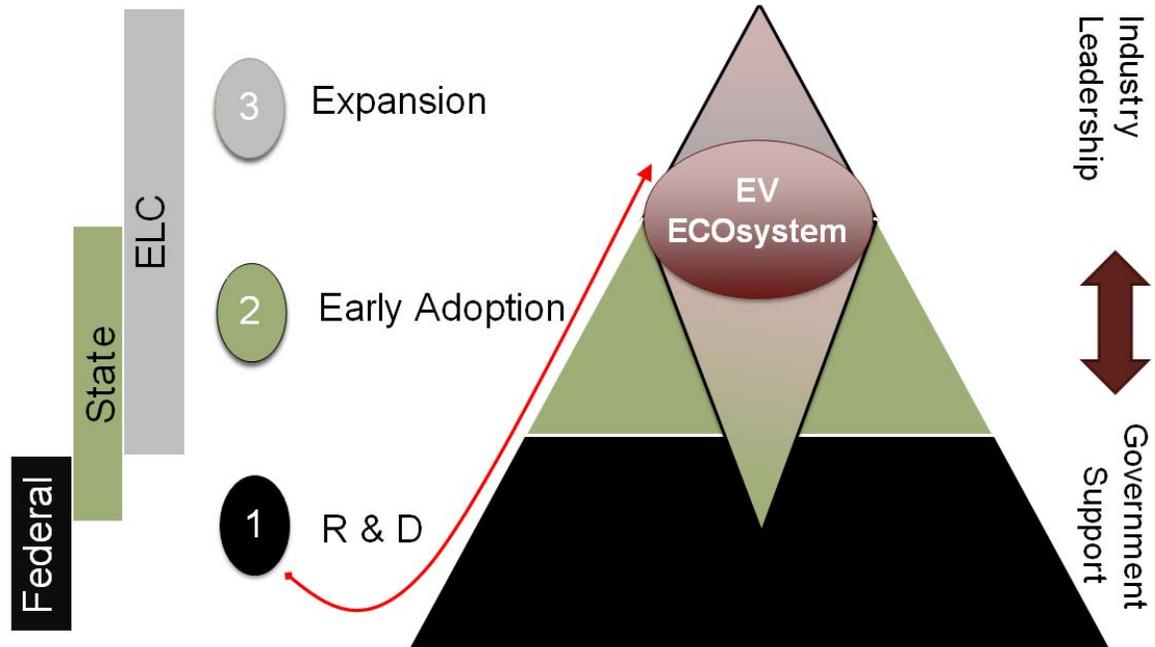


FIGURE 2. ELC PATHWAY TO MARKET.

Existing research and development efforts, supported by federal, state and local funding, will encourage early adoption initiatives that eventually bolster a self-sufficient, sustainable and fully commercialized EV market. Governmental support will be the pathway by which the ELC gains favorable legislation as well as community and market acceptance. The capstone on the pyramid, representing the promise of industry-wide EV expansion, links together government support and industry leadership to promote the industry's ability to grow and be successful. With total collaboration between the ELC and federal, state and local government, the EV Ecosystem will gain the full backing of the stakeholder community it needs to develop a replicable business model that has the potential to grow continuously throughout the industry.

1.2. VEHICLES & TECHNOLOGIES

The EV Leadership Community Plan is open to all passenger and commercial fleet operators and electric vehicle manufacturers. The Plan will incorporate a variety of different vehicle classes and intended applications, capturing a wide breadth of vehicle and charging station usage data during this demonstration project. Participants will choose from the variety of electric vehicle and charging station model options available in the market today to demonstrate electric vehicle usefulness. Table 1 displays the technical specifications of several vehicles as an example of the types of EVs offered in the market today. The Navistar eStar and Ford/Azure Dynamics Transit Connect Electric primarily serve as delivery vehicles for commercial applications while CODA's sedan is predominantly a passenger or service professional transportation vehicle.

Table 1 offers a sample of the specifications typically seen in electric vehicles today. An example of a class 3 delivery electric vehicle, the Navistar eStar is an EPA-certified clean fuel fleet vehicle as well as a CARB-certified zero emissions vehicle. It is considered a DOT Class 2c-3 commercial truck and has a range of 100 miles per charge.¹³ Its 80 kWh battery can be charged within 6-8 hours with a level 2 charging apparatus. The Azure Dynamics-Ford Transit Connect Electric (TCE), a lighter-duty electric delivery vehicle, boasts a 50-80 mile range on its 25 kWh battery. As a class 1 delivery vehicle, it provides a relatively small frame with up to 1000 pounds of payload capacity and over 135 cubic feet of cargo space.¹⁴ The CODA Automotive vehicle, a class 1 passenger electric vehicle, is powered by a 36 kWh battery capable of up to 150 miles per charge. This battery can be charged in under six hours with a level 2 charging unit. A variety of electric ranges, weight classes, battery charging times and applications are offered by the EV industry, both presently and in the future.

Make & Model	Class	Battery Size (kWh)	Range (miles)	Application
Navistar eStar	3	80	Up to 100	Commercial
Ford Transit Connect Electric	1	28	50-80	Commercial
CODA Automotive	1	36	Up to 150	Commercial or Passenger transportation

TABLE 1. ELECTRIC VEHICLE SPECIFICATIONS.

There are also several charging station options offered on the market today, all available to the EV Leadership Community Plan’s participants. ELC board member companies GE Capital and ECotality North America have offered examples of wall and pedestal chargers available for installation in fleet facilities. Table 2 displays technical specifications of a few specific charging stations that are typical throughout the EV charging industry. Many of the fleet-available charging units market-wide are level 2 chargers, offering 240 volts of AC input to charge vehicles over a six to eight hour period. Both wall mounts and pedestal units will be installed in fleet facilities for commercial use during this demonstration project. GE Capital and ECotality North America estimate a minimum need for one (1) EVSE per vehicle. Additional specifications for the charging station models are available in the appendix. Charging will typically occur at night, after a route or service shift has been completed.

¹³ Fleet Equipment. http://www.fleetequipmentmag.com/Item/73871/new_estar_is_navistars_first_allelectric_commercial_truck.aspx

¹⁴ Azure Dynamics. http://www.azuredynamics.com/products/documents/SPC500908-E_TransitConnectElectricProductCard.pdf

Hardware	Level	Voltage	Application
ECotality Blink Wall Mount Charger	2	240 volts AC	Commercial
ECotality Blink Pedestal Charger	2	240 volts AC	Commercial Public
GE Capital WattStation™ Wall Mount	2	240 volts AC	Commercial
GE Capital WattStation™ Pedestal	2	240 volts AC	Commercial Public

TABLE 2: CHARGING STATION SPECIFICATIONS.

When considering charging infrastructure installation costs, it is important to include an assessment of new or upgraded electric service per property, property wiring and conduit services, and cost of the actual charging unit itself. Table 3 contains a breakdown of the estimated cost of purchasing and installing charging infrastructure per vehicle provided in Table 1, as example models¹⁵. These installations occur prior to the delivery of the purchased or leased electric vehicle.

Vehicle	Infrastructure Purchase & Installation Cost per Vehicle
Navistar eStar	\$7,500
Ford Transit Connect Electric	\$5,000
CODA	\$5,000

TABLE 3. ESTIMATED COST OF INFRASTRUCTURE INSTALLATION FOR A SAMPLING OF ELECTRIC VEHICLES.

SOURCE: KEVIN MORROW, ECOTALITY.

1.3. STATEMENT OF PROJECT OBJECTIVES

The EV Leadership Community Plan (“The Plan”) will seek to deploy up to 1,500 vehicles for this initial demonstration project in the San Francisco Bay Area and establish a target goal of transferring the resulting market model to several test locations throughout the next five years. Ultimately, this market model will be used repeatedly to implement electric vehicles nation-wide. This particular amount of vehicles (1,500) was chosen by ELC members as an adequate scale for the industry in order to provide enough stress on the utilities needed for usage studies while maintaining an economically manageable level of adoption per fleet, a scale which distinguishes the ELC from other, similar initiatives. The Bay Area was chosen for its regulatory aggressiveness in regards to emissions, proactive governmental agencies, dense population, knowledge and resources and the presence of progressive fleets with well-defined sustainability commitments. The ELC plans to take advantage of the area’s political stature by leveraging local and statewide environmental agencies to create policies, grants and other incentives that encourage EV ownership.

¹⁵ Pricing estimated provided by ECotality North America on December 2, 2011.

The Plan will support the California Energy Commission's (CEC) goals to decrease petroleum use and emissions of greenhouse gases by providing a large fleet of electric vehicles operating in a high mileage service. These zero-emission vehicles will replace comparable petroleum-dependent cars and trucks, reducing harmful tailpipe emissions by approximately 56 pounds of nitrogen, 16,000 pounds of carbon dioxide and 800 gallons of gasoline per year.¹⁶ The project will also support the CEC's initiatives to provide incentives for the purchase of alternative fuel vehicles and charging infrastructure. Ultimately, this project will create a platform by which job training will be created and innovation in electric vehicle technology will flourish.

The primary goals of the EV Leadership Community Plan are:

1. To create, refine and perfect a process that fosters market-to-market EV deployment effectively, efficiently and on a nationally replicable scale.
2. To create a fully integrated EV Ecosystem that serves as a comprehensive solution; which ensures that the vehicles, infrastructure, and the full network of support services and technologies work together in a well-defined and well-prepared market.
3. To establish inclusive, user-friendly and peer reviewed education programs, where training, knowledge, product service reliability would serve to increase user acceptance.

The ELC will seek out partnership of local host utilities to supplement knowledge about usage data and consumer needs. Usage data will also be collected from vehicles and charging stations implemented throughout the demonstration phase of the project. A major U.S. national laboratory will store, analyze, report and manage project data collected from the vehicles and infrastructure throughout the demonstration. Through analysis of this this quantitative data (which will be made publicly available through the project website) combined with consideration of qualitative feedback from the test market communities and collaboration with local policy influencers, the ELC will form a comprehensive, proven market model that is capable of fostering broad scale EV adoption nationwide.

Data collection and community feedback gleaned from the demonstration project will lead to the development of an all-inclusive EV Ecosystem. The outcome of all of the interactions within the EV Ecosystem will prove the validity, reliability and functionality of electric vehicles. On such a scale as the ELC proposes, barriers less visible in small deployment projects will be evident and thus targeted for problem solving. Proven solutions identified in the EV Ecosystem will then be used to replicate a comprehensive EV deployment model in various phases and markets across the U.S.

A comprehensive training program will be launched in conjunction with the demonstration project. Educational goals will focus on driver training, maintenance professional training and community outreach to foster the increased availability of service and user acceptance of electric vehicle technology. Several local vocational schools and organizations will provide training and experience opportunities for automotive professionals and drivers. Along with training programs, the ELC will provide public relations support and marketing tools to support local U.S. Department of Energy

¹⁶ Based on light-duty truck annual emissions (14,000 miles); <http://www.epa.gov/otaq/consumer/f00013.htm>

Clean Cities and similar outreach organizations in order to educate communities through a network of existing local education and outreach programs. The complete training program will consist of three parts:

Part 1. Courses under the National Alternative Fuels Training Consortium (NAFTC) at the University of West Virginia

Part 2. Community outreach collaboration with local Clean Cities coalitions

Part 3. Courses offered by local community colleges as well as technical and vocational institutions

The ELC's EV Leadership Community Plan will also sustain and make every attempt to perpetuate previous national investments in the U.S. battery and EV industries, in the future of transportation, in strengthening energy security and in driving innovation by moving a boutique niche market into the commercialized mainstream; one that delivers a comprehensive EV solution for buyers and sellers alike. This plan will also develop new financial models for battery acquisition cost options by rigorously monitoring in-service battery health and by creating a battery second life program after batteries are deemed no longer suitable for electric powertrain applications. Currently, batteries represent about 50% of the purchase cost of an electric vehicle.¹⁷ELC intends to address this issue, collecting data to monitor the health and life span of a typical vehicle battery. This data will ultimately be used to develop financial models by which batteries could be leased or used on-demand rather than requiring a full up-front payment as well as define applications for batteries once they have reached the end of their useful life in a vehicle powertrain.

