

**DOCKETED**

<b>Docket Number:</b>	18-MISC-04
<b>Project Title:</b>	Vehicle Grid Integration Roadmap Update
<b>TN #:</b>	224643
<b>Document Title:</b>	Vehicle-Grid Integration Roadmap Update Proposed Approach, Framework, and Topics
<b>Description:</b>	N/A
<b>Filer:</b>	Eli Harland
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	9/4/2018 10:56:39 AM
<b>Docketed Date:</b>	9/4/2018

# Vehicle-Grid Integration Roadmap Update: Proposed Approach, Framework, and Topics

This document describes the overall approach that the Energy Commission, California Public Utilities Commission (CPUC), California Air Resources Board, and California Independent System Operator (ISO) staff plans to take to follow-up on the 2017 Integrated Energy Policy Report recommendation to: “...update the VGI Roadmap reflecting the needs to use open standards, to maximize the value of vehicle-grid integration to stakeholders, and to commercialize prior investments in research and maintain leadership in advanced technology development.”

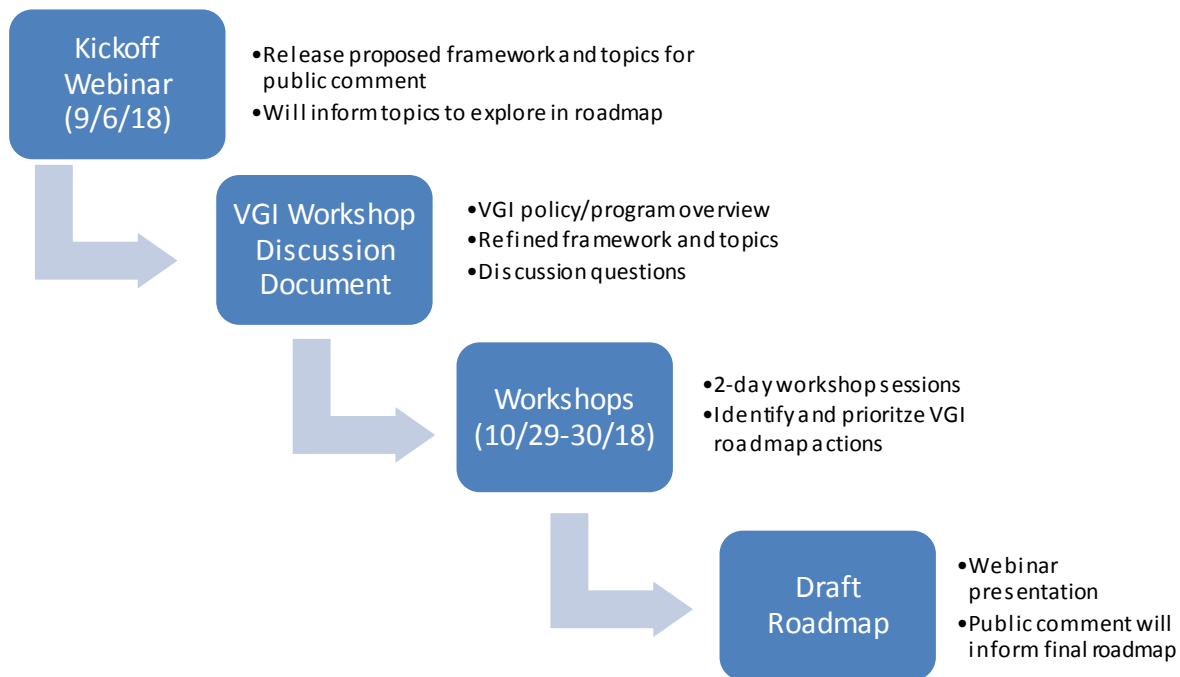
**Objective of the VGI Roadmap:** The VGI Roadmap Update prioritizes specific actions assigned to responsible entities that are necessary to overcome the highest-priority barriers to advancing VGI technology adoption to enable electric vehicle-based grid services and maximize electric vehicle potential. The roadmap process should leverage existing interagency relationships and processes, and foster stakeholder participation.

**Purpose of the VGI Roadmap:** Help coordinate future policy direction, improve business decisions, uncover research needs, and increase the role of customers/consumers.

