

# DOD Plug-In Electric Vehicle Program



## DOD V2G Project Update

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# V2G Pilot Objectives

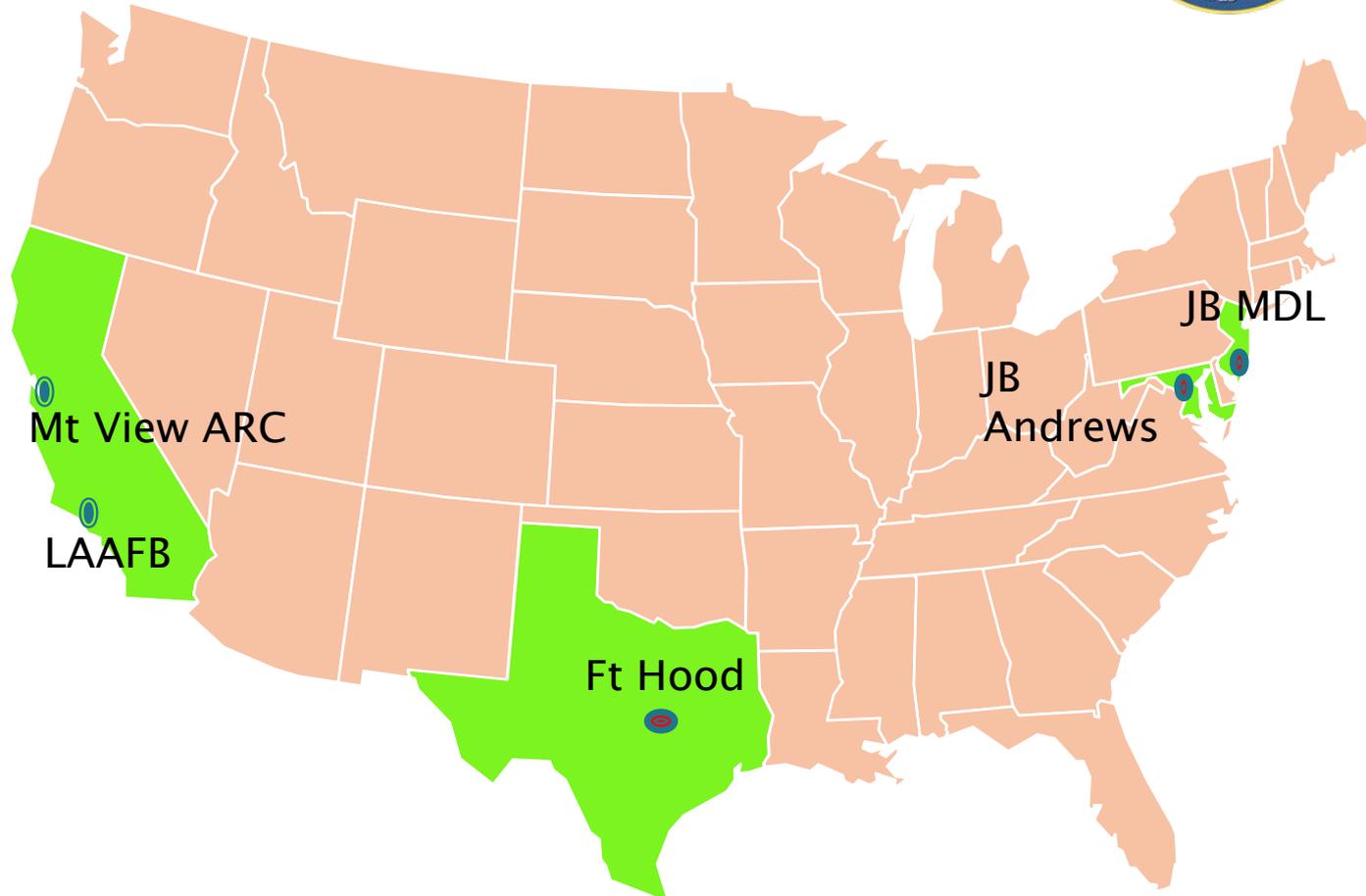
1. Demonstrate and validate V2G technology
  - PEVs
  - Bi-directional charging stations
  - Communication software system
  - Aggregator software controls
  - Electrical utility ancillary services markets
  
2. Determine feasibility of a broad-scale V2G implementation throughout the DoD
  - Does the technology work?
  - Does operation interfere with mission activities?
  - Can PEVs achieve cost parity or better with conventional vehicles?



# V2G Pilot Locations

## Selection Benefits:

- Different Services (USAF, Army, and Joint Base installations)
- Different electrical grid territories
- Different base sizes
- Different climates
- Different vehicle requirements