This large-scale repurposing project means that, in the future, batteries will be used in household garages, power centers and to collect nighttime wind power to provide grid-tied peak power shaving. Essentially, data will be collected during the battery's "second life" to determine how electric vehicle batteries can be reused. This data will also allow financial risk managers and innovators to study potential and innovative battery leasing and amortization models that may be applicable to the EV powertrain and "electric fuel" environment.

PROJECT ASSUMPTIONS

GENERAL OVERVIEW

Timeframe – We assume that the first phase, Bay Area market, demonstration project will begin in CY 2012 and will extend into CY 2013. Each commercial vehicle will be included in the study universe for its initial 12 months of service.

Number of Vehicles – We assume that up to 1,500 EVs (minimum 1000) will be purchased or leased and put into service within the nine county Bay Area.

¹⁷ MEC Intelligence Report – Drivers and Inhibitors of Electric Vehicles

Responsibility for Performance – We assume that Electrification Leadership Council members will share the responsibilities for performance under the terms of the EV Leadership Community Plan.

EV Ecosystem Boundary – The demonstration project will be conducted principally in the nine counties that comprise the Bay Area Air Quality Management District: Napa, Marin, Contra Costa, San Francisco, Alameda, San Mateo, Santa Clara plus southern Sonoma and southern Solano Counties.

INCENTIVES

EV - ICE Cost Parity – We assume that through a combination of currently available tax and purchase incentives, new incentives and meaningful in-kind contributions from environmental agencies, manufacturers and others, the cost of EVs in this demonstration project will approach parity with comparable internal combustion powered (ICE) vehicles. The goal is to create incentives that will bridge the incremental cost gap (electric vehicles vs. ICE vehicles) 50-100% depending on a range of factors, including the amount of funding received and the specific GVWR incentives provided.

Congestion Pricing Incentives – We assume that there will be support from government with non-cash incentives such as preferential parking and access to HOV lanes for participants.

Policy Support from Government Entities at Every Level – We assume a reasonable level of support from government during this project. Our expectation is that key elements, such as permitting for charging installations, can be streamlined and harmonized across municipalities and through state-level coordination.

UTILITY/DATA/INFRASTRUCTURE

Cost of Charging and Infrastructure – We assume that through a combination of currently available tax and purchase incentives, new incentives and meaningful in-kind contributions from manufacturers, the cost of charging and infrastructure can be mitigated. We assume that the prospective host utility partner will inform the ELC on current electric rates within the demonstration project's EV Ecosystem.

Secondary Use of Vehicle Batteries – We assume that this project will include a meaningful demonstration of secondary battery usage. In order to conduct a viable secondary use demonstration, the batteries must be reasonably uniform across the various vehicles and have reasonable viability for energy storage.

Data Collection – We assume that the vehicles will be equipped with data collection devices. Charging stations will also collect usage data. In addition, we assume that there will be available support via DOE grants for data collection, storage, analysis and reporting. We assume that data will be stored and distributed by a major U.S. national laboratory with requisite experience.

Utility – We assume that the prospective host utility will provide service planning, regulatory expertise, calculations of cost of service upgrades and assistance with planning the best location for charging stations. We also assume that the host utility will not participate in any funding requests led by the ELC.

Workforce Training and Vocational Development - We assume that there will be high demand for a newly skilled workforce within the EV Ecosystem and have made job training, re-education and green service sector job creation a priority for this project.

FUTURE PROJECTS

Future Projects – We assume that the EV Leadership Community Plan will serve as a comprehensive deployment model for future expansion and creation of new EV Ecosystems in local California markets. To this end we further assume that the ELC members will contribute to, prepare and publish a comprehensive and rapidly duplicable EV deployment model that serves these markets well. We do not assume that the prospective utility host will provide the training needed for this development.

TIMELINE GOALS

YEAR ONE AND TWO

1. Deploy up to 1,500 vehicles in the Bay Area market during the first phase
2. Collect vehicle and infrastructure data
3. Collect feedback from communities
4. Conduct public relations and community outreach

YEAR THREE

1. Continue to monitor and collect data from vehicles and infrastructure
2. Summarize year one and two data in a final report including both quantitative and qualitative views of the market

1.4. PROJECT OVERVIEW

By 2014, The Electrification Leadership Council will have deployed up to 1,500 commercial, government and consumer-operated electric vehicles in San Francisco, surrounding Bay Area cities and Air Quality Management Districts. These counties consist of, but are not limited to, Napa, Marin, Contra Costa, San Francisco, Alameda, San Mateo, Santa Clara and the southern parts of Sonoma and Solano Counties.



FIGURE 3. MAP OF EV LEADERSHIP COMMUNITY PLAN FIRST PHASE DEPLOYMENT AREA.

THE TEST MARKET

Figure 3 illustrates the intended Bay Area test market as shown in dark green. At a population of over 7,000,000 residents, the Bay Area Air Quality Management District contains one of the largest urban areas in the world (San Francisco-San Jose-Oakland) along with several satellite communities.¹⁸ With a population of nearly 18,000 people per square mile, San Francisco is the second most densely populated major city in the United States. The Bay Area contains five major highways, six major bus transit agencies, several rail lines and private ferry services. Transportation sources comprise forty percent (40%) of the Bay Area’s CO₂ equivalent emissions; shown visually in Figure 4.

¹⁸ State of the Air, American Lung Association. <http://www.stateoftheair.org/2011/msas/San-Jose-San-Francisco-Oakland-CA.html#pm24>

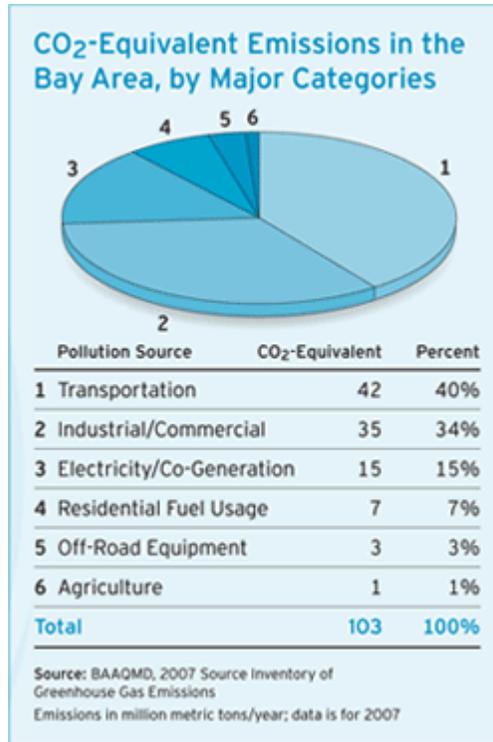


FIGURE 4. BREAKDOWN OF CO₂-EQUIVALENT EMISSIONS IN THE BAY AREA.¹⁹

With five major highways running through this nine county area, congestion is a major issue in the region. Increased exposure to highways puts the population at risk from airborne pollution associated with emissions from the transportation and goods movement sectors. Ozone and particle pollution emitted by vehicles are known to exacerbate asthma and cardiovascular disease as well as increase the risk of heart attacks and early death.²⁰ Thankfully, as the BAAQMD 2010 Clean Air Plan states, improvement of air quality has actually extended average life expectancy in the Bay Area over the past two decades.²¹ The ELC's EV Leadership Community Plan will support the BAAQMD Clean Air Plan to reduce these health risks through the improvement of air quality in this diverse and interesting region. The lack of emissions from electric vehicles will serve to significantly reduce air pollution in the Bay Area and improve quality of life for its residents.

THE PLAN

Beginning in early 2012, The ELC Leadership Community Plan will deploy up to 1,500 vehicles in the Bay Area. The ELC's EV Leadership Community Plan will focus on a large-scale demonstration project that will create the first comprehensive EV deployment model in the U.S. by fostering an EV Ecosystem to ensure that the vehicles, infrastructure, and the full network of support services and technologies arrive together in a well-defined and well-prepared market. This plan and resulting

¹⁹ Metropolitan Transportation Commission. <http://www.mtc.ca.gov/planning/climate/>

²⁰ State of the Air, American Lung Association. <http://www.stateoftheair.org/2011/key-findings/2007-2009/short-term-particle-pollution.html>

²¹ Bay Area Air Quality Management District.

<http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Plans/2010%20Clean%20Air%20Plan/Executive%20Summary%20of%20Bay%20Area%202010%20CAP.ashx>

data collection will provide an invaluable demonstration of the benefits of integrated electrification architecture and help lay the foundation for broad scale EV deployment.

The ELC will leverage each member company's unique role to assess each aspect of the EV Ecosystem. OEMs will offer electric vehicle models for use during the demonstration to help gain information about consumer needs and desires. Charging infrastructure companies will define, build out and operate the required electric vehicle service environment (EVSE) network. A wide variety of fleet operators will deploy electric vehicles in their fleets and assess the vehicles' strengths and weaknesses. Data management companies will assist with the relevant data collection and assessment as the vehicles and charging stations are used. Usage data will be collected from charging stations in order to analyze the demand on the grid. Investment companies will collaborate with fleet stakeholders to research new financing and leasing models that foster the growth and acceptance for lithium-ion technology for EVs. Each of these companies will use the ELC as an open forum through which to discuss successes and barriers to EV use, ultimately creating a comprehensive solution for the deployment of EVs nationwide.

The ELC intends to create a set of new incentives and public policies that are applicable to all electric vehicle users, not just for the EV Leadership Community Plan participants. Through a combination of existing EV incentives and collaboration with local public policy influencers and policymakers to create new EV incentives, funding programs will drastically reduce the initial investment cost, as well as the ongoing costs, of owning or leasing an electric vehicle. By offering these incentives and reducing costs market-wide, the ELC aims to bring electric vehicles to entities that are hesitant to adopt the technology due to initial investment costs, making the technology more accessible and thus acceptable in the transportation and goods movement industries. More information about these incentives is provided in the next section.

The ELC will initially engage with communities that possess an appreciation for the benefits of EV use, have incentives and cooperative policies already in place, and have demonstrated the political willpower necessary to spur a demonstration project forward. Ideally, these communities will have developed programs related to infrastructure planning, regulatory alignment and public awareness related to the preparation for EV deployment. The ELC will assist these types of communities with their EV strategies, addressing barriers such as charging infrastructure implementation, cost of vehicle ownership and maintenance, vehicle availability and demand, government and regulatory policy, and public awareness and acceptance.

The ELC will leverage the enthusiasm of these communities with the collaboration of prominent national organizations and companies that promote public policies and education, which facilitate the electrification movement. Maintenance and driver training will be leveraged from local vocational schools and organizations. The local Clean Cities organization will be engaged to participate in education and outreach programs that will increase exposure of the ELC demonstration project and electric vehicle usage. While the ELC assists the communities and engages with local organizations, it will also gather and evaluate feedback from the community.

Through this cooperative effort, the ELC will drive its EV Leadership Community Plan, which will foster EV readiness in any willing community.

