GREEN VEHICLES ™



September 2009

# COMPANY PRESENTATION

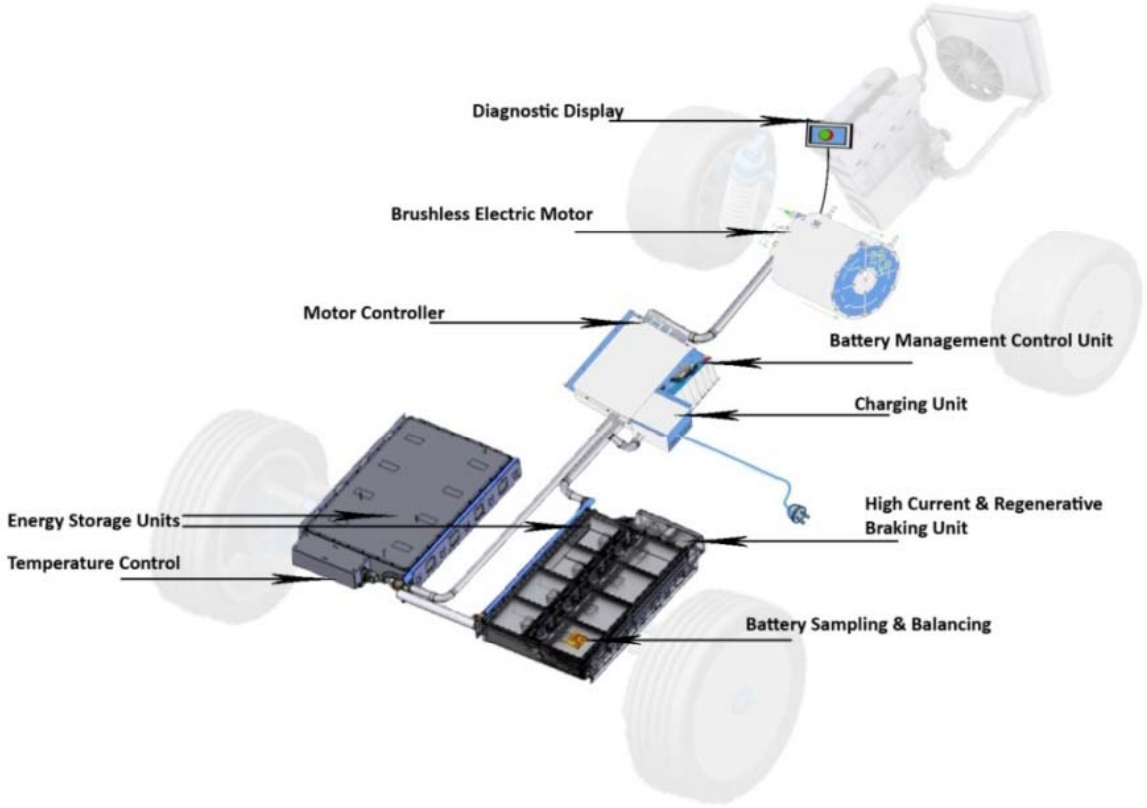
# 1. GREEN VEHICLES
## Overview

- **Green Vehicles** (GV) is a **technology company** that has developed a substantially lower cost, longer range, higher powered, **advanced propulsion system**.
- GV's lithium-ion powered advanced propulsion system delivers **40% longer battery life**, **30% greater distance** (up to **100 miles** on a single charge) & **greater power** (speeds of up to **85 mph**), at a **greatly reduced cost** versus its competitors
- GV is positioned to become a **vital supplier** of **advanced battery electric propulsion systems** to major automobile manufacturers rushing to fill the surging demand for BEVs & plug-in hybrid electric vehicles (PHEVs).
- To achieve immediate and significant market penetration in advance of wide adoption by major automobile manufacturers, GV has implemented its advanced propulsion systems into its **own line of BEVs**, which are **in production** and **for sale <u>now</u>**, starting at **under $24,000**
- GV's **strategic relationships** with Silicon Valley Power, Stanford University's Rapid Prototyping Laboratory, Mobius Power, Coulomb Technologies and other leading technology innovators position GV to **retain its leadership in the industry's rapidly developing areas**.

