



**Testimony of Russell T. Keene
Plug-In Texas (Statewide Electric Vehicle Coalition)
Before the Texas Senate
Committee on Business and Commerce
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Thank you Mr. Chairman and Members -- and Governor Dewhurst -- for including electric vehicles amongst the Interim Charges the Committee is studying. My name is Russ Keene and I am a spokesman for *Plug-In Texas*, a broad-based and growing coalition of private and public interests dedicated to promoting the use of battery electric, plug-in hybrid and all-electric vehicles (EVs) and to help position Texas as a leader in this rapidly evolving technology and transformative transportation mode.

We appreciate the Committee allowing *Plug-In Texas* to testify today. Several of our members are also represented on panels today -- the Environmental Defense Fund, Reliant Energy and TXU Energy. Other members to date include Environment Texas, Luminant Energy, and the Texas Automobile Dealers Association. We, along with many other groups across the state, are pleased to see the Committee examining the benefits that EVs can bring to Texas consumers and to our state's economy.

The widespread introduction of electric vehicles could be the most transformative moment in America's automotive industry since the advent of the interstate highway system more than 50 years ago. We believe support is rapidly growing nationally for a new generation of vehicles powered by electricity.

Electric Vehicle Benefits in Texas

Plug-In Texas believes that electric and plug-in hybrid vehicles can address many issues that face our state and nation including (1) improvement to air quality by reducing emissions, (2) adding to our national energy security by reducing our dependence on foreign oil, (3) making car ownership more affordable for consumers and fleets and (4) creation of new green jobs helping to stimulate local economic activity. In addition, (5) Texas leads the nation in the amount of installed wind power capacity, and plug-in vehicles are an ideal complement to wind power, since many motorists will recharge their car batteries at night, when the wind generation peaks and the demand for power is otherwise low. When plug-in vehicles are recharged from electricity produced by efficient combustion, non-emitting or renewable generation, the use of electricity as a transportation fuel can reduce direct emissions from vehicle tailpipes and indirect emissions at the fuel source.

Will Texas, with several large urban areas connected by interstate highways and its renowned love affair with cars, emerge as a key market for electric vehicles? We believe the answer is yes. According to the DOE, despite Texas' position in the heart of the oil patch, Texas has the second largest number of alternative fueled vehicles on the road today.

Consumer Vehicles, Emissions and Fuels Displacement, Batteries

There are certainly challenges – and some myths about EVs – but there are even more opportunities as these passenger, OEM production vehicles come to market this year and next. Most every major auto manufacturer is investing in EVs: BMW, Daimler, General Motors, Ford, Nissan, Toyota, as well as new market entrants like Coda, Fisker, Tesla and the Chinese company BYD in which Warren Buffet is an investor.

Of course central to the vehicle operation is a lithium-ion battery. The batteries are indeed large and expensive, but like other technologies, the size, range and cost are expected to improve over time. The Chevy Volt, a plug-in hybrid EV, has an electric battery range of 40 miles before it switches to gasoline power and the Nissan Leaf, the first production-scale all electric vehicle, has a range of about 100 miles. According to several studies, including one by General Motors, the average person drives less than 40 miles a day. The rest of the day the vehicle is parked at home or at work, where it can recharge.

According to the Electrification Coalition, if 75 percent of light-duty vehicle miles traveled are electric by 2040 oil consumption would be reduced by 3.2 million barrels per day and CO2 emissions will be reduced by over 70 percent, or 450 million metric tons annually – the equivalent of removing 82.5 million passenger cars from the road.

Additionally, overall cost of ownership for an electric vehicle is anticipated to be less for a consumer. A study by *Plug-In Texas* member Environment Texas says electricity costs three to five cents per mile with average electric rates, or the equivalent of \$0.75 to \$1.25 per gallon of gasoline. That equates to an estimated \$40 savings a month using electricity to power a vehicle instead of gasoline assuming a consumer fills up three times monthly at \$40 per tank full.