1.5. INCENTIVES

In regard to incentive programs, the goal of the ELC is two-fold: 1) to create new incentives specific to this program that drive broad-scale adoption and ease implementation barriers, and 2) to help the ELC leverage and couple existing incentives and contributions to the demonstration project that will bridge the incremental cost gap (electric vehicles vs. ICE vehicles) 50-100% depending on a range of factors, including the amount of funding received and the specific GVWR incentives provided.

NEW INCENTIVES

A range of new incentives will be needed to make this demonstration project grow to scale. The ELC requests financial support from the California Energy Commission to create this new menu of EV-friendly incentives that will ramp up adoption by making EV purchases more affordable, EV operation more attractive and the EV experience much better overall. The ELC will also work internally and with outside partners to critically examine new ways to drive down prohibitively high battery costs by pulling forward second-life value into today's purchasing and leasing equation. Data collected throughout the demonstration phase will help make the infrastructure needed to connect EVs with homes and businesses more robust, reliable and affordable. Finally, the ELC will reach back into its OEM supply base and rely on the strength of the large, national members to work on battery cost, leverage the supply chain and extend incentives and rebates already in place through past work with U.S. DOE.

The types of new incentives the ELC intends to create during this demonstration project include:

Policy & Government

- HOV lane access for passenger and light-duty EVs
- Free parking in high traffic EV Ecosystem areas
- Downtown express delivery parking spaces for commercial EV Streamline EVSE infrastructure build-out permitting
- Participation in government EV procurement

Finance & Fleet

- Incentives for corporate fleet managers
- Competitive leasing models for fleet buyers
- New financial paradigms to capture net present value of batteries
- Research on post-EV powertrain battery second-life options

OEM

- Apply first generation EV subsidies to expand ELC project participation

- Transfer knowledge and cost reductions into project EV pricing
- Create volume-based incentives for local EV dealer sales

POLICY RECOMMENDATIONS

The ELC will explore ways to work with the local utilities authority to address and advance policy measures that ensure a level playing field for business and residential EV operators. One such recommendation the ELC may pursue at the policy level is to authorize the Senate Rules Committee to appoint a taskforce with requisite industry, business and government participation, jointly involving CEC and the local utility authority, to study issues of EV charging, grid impacts and electric utility rate structuring, with the specific charge of ensuring that those who exhibit behavior that favors use of electric fuel over fossil fuels are rewarded and incentivized versus penalized or taxed for same.

EXISTING INCENTIVES

Already instituted incentives will help the participants financially throughout this demonstration project. The California Air Quality Resources Board Air Quality Improvement Program provides grants to fund the purchase of clean vehicles as well as equipment, air quality research and training. A specific program funded by the AQIP, The Clean Vehicle Rebate Project (CVRP), distributes rebates for up to \$5,000 per light-duty vehicle. Some commercial vehicles are eligible for rebates up to \$20,000. Federal tax incentives will also assist participating organizations with the purchase of electric vehicles. All of the vehicles involved with this demonstration project are eligible for the maximum \$7,500 tax credit offered. And, tax credits are offered to offset the cost of a home or commercial electric vehicle charging station as well as installation fees. Other incentives include high occupancy vehicle (HOV) lane access, free parking, reduced insurance rates and reserved parking spots provided with chargers throughout the state of California. The ELC also intends to negotiate for the inclusion of transportation initiatives in energy efficiency projects for buildings, such as the Energy Savings Performance Contracts offered by the federal government.

1.6. PROJECT MANAGEMENT & TIMELINE

The Electrification Leadership Council will administer the EV Leadership Community Plan, coordinating with vehicle and infrastructure vendors and technology providers to ensure that these technologies are implemented on a scale of up to 1,500 vehicles with corresponding infrastructure. Eidson & Partners, Inc., a marketing consultancy and public relations firm and ELC member will help provide a consistent public message as well as enforce scale and data gathering requirements of the project. A123 Systems and Automatik will provide data collection and analysis services for the vehicles and infrastructure, including secondary battery life studies. Fleet operators including, but not limited to, FedEx Express, Hertz and GE Capital will deploy vehicles in order to assess the electric vehicles in a commercial fleet capacity.

OEMs such as Ford, CODA Automotive, Navistar and others will offer their electric vehicle models and will also serve as technical advisors. The Electric Vehicle Supply Equipment (EVSE) and data collection therein will be handled by charging equipment providers such as GE Capital and ECOTALITY.

Managerial support for this project will be provided by the board members of the ELC. Members will share the responsibilities for performance and success under the terms of the EV Leadership Community Plan. The specific management hierarchy within the ELC will be as illustrated in Figure 5.

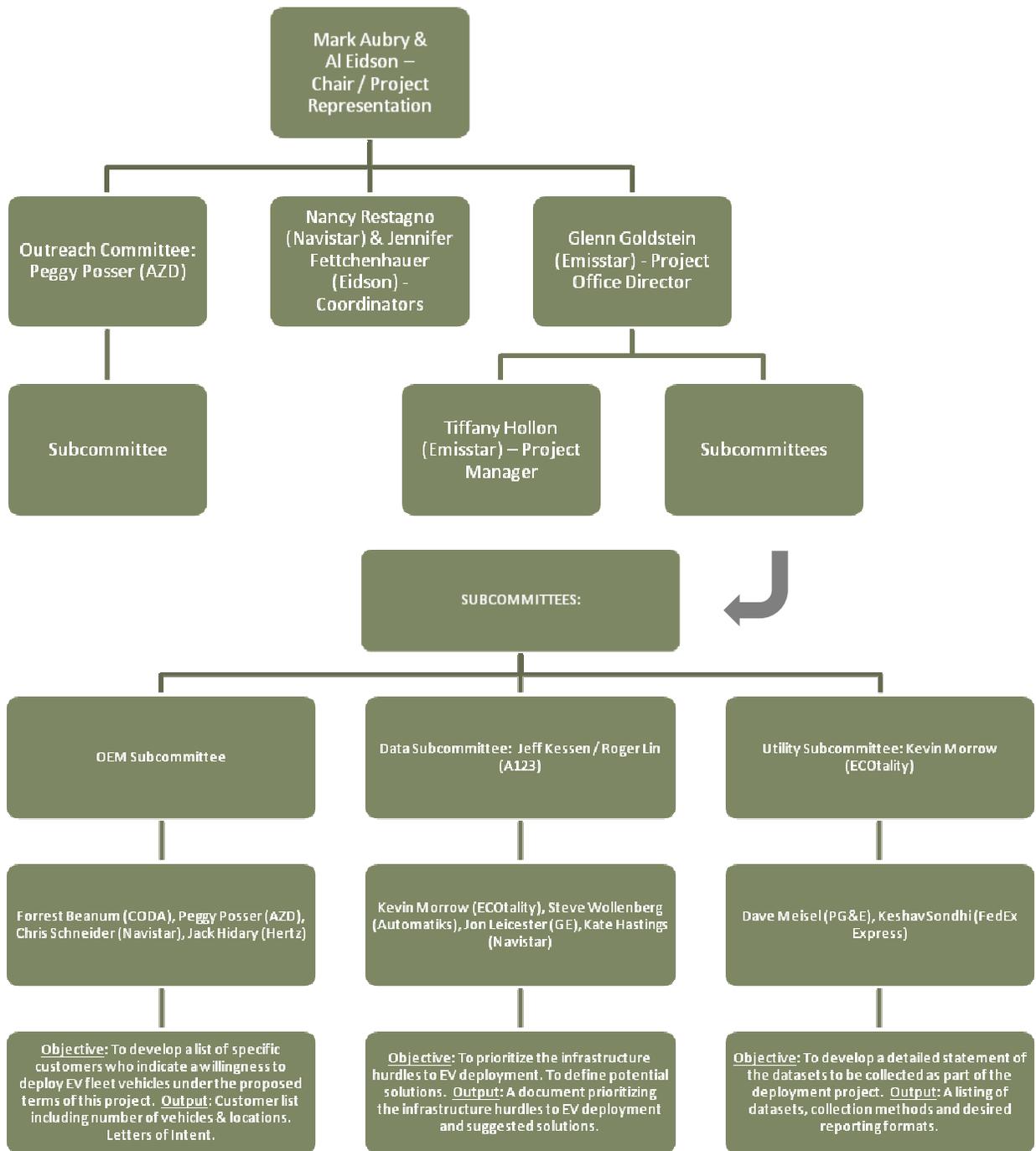


FIGURE 5. ELC MANAGERIAL HIERARCHY.

Emisstar LLC will act as the main project office through which all ELC business will flow. Figure 5 details the organizational hierarchy within the Project Office.

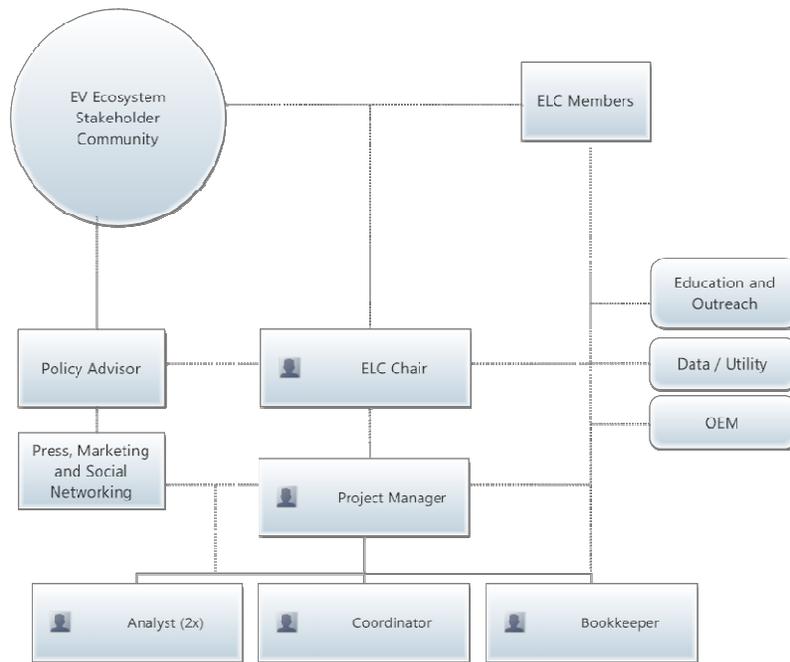


FIGURE 6. PROJECT OFFICE MANAGERIAL HIERARCHY.

A reasonable level of support is expected from governmental agencies during this project. The ELC's expectation is that key elements, such as permitting for charging installations, can be streamlined and harmonized across municipalities and through state-level coordination. The ELC will work together with local regulators to ensure that these processes occur smoothly and efficiently.

1.6.1. MEASUREMENT OF SUCCESS

The ELC will hold monthly meetings for all project partners to ensure that ongoing operational tasks and needs are being met. In addition, the ELC will schedule and coordinate quarterly stakeholder meetings to ensure that all stakeholders receive updates on project progress and milestones.

Success will be measured by the scope and quantity of data collected throughout the demonstration project period. Each vehicle will be monitored for a total of twelve (12) months after the first date of operation. Monitoring will be overseen by the original equipment manufacturer (OEM) per its commitment to the Department of Energy (DOE) under the American Recovery and Reinvestment Act of 2009. Data coordination and monitoring will then flow through ECOTality, as the network operator, to the DOE Idaho office, where data will be stored (available to the public) and analyzed by the EV Ecosystem Analysis Coordinator. Data will

also be transferred to Automatik for secondary battery life studies. For more details regarding the source and breadth of data, please see section 2.0: Outputs and Outcomes.