# 2. GREEN VEHICLES

## The Challenge – Electric Propulsion

- Electric propulsion systems used to power a hybrid electric vehicle (HEV) such as the Toyota Prius differ substantially from what is necessary for a PHEV or a BEV
- Transition to **lithium-ion battery modules**, **high power charging systems**, and **efficient high-speed motors and controllers** requires experience, development, and testing
- Currently no such electric drive solutions available for under $40,000
- Green Vehicles is positioned to be **first-to-market** making advanced EVs **affordable** with lithium-ion
- Our **solution balances power, range, usability, and cost**



# 3. GREEN VEHICLES
## Products - Triac

- Triac **Freeway Commuter** Vehicle - $24,995 (freeway commuting with HOV lane access and 2 passenger side-by-side seating)

| | | |
|---|---|---|
| AC Motor & Controller | (standard) | 30kW |
| AC Motor & Controller | (upgrade) | 60kW |
| Batteries | (standard) | 23kWh LiFePO4 - 100 mile range |
| Batteries | (upgrade) | 26kWh LiFePO4 - 120 mile range |
| Charger | (standard) | 6kW charger for use with 120V or 240V outlet |
| Battery Management System | (standard) | Monitors, controls and displays individual battery voltages. Programmable through color touch screen interface. USB port access to vehicle data memory. Optional balancing. |
| Top Speed | | 85 mph |

Safety Features:
Structural steel cage, Frontal Impact Redirection, Side Impact Bracing, Low Center of Gravity
Meets or exceeds NHTSA's FMVSS

# 4. GREEN VEHICLES
## Products - Buckshot

- Buckshot **½ Ton Truck** - $23,995 (freeway speed and ½ ton payload capacity for delivery, fleet and municipality uses)

| | | |
|---|---|---|
| AC Motor & Controller | (standard) | 30kW |
| AC Motor & Controller | (upgrade) | 60kW |
| Batteries | (standard) | 23kWh LiFePO4 - 90 mile range |
| Batteries | (upgrade) | 46kWh LiFePO4 - 150+ mile range |
| Charger | (standard) | 6kW charger for use with 120V or 240V outlet |
| Battery Management System | (standard) | Monitors, controls and displays individual battery voltages. Programmable through color touch screen interface. USB port access to vehicle data memory. Optional balancing. |
| Vehicle Configuration#1 | | 1000 lbs payload pickup truck |
| Vehicle Configuration#2 | | Covered cargo delivery box |
| Top Speed | | 65 mph |

Safety Features:
Structural Steel Body
Meets or exceeds NHTSA's FMVSS

# 5. GREEN VEHICLES
## Products - Moose

- Moose **Minivan** - $23,750 (freeway speed or NEV (low/medium speed) option for delivery and fleet, municipality, hotel and resort passenger/cargo shuttle and family uses)

| | | |
|---|---|---|
| AC Motor & Controller | (standard) | 20kW |
| AC Motor & Controller | (upgrade) | 30kW |
| Batteries | (standard) | 14kWh VRLA - 50 mile range |
| Batteries | (upgrade) | 26kWh LiFePO4 - 100 mile range |
| Charger | (standard) | 3kW charger for use with 120V or 240V outlet |
| Charger | (upgrade) | 6kW charger for use with 120V or 240V outlet |
| Battery Management System | (standard) | Monitors, controls and displays individual battery voltages. Programmable through color touch screen interface. USB port access to vehicle data memory. Optional balancing. |
| Top Speed | | 65 mph (governed at 25/35 mph for NEV option) |

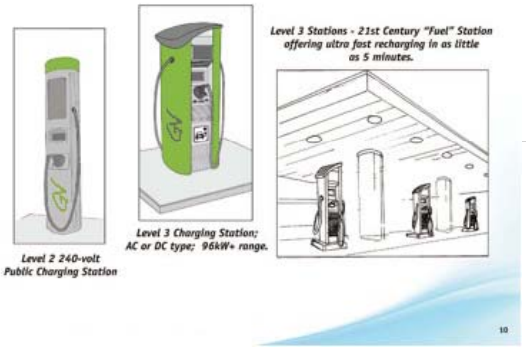
Safety Features:
NEV Certified
Structural Steel Body
Meets or exceeds NHTSA's FMVSS