Fleet Vehicle Applicability

Heretofore, alternative fueled vehicle options seem to favor fleets. Fleet operators are certainly piloting and integrating EVs. FedEx, for example, has ordered 50 EV light vans to pilot in New York. Frito-Lay is adding EVs to its Texas fleet, and has a charging station under construction at its North Texas facility.

The City of Houston has converted a number of existing city vehicles and it has ordered Nissan Leafs, bringing its fleet of EVs to 40. In an innovative public-private partnership with the City of Houston and Nissan, *Plug-In Texas* member Reliant Energy's parent NRG Energy is investing in public infrastructure by installing and operating a number of public charging stations needed to support a critical mass of electric vehicles. Of this partnership, Houston Mayor Annise Parker said recently, "I want Houston to be at the forefront of expanding this technology. We have long been the oil capital of the world. There is no reason why we can't be the alternative energy capital of the world." As other examples, the City of Denver is beginning to budget Level 1 charge points across the city and the State of Washington is developing an implementation plan for counties to have 10 percent of public and private parking spaces ready for EV charging.

Economic Development Potential

EVs have a green tech, economic development contribution as well. Texas, particularly Austin and San Antonio, sought the National Battery Research Consortium in 2009, which was ultimately awarded to Kentucky (1,400 permanent jobs). Nissan's new battery plant broke ground in June in Tennessee. That facility will have 1,300 jobs when at full capacity, making 200,000 batteries annually.

Closely related, electricity storage is a burgeoning field with several Texas start-ups leading the way.

And of course there are research opportunities in abundance, of which the University of Texas at Austin and Texas A&M University are collaborating on EVs through a National Science Foundation study.

We encourage the state to continue to seek green tech economic development opportunities in battery research, as well as wind, solar and other new energy research applications.

Charging Options, Infrastructure Preparation and Grid Readiness

There are three "types" of charging stations: Level 1 (a simple 120-volt home garage model); Level 2 (a 240-volt faster charge); and Level 3 (a quick charge, expensive option). Ninety five percent of people surveyed in a report from the Electric Power Research Institute (EPRI) say they would prefer to charge their electric vehicle at home, and 83 percent have home access to a 240-volt outlet.

Level 1 chargers are being packaged as part of the car sale with the Chevy Volt. They operate off an owner's existing 120-volt outlet and take 8-10 hours to fully charge. Level 2 is a bit faster at 3-4 hours with a 240-volt outlet, which could also be used in the home and is foreseen to be in place in office

building garages and retail establishments. Level 3 devices, at a much higher electric flow, will be onsite at fleet parking areas or at today's gasoline stations or convenience stores for a "quick" and complete recharge.

Homeowners or businesses wanting Level 2 or Level 3 charging units will likely have to seek city permits to add additional capacity for EV charging. We are already working with several cities to expedite or streamline the permit process or to allow self-inspection by contractors for the upgrades.

Leading retail companies like Whole Foods, Wal-Mart and McDonalds are beginning to install public charging stations and there is interest from building owners and property managers. For now, these businesses are providing complimentary electric charges to their customers. It is believed that metering and payment protocols will be developed in the near term as EVs proliferate, making car charging another profit center for businesses and building owners or for the electric retailer servicing the sites.

Publicly accessible charging stations are desired at state or local facilities to make recharging available as the private sector adapts to charging station demand. The state could place Level 2 charging stations at certain state-owned facilities for state fleet vehicles and make these available for a fee for private vehicles. We believe airports, city halls and other local buildings will also make accommodations for private vehicles to access charging stations in the early EV years.

EVs will take advantage of the "smart grid" as one of many "appliances" that consumers can efficiently manage in the future from their home, computer or smart phone. Ford has an app in development to manage an EV battery recharge from the office or the den, allowing the car owner to schedule a battery charge from, say, 2:00 to 5:00 am while demand is lowest on the grid, or to check the charge level from the office before walking out to the parking lot to drive home. Google is developing "smart charge" software to manage multiple EVs coming online for charging. High concentrations of EVs, charging on a hot August night, could have impacts on the grid. Utilities and retailers are expected to offer incentives for off-peak charging and to develop manageable protocols.