ELC DATA COLLECTION REQUIREMENTS

Data collected will be of sufficient fidelity to:

1. Enable comparison of lab-based battery life testing with in-the-field battery degradation.
2. Provide an assessment of battery health trajectory over time in preparation for a second-use application.
3. Provide financial entities data to justify leasing or other business models.
4. Determine effects of a high concentration of EVs on the local power distribution grid and identify what infrastructure changes will be needed as well as explore different models of charging patterns and time-of-use.
5. Measure fleet operating cost differences between all electric and standard vehicles.

FINANCIAL MODEL

Success will also be measured through the development of new financial models that fleet operators can better leverage to more fully participate in the EV Ecosystem. Once the initial cost of purchasing an electric vehicle has reached a level on-par with conventional, petroleum-burning vehicles, EV sales will increase dramatically. Demonstration of long-term savings attributed to the lack of fuel use, fewer maintenance requirements and battery reuse inherent to electric vehicle technologies will also boost sales. The success level of these efforts will be determined through feedback from the general public and the post-demonstration statistics regarding the sales of electric vehicles within the demonstration market. Growing EV usage may also need restructured utility rates that will not penalize, but instead encourage electric vehicle ownership. Usage and rate data collected throughout this demonstration project will be sent to public utility authorities to encourage these organizations to reflect on their policies and solidify a method by which to handle services and rates for EV owners and operators.

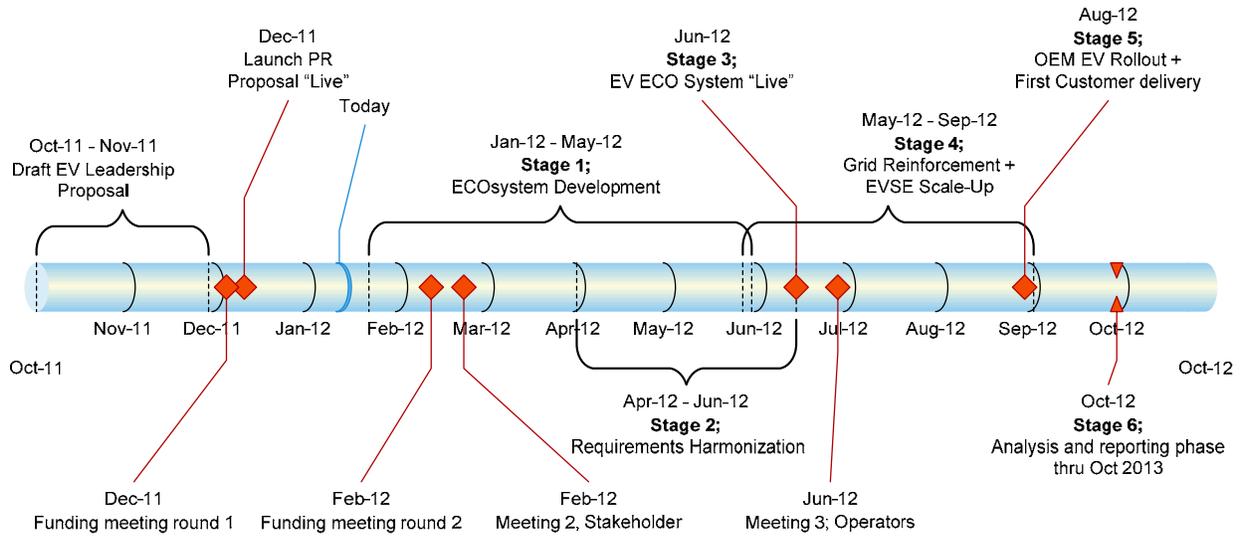
MARKET CREATION

After the demonstration period has ended, success will be measured through the growth of the electric vehicle market. Sales figures as well as community and stakeholder surveys will be used to determine if the project has successfully fostered a thriving EV Ecosystem for electric vehicles through the efforts of the ELC.

1.6.2. PROJECT TIMELINE

This project is anticipated to begin in early 2012 and be completed in 2014. Accordingly, the demonstration project timeline is divided into six (6) phases to ensure completion in a timely and efficient manner. For a complete view of the proposed project timing, please see Figure 7: Work Plan Timeline shown below. The ELC is prepared to move the project timeline if necessary. The timeline provided is for purposes of illustration only.

Outbound



Inbound

FIGURE 7. PROJECT TIMELINE.

1.6.3. TACTICAL PLAN

The schedule illustrated above will serve as a general outline for the tactical plan for the project. The tactical plan will be divided into 9 major stages. Table 4 below describes the mission of each stage. Each key stage will consist of several gates. Each gate is controlled by an assigned task organizer, a central mission, a method of execution and an assigned party that will provide the final approval. An illustration of Stage 1 is provided below Table 4 as an example of how each stage will be executed.

Tactical Plan: Key Stages	
Stage 1	ELC Proposal
Stage 2	EV Demonstration Project: Finance & Public Policy
Stage 3	EV Demonstration Project: Coordination
Stage 4	EV Demonstration Project: Infrastructure Rollout
Stage 5	EV Demonstration Project: Going Live
Stage 6	EV Demonstration Project: Product Delivery
Stage 7	EV Demonstration Project: Data Management
Stage 8	EV Demonstration Project: Workforce Development
Stage 9	EV Demonstration Project: Marketing & Deployment Model Plan

TABLE 4. KEY STAGES DURING THE FIRST DEPLOYMENT EVENT.

STAGE 1: ELC PROPOSAL

TIMEFRAME: OCTOBER 15 – DECEMBER 1

MAJOR EVENTS:

Bi-Monthly Conference Call Updates
Meeting: CARB / CEC / BAAQMD / SCAQMD

GATE 1: OEM SUBCOMMITTEE INFO GATHERING

- Task Organization: Mark Aubry
- Mission: Document Vehicle Demand
- Execution: OEMs poll customers and document demand
- Approvals: Co-Chairs

GATE 2: FUNDING AGENCY MEETINGS

- Task Organization: Mark Aubry
- Mission: Brief all relevant potential funding agencies
- Execution: Set Briefing dates and engage member public affairs
- Approvals: Co-Chairs

GATE 3: DATA SUBCOMMITTEE INFO GATHERING

- Task Organization: Roger Lin
- Mission: Define the data capture requirements and process
- Execution: Poll committee members for input and synthesize
- Approvals: Co-Chairs

GATE 4: UTILITY SUBCOMMITTEE INFO GATHERING

- Task Organization: Kevin Morrow
- Mission: Establish criteria for Utility / Infrastructure
- Execution: Poll committee members and council members
- Approvals: Co-Chairs

GATE 5: MARKETING & MEDIA PLAN

- Task Organization: Peggy Prosser
- Mission: ELC Public Campaign / Market Launch
- Execution: Create marketing campaign plan, gather PR / Gov't Affairs from each member organization to create effective outreach campaign
- Approvals: Co-Chairs

GATE 6: COMMUNICATION PLAN

- Task Organization: Peggy Prosser
- Mission: Establish a systematic internal communication plan

- Execution: Oversee development of newsletters
- Approvals: Co-Chairs

GATE 7: ELC LAUNCH PLAN

- Task Organization: Peggy Prosser
- Mission: Organize the Public Launch of ELC
- Execution: Create marketing campaign plan, gather PR / Gov't Affairs from each member organization to create effective outreach campaign
- Approvals: Co-Chairs

2. OUTPUTS, OUTCOMES AND BENEFITS

The ELC believes that 2012 will be a critical year for the entire electric vehicle industry, up and down the global supply chain, and recognizes the important contributions that this unique demonstration project will make to our collective knowledge base and understanding about how EV Ecosystems function in society. Therefore, the outputs, outcomes and benefits of this project have been shaped in a manner that best inform the industry and in a way that support all participants alike. This section details the outputs, outcomes and benefits expected.

2.1. OUTPUTS

Outputs across the EV Ecosystem are defined in the ELC’s nine (9) part tactical plan, as shown in Table 4. A sample of key outputs is listed in Table 5 below, by functional area, output and description:

Area	Output	Description
Data Management	Information Technology	Usage data from vehicles, charging infrastructure
Utility Grid Management	Physical Upgrades	Analysis of electrical resource supply and demand
Vocational Training	Human Capital	Maintenance worker and driver training courses
EVSE Network Operation	Information Technology	Analysis of usage periods, locations
Behavioral Management	Customer Satisfaction Study	Usage of electric vehicles in fleets during typical route
EV Industry Cost Metrics	Trends and Metrics	Analysis of future demand for EV products
Battery Second Life	Policy Recommendations	Study of applications for use of batteries after vehicle lifetime
Energy Savings	Trends and Metrics	Reduction of petroleum use, use of efficient charging
Emission Reductions	Trends and Metrics	Reduction of greenhouse gas emissions from vehicles

Leasing and Financial Models	Financial Rubicon	Analysis of market demand, incentives available
Policies and Incentives	Policy Recommendations	Leverage of policymakers to create incentives
Community Outreach	Social Networking	Educational programs from Clean Cities Organizations
Support & Maintenance	Technical Expertise	Training courses offered by local schools, organizations
Utility Rate Structuring	Project Case Study	Analysis of supply/demand curve of incentivized rate structure sent as recommendation to public utility commissions
EV Leadership Community Plan	Transferrable Business Model	Development of model that can be replicated

TABLE 5. EXPECTED OUTPUTS FROM THE EV LEADERSHIP COMMUNITY PLAN.

2.2. OUTCOMES

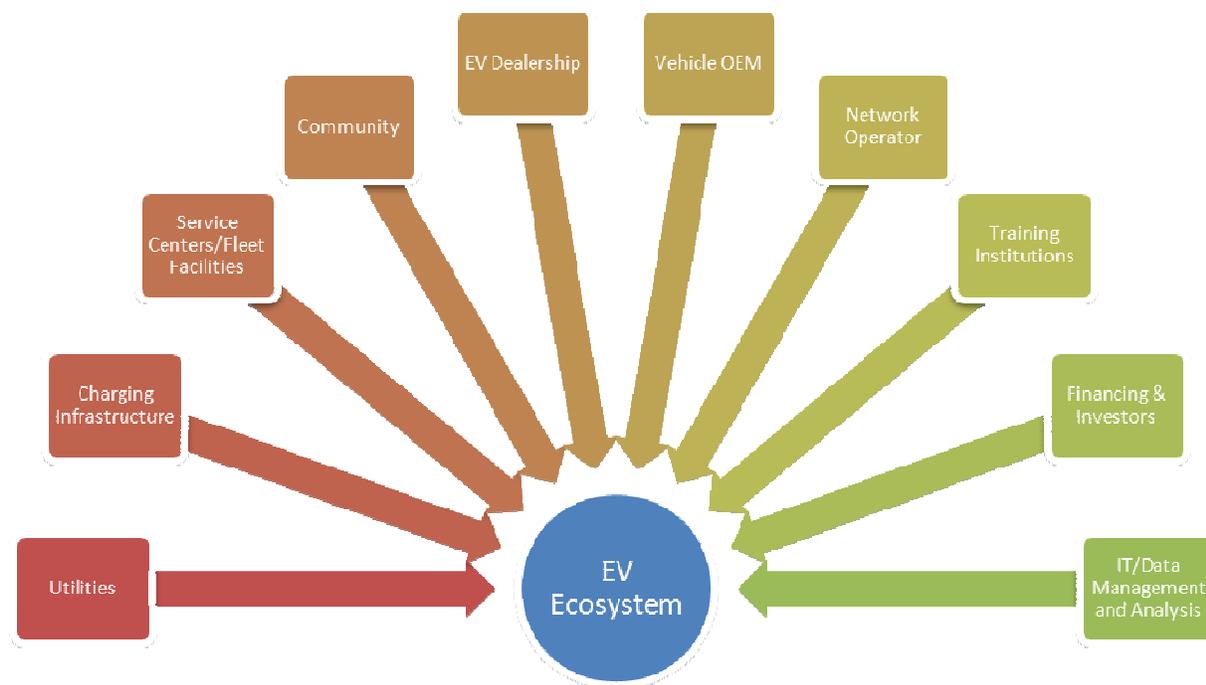


FIGURE 8. THE COMPONENTS OF THE EV ECOSYSTEM.