# 6. GREEN VEHICLES
## Industry Technology Trends

**Changing Industry-**

Innovate or Get Left Behind

- **Energy Storage-**
  - Li-Ion next generation
  - Ultracapacitors
  - Breakthrough technologies
- **SMART Grid-**
  - J1772
  - Charger infrastructure
  - PUCs
- **Efficiency/Reliability Improvements**
  - System level
  - Component level
  - Manufacturing level
- **Intelligent/Modular Systems**-
  - Variability through software
- **IT System-**
  - Customer value added over conventional cars




# 7. GREEN VEHICLES

## The Solution – Green Vehicles' Core Technology Development

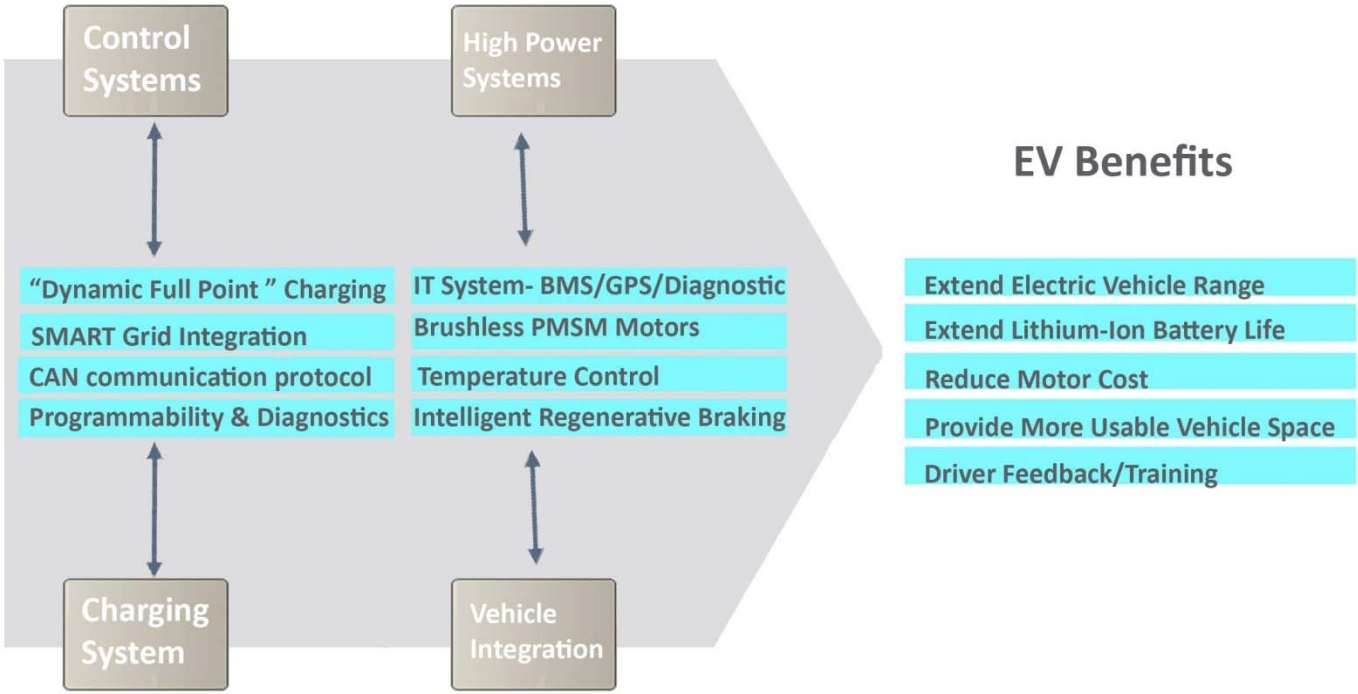
**Green Vehicles' total system benefit results in up to 40% longer battery life for the battery pack and approximately $7,000 in savings over the comparable electric vehicle's propulsion system**

- **Intelligent Regenerative Braking** that dynamically adapts to driving conditions (e.g., urban vs. highway) to recover kinetic energy wasted in conventional braking systems
- **Advanced Battery Management System (BMS**) that capitalizes on temperature-based cell charge analysis to provide "dynamic full-point" charging and extend battery life by 40% over current voltage-based charge equalization devices
- **"Smart-Grid" Chargers/Charging Infrastructure** based on emerging smart-grid standard (SAE J1772 - full 19kW capability) in order to enable electric vehicles to both charge and supply power to electrical grid
- **X Battery** On-going evaluation of breakthrough energy storage technology through close strategic partnerships. Next generation energy storage solutions are enriching the parameters.
- **Hub Motors** that are located on each wheel rather than a single central motor in order to reduce motor costs by 35% and provide 20% more usable vehicle space. Control systems provide advanced traction advantages.