Presently, the Texas grid has satisfactory capacity to accommodate the several thousand EVs that are anticipated to come on line over the next several years. On that note, we compliment PUCT Chair Barry Smitherman for his interest and leadership on EVs. The PUCT has established a stakeholder working group and we also enjoy collaborating with other public entities like the North Central Texas Council of Governments which is doing a terrific job of preparing for more alternative fueled vehicles in North Texas as well as Austin Energy, a longtime leader in preparing for EVs. Like Houston, Austin is adding

EVs to the city fleet and will be rolling out impressive infrastructure enhancements to accommodate the vehicles in the near term. I understand Fort Worth is also receptive to greater implementation of EVs in that city as well.

Public Policy Considerations

A number of states and local governments have been proactive in preparing for EVs. *Plug-In Texas* hopes our state will also consider public policy enhancements in 2011 to incent EV ownership and enable Texans to fully take advantage of all the benefits EVs can provide. *Plug-In Texas* members are hopeful that the Legislature will examine the following issues which are in place in a number of other states and cities:

- Investment in state fleet conversion and adoption of electric and plug-in hybrid vehicles and charging stations.
- Investment in infrastructure, provide public and residential charging station investment credit, and encourage cities and counties to be flexible to expedite building and electric inspections for infrastructure.
- Consumer incentives including: tax rebate or credit, waive or reduce vehicle registration fees, free access to toll roads and HOV lanes, free parking or preferred access parking at state facilities, parks, or airports.
- Several years down the road as EVs proliferate in the state, public policy will also need to address an equitable contribution to roadway taxes by EV owners.

Currently, there is a federal tax rebate of \$7,500 for EV purchases and the DOE has invested billions of dollars in research, development and incentives for the EV industry. Several states have an additional tax rebate for purchases, as well as other convenience incentives for EV drivers. Connecticut's Governor Jodi Rell has created an EV Council, California has statewide HOV access, and Colorado has a \$6,000 tax rebate.

Governor Perry's 2009 State of the State Address called for a \$5,000 incentive towards the purchase of plug-in hybrid electric vehicles, using the funds Texans have already paid to reduce emissions in the TERP program. As you know, Senator Averitt's SB 16 last session proposed a \$4,000 rebate for plug-in purchases from TERP. The Averitt bill passed in the Senate but did not move out of the House. We understand the financial constraints our state budget is in, so *Plug-In Texas* supports a modest financial

incentive from the TERP to consumers and businesses for the purchase of EVs, to complement the federal dollars.

Today, the Texas Emissions Reduction Plan (TERP) through TCEQ provides financial incentives to eligible individuals, businesses or local governments to reduce emissions from polluting heavy-duty, diesel trucks and equipment. There is also TCEQ's Texas Clean Fleet Program to replace fleet diesel vehicles with alternative fuel and hybrid vehicles. By expanding these programs to provide financial incentives to convert or replace any light-weight passenger vehicle, and including electric vehicles in the definition, our state would be further utilizing funds already set aside to reduce emissions without the use of more funding.

Attached to this testimony is a snapshot of what other states and localities are doing to prepare infrastructure and driver convenience packages to attract EVs to their region.

Conclusion

As America works to better capitalize on its energy resources, we believe we are in the midst of a paradigm shift that is changing the way Texas and America views our transportation system. Texas has always embraced forward-thinking, responsible technology. Working toward the wide-spread adoption of EVs is a momentous opportunity for the state of Texas to be a leader in this transformative, new transportation technology. These production scale electric vehicles are coming very quickly and they are coming to Texas. Texas is home to 24 million people, 20 million cars and has 4 of the 15 largest cities in the US – as one of the highest-adopting states of alternative fueled vehicles, we believe EVs will be embraced by Texas drivers in the years ahead. EVs are a win-win – a win for consumers, a win for the environment and a win for our state. Texas is well-positioned to be a leader in EV adoption. *Plug-In Texas* respectfully encourages the Texas Senate to look for public policy pronouncements to shape and advance these promising, exciting new vehicles in the state in the days ahead. We look forward to serving as an information resource to the Texas Legislature on electric vehicles.