Figure 8 illustrates the components of the EV Ecosystem. We expect this demonstration project to have the following large-scale outcomes from each of the illustrated entities:

Utilities – Public utility authorities will be offered access to usage information gleaned from this demonstration project. The ELC will recommend that these commissions use this data to develop an incentivized rate structure for EV adopters.

Charging Infrastructure – Charging station usage data will be used to improve charging infrastructure availability, ease of use, pricing, and will promote a better understanding user behavior.

Fleet Facilities and Service – Fleets will gain experience with EVs, forming opinions about the usage of electric vehicles in a commercial sense. Drivers and maintenance service professionals will be offered training courses to improve expertise available in the market.

Community – With the increased exposure to EV usage, communities will also form opinions regarding the presence of EVs in their home neighborhoods, business environments and around town. Community outreach efforts will further education the community members about EV usage benefits.

EV Dealership – With increased demand for electric vehicles, dealerships will adjust their financial models and gain expertise on EVs.

Vehicle OEM – Increased demand in the market will also benefit original equipment manufacturers, encouraging innovation and improvements to existing EVs.

EVSE Network Operation – Usage data will improve industry knowledge regarding demand and peak usage times.

Training – Driver and maintenance professional training courses and experience will increase the level of expertise in the EV industry, allowing for adjusted maintenance prices and availability

Financing and Investment – Financial incentives will increase market interest of EVs as well as improve return on investment.

IT / Data Management – Data collection will improve industry knowledge and foster improvements in vehicle design, charging infrastructure and secondary battery life applications.

2.3. BENEFITS

2.3.1. ENVIRONMENTAL BENEFITS

The environmental benefits of this project will range from the reduction of criteria pollutant and greenhouse gas emissions to the reduction of petroleum usage. A typical light-duty passenger vehicle emits 38.2 pounds of oxides of nitrogen, 11,450 pounds of carbon dioxide while a light truck emits 55.8 pounds of oxides of nitrogen and 16,035 pounds of carbon dioxide per year.²² Fuel combustion accounts for over 800,000 short tons of particulate matter 2.5 and nearly 1,000,000 short tons of particulate matter 10 annually in the United States.²³ Electric vehicles

²²EPA, Emission Facts: Average Annual Emissions and Fuel Consumption for Passenger Cars and Light Trucks. <http://www.epa.gov/otaq/consumer/f00013.htm>

²³EPA, Particulate Matter. http://www.epa.gov/cgi-bin/broker?_service=data&_debug=0&_program=dataprog.national_1.sas&polchoice=PM#pmnat

emit none of these harmful air pollutants directly. Indirectly, electric vehicles emit greenhouse gases through the use of coal, oil or gas-sourced electricity. Even these emissions, however, are significantly lower than a comparable petroleum-dependent vehicle. For example, while a class 1 light-duty truck emits about 36 pounds of greenhouse gases per daily range, a class 1 light-duty all-electric vehicle (a Ford Transit Connect Electric, for example), emits only 8 pounds of greenhouse gases per daily range, making the electric vehicle GHG emissions 77% cleaner than a comparable gasoline vehicle. Figures 9-11 outline similar, specific emissions benefits associated with a sampling of the electric vehicles that will be used during the demonstration phase.

A typical light-duty, passenger vehicle consumes 581 gallons of gasoline per year. A light truck consumes about 813 gallons annually. An all-electric vehicle requires significantly less petroleum to charge its battery. With 70% of the total amount of petroleum consumed per year attributed to the transportation sector, widespread electric vehicle usage would drastically reduce the amount of petroleum the United States requires annually. Once power plants implement changes to account for new emissions standards, alternative energy-sourced electricity will render the electric car truly petroleum- and GHG-free.



Carbon Footprint Comparison

Select Vehicle and Area			Vehicle Footprints by Fuel and Daily Range			
Vehicle kWh	Comparable Vehicle Class	State	Electric Vehicle Carbon Footprint		CNG Vehicle Footprint	
80	Class 1	California	Total pounds GHGs emitted per daily range	Total short tons GHGs emitted per daily range	Total pounds GHGs emitted per daily range	Total short tons GHGs emitted per daily range
			21.85381808	0.010926909	84.88696572	0.042443483
Electric Vehicle GHG emissions are:			Gasoline Vehicle Footprint		Propane Vehicle Footprint	
16.86	% of Gasoline Vehicles		Total pounds GHGs emitted per daily range	Total short tons GHGs emitted per daily range	Total pounds GHGs emitted per daily range	Total short tons GHGs emitted per daily range
21.04	% of Diesel Vehicles		129.657477	0.064828739	74.46126527	0.037230633
25.74	% of CNG Vehicles		Diesel Vehicle Footprint		Diesel Hybrid Footprint	
29.35	% of Propane Vehicles		Total pounds GHGs emitted per daily range	Total short tons GHGs emitted per daily range	Total pounds GHGs emitted per daily range	Total short tons GHGs emitted per daily range
27.35	% of Diesel Hybrid Vehicles		103.8596491	0.051929825	79.89203779	0.039946019
Electric Vehicle GHG emissions are:						
83.14	% cleaner than Gasoline Vehicles					
78.96	% cleaner than Diesel Vehicles					
74.26	% cleaner than CNG Vehicles					
70.65	% cleaner than Propane Vehicles					
72.65	% cleaner than Diesel Hybrid Vehicles					
Glossary:			Formulas:			
EV - Electric Vehicle			$\text{GHGs} = (\text{KWh} \times \text{Emissions Factor Coal} \times \text{Percentage Coal}) + (\text{KWh} \times \text{Emissions Factor Oil} \times \text{Percentage Oil}) + (\text{KWh} \times \text{Emissions Factor Gases} \times \text{Percentage Gases}) + (\text{KWh} \times \text{Emissions Factor Nuclear} \times \text{Percentage Nuclear}) + (\text{KWh} \times \text{Emissions Factor Renewables} \times \text{Percentage Renewable}) + (\text{KWh} \times \text{Emissions Factor Biomass} \times \text{Percentage Biomass})$			
GHG - Greenhouse Gas			$\text{GHGs} = (\text{Miles Driven} / \text{Miles per Gallon}) \times \text{CO}_2 \text{ Emissions Factor} \times \text{CH}_4 \text{ \& NO}_2 \text{ Emissions Factor}$			
CNG - Compressed Natural Gas			$\text{GHGs} = ((\text{Miles Driven} / \text{Fuel Economy}) \times \text{Pounds CO}_2) + (\text{Pounds CH}_4 / \text{Mile} \times \text{Miles}) + (\text{Pounds N}_2\text{O} / \text{Mile} \times \text{Miles})$			
CO ₂ - Carbon Dioxide, a greenhouse gas.			$\text{GHGs} = (\text{Miles Driven} / \text{Effective Fuel Economy}) \times (\text{Pounds CO}_2) + (\text{Pounds CH}_4 / \text{Mile} \times \text{Miles}) + (\text{Pounds N}_2\text{O} / \text{Mile} \times \text{Miles})$			
CH ₄ - Methane, a greenhouse gas.			$\text{CO}_2 \text{ Equivalent} = (\text{Miles Driven} / \text{Net Fuel Economy}) \times (\text{CO}_2 \text{ Emissions Factor}) \times (\text{CH}_4 \text{ \& NO}_2 \text{ Emissions Factor})$			
NO ₂ - Nitrogen Dioxides, a greenhouse gas.						
Pounds (lbs.) - Unit of mass, 16 ounces.						
Short Tons - A unit of weight equal to 2000 pounds, distinct from the measure of metric tons (1000 kilograms).						

FIGURE 9. CARBON FOOTPRINT COMPARISON FOR THE NAVISTAR ESTAR.

Carbon Footprint Comparison

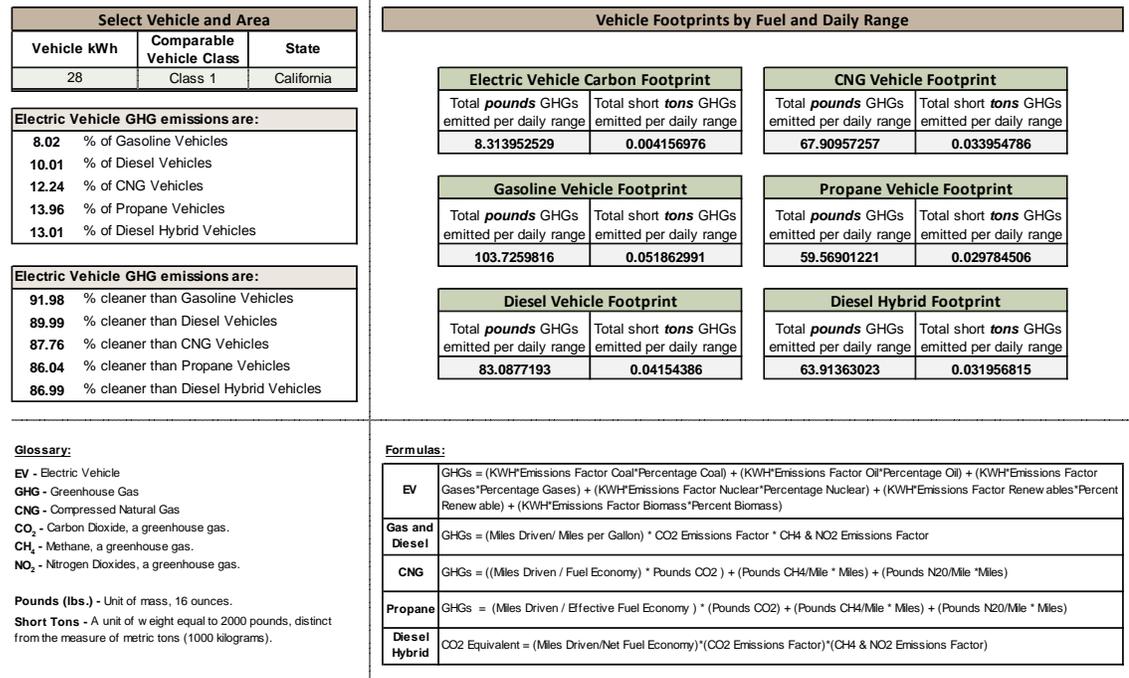


FIGURE 10. CARBON FOOTPRINT COMPARISON FOR THE FORD/AZURE DYNAMICS ALL-ELECTRIC TRANSIT CONNECT.