**Scope of the VGI Roadmap:** Transportation electrification broadly, with an emphasis on charging types most likely to benefit with VGI technology, such as fleets, workplaces, and public charging.

**VGI Roadmap Process:** As shown in the diagram below, the initial step to start the roadmap update is to provide an overview of the proposed approach as well as the proposed framework and host a public webinar on September 6, 2018 to present the approach and proposed framework (the framework is described in more detail below). Staff will collect public comment on this proposed framework, which will inform a discussion document that staff will prepare in advance of a 2-day VGI roadmap workshop. The discussion document for the 2-day workshop will include a policy and planning overview from the perspective of VGI technology as well as an updated roadmap framework. The roadmap framework will shape the topics that will be explored during the 2-day VGI workshop. During the workshops, staff will seek input on VGI actions, including responsible entities and prioritization. Following the roadmap workshops and public comment period, staff will prepare a draft roadmap for public comment and a final roadmap.

## VGI Roadmap Update Process Overview



**Proposed Framework and Topics for the VGI Roadmap:** The proposed topics are initial concepts proposed by State agencies and California ISO staff and are not meant to be prescriptive, but are meant to initiate an exploration of the topics to cover in the roadmap update. Some of the topics will build on the efforts of the Vehicle-Grid Integration Communication Protocol Working Group led by the CPUC. Public comment on the proposed framework and topics will ultimately shape the topics that the roadmap update will cover.

Staff proposes to organize the roadmap update into the four topic areas described below. The first three topic areas are similar to the three tracks included in the 2014 VGI Roadmap. This roadmap update will include an additional topic area focused on Customer Experience.

1. **Policy and Planning:** Identify interactions, barriers, and gaps of policy and planning factors to achieve widespread managed charging deployment, enhanced grid reliability. Determine gaps requiring new policy intervention.
2. **Economic Potential:** Compare costs (equipment, operational, process) required to smart charge and discharge millions of PEVs to the costs of unmanaged charging. Identify cost/benefits and facilitate business model creation to spur investment.
3. **Technical Needs:** Identify VGI technologies for all vehicle classes to facilitate the actions described in the Policy and Planning and Economic Potential tracks. Delineate key areas of commercialization vs. new research.

4. Customer Experience: Expand the feasibility of VGI for end users, especially low-income residents, including those in disadvantaged communities, to broadly provide smart charging. Ensure VGI efforts emphasize access to all Californians.

State agency and California ISO staff have developed proposed goals and identified problem/issues for each of the roadmap tracks and will present these at the roadmap kickoff. During the road map workshops, staff will work with the public to develop assignment statements as discrete actions to overcome the barriers described within the associated problem/issue. Staff will also work with stakeholders to prioritize assignments and identify responsible organizations to lead/support solutions.

It's important to note that the roadmap update process will not itself conduct any of the assignments, but the updated roadmap will provide guidance to State agencies and stakeholders on the best path toward integrating PEVs to meet the state's energy, environmental, and deployment goals.

Staff has developed an Excel workbook for the public to provide input on the roadmap update. The purpose of the workbook is to help organize public input on the roadmap. The first worksheet in the workbook (titled "Key") includes a description of the elements included in the main worksheet (titled "RoadmapMatrix"). The main worksheet includes staff's proposed goals and problem/issues.

The spreadsheet is available at: <http://www.energy.ca.gov/transportation/vehicle-grid-integration/documents/index.html>

**Next Steps for the Roadmap Update:** Please use the spreadsheet to review the proposed roadmap goals and issues/barriers. The spreadsheet is designed for stakeholders to use when preparing public comment and staff encourages the public to use the spreadsheet to add, delete, and/or edit the proposed goals and issues/barriers.

Staff has also prepared questions for the public to address that will help guide staff's next steps for the roadmap update:

- 1) Are there goals missing from the list of proposed goals in the excel workbook? If so, what is the goal and the issues/problems with achieving the goal?
- 2) Are there issues/problems not identified for the proposed goals? If so, which goals and what are those problems/issues?
- 3) Are there other changes that staff should consider making to the proposed goals and issues/barriers?
- 4) Staff would like to build from the momentum of the CPUC led VGI Communications Protocol Working Group. Are there specific topics that were not fully addressed/resolved in that working group that fall within the scope of the VGI Roadmap Update?