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Unveiling of a Plug-In Electric Vehicle-Vehicle to Grid (PEV-V2G) Fleet at Los Angeles Air Force Base

Concurrent Technologies Corporation (CTC) Conducts Pilot PEV-V2G Demonstration Program Involving Four Military Sites

Johnstown, PA, March 26, 2015 – On November 14, 2014, the Assistant Secretary of the Air Force for Installations, Environment, and Energy, Miranda A. A. Ballentine presided over the public unveiling of the Department of Defense’s (DoD’s) first non-tactical vehicle fleet composed entirely of plug-in electric vehicles (PEVs). This DoD vehicle-to-grid (V2G) project is the first of this size anywhere in the United States, and the entire non-tactical fleet of Los Angeles Air Force Base (LAAFB) will be swapping to electric vehicles. An estimated 900 people attended this event, including other dignitaries and the media.

After an introductory speech by the Honorable Ballentine, the event continued with a panel discussion. Panelists were:

- Wade Crowfoot, Deputy Cabinet Secretary & Senior Advisor in the Office of the Governor of the State of California
- Janea Scott, Commissioner, California Energy Commission
- Carla Peterman, Commissioner, California Public Utilities Commission
- Lisa Cagnolatti, Vice President, Business Customer Division and Customer Service Safety, Southern California Edison
- Maj. Gen. Robert McMurry, Vice Commander of the Space and Missile Systems Center

Over 40 web articles have covered this highly successful event. Two examples include those by the Huffington Post (The New Face of Our Military's Energy Security) and Fleets and Fuel (V2G Fleet Unveiled by the U.S. Air Force).

Concurrent Technologies Corporation (CTC) was tasked by the Air Force Research Laboratory – Advanced Power Technologies Office (AFRL – APTO) to conduct this pilot program in which cutting-edge V2G systems are being installed and evaluated at four pilot installations:

1. LAAFB, California
2. Fort Hood, Texas
3. Joint Base (JB) Andrews, Maryland
4. JB McGuire-Dix-Lakehurst (MDL), New Jersey

The pilot was scoped to implement V2G systems on these installations to assess site specific variations inhibiting broad-scale implementation. The four sites reflect different Services, electrical grid territories, base sizes, climates, and vehicle requirements.

V2G systems are comprised of PEVs, bidirectional charging stations, and software controls enabling installations to compete in utility ancillary services markets, highlighting frequency regulation possibilities. V2G refers to the capability of PEVs to provide bidirectional power flow based on an external signal to manage energy flow to and from the electrical power delivery system (grid). CTC is assisting in developing a unified DoD approach for deploying PEV-V2G applications.

As the PEV-V2G project manager, CTC is coordinating with 42 organizations to develop and implement a robust, reliable V2G system. The program involves all of the Services, pilot demonstration sites, vehicle and charging station original equipment manufacturers, utility providers, regulatory authorities, national
laboratories, and utility regional transmission operators (RTOs)/independent system operators (ISOs). CTC is working very closely with our vehicle and charging station subcontractors to develop and deploy a standardized V2G capability that works regardless of vehicle or charging station type.

This PEV-V2G demonstration is the beginning of a broad DoD effort transitioning to a PEV fleet with bidirectional V2G capability. The program concept seeks to improve energy and equipment utilization through the following process:

1. Replace traditional liquid-fuel vehicles with plug-in electric battery-powered vehicles
2. Charge the vehicle batteries through stations connected to the electrical grid, controlled to meet mission requirements while maintaining the lowest operating cost possible
3. Allow the electrical utility structure to harness the power within the batteries through bidirectional power interfaces in an ancillary services market, thereby providing distributed energy storage benefits to the electrical grid.

“CTC’s goal has always been to make a positive impact with our work and find the right solution for our client,” said Mr. Scott Kenner, P.E., CEM, CTC’s Director of Power and Energy and Program Manager of the PEV-V2G Program. “Demonstration results will help quantify the capabilities of a PEV-V2G fleet to enhance energy security as a backup power source for installation power requirements, satisfy vehicle mission requirements, and participate in the ancillary services market to improve the life-cycle cost for the PEV.”

The LAAFB fleet will consist of 42 vehicles, the largest PEV fleet in the federal government. The vehicles are: 13 Nissan LEAF sedans; 13 VIA plug-in hybrid vans; five Ford F-150 pickup trucks retrofitted with EVAOS hybrid electric kits; four Ford C-MAX Energi sedans; four EVI hybrid trucks (two stake beds and two box trucks); two Chevrolet Volt sedans; and one Phoenix Motorcars shuttle bus. Nearly all will have V2G capability. The charging stations to power these vehicles are 15-kilowatt (kW) AC chargers from Eaton, 15-kW DC chargers from Princeton Power Systems, and 15-kW AC chargers and 50-kW DC charging stations from Coritech Services.

Because of their sizes and corresponding replacement cost, only a portion of the fleets at the other three sites will be replaced with PEVs and associated bidirectional charging stations. Fort Hood and JB Andrews will feature the V2G Ford pickup trucks and Nissan LEAFs. The JB MDL fleet will feature the Ford pickup trucks.

Tentatively scheduled for March 2015, a similar public PEV unveiling will occur at Fort Hood. The Honorable Katherine Hammack, Assistant Secretary of the Army (Installations, Energy & Environment) Office of the Assistant Secretary, will preside. As with the successful LAAFB unveiling, CTC will support the execution of this event, including vendor coordination and development of posters.

Concurrent Technologies Corporation (CTC) is an independent, nonprofit, applied scientific research and development professional services organization providing innovative management and technology-based solutions to government and industry. As a nonprofit 501(c)(3) organization, CTC’s primary purpose and programs are to undertake applied scientific research and development activities that serve the public interest. CTC has been named one of the World’s Most Ethical Companies by Ethisphere Institute, the global leader in defining and advancing the standards of ethical business practices. For more information about CTC, visit www.ctc.com.