Carbon Footprint Comparison

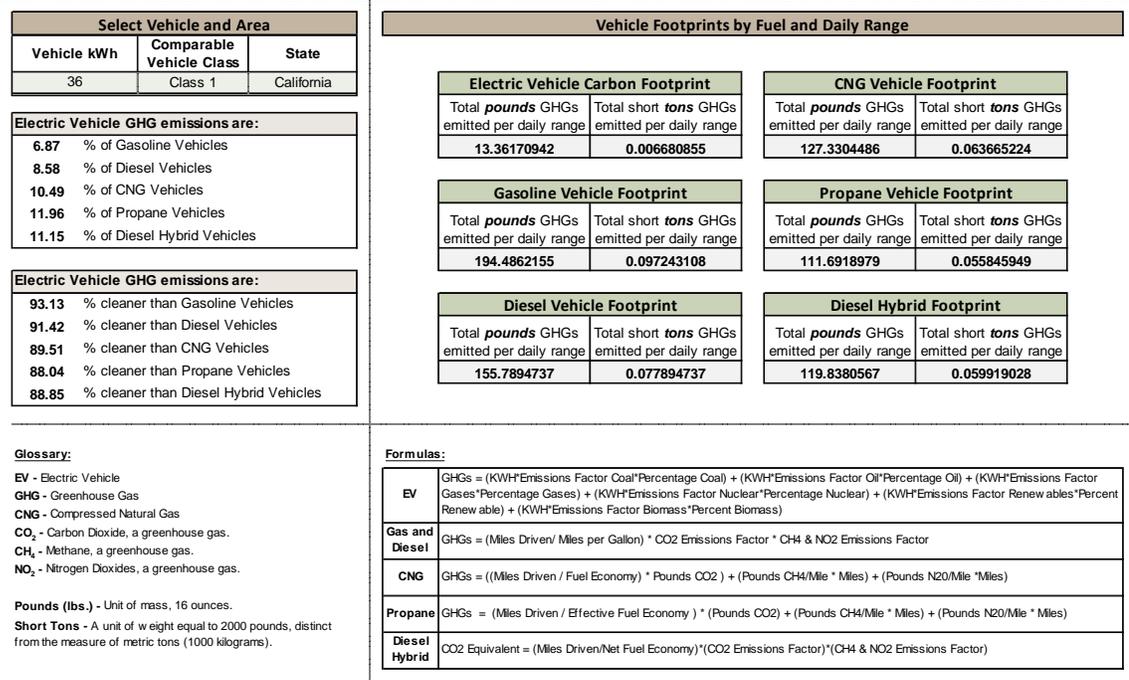


FIGURE 11. CARBON FOOTPRINT COMPARISON FOR THE CODA AUTOMOTIVE ELECTRIC VEHICLE.

2.3.2. COMMUNITY BENEFITS

The reduction of air pollution has been proven to extend life expectancy.²⁴ Zero emission, electric vehicles contribute to the reduction of ozone, particulate matter and other greenhouse gases, effectively improving air quality. Beyond the health benefits associated with the reduction of harmful air pollutants from internal combustion engines, the demonstration project community will gain new job skills associated with a major new economic initiative, a measurable reduction in petroleum usage from transportation, and a growing EV industry knowledge base that helps attract additional clean energy investments. Perhaps most importantly is the image of a progressive community that has the energy and political willpower to address new opportunities that benefit society.

2.3.3. INDUSTRY BENEFITS

This project will provide a tangible focus for the electric vehicle industry, which will foster broad-scale EV deployment successes. Industry officials will benefit from the establishment of a leader, who will create clarity in a complex, uncertain market. Each of the different industries involved with the electric vehicle market will come together and be bound to customers and the supply chain, helping one another succeed through the collection of valuable feedback and constructive discussion.

2.3.4. GOVERNMENT BENEFITS

The current administration has set a goal to put one million electric vehicles on the road by 2015. The ELC's objective to deploy hundreds of vehicles on the road during each phase of market testing represents a commitment to achieving that goal. A significant amount of federal funding, specifically ARRA money, has gone into developing working models of lithium-ion batteries and electric vehicles. Using these earlier investments as a foundation, the ELC demonstration project will pay off the earlier investments in a production capacity. The experiences and data gained from this and other demonstration projects will be offered up to governmental policy makers to improve future public policies regarding electric vehicle technology development and usage. Beyond those significant benefits, electric vehicle technology represents energy independence and a step toward greater national security.

2.3.5. SOCIETAL BENEFITS

This project offers the chance for American society to truly advance technology in a meaningful way. The greater usage of electric vehicles will ideally lead to the improvement of battery capacity, utility rates, initial and long-term ownership costs, regulations and policies, incentives, access and efficiency of charging, among a long list of other benefits. With these improvements, electric vehicle technology will become a more and more viable method of transportation and goods movement. As the electrification of transportation becomes more convenient and cost

²⁴ State of the Air, the American Lung Association. <http://www.stateoftheair.org/2011/health-risks/>

effective, our society will benefit from the economic, environmental and health benefits that come from zero-emission transportation technology.

3. QUALIFICATIONS

3.1. STAFF EXPERTISE

MARK AUBRY, NAVISTAR -

Mr. Aubry is the Vice President of Strategy, Sales & Marketing of Navistar's All-Electric vehicle, the eStar. Mr. Aubry is a senior executive with over 17 years of experience in developing new business with hands-on experience in start-up organizations recognized for delivering sustained revenue and consistent profit growth. Significant business partnerships have been formed throughout Europe, United States and Canada through his leadership. Mr. Aubry has a Bachelor of Science degree in Business Management and Marketing from William & Mary in Williamsburg, VA, and he is currently working on his Master of Business Administration at the W.P. Carey School of Management at Arizona State University.

GLENN P. GOLDSTEIN, EMISSTAR -

Mr. Goldstein serves as the CEO and Principal Co-Owner of Emisstar LLC, a clean energy and emissions technology consulting firm he founded in 2005 with offices in California, New York and Texas. He is responsible for developing and implementing Emisstar's strategic vision and mission, and for overseeing Emisstar's six core business units. Mr. Goldstein has a Master of Science degree in Environmental Science and Engineering from Harvard University in Cambridge, MA, and a Bachelor of Arts in Political Science and Economics from the University of Rochester in Rochester, NY.

PEGGY PROSSER, AZURE DYNAMICS -

Ms. Prosser is Executive Vice President of Sales at Azure Dynamics where she is responsible for accelerating customer and revenue growth of Azure's Hybrid Electric and Battery Electric Vehicles. Ms. Prosser has extensive management experience spanning more than 20 years working for major automotive companies. Ms. Prosser directs a national sales and dealer development staff who call on commercial and government fleets. Prior to joining Azure Dynamics, Ms. Prosser most recently held global management positions at Honeywell's and Eaton's automotive divisions. Ms. Prosser earned a Bachelor of Science degree in Mechanical Engineering and a Master of Business Administration with an emphasis in Marketing and Sales from West Virginia University in Morgantown, WV. Additionally, Ms. Prosser is a certified Six Sigma Green Belt.

AL EIDSON, EIDSON & PARTNERS, INC. -

Mr. Eidson is the principal of Eidson & Partners, Inc., a new product marketing consultancy which has helped launch more than 200 new product or service ventures. His firm has worked in the electric vehicle market space for four years. In addition, the firm has extensive experience with propane-powered off-road vehicles. Mr. Eidson has more than 30 years of marketing experience and was trained in Procter & Gamble's Brand Management System. He holds a Bachelor of Arts degree

and a master's degree in Economics from the University of Georgia in Athens, GA. Mr. Eidson is frequently engaged by peers (consultants/agencies) for strategy support.

STEVE WOLLENBERG, AUTOMATIKS –

Mr. Wollenberg is a co-founder and Vice President of Business Development at Automatik, a venture-funded Silicon Valley company focused on connected services and analytics for electric vehicles that enable innovative lease and financing options and, optimize and quantify the residual value of the electric vehicle assets. Steve is responsible for the primary partnering activities at Automatik and is a key participant in directing the company's strategy. Prior to joining Automatik, Steve was co-founder and Vice President of Business Development at Dash Navigation, one of the first companies to bring two-way connected navigation and location-based production services into the vehicle. Steve has more than 15 years of automotive marketing and business development experience, including technical expertise in mobile, wireless, traffic, navigation, and in-vehicle information services. He has more than 20 years of experience starting companies in Silicon Valley as a successful serial entrepreneur.

RUSSELL A. MUSGROVE, FEDEX EXPRESS –

Mr. Musgrove is the Managing Director of Global Vehicles for FedEx Express, the world's largest express transportation company providing delivery to every address in the U.S. and more than 220 countries and territories around the world. In this role, Musgrove oversees all aspects of the company's global fleet of 43,000 vehicles including vehicle planning, analysis and asset management. His scope of responsibility includes improving efficiencies and ensuring fleet safety through the strategic program management of the company's ground support equipment, engineering, warranty and training. Musgrove is a driving force behind the company's ongoing commitment to connect the world in more responsible ways while minimizing its effect on the environment. Musgrove played an instrumental role in integrating over 400 hybrid and all-electric vehicles and over 9,500 more fuel efficient diesel trucks into the FedEx fleet. He currently serves in a mentoring position for EMBARQ, an organization committed to implementing environmentally and financially sustainable transport solutions to improve quality of life in cities worldwide. Musgrove joined FedEx in 1988 and throughout his career has held leadership positions in engineering and operations. Prior to assuming his current role, he served as the Senior Manager of Vehicle Maintenance for the Mid-Atlantic Region. A native of Utah, Musgrove earned his Bachelor's degree from University of Phoenix. He currently resides in Memphis, Tennessee where he is an active member of his community.

MICHAEL G BRITT SR., UPS –

Mr. Britt serves as the Director of Maintenance and Engineering in International Operations for UPS. Mr. Britt has spent 25 years at UPS in a variety of different capacities; spending time in operations, industrial engineering and automotive engineering. For 5 years he worked in California as the Region Automotive Engineering Manager and has a clear understanding of the environmental concerns in that state. Michael has led efforts in alternative fuel projects and technology development for the domestic fleet and recently for the international fleet. These projects include compressed natural

gas, liquefied natural gas, propane, electric technology, hydrogen fuel cells, and hybrid vehicle development including both hybrid electric and hydraulic hybrid technologies. Presently, he manages maintenance and engineering for all international operations and continues to manage fleet sustainability issues in the U.S. He is a member of the Society of Automotive Engineers, Technical Advisory Group to the America Trucking Association, Clean Cities Board Member and served with The United Way as a member of the Board of Directors in several California locations. Michael holds a B.S. degree in Automotive Technology and a M.B.A. in Management.

SAMUEL L TRINCH, A123 SYSTEMS INC –

Mr. Trinch serves as the VP of Sales for A123 Systems' Global Automotive Solutions Group. He has been with the company for 2.5 years and has supported the company's growth in Michigan from 50 employees to over 1000 employees during that time period. A123 has entered into contracts with major, global OEMs such as General Motors, BMW, Daimler, Navistar, Shanghai Automotive, Tata/JLR, and Eaton as well as new electric vehicle start-up companies such as Fisker Automotive and Smith EV. Mr. Trinch also sits on the Board of Directors of Advanced Traction Battery Systems Inc, ATBS, a Joint Venture between A123 Systems and Shanghai Automitve, providing full Energy Storage Systems to the Peoples Republic of China. The company was established in 2010 and has over 100 employees located outside of Shanghai, China. Prior to joining A123 Systems, Mr. Trinch spent 16 years in the automotive semiconductor market in leadership roles within engineering, operations, and sales. His last role was General Manager of the Automotive Business Unit of NEC Electronics America, responsible for annual sales of \$150M. He has a BS in Electrical Engineering and a BS in Engineering and Public Policy from Carnegie Mellon University in Pittsburgh, PA.