Thank you for allowing me to be with you.

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Local Government Plug-In Readiness

Streamlined Permitting System

- **Raleigh, NC:** Raleigh, North Carolina has made the permitting process easier by reducing the time it takes to acquire a home charging station to one hour. The cost for the permit will be \$74.
- **Oregon:** The Oregon Department of Consumer and Business Services, Building Codes Division has made the permitting process for home charging units cheaper and easier. Starting July 1, 2010, electrical contractors can use the Building Code Division's (BCD) popular minor label permits website to purchase permits for electric vehicle charging units. Minor label permits are less expensive than traditional permits and have an expedited approval process.
- **Denver, CO:** The City and County of Denver has developed a plan to allow quick turnaround for private individuals or businesses to obtain permits to install vehicle charging stations. Denver's permitting and inspection officials have provided feedback and assurances regarding vehicle-charging technologies: a permit for a level 2 home charging unit should be easily obtainable through a simple, 15-30 minute walkthrough review, and they anticipate being able to provide next-day inspections.

Infrastructure Installation & Planning

- **Washington:** Any regional transportation planning organization containing a county with a population greater than one million must collaborate with state and local governments to promote EV use, invest in EV infrastructure, and seek federal or private funding for these efforts. Efforts include developing an implementation plan for counties to have 10% of public and private parking spaces ready for EV charging by December 31, 2018 and developing guidance for local governments for site assessment and installing EV infrastructure. Also, publicly and privately owned EVs may be charged at state office locations where the vehicles are used for state business free of charge. Additionally, contingent upon funding, the state must install electrical outlets suitable for charging EVs in each of the state's fleet parking and maintenance facilities as well as every state-operated highway rest stop by December 31, 2015.
- **Denver, CO:** The City of Denver is beginning to budget level 1 charge points across the city. Many of these will be existing outlets, so the city is developing signage that will make these areas highly visible to the public. As demand increases and these charge points are used with greater frequency, the city will consider upgrading to Level 2 outlets and charging station.
- **Houston, TX:** The city of Houston is installing 15 charging stations at various city facilities, 10 of which will be available to the public. Coulomb Technologies provided the charging stations for this project and charging will be at no cost to the consumer in the first year of the program. The ten charging stations available for consumer and City fleet use are part of a public demonstration project, dubbed the "Power of the Plug-In", and funded by Reliant Energy one of the largest retail electric providers in Texas. The ten Reliant-provided charging stations will be

located around Houston, with public stations at City Hall, the Health Department office and at the Mayor's Citizens Assistance Office.

Fleet Adoption

- **Chicago, IL:** The City of Chicago works with its partners in the Chicago Area Clean Cities coalition and the Metropolitan Mayors Caucus under their Green Fleets program to promote the use of alternative fuel vehicles in municipal fleets. The City has already transitioned 1,200 of its municipal fleet to alternative fuels and operates seven alternative fuelling stations to serve City vehicles. The program will lead to the deployment of 554 alternative-fuel and hybrid-electric vehicles and the installation of 153 alternative fueling and re-charging stations throughout the area. Under Mayor Daley's leadership, the Green Fleets program already operates 592 alternative-fuel vehicles, 252 hybrid vehicles and eight electric vehicles.
- **Los Angeles, CA:** The City of Los Angeles boasts over 4,100 alternative-fuel vehicles everything from gas-electric hybrids to natural gas trucks and buses to trendy MINI Es. The city is field-testing five MINI E plug-in electrics. City workers say they are getting about 100 miles on a full charge. Recharging takes about three hours using a dedicated charging station.

General EV Readiness

- **Bay Area:** Collaboration between the mayors of San Francisco, San Jose and Oakland to enact a nine-step policy plan for transforming the Bay Area into the "Electric Vehicle (EV) Capital of the U.S." Steps include: Expedite permitting and installation of electric vehicle charging outlets at homes, business, parking lots, and other buildings throughout the Bay Area; incentives for parking facilities and employers to install EV charging systems; and harmonizing local regulations and standards across the region that govern EV infrastructure to achieve regulatory consistency for EV companies.