# 8. GREEN VEHICLES

## The Solution – Green Vehicles' Technology

- Green Vehicles is using technical innovation to optimize both performance and cost



# 9. GREEN VEHICLES
## Ownership Cost Analysis & GHG Reduction

**How to reach 1990 GHG emission levels by 2020…**

Using an estimated reduction of 250 grams per mile "well-to-wheels" in CA, gives 3.2 tons GHG per year per vehicle replaced.

Creation of a new niche demonstrating the utility of a regional vehicle

SMART grid acceleration through Silicon Valley Power

Grow a component supply-chain and EV technology development critical mass centered in California

By 2020, GV is targeting a combined vehicle and electric propulsion systems market penetration of 2.5% of new cars sold in the U.S.

*Cost Analysis based on driving 35 miles per day.*

| Make/Model | Price | MPG | Gal/yr | Yearly Cost of Gas. $2.50/gal | $3/gal | $4/gal | GHG (tons/yr) |
|---|---|---|---|---|---|---|---|
| Compact Pickup Truck | $29,210 | 17 | 751 | $1,876 | $2,252 | $3,003 | 9.2 |
| Nissan Versa | $16,675 | 28 | | | | | |
| Hyundai Accent | $14,230 | 28 | | | | | |
| Chevrolet Aveo | $13,885 | 28 | | | | | |
| Honda Civic | $19,610 | 28 | | | | | |
| Average Gas Subcompact | $16,100 | 28 | 455 | $1,138 | $1,365 | $1,820 | 6.3 |
| Honda Civic HEV | $23,780 | 37 | | | | | |
| Toyota Prius HEV | $22,400 | 44 | | | | | |
| Average HEV | $23,090 | 41 | 312 | $779 | $935 | $1,246 | 3.6 |

| Yearly Cost of Electricity based on 'Time of Use Rates for Peak & Off-Peak. Make/Model | Price | Energy | Range | .09/kWh | .32/kWh |
|---|---|---|---|---|---|
| NEV | | | | | |
| GEM eLXD | $15,675 | 7.2kWh | 25 | | |
| Miles Electric /X40S I | $20,950 | 10.8kWh | 30 | | |
| Average NEV | $17,961 | 8.7kWh | 28 | $406 | $1,446 |
| GV Moose | $16,995 | 14.4kWh | 50 | $331 | $1,176 |
| GV Triac | $24,995 | 23kWh | 100 | $264 | $940 |
| GV Buckshot | $23,995 | 23kWh | 85 | $310 | $1,101 |

| Supplemental Yearly maintenance costs. | Gas Auto | HEV | Pb NEV | Li-Ion EV | PHEV |
|---|---|---|---|---|---|
| Oil change/filter | $108 | $108 | $0 | $0 | $108 |
| Brakes | $165 | $110 | $55 | $55 | $110 |
| Tune-ups | $90 | $90 | $0 | $0 | $170 |
| Transmission service | $50 | $50 | $0 | $0 | $50 |
| Belts,hoses, etc. | $300 | $300 | $0 | $0 | $300 |
| Batteries | $0 | $300 | $400 | $700 | $400 |
| Total | $713 | $958 | $455 | $755 | $1,088 |

| Average Total Maintenance and Fuel Cost @ $3/gal and $0.09/kWh. | Gas Subcompact | Gas-Truck | HEV | Moose | Buckshot | Triac |
|---|---|---|---|---|---|---|
| Per Year | $2,078 | $2,965 | $1,893 | $786 | $1,065 | $1,019 |
| Per Mile | $0.16 | $0.23 | $0.15 | $0.06 | $0.08 | $0.08 |

| Total Cost of Ownership Per Year w/ Price (amortized over 5 years; net Fed/CA rebate) | Gas Subcompact | Gas Truck | HEV | Moose | Buckshot | Triac |
|---|---|---|---|---|---|---|
| | $5,298 | $8,807 | $6,511 | $3,515 | $5,064 | $5,218 |