KEVIN MORROW, ECOTALITY NORTH AMERICA –

Mr. Morrow is the Executive Vice President of ECOTALITY North America (formerly known as ETEC). As co-founder of ETEC, Mr. Morrow has over twenty years of experience in the field of alternative energy applications. He has lead teams, managed groups and performed individual research. Mr. Morrow shares the responsibilities of Office of the President for ECOTALITY North America, supports strategic partnerships and initiatives and has direct oversight of Industrial Division which includes the Minit-Charger™ brand of fast chargers for Airport Ground Support Equipment and Material Handling. Prior to co-founding ETEC, Mr. Morrow managed the Electric Vehicle Program and Salt River Project, a Major Electric and Water utility in the Phoenix metropolitan area. Mr. Morrow holds a BSEE from Arizona State University is an IEEE and SAE member and is active on several SAE committees and industry groups including SAE J1772 and J2847.

JACK D. HIDARY, HERTZ –

Mr Hidary built his career as an entrepreneur in the finance and technology sectors and is currently focused on clean energy technology and policy. He is a frequent speaker on clean energy issues featured on CNN, Time Magazine, and Bloomberg. Hidary was a leading proponent of switching over the taxi fleet to high mileage hybrids. He serves on the advisory board for the National Renewable Energy Lab (NREL) www.nrel.gov and is Chairman of SmartTransportation.org (www.smarttransportation.org), a non-profit dedicated to promoting clean energy and

transportation policy in the US. Jack is also on the board of the X Prize www.xprize.org. Jack is currently Senior Advisor to Hertz for EVs and a founding member of the Electrification Leadership Council.

MARIE CROWLEY, HERTZ –

Ms. Crowley's electric career came full circle with the Clinton Global Initiative. After graduating from the University of Iowa, she moved to New York to work for the Clinton Global Initiative handling a number of corporate sponsorship accounts. Four years later, she came on board with Hertz as the Electric Vehicle Project Manager to help drive Hertz's commitment to make the widest variety of electric vehicles available to its customers.

3.2. PAST EXPERIENCE



The companies represented with the above logos are industry leaders. They have come together to form the Electrification Leadership Council, sharing their unique experience and industry expertise to create a method by which electric vehicle technology can grow and gain acceptance in the market.

Navistar, CODA Automotive, Azure Dynamics guide the ELC with their knowledge of the electric vehicle industry. Azure Dynamics, for example, possesses 20 years of experience working on electric integration and powertrain on vehicles. They have recently partnered with Ford to bring an all-electric Transit Connect into the market. CODA Automotive has spent the last 5 years developing their electric vehicle model. Their intimate connection with fleet officials will bring depth of knowledge to the needs and desires of commercial fleets. Navistar has gained invaluable experience in the electric automotive industry with the release of their eStar as well as offering dealer training programs. Other equipment manufacturers are encouraged to join the ELC and lend their unique experience and knowledge to the EV Leadership Community Plan.

A123 Systems and Automatiks provide their extensive experience with data collection, data analysis and expertise on renewable technologies. A123 Systems was awarded an ARRA grant in 2009, and successfully used those funds to perform valuable R&D and develop new battery efficiencies. Automatiks is backed by Capricorn, which gives the ELC access to a range of testing platforms and environments.

The currently participating fleets, Hertz, GE Capital and FedEx Express, all provide their widespread fleets as a platform by which ELC will validate electric vehicle technology. FedEx Express offers its widespread fleet locations and personnel experienced with EV technology in a variety of climates and geography. Hertz was the first to launch an EV car share program in New York City and has gone on to release more EV programs on three different continents.

ECOtality and GE Capital will both use their extensive experience as electric vehicle infrastructure manufacturers. ECOtality' commitment to the acceleration of market applicability, and awareness and acceptance of clean technologies is made evident by their history of development and testing of advanced transportation energy systems. Their Blink network offers both residential as well as commercial charging stations for electric vehicles. The EV Project, managed by ECOtality, is the largest implementation demonstration of EVs and EV infrastructure ever. This project will release more than 14,000 EVSE in 18 major cities across the nation over the next few years. GE Capital has developed a suite of EV chargers that includes the GE DuraStation and WattStation Wall Mount and Pedestal. Their circuit protection equipment and transformers reach every part of their electric vehicle infrastructure development, providing safety and efficiency. These technologies are allowing GE Capital to lead and support broad scale electric vehicle adoption. GE Capital and ECOtality will work together as EVSE leaders, providing guidance and technical assistance where needed.

Eidson & Partners, Inc. is a marketing and public relations firm with more than 16 years of experience, supporting over 200 new products and service ventures. The agency has five years of experience working in the electric vehicle industry.

4.

5. BUDGET

The tables below illustrate the working budget expected for the project. In-kind costs will be provided by ELC member companies. Table 6 summarizes the ELC operating budget in terms of existing and new incentives the ELC expects to take advantage of or help create. Member match figures represent the amount of fiscal support the ELC expects to receive from its member companies.

Table 7 illustrates a summary of the total ELC budget, broken down into major project categories such as electric vehicle acquisition and workforce development. Table 8 provides a detailed look at the budget summary, displaying specific costs for each major category.

Category	New Incentives	Existing Incentives	Member Match	Total Value
EV Acquisition	\$ 54,000,000	\$ 20,000,000	\$ 83.5,000,000	\$ 157,500,000
EVSE & Grid	\$ 27,000,000	TBD	\$ 10,000,000	\$ 37,000,000
Workforce Dev.	\$ 10,000,000	\$ 4,000,000	\$ 2,000,000	\$ 16,000,000
Assessment: Vehicle & User	\$ 3,000,000	\$ TBD	\$ 3,000,000	\$ 6,000,000
Project Man.	\$ 12,000,000	-	\$ 7,000,000	\$ 19,000,000
Additional Match	-	\$ 12,000,000	-	\$ 12,000,000
Total	\$ 106,000,000	\$ 36,000,000	\$ 105,500,000	\$ 247,500,000

TABLE 6. ELC OPERATING BUDGET FOR FISCAL YEARS 2012 & 2013 (BAY AREA EV COMMUNITY PLAN).

ELC Budget Summary		
Requested Funds		\$130,000,000.00
EV Acquisition Incentives	\$74,000,000.00	
Infrastructure	\$27,000,000.00	
Workforce Development	\$14,000,000.00	
IT and Data Collection	\$3,000,000.00	
Project Management	\$12,000,000.00	
ELC Funds Match		\$117,500,000.00
Base EV Costs	\$83,500,000.00	
Infrastructure/BLDG/Fleet	\$10,000,000.00	
Educational Resources	\$2,000,000.00	
IT Support	\$3,000,000.00	
Direct Member Participation	\$7,000,000.00	
Other Matching Dollars	\$12,000,000.00	
Total Project Value		\$247,500,000.00

TABLE 7. TOTAL ELC BUDGET, SUMMARIZED.

Budgetary Detail		
Requested Funding and In-Kind Contributions		
Project Life (years):	10	
# of Vehicles:	1500	
Vehicles		
Specification	Baseline Vehicle	Electric Vehicle
Make	Navistar	Navistar
Model	Diesel	eStar
Year	2012	2012
GVWR	10,001 - 14,000 lbs	10,001-14,000 lbs
Total Vehicle Price	\$75,000.00	\$150,000.00
Base Vehicle Cost		\$75,000.00
Incremental cost per truck		\$75,000.00
Total vehicle cost		\$112,500,000.00
Total incremental cost		\$112,500,000.00
		Total
		\$225,000,000.00
Infrastructure		
\$5,000	\$ per station	
\$5,000	installation fee	
750	# charging stations	
		Total
		\$7,500,000.00
Maintenance Training		
25	mechanics	
50	days training	
8	hr/day	
\$50.00	internal labor rate (\$)	
		Total
		\$500,000.00
Fleet Vehicle Maintenance Coverage (In-Kind)		
coverage outsourced during in-house mechanic training time		
25	mechanics	
50	days training	
8	hr/day	
\$50.00	internal labor rate (\$)	
		Total
		\$500,000.00
Electric Vehicle Maintenance		
\$500	per year (\$)	
1,500	# vehicles	
10	years	
		Total
		\$7,500,000.00
Spare Parts - Expense Purchase		
1000	# vehicles	
\$250	per vehicle (\$)	
		Total
		\$250,000.00
Project Management/Oversight		
2	project manager/engineer	
\$145.00	pay rate with ___% benefits (\$)	
2000	hr total	
		Total
		\$580,000.00
Project Reporting		
\$400,000.00	reporting & follow-up, 4 quarters for 2 yrs (\$)	
		Total
		\$400,000.00
Driver Training		
1000	drivers	
1	day	
8	hrs/day	
\$50.00	per hour (\$)	
		Total
		\$400,000.00
		Total In-kind Contribution
		\$130,130,000.00
		Total Project Cost
		\$242,630,000.00
		Grant Request
		\$90,000,000.00

TABLE 8. ELC BUDGET, DETAILED WITH SPECIFIC CATEGORICAL COSTS.

6. APPENDIX A: LETTERS OF SUPPORT

6.1. NAVISTAR



Navistar Defense, LLC
2701 Navistar Drive
Lisle, IL 60532 USA

P : 630-763-6000
W : navistar.com

E. Chris Schneider
General Manager
Navistar - eStar® Vehicle Line
Navistar Defense
2701 Navistar Drive
Lisle, IL 60532 USA
P: 331-332-2806

December 2, 2011

Electrification Leadership Council
Mark Aubry & Al Eidson
ELC Co-Chairs

Dear Mark and Al

Navistar is pleased to provide this letter in support of the Electrification Leadership Council's The 2012 EV Leadership Project: Launching a Robust, Dynamic and Industry Transforming EV Ecosystem in Northern California application regarding the deployment of up to 1500 electric vehicles. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation.

Navistar is particularly supportive of technologies that foster the electrification of transportation because aligns with our company's long-term strategy and sustainability initiatives. Navistar created a joint-venture with Modex U.K. in 2009 in order to design and manufacture the eStar, All-Electric Vehicle from our Wakarusa, IN facility. In August 2009, President Barack Obama awarded Navistar with a \$39.2 in order to design the vehicle and create manufacturing 'green jobs'. Provided the ELC initiative is awarded, it will further enhance the industry, supply chain and manufacturing collaboration as well as spur education and training in the marketplace as part of the EV Ecosystem and propel further market expansion. On top of these items, Navistar believes it will reduce the amount of green-house-gas emissions and create increased energy security for both California and the United States.

We welcome the electrification of transportation. We look forward to supporting the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in the great State of California.

Sincerely,

A handwritten signature in black ink that reads "Chris Schneider".

Chris Schneider
General Manager
Navistar - eStar® Vehicle Line
2701 Navistar Drive
Lisle, IL, 60532
(phone) (331) 332-2806
(email) chris.schneider@navistar.com

6.2. AZURE DYNAMICS

Dec 1st, 2011

Electrification Leadership Council

Dear Mark,

Azure Dynamics is pleased to provide this letter in support of the Electrification Leadership Council's EV Ecosystem Grant application regarding the deployment of 1500 electric vehicles in the San Francisco market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation.

Azure Dynamics is particularly supportive of technologies that foster the electrification of transportation because of the significant economic and environmental impact it provides to local, regional, and national fleets in our country. This initiative aligns with our vision of making electric vehicles a standard viable transportation option for fleet customers and maximizing the available electricity resource and infrastructure available in the US.

Azure Dynamics is confident that the ELC objectives will advance critical and timely EV deployment in the US and provide a roadmap for other regions/states to effectively roll-out a successful EV program while also providing key EV educational, training, and job creation.

We look forward to working with the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in all US metro cities.

Sincerely,

Signature

A handwritten signature in blue ink, appearing to read "Peggy Prosser", with a long horizontal flourish extending to the right.

