



*Concurrent
Technologies
Corporation*

Plug-in Electric Vehicle - Vehicle to Grid (PEV V2G)

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One Source. Total Solutions.

Electric Vehicle Scenarios

- **EV Charging Only**
- **Smart Charging without V2G**
- **Bi Directional, Utility Connected V2G**
 - **Ancillary Services**
 - **Peak Shaving**
- **Bi Directional, Off Utility Grid Capable**
 - **Generator Support**

What is V2G

- **Electric vehicle energy storage through bi-directional power flow provides an energy resource when the vehicle is parked and connected**
- **Vehicle to Grid (V2G) Ancillary Services**
 - Frequency Regulation Services
 - Spinning/Non-Spinning Reserve Services
 - Peak Power Shaving Demand Reduction
- **Other Energy Uses**
 - Backup power when configured in a micro grid
 - Providing installation energy security

V2G Pilot Objectives

- **Demonstrate and validate V2G technology**
 - **PEVs**
 - **Bi-directional charging stations**
 - **Communication software system**
 - **Aggregator software controls**
 - **Electrical utility ancillary services markets**

V2G Pilot Objectives

- **Determine feasibility of a broad-scale V2G implementation throughout the DoD**
 - **Does the technology work?**
 - **Does operation interfere with mission activities?**
 - **Can PEVs achieve cost parity or better with conventional vehicles?**

V2G Vehicle Types

Note: Most images captured during vehicle integration



*VIA Van Hybrid
Chevrolet Express van
chassis*



*EVAOS –
Ford F150, F250 and
F350 Hybrid*



*EVI Stake Bed and Box
Truck Hybrid*



*2012& 2013 Nissan
LEAF*



*Phoenix Shuttle Bus
All Electric*

V2G Charging Station Types



**Princeton
Power
System
(PPS)**

*DC charging station –
(Nissan LEAF CHAdeMO)*



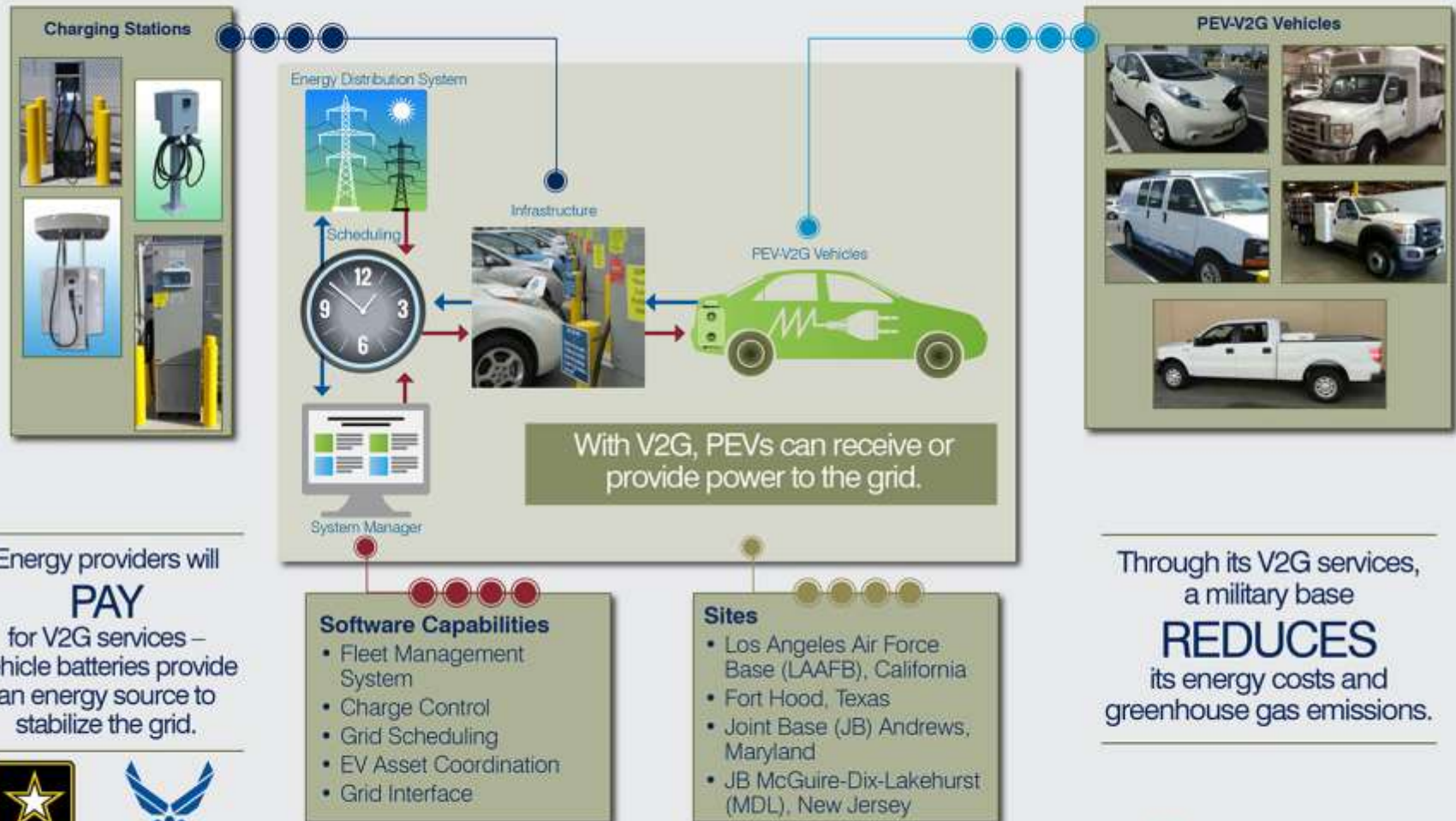
Coritech Services

AC (V2G SAE)



*DC (V2G SAE
Combo)*

What is Plug-in Electric Vehicle – Vehicle to Grid (PEV-V2G)?



Energy providers will **PAY** for V2G services – vehicle batteries provide an energy source to stabilize the grid.

Through its V2G services, a military base **REDUCES** its energy costs and greenhouse gas emissions.



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Posters and discussion available during the reception