# V2G Vehicle Types



*Note:*

- *Most images captured during site visits to vendors*



*EVAOS –  
Uses Ford F150,  
F250 and F350*



*EVI Stake Bed  
(also Box Truck)  
– LAAFB*



*VIA Vans – Use  
Chevrolet Express  
van chassis*

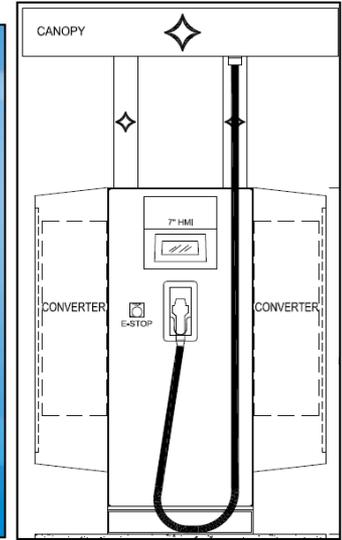


*2012 Nissan LEAF*



*Phoenix Shuttle  
Bus – LAAFB*

# V2G Charging Station Types



**Princeton Power System (PPS)**  
DC charging station – All but MDL  
(Nissan LEAF using CHAdeMO)

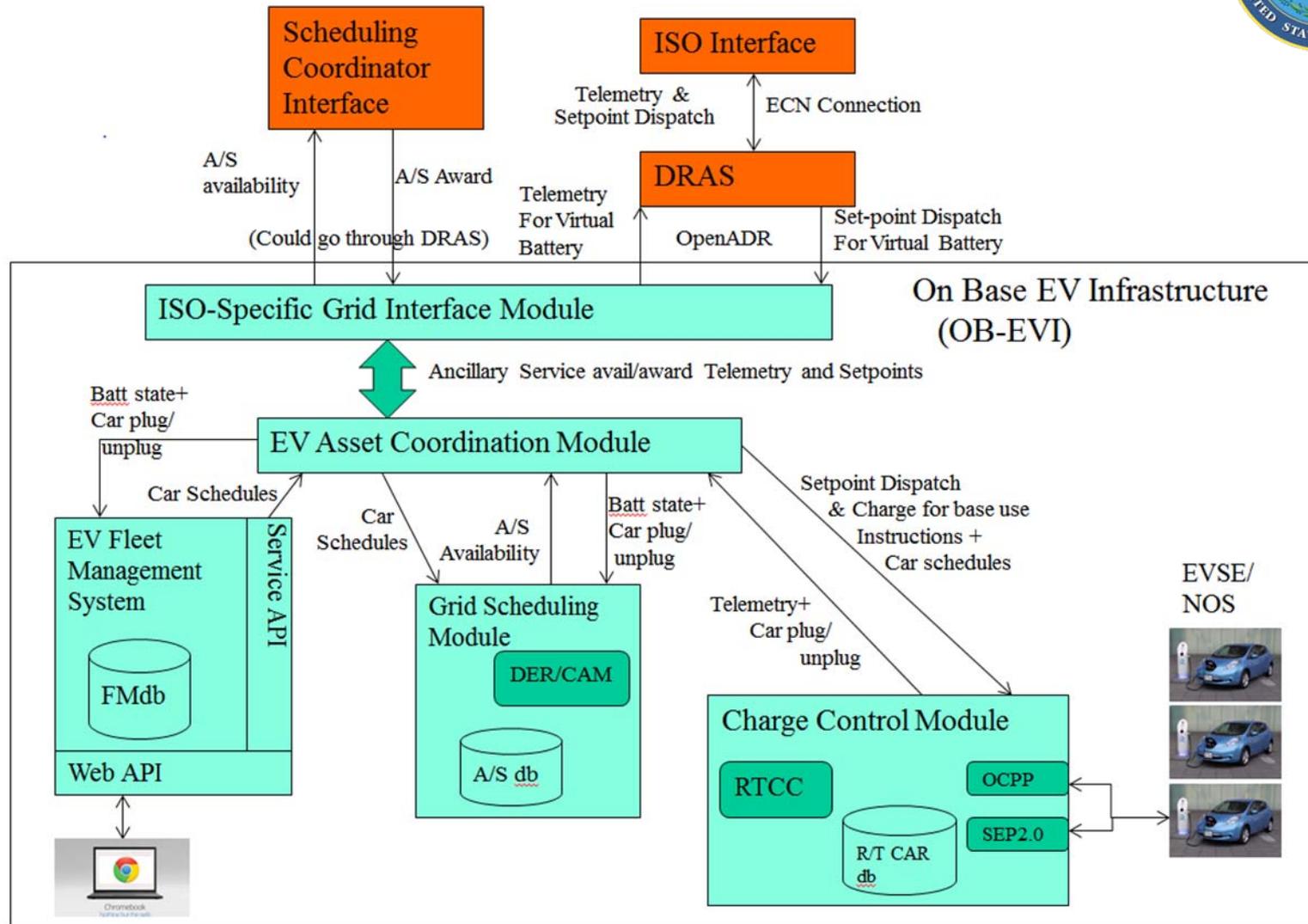
**AeroVironment**  
AC charging station – Fort MacArthur  
(supports non-V2G vehicles)

**Eaton**  
AC charging station – LAAFB  
(supports non-V2G vehicles)

**Coritech Services**  
AC (V2G using SAE)  
– All Bases

DC (V2G using SAE Combo)  
– All Bases

# V2G Software Architecture





# Grid Interconnection

- ▶ Through V2G work at LA AFB and China Lake NAWS, DOD identified 5 major impediments to grid interconnection process:
  - Internal coordination between different utility offices
  - Poorly defined/conveyed interconnection processes
  - Poorly defined/conveyed interconnection requirements
  - Defaulting to negative conclusions
  - Lack of cohesion between utility and CAISO requirements
- ▶ SCE proactively established team to address current and future barriers
- ▶ CEC, CPUC, SCE, and DOD meeting regularly to identify and resolve challenges



Questions?