Peggy Prosser
EVP Sales, Azure Dynamics

6.3. AUTOMATIKS



December 5th, 2011

Electrification Leadership Council
Mark Aubry

Dear Mark,

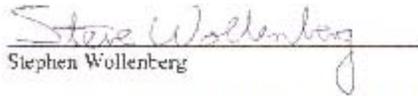
Automatiks, Inc. is pleased to provide this letter in support of the Electrification Leadership Council's EV Ecosystem Grant application regarding the deployment of 1500 electric vehicles in the San Francisco Bay Area region. Awarding this funding to the ELC will provide a unique opportunity to create a model for implementing electric vehicle technology throughout the nation.

Automatiks is particularly supportive of technologies that foster the electrification of transportation because of the significant economic and environmental benefits it provides to local, regional, and national fleets in our country. This initiative aligns with our vision of making electric vehicles a standard viable transportation option for fleet customers and maximizing the available electricity resource and infrastructure available across the country.

Automatiks is confident that the ELC objectives will advance critical and timely EV deployment in the US and provide a roadmap for other regions and states to effectively roll-out a successful EV program while also providing key EV education, training, and job creation.

We look forward to working with the ELC in its mission to implement emission reduction opportunities in the San Francisco Bay Area and in improving air quality in all US metropolitan cities.

Sincerely,


Stephen Wollenberg

Co-founder and Vice President, Business Development

Automatiks, Inc.

250 University Ave.

Palo Alto, CA 94301

6.4. CODA



January 5, 2012

Jennifer Fettchenhauer
Eidson & Partners
4330 Shawnee Mission Parkway, Suite 350
Fairway, KS 66205

To Whom It May Concern:

CODA Automotive supports the Electrification Leadership Council's (ELC) grant application to deploy 1500 electric vehicles in the San Francisco metropolitan market. The ELC plans to design and implement a replicable model of a large scale deployment of an electric vehicle ecosystem.

CODA Automotive supports initiatives that advance the electrification of the transportation industry. Our company focuses on creating clean technologies and fostering job creation, while collaborating with industry and community leaders. We strive to actively participate in a movement that addresses the fundamental economic and environmental challenges of our time. This initiative aligns with our vision to be a leading technology provider to reduce global dependence on fossil fuels and the harmful social, economic and environmental consequences that follow.

One of our primary goals as a company is to positively impact the environment by accelerating the deployment of electric vehicles. CODA is a member of several other electrification advocacy organizations, such as CALSTART, the PEV Collaborative, EDTA and the Electrification Coalition. The ELC's proposal aims to complement the above organizations' efforts by conducting a realistic stress test of large scale urban electric vehicle deployment.

We welcome the electrification of transportation in our state and look forward to supporting the ELC to achieve its mission of implementing emission reduction policies in the Bay Area, improving air quality and creating employment opportunities.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Forrest Beanum", is written over a horizontal line.

K. Forrest Beanum
Vice President
Government Relations and External Affairs
CODA Holdings

2340 South Fairfax Avenue
Los Angeles, CA 90016

6.5. UPS

UPS Store - Newark, NJ
20000, 07102
908.828.5800 tel



January 11, 2012

Pat Perez, Deputy Director, Fuels and Transportation Division
California Energy Commission
1516 Ninth Street, MS 44
Sacramento, CA 95814

Dear Pat:

UPS is pleased to provide this letter in support of the Electrification Leadership Council's grant application regarding the deployment of 1500 electric vehicles in the San Francisco market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation, as well as provide significant petroleum and greenhouse gas savings.

UPS is supportive of technologies that foster the electrification of transportation because of the need to reduce the cost of this clean technology to gain mass deployment. This initiative aligns with our vision, improving the environment in the areas we operate.

We welcome the electrification of transportation in California. We look forward to working with the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in California.

Sincerely,

A handwritten signature in black ink that reads "Michael G. Brill Sr.".

Michael G. Brill Sr.
Director of Maintenance and Engineering
55 Glenlake Parkway
Atlanta, GA 30328

cc: Jim McKinney, Office Manager, Emerging Fuels and Technologies Office
cc: Leslie Burdody, Electric Vehicle Lead, Emerging Fuels and Technologies Office

6.6. A123 SYSTEMS INC.

January 17, 2012

Electrification Leadership Council
Mark Aubry
Vice President of Sales & Marketing
Navistar Electric Vehicle Division

Dear Mr. Aubry,

A123 Systems Inc. is pleased to provide this letter in support of the Electrification Leadership Council's EV Ecosystem grant application regarding the deployment of 1500 electric vehicles in the San Francisco market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation.

A123 Systems is particularly supportive of technologies that foster the electrification of transportation as their battery technology is mature and available today. When sized correctly, these systems are able to support a positive return on investment in less than 5 years. This initiative aligns with our vision of providing cost effect, safe and long lasting battery systems that will further reduce the United States' dependence on foreign oil. Commercial vehicles are able to leverage the scale being established to support multiple passenger car programs. By using common building blocks and validated systems, this technology can be sized to align with specific vehicle routes and drive conditions. Initial deployments will demonstrate the value to the broader market to drive adoption across 100s of thousands of vehicles.

We welcome the electrification of transportation in our region. We look forward to continued engagement with the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in all major urban areas.

Sincerely,



Samuel Trinch
Vice President of Sales, Automotive Solutions
A123 Systems, Inc

6.7. ECOTALITY



January 13, 2012

Electrification Leadership Council

To Whom It May Concern,

ECotality is pleased to provide this letter in support of the Electrification Leadership Council's grant application regarding the deployment of 1500 electric vehicles in the San Francisco market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation as well as provide significant petroleum and greenhouse gas savings.

ECotality, a leader in electric vehicle charging infrastructure deployment is particularly supportive of this initiative. ECotality is currently managing the largest deployment of electric vehicles and electric vehicle infrastructure ever, called "The EV Project." While the focus of the EV Project is primarily consumer driven, the ELC initiative will incorporate a large fleet component that is critical to a successful electric vehicle market.

We welcome the electrification of transportation in our region. We look forward to working with the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in California.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin Morrow".

Kevin Morrow
Executive Vice President
ECotality North America

6.8. HERTZ

The Hertz logo is displayed vertically on a yellow rectangular background. The word "Hertz" is written in a bold, black, sans-serif font, rotated 90 degrees counter-clockwise.

January 19, 2012

Electrification Leadership Council

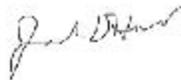
Dear Mark,

Hertz supports the Electrification Leadership Council's grant application regarding the deployment of 1500 electric vehicles in the San Francisco market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation as well as provide significant petroleum and greenhouse gas savings.

As leader in electric vehicle rentals Hertz is particularly supportive of technologies that foster the electrification of transportation because the direct beneficiaries are our customers, most of whom will have their first electric driving experience with us. If first impressions are lasting, then it is our business to make sure we exceed their expectations. This initiative aligns with our vision to provide Hertz EV drivers with a seamless and convenient, clean energy solution in major cities around the world. In 2010 Hertz launched the first ever EV Carshare service in New York City. In 2011 Hertz expanded its On Demand EV Carshare service to five other cities in the US and in Europe offering the largest variety of EVs in the rental car industry. In 2012 Hertz needs to prove to its customers that it's not just Hertz that supports them, but the entire EV ecosystem. The support of this grant will help us do just that.

We welcome the electrification of transportation in our region. We look forward to working with the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in California.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack Hidary".

Jack Hidary
Global EV Leader
Hertz Corporation

6.9. EMISSTAR LLC



Energy & Emissions Technology, Policy and Implementation

January 19, 2012

Electrification Leadership Council
Mark Aubry
Vice President of Sales & Marketing
Navistar Electric Vehicle Division

Dear Mr. Aubry,

Emisstar LLC is pleased to provide this letter in support of the Electrification Leadership Council's EV Ecosystem project application for the deployment of up to 1500 electric vehicles in the Northern California market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation.

Emisstar LLC is particularly supportive of technologies that foster the electrification of transportation, improve air quality and advance alternative fuel and vehicle technologies. Emisstar is a clean energy technology and emissions consulting services firm that specializes in transitioning our clients to more sustainable, low carbon economic activity by accelerating the integration of the built and mobile environments. As a California-based business, this initiative aligns with our vision of bringing energy efficient alternative fuel and vehicle technology to a broad-scale throughout the state and the nation.

We welcome the electrification of transportation and we look forward to continued engagement with the ELC in its mission to build a scalable California EV model in and to replicate it throughout the United States.

Sincerely,

A handwritten signature in black ink, appearing to read "Glenn Goldstein".

Glenn Goldstein

Chief Executive Officer and Principal Co-Owner

Emisstar LLC

NEW YORK

982 Montauk Highway, Suite 8
Bayport, NY 11705

TEXAS

607 West 14th Street
Austin, TX 78701

CALIFORNIA

30982 Ariana Lane
Laguna Niguel, California 92677

6.10. GE CAPITAL



GE Capital
Fleet Services
3 Capital Drive
Eden Prairie, MN 55344

January 27th, 2012

Electrification Leadership Council

To Whom It May Concern,

GE is pleased to provide this letter in support of the Electrification Leadership Council's grant application regarding the deployment of 1,500 electric vehicles in the San Francisco market.

GE is particularly supportive of technologies that foster the electrification of transportation. Our internal objective is to purchase 25,000 electric vehicles by 2015 to be used in our own fleet or by customers of our Fleet Services division.

GE wishes to move electric vehicles from being a vision for the future to a reality. Therefore this initiative with the Electrification Leadership Council aligns with our vision.

We look forward to working with the Electrification Leadership Council in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in California.

Sincerely,

A handwritten signature in black ink that reads "Deb Frodl".

Deb Frodl
Global EV Leader
GE Capital

6.11. FEDEX

Russell A. Musgrove
Managing Director
Global Engineering/Planning/Asset Mgmt

800 FedEx Center
Building 2 - 1st Floor
Memphis, TN 38103

Telephone 901.401.7127
Mobile 901.636.2818
Fax 901.401.2115
rmusgrove@fedex.com



January 26, 2012

Pat Perez, Deputy Director
Fuels and Transportation Division
California Energy Commission
1516 Ninth Street, MS-44
Sacramento, CA 95814

Dear Mr. Perez:

FedEx Express is pleased to provide this letter in support of the Electrification Leadership Council's grant application regarding the deployment of 1,500 electric vehicles in the San Francisco market. Awarding this funding to the ELC will provide a unique opportunity to create a repeatable model by which to implement electric vehicle technology throughout the nation, as well as provide significant petroleum savings and reduction in greenhouse gases.

FedEx Express is particularly supportive of technologies that foster the electrification of transportation because electric vehicles are energy efficient for pickup and delivery operations such as ours in urban environments. This initiative aligns with our vision for a 20% improvement in fleet energy efficiency by the year 2020.

FedEx Express helped launch medium-duty hybrid trucks into commercial application and operates one of the largest hybrid truck fleets. We understand the need for efficient vehicles and supporting infrastructure and success depends on collaboration with entities such as the Electrification Leadership Council.

We look forward to working with the ELC in its mission to implement emission reduction opportunities in the Bay Area and in improving air quality in California.

Sincerely,

A handwritten signature in black ink, appearing to read "Russ Musgrove", written over a light blue horizontal line.

Russ Musgrove
Managing Director
Global Vehicles

cc: Jim McKinney, Office Manager, Emerging Fuels and Technologies Office
cc: Leslie Barody, Electric Vehicle Lead, Emerging Fuels and Technologies Office