

Agency Proposal For Working Group Next Steps

Draft Proposal Foundation

1. Goal: SB 350 investments = VGI capable (now or in the future)
2. Use cases can be served by multiple combinations of the protocols
3. To add value, considering hardware performance requirements to enable field upgradeable software. Goals:
 - Minimize likelihood of stranded assets
 - Maximize opportunity for VGI implementation
 - Ability to handle existing VGI pathways
 - Cost effective investments with long-term ratepayer benefits
4. Stakeholder feedback is critical

Review of Working Group

- Gathered an incredible amount of valuable information through many hours of hard work
- Deliverable 1 learnings
 - Each protocol currently has limitations
 - There are common aspects of the hardware needed to implement the different software needed for different protocols
- Stakeholder concerns about structure of Deliverable 2
 - Unable to disclose costs
 - Nascence of VGI products make valuation speculative
- Agencies seeking ways to be more proactive to get more value out of the working group's efforts

Options For Next Steps

- Recognizing there is no one existing protocol that enables all use cases
 - End working group with no recommendation on protocols
 - Move forward with hardware-based recommendation
 - Other efforts as identified through stakeholder input
- Deliverable 3
 - Policy Recommendations, if any consensus
 - Assess broad value categories for each use case?
 - ID appropriate venues for additional actions
- Any recommendation from this working group will be incorporated into the CPUC's current proceedings considering IOU investments in EVSE and associated infrastructure
 - There will be time for comments from all stakeholders
 - CPUC will ultimately determine whether to adopt the recommendation ⁴

Proposed EVSE Hardware Functionalities

	Hardware Functionality /Physical Layer	Description	Documentation to Show Compliance
Northbound (Grid to EVSE) communications	IEEE 802.11n compliant hardware, IEEE 802.3 compliant hardware	Wifi and ethernet connection	TBD
EVSE performance requirements	Field upgradable, Sufficient processor power to perform real time protocol translation and encryption/decryption, supporting IP stack, interface that provides hardware extensibility, form factor that supports extensibility	Need input from working group on what physical layer/hardware specifications accomplish this specification (e.g. USB, Bluetooth, CEA-2045)	
Southbound (EVSE to EV) communications	Homeplug Green PHY , PWM	The physical layers that support the currently viable protocols	

R&D Perspective

Concerns to Address?

- Would requiring the hardware with the previous criteria encourage scaled EVSP and OEM charging investments that provide VGI capability?
- How could hardware change over time, given design innovations and new use cases?
- Do today's commercial EVSEs meet the proposed hardware functions?
- Can VGI software be implemented within the proposed hardware?
- Will the hardware proposal assist in vehicle/EVSE/utility connectivity across California?
- How can utilities and regulators best ensure that EVSEs which include the proposed hardware are functional with grid-integrated vehicle charging?

Questions? Thoughts? Concerns?