* source *Consumer Reports 2008*
*Motortrend 2009*

# 10. GREEN VEHICLES
## Competitors Comparison

- Green Vehicles' advanced propulsion systems provide a **cost-effective** and **easily adoptable** solution for the PHEVs of tomorrow
- Green Vehicles is delivering **cost-effective** electric vehicles ***today*** by utilizing our advanced propulsion systems in our **own line of affordably-priced battery electric vehicles** (BEVs)
- Green Vehicles can demonstrate products with substantially superior **performance, reliability, utility and design-quality** in comparison with current vehicles on the market
- GV's BEVs qualify for a **$2,500** Federal tax credit and a **$1,500** CARB rebate to the consumer
- GV's BEVs are at least **40% less expensive** than same class vehicles currently on the market

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| Electric Vehicles | GV Moose | GV Triac | Zenn | ZAP Xebra Sedan | Aptera 2e | Tesla Roadster | Th!nk City* | Phoenix **SUV |
|---|---|---|---|---|---|---|---|---|
| Cost ($) | 23,750 | 24,995 | 17,245 | 11,700 | $25k-$40k | 109,000 | 35,000 | 50,000 + |
| Battery Type | lithium-ion | lithium-ion | lead acid | lead acid | lithium-ion | lithium-ion | lithium-ion | lithium-ion |
| Distance (miles) | 100 | 100 | 30+ | 20 | 100 | 100 | 110 | 100 |
| Top Speed (mph) | 75 | 85 | NA | 40 | 90 | 125 | 60 | 95 |

| Trucks | GV Buckshot | GEM eLXD | Miles ZX40ST | Zap Truck XL | Zap Xebra Truck | Phoenix SUT** |
|---|---|---|---|---|---|---|
| Cost ($) | 23,995 | 15,675 | 20,950 | 14,500 | 12,500 | 60,000 |
| Battery Type | lithium-ion | lead-acid | lead-acid | lead-acid | lead-acid | lithium-ion |
| Distance (miles) | 100 | 25-40 | 30-40 | 30 | 25 | 100 |
| Top Speed (mph) | 65 | 15-25 | 25 | 25 | 40 | 95 |
| Payload (lbs) | 1,000 | 1,100 | 1,075 | 1,600 | 500 | 1,000 |

