Testimony of Brian P. Wynne
President, Electric Drive Transportation Association
Before the
Senate Energy and Natural Resources Committee
September 16, 2008

Mr. Chairman, Ranking Member Domenici, members of the Committee. My name is Brian Wynne, I am president of the Electric Drive Transportation Association and I am very pleased to be here today to share with the Committee our industry's accomplishments, plans and vision for electric drive transportation.

The electrification of the transportation sector brings together a range of industries and interests. At the Electric Drive Transportation Association, we represent auto manufacturers, battery and other technology developers, utilities and energy companies and universities. All of these companies and organizations are committed to realizing the economic, security, and environmental benefits of displacing oil with electricity.

The reasons we need to pursue this course are painfully clear. Gas prices reached record highs this year, at one point reaching almost $140 a barrel. While they were headed down recently, we know that OPEC or Ike can change that any day.

More than the price of oil, the COST of oil to our security is enormous. Close to 60% of the petroleum we use is imported. If we switched over the U.S. light duty fleet – cars and SUVs – to electric drive vehicles – a combination of plug-in and standard hybrids, battery electric and fuel cell vehicles, we would cut liquid fuel consumption by 83%.

Environmentally, electrification of transportation makes sense as well. The transportation sector accounts for about a third of the greenhouse gas emissions in the U.S. and about 80% of urban air pollution.

A recent study conducted by the Electric Power Research Institute with the National Resources Defense Council found that plug-in electric drive vehicles running on electricity from today's power grid would produce 1/3 less greenhouse gas emissions than vehicles running on traditional combustion engines.

Understanding the potential of plug-in electric drive, we are here to discuss the current state of the industry and how to get these vehicles on the road in substantial numbers.

Grid-connected vehicle technology is moving forward at a rapid pace. There are plug-in vehicle options available today, including the ones that are outside, and a significant number coming to market in the next three years.

Major manufacturers have established ambitious vehicle timelines; battery manufacturers are looking to scale up production and electricity providers are making changes and plans for integrating vehicles into their customer base.

I am going to mention some specific vehicles (it is not a complete list) that you will be seeing on the road in the next couple of years. Along the way I would like to clarify what the differences are in these emerging technologies and why it's important to keep that diversity in mind when you are building policies to help accelerate their adoption.

As an introduction to the technology, let me explain that in "electric drive" vehicles, electricity provides either all, or part, of the motive power that propels the vehicle. Electric drive vehicles are not just cars; they can be trucks, forklifts, scooters, buses, neighborhood electric vehicles and even trains. They can get power from the grid, or recharge on board.

While there is enormous diversity in the technology, all the vehicles share a common benefit– they displace oil with electricity.

There is tremendous flexibility in electric drive and, as this panel indicates, different technology and market paths are emerging. The focus here today is on vehicles that run on electricity from the grid. These vehicles can be battery electric or plug-in hybrid vehicles.

Battery electric vehicles operate entirely on their electric drive motor and have various range and speed capabilities.

For instance, thousands of low speed battery electric vehicles in use today, like the Global Electric Motorcars neighborhood electric vehicle, provide a petroleum-free option for urban commuters across the country. Electric motorcycles, such as the Vectrix maxi-scooter, which gets between 35 and

55 miles per charge on a nickel metal hydride battery, are changing the two-wheeled fleet.

At the top end of the speed scale is the Tesla Roadster, which operates on lithium-ion battery technology. The Roadster can go to zero to 60 in just 4 seconds and can travel 220 miles on a charge. This car is available today and is the fore-runner of the company's planned line of battery electric sedans, the first of which is the Whitestar – that is being developed as – and priced more like – a family sedan.

Nissan has made a commitment in their mid-term business plan to be "the leader in zero emissions vehicles" and is rolling out a battery electric vehicle in late 2010. They plan for select fleet use at first and mass market introduction in 2012.

Phoenix, Subaru and Zenn have both announced 2009 production plans for full-speed battery electric vehicles.

Mitsubishi plans to produce a battery electric vehicle (the iMiEV) in 2010.

Daimler has announced plans for serial production of battery electric Mercedes-Benz and smart cars in 2010 and has entered into a joint agreement to provide more than 100 in Berlin in 2009.

The 2010 production model of GM's Volt is being unveiled in Detroit this morning. It is 4 door passenger vehicle with a range of about 40 miles on a single charge, which would cover the average American's daily commute.

The Volt, it is important to note, is a range-extended battery electric vehicle. Although it has an internal combustion engine, it is not a "plug-in hybrid." The engine will only be used to provide backup power to the battery. It will not provide any propulsion, as the engines in plug-in hybrids do.

Plug-in hybrid vehicles also connect to the grid, but include additional on-board power sources that can move, or assist the battery in moving, the vehicle.

