



STATE OF CONNECTICUT

Electric Vehicle Infrastructure Council



Final Report
September 1, 2010

Co-chairs:

**Commissioner Kevin M. DeGobbo, Connecticut
Department of Public Utility Control**

**Commissioner Joan McDonald, Connecticut
Department of Economic and Community Development**

Facilitators:

Peggy Diaz, Connecticut Department of Public Utility Control

Joseph Oros, Connecticut Department of Economic and Community Development

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I. Executive Summary

This constitutes the final report of Connecticut's Electric Vehicles Infrastructure Council. In accordance with Executive Order No. 34, this document is submitted on September 1, 2010 (following the preliminary report issued on February 1, 2010).

Electric vehicles are referred to herein as "EVs" and include all forms of electrified vehicles, such as plug-in hybrid electric vehicles (PHEVs), pure battery electric vehicles (BEVs) and conventional vehicles converted to plug-ins.

During the past nine months, concurrent with the activities of the Electric Vehicle Infrastructure Council (the Council), interest in electric vehicle technology has grown exponentially in Connecticut and throughout the U.S. and beyond. Potential buyers and sellers alike are paying close attention to this evolving clean-transportation alternative and its transformative potential for carbon reductions, energy independence and fuel-cost savings for consumers.

In November 2009, the Honorable Governor M. Jodi Rell's Executive Order No. 34 established the Council and its ground-breaking mission: To prepare Connecticut for the introduction and integration of the new generation of electric cars, thereby positioning our state as a national leader in this emerging industry. Specifically, the Council was tasked with analyzing and making recommendations for developing and implementing an innovative yet prudent course of action such that our citizens, businesses and communities can experience the potentially significant environmental, economic and energy benefits EVs offer.

At a series of open monthly meetings that began in December 2009, the Council listened to presentations by numerous agencies and stakeholders on Connecticut's readiness to assimilate EVs as a clean-fuel transportation option. This Final report reflects information the Council received on advancing EVs, from early adoption to eventual mainstream acceptance, by focusing on: availability of EV incentives and grants, infrastructure issues related to charging station installations, potential rate-making methodologies, and potential legislation that would create such initiatives.

In May 2010, the Council saw firsthand the current level of interest in EVs when it co-hosted a public EV Forum at the Legislative Office Building, in collaboration with the Regional Electric Vehicle Initiative (REVI) utilities working group. The event featured presentations by six leading automakers (Nissan, General Motors, Ford, Toyota, BMW and Mitsubishi), organizer Connecticut Light & Power, United Illuminating, the Connecticut Municipal Electric Energy Cooperative and NRG Energy, among others. Attendees included municipal officials, environmental experts, charging equipment providers and other interested stakeholders from throughout the Northeast region. Concurrently, pre-production EV models were on display on the grounds of the State Capitol building (cover photo), as test drives by Governor Rell and Council members attracted news media coverage of the event.

Connecticut's progress and collaborative approach has not gone unnoticed beyond our borders, as the state was selected in July 2010 to be one of General Motors' early-launch markets for the Chevy Volt. Plans are also under way for a September 2010 event to pre-promote the roll-out of the Nissan Leaf.

Key Recommendations

Reflecting the above efforts and the consensus of its members, the Council proposes a goal of 25,000 electric cars statewide by 2020. This is a viable target that aligns with President Obama's national goal of one million plug-in vehicles on the road by 2015.

The Council developed five additional strategic priorities which are discussed in detail later in this report. They are:

- 1) Gaining early access to the first wave of mass-produced electric vehicles;
- 2) Enacting legislation in the next session of the General Assembly to provide consumers and businesses with tax incentives/grants or other convenience benefits that afford some price parity with gasoline-powered vehicles;
- 3) Supporting the build-out of an appropriately sized, statewide EV charging infrastructure network through partnerships with public and private entities;
- 4) Developing a suitable framework for regulatory and energy policies to address time-of-use rates, pricing and charging infrastructure options for consumers; and
- 5) Working collaboratively with neighboring states to develop a regional corridor for access to public charging stations.

Lastly, the Council's recommendations include a compendium of over 30 specific action items which are presented in the "Summary of Recommendations," Section V.

II. BACKGROUND

On November 10, 2009, under Executive Order 34, Connecticut's Electric Vehicle Infrastructure Council was established. Initially consisting of 15 members, the Council was directed to:

- a. Strategize on preparing the State for the rapid and seamless integration of Electric Vehicles into the market;
- b. Coordinate interagency decision-making on critical issues;
- c. Establish performance measures for meeting infrastructure, funding, environmental, and regulatory goals; and
- d. Align State goals with what is occurring on the national level for Electric Vehicles.

The Council is made up of various state agency representatives as well as other members of the public and private sector. The Council was tasked with analyzing and making recommendations to the State on how to overcome challenges on several fronts:

- Attracting automakers to make Connecticut part of their initial marketing test zones;
- Addressing unresolved issues regarding building code requirements for the installation of charging stations in the home;
- Creating options for home charging and metering (including: on-street, parking garages, workplaces and retail locations);

- Developing infrastructure planning and policies by identifying costs, evaluating technology options, streamlining building permits for charging stations and developing a framework of rate design options for charging and metering;
- Encouraging the development of market-based electric rates for EVs that encourage and reward EV owners for charging during off-peak hours;
- Considering the impact of EV charging on overall electricity demand, methods to mitigate increased peak demand and the interplay of air quality programs affecting utility and transportation sectors;
- Developing strategies to encourage off-peak charging that improves efficiency of the electric system, avoids adding to the growing daily peak demand for power and reduces negative impacts on air quality in Connecticut;
- Identifying state and local incentives and policies that will encourage significant increase in the adoption of EVs and growth in related industries; and
- Developing outreach materials and a network of peers to educate consumers and provide training for workers in support of EVs.

In the last year, EVs and their development have become increasingly prominent subjects in the national dialogue. Manufacturers have announced more than a dozen highway-capable electric vehicle models for introduction between 2010 and 2012. The Obama administration has committed more than \$4 billion dollars in support of the design, manufacture, and purchase of electric vehicles. EVs represent a clear economic and environmental opportunity for governments, consumers and manufacturers to play an active role in reducing our dependence on foreign energy sources and in integrating available technologies in a way that will reduce emissions.

Transitioning to EVs will help to significantly reduce greenhouse gas emissions and local air pollution for Connecticut residents; offer drivers reduced operating costs, a quieter ride, and less maintenance; and potentially utilize more kilowatt hours (kWh) generated in the off-peak period, thereby raising the operating efficiency of the existing electric grid and generators.

II. A. PROCEEDINGS OF THE ELECTRIC VEHICLES INFRASTRUCTURE COUNCIL

The chart on the following page lists the 19 members of the Electric Vehicles Infrastructure Council.