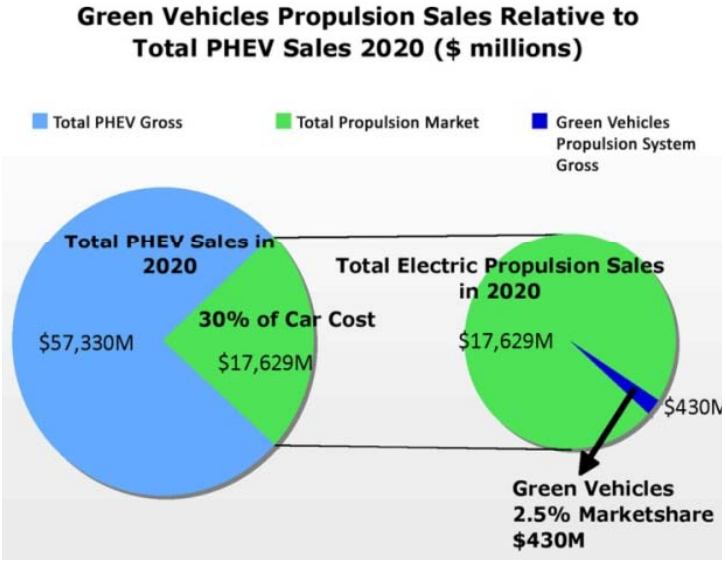
*Source: Company and Industry Sources*

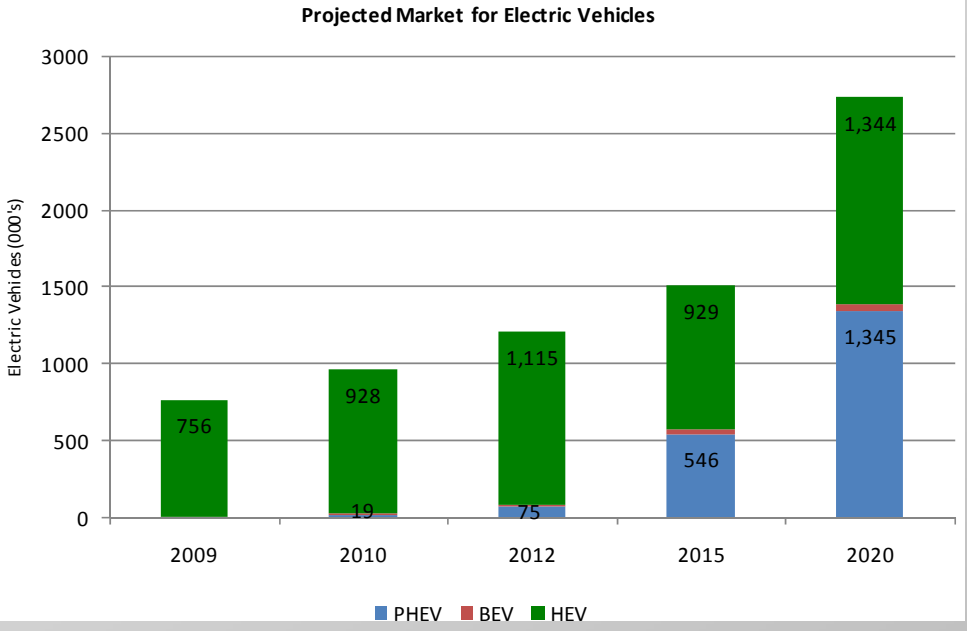
** UK price, not including battery or $150/mo for battery lease charge; unavailable in U.S.*

***Currently in chapter 11 bankrupcy*

# 11. GREEN VEHICLES
## Market Opportunity

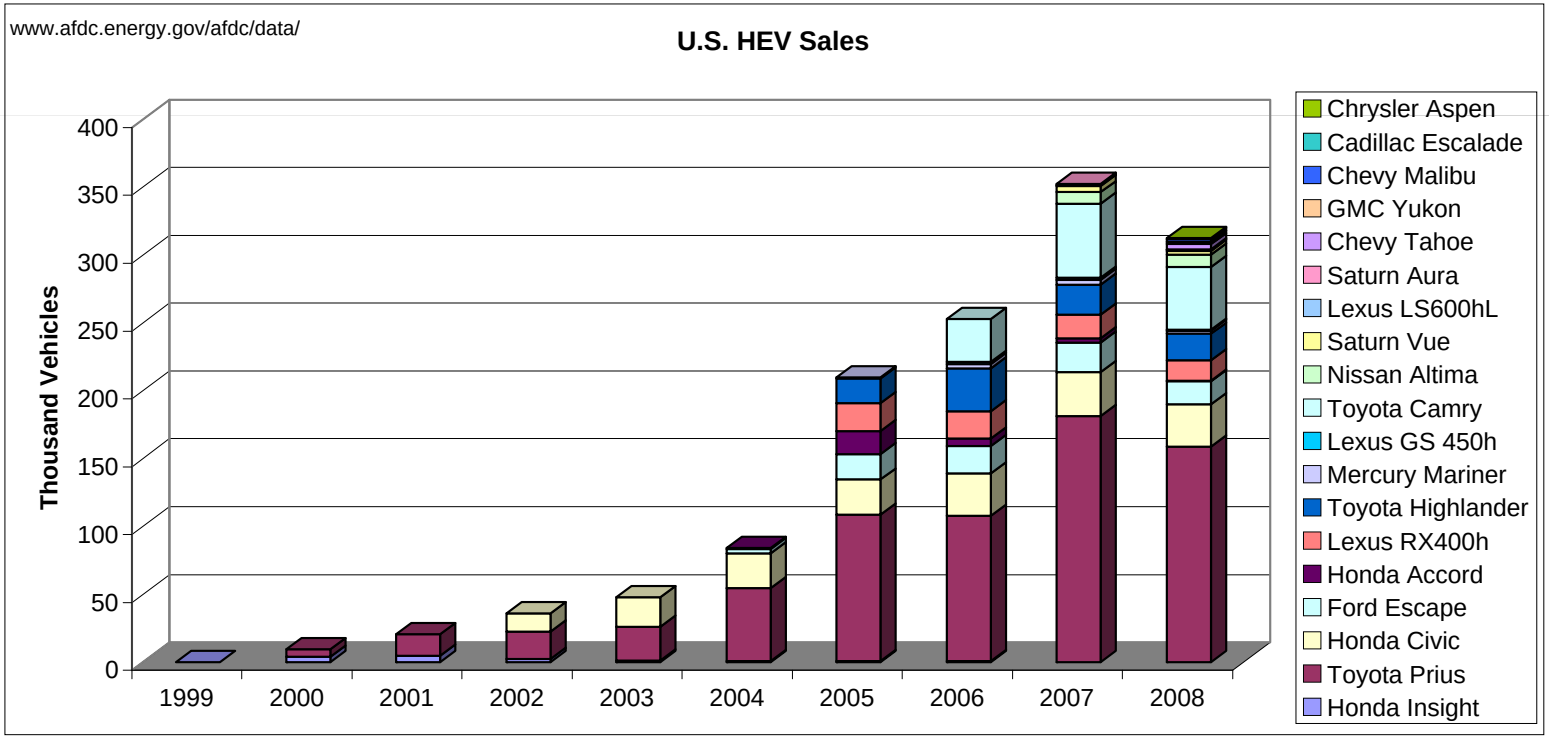
- Automobile industry is in the midst of a **paradigm shift** towards fuel efficient, ecologically conscious transportation; a **significant customer demand** remains unaddressed.
- Morgan Stanley believes “Plug-In Hybrid Electric Vehicles have the potential to revolutionize the auto industry”
- By **2020** PHEVs are expected to represent over **50%** of the growing number of total hybrid vehicles sold
- Green Vehicles conservatively estimates that we will capture **15%** of the **BEV market** by **2012** growing to **20%** by **2015**. Significant impact on growing the BEV market and **reducing GHG emissions immediately**, with both fleet and consumer oriented customers
- Beginning in **2012**, we expect to place our **advanced propulsion systems** into **next-generation PHEVs**, growing to **2.5%** of the total market.