Some examples of these include the planned Saturn Vue plug-in hybrid, Ford's Plug-in hybrid Escape, and Toyota's Prius Plug-in Hybrid Vehicle. These manufacturers have all announced 2010 production plans.

Hyundai is expanding its hybrid production over the next four years and is planning to commercialize plug-in hybrids sometime after 2013.

We are excited about the expanding availability of plug-in electric drive options, but how quickly they reach commercial scale depends on a number of factors.

First, there are technology challenges that manufacturers and energy suppliers must address. The most obvious is the performance and supply of new battery technologies. Some of the emerging plug-ins and the next generation of electric vehicles are likely to use lithium-ion batteries. These batteries, which are used today in laptop computers and mobile phones, hold more energy than their conventional counterparts. We need to ensure that they are also as durable, safe, and affordable as the vehicle market demands.

We should also be working to make sure they are manufactured here in the United States.

The shift to increasing electric drive technology also requires significant investment in manufacturing infrastructure by the vehicle and battery manufacturing industries. Large scale production of electric drive vehicles and components in the U.S. will require new materials, new processes and new production facilities.

In the utility and energy industries, grid-connected transportation will also require changes in electricity infrastructure and business models. Utilities need to make infrastructure investments to upgrade the transmission grid to bring new renewable sources from remote locations to urban centers where the power is needed.

They also will need to invest in smart meters to monitor the flow of electricity to the consumer household. These meters will allow consumers to recharge their vehicle batteries during off-peak times for energy savings. And, they potentially allow electricity providers to use the stored energy for load management.

Policymakers can accelerate the shift toward electrification by working with us to address these challenges.

Specifically, accelerating policies include:

• Market incentives, to help industries and consumers invest in electric drive;

• Reliable R&D support to advance the technology; and

• Expanded demonstration and deployment in fleets.

Market incentives are a powerful tool in promoting manufacturing development and making new technologies more affordable for consumers.

To help buyers overcome the first-cost hurdle of new technologies and to build market acceptance, a performance-based consumer tax credit should be available for purchases of all plug-in electric drive vehicles.

As I noted earlier, there are a variety of electric drive technologies in --and coming to-- the market. Tax incentives should reward performance (in reducing petroleum consumption with electricity) without picking a winning configuration. The credit should include all grid-connected transportation options - including battery electrics and hybrids and including large vehicles and small ones. The threshold for eligibility should not prejudice the development of the technology. They all will play a role in advancing the technology, building consumer acceptance and promoting infrastructure development.

Incentives also need to be provided upstream. Tax policies promoting the significant investments in electric drive technologies and facilities will accelerate the growth of the industry, for instance, by encouraging battery manufacturers to site their facilities in this country and by helping automakers to expand and establish their production facilities.

The bipartisan bill, S. 1617, of which Senator Cantwell is a coauthor, captures the key elements of effective tax incentives for consumers and manufacturers. Some of the proposals emerging in these last few weeks have included refinements to the concept that EDTA could potentially support. There are also some new provisions being offered that would actually limit plug-in technology development and vehicle options. These we would oppose.

Congress, and this Committee, included other critical support for electric drive in the 2007 energy bill, the Energy Independence and Security Act (EISA). EISA authorizes important grants, loan guarantees and direct loans to manufacturers of advanced vehicles and components.

These programs can provide a real boost to domestic capacity – but only if they are actually funded. We hope that Congress acts as quickly as possible in making these programs a reality.

In addition to market incentives, consistent and substantial federal investment in research and development will speed the development of necessary technologies.

EISA authorized approximately $300 million/year for research, development and demonstration projects for electric drive efforts, including plug-in vehicle research, advanced battery research, and medium and heavy duty vehicle R&D. The bill also authorized substantial investments in smart grid research and development programs.

These programs can make the difference in what is “near-term” technology and what is not. As I said previously, the sooner we can get these programs underway, the sooner we can address the technology and infrastructure challenges that come with rethinking transportation.

Along with R&D, Federal, state and local governments can expand efforts to deploy electric drive vehicles in private and public fleets. These “real world efforts” provide energy and environmental benefits – and they also help to identify what works well and what needs to be improved in a new technology.

Federal support for demonstration projects can help utilities and manufacturers work together to demonstrate grid-connected technologies. Today, Ford, Johnson Controls and Southern California Edison are partnering on a demonstration of the plug-in hybrid Escape. GM is working with EPRI and a group of utilities to address the infrastructure and charging issues raised by plug-in vehicles.

These kind of collaborative efforts are critical to launching a transportation shift that requires changes in vehicles, in fuel providers and even drivers.

This is just a sampling of the work that the electric drive industry is doing to bring grid-connected vehicles to production, grow them to commercial scale and prepare the grid for a plug-in vehicle future. Working together with policymakers, we can make it happen even sooner and realize the economic, security and environmental benefits of displacing oil with electricity.

I thank you for the opportunity to testify today and look forward to answering any questions you may have.