Local and State Government EV Driver Incentives

Vehicle Tax Rebate/Credit

- **Colorado:** An income tax credit is available from the Colorado Department of Revenue for a motor vehicle titled and registered in Colorado that uses or is converted to use an alternative fuel, is a hybrid vehicle, or has its power source replaced with one that uses an alternative fuel. These credits are capped at \$6,000. Between 2012 and 2016, the cap on PHEV conversions increases to \$7,500.
- **Georgia:** An income tax credit is available for 20% of the cost to purchase or lease a new ZEV, or \$5,000, whichever is less, as well as an income tax credit for 10% of the cost to purchase or lease a new dedicated AFV or to convert a vehicle to operate solely on an alternative fuel, or \$2,500 per vehicle, whichever is less.

HOV Lane Exemption

- **Florida:** Inherently Low Emission Vehicles (ILEV) and hybrid electric vehicles (HEV) that are certified and labeled in accordance with federal regulations may be driven in HOV lanes at any time, regardless of the number of passengers in the vehicle. The vehicle is required to display a decal issued by the Florida Division of Motor Vehicles and be renewed annually. Vehicles with decals may use any HOV lane designated as a HOV toll lane without requiring payment of the toll.
- **Arizona:** Dedicated AFVs are permitted to use HOV lanes, regardless of the number of passengers. Qualified vehicles must display AFV special plates or stickers, which are available from the Arizona Department of Transportation Motor Vehicle Division.

Free Parking

- **City of New Haven, CT:** The City of New Haven provides free parking on all city streets for HEVs and AFVs registered in New Haven that have a U.S. EPA city or highway fuel economy rating of 35 miles per gallon or greater. HEV and AFV vehicle owners must obtain a non-transferable pass from the Department of Traffic and Parking to place on the vehicle's dashboard.
- **City of San Jose, CA:** The City of San Jose has developed a Clean Air Vehicle Parking Program to reduce vehicle emissions, stimulate activity in the downtown, and increase sales of clean air vehicles at San Jose auto dealerships. For eligible vehicles, the program allows free parking at participating municipal off-street parking facilities, on-street meters, and regional park and recreation parking lots. Vehicles must display the Clean Air Vehicle Parking Permit.

Infrastructure Rebates/Incentives

- **Washington:** Public lands used for installing, maintaining, and operating EV infrastructure are exempt from leasehold excise taxes until January 1, 2020. Additionally, the state sales and use taxes do not apply to EV batteries; labor and services for installing, repairing, altering, or improving EV batteries and EV infrastructure; and the sale of property used for EV infrastructure.
- **Oklahoma:** For tax years beginning before January 1, 2015, the state provides a tax credit for up to 75% of the cost of installing alternative fueling infrastructure. Alternative fuels eligible for the credit include compressed natural gas (CNG), liquefied natural gas, liquefied petroleum gas, hydrogen, and electricity.

Registration Fees/Title Reduction

- **Iowa:** The annual registration fee is reduced to \$25.00 for an EV unless the vehicle is more than five model years old, in which case the annual registration fee is reduced to \$15.00.
- **Washington, DC:** Qualified alternative fuel vehicles (AFVs) and motor vehicles with a U.S. Environmental Protection Agency estimated average city fuel economy of at least 40 miles per gallon are exempt from the excise tax imposed on an original certificate of title.

Other

- **Louisiana:** Green Jobs Tax Credit: The state offers a corporate or income tax credit for qualified capital infrastructure projects in Louisiana that are directly related to industries including but not limited to the energy efficient and advanced drive train vehicle industry and the biofuels industry. The tax credit is worth up to \$1 million per state-certified green project, calculated on the base investment costs of the project, for up to a total of \$5 million per year.
- **New York:** The Clean Fueled Bus Program, administered by the New York State Energy Research and Development Authority (NYSERDA), provides funds to state and local transit agencies, municipalities, and schools for up to 100% of the incremental cost of purchasing new alternative fuel buses and associated infrastructure.

Sources: US DOE, US EPA, Texas Commission on Environmental Quality, industry literature

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