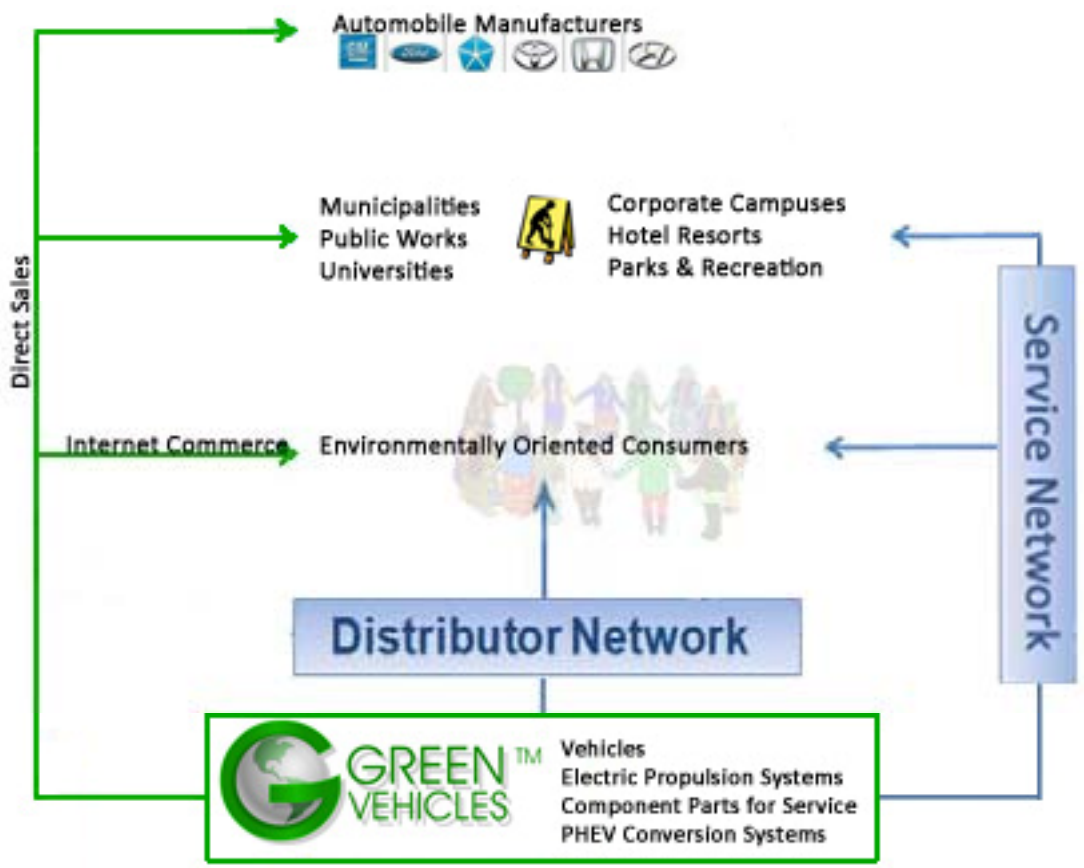
# 12. GREEN VEHICLES
## Market Timing

- **First products** to achieve market penetration are likely to retain the **dominant market share** as volumes and subsequent profits grow
- Green Vehicles is **uniquely positioned** to deliver BEVs and PHEVs by providing **cost-effective vehicles** and **advanced propulsion systems** capable of **wide adoption today**



# 13. GREEN VEHICLES
## Sales & Marketing

- **National dealership network** for independent **sales** and **service**. Initial rollout in **California** and **West Coast**
- **Direct inside sales** to municipalities, fleets, corporations, universities, hotels, resorts and public agencies
- Entire **first production round** of BEVs has been **pre-reserved** and will be delivered **in 2009**



# 14. GREEN VEHICLES
## Production Ramp Up

| Production* | Jobs** |
|---|---|
| **2009** | |
| Initial production | 12-15 |
| **2010** | |
| 25 vehicles per month | 25-50 |
| **2011** | |
| 75-200 vehicles per month | 35-70 |
| **2012** | |
| 500+ vehicles per month | 75+ |

*Assumes $5.5 million investment

**Excluding outsourced jobs

GV is an American manufacturer of EVs with U.S. WMI

Light manufacturing, assembly, fabrication, and test in San Jose, CA.

“Made in USA” > 60% of total value

# 15. GREEN VEHICLES
## Customer Demand

- **Customer Demand**
  Over 50,000 website hits in first 60 days of product announcement
  Thousands of customer inquiries requesting product availability
  Pre-sold entire first round of production

- **Key Sales Opportunities**
  US Postal Service/UPS/FedEx
  Google/Lockhead/Yahoo + large corporations
  City of San Jose (Mineta Airport/City Fleet/Water Treatment)
  Salinas Valley agricultural uses
  Military bases
  Electric utilities

# 16. GREEN VEHICLES
## Strategic Partners

- **Stanford University's Rapid Prototyping Laboratory** - Development and testing of Stanford X Battery which will potentially revolutionize the electric vehicle industry
- **Silicon Valley Power -** Santa Clara based electric utility company with aggressive SMART grid rollout program
- **Mobius Power** - Testing and implementing next generation Lithium-battery packaging technologies that will optimize battery range and life
- **Coulomb Technologies** - Optimization fast charging capabilities and ability to deliver power back to the electric grid using the soon-to-be adopted SAE J1772 charging protocol
- **Flux Propulsion** - Utilizing the Company's PHEV systems in conjunction with expected cost and efficiency gains from Green Vehicles' electric propulsion systems to hybridize 20 streamlined, light-weight composite hulls for a broad range of uses, including harbor patrol, police, rescue, reservoir/water treatment plant maintenance, fish and game preservation and military purposes
- **Dahl-Beck Electric** - Electric motor and control system manufacturing and testing. Has over 50 years of experience in AC & DC motor winding, refurbishing, designing and testing. Together, Green Vehicles and Dahl-Beck Electric will expand traction motor manufacturing operations building a major U.S. source for the next generation of affordable electric propulsion systems.

GREEN VEHICLES™ STANFORD UNIVERSITY FLUX PROPULSION MOBIUS POWER Coulomb Technologies dahl-beck electric

# 17. GREEN VEHICLES
## California Manufacturing Incentives/Investment

**California Incentives Are Needed Now:**

- ARRA grants directed to non-California manufacturers
- NUMMI plant closure
- High up-front capital costs, pre-volume manufacturing costs and first-generation technology costs

**Solution:**

- Seeding EV technology manufacturing will result in high-paying technology jobs and advancements that will generate long-term “Green Collar” employment opportunities.
- The need for incentives will diminish over a 3 to 5 year period.

**Investment Sources & Match Funding:**

- CEC Investment $2.5 million grant
- Municipality (cash/in-kind) $500k to $1 million
    - Silicon Valley Power SMART grid technology sharing
    - CEC loan to Municipality passed-thru as a grant to GV
- Private Equity $1.5 to $2 million
    - CEC State loan guarantee