

*WORKSHOP NOTES
VGI WORKING GROUP
AUGUST 19, 2019 WORKSHOP*

These notes summarize the discussion and comments from the kick-off workshop of the Joint Interagency Vehicle-Grid Integration Working Group, which took place at the California Energy Commission in Sacramento on August 19, 2019. Materials from this meeting are available at the [Gridworks VGI Working Group Landing Page](#).

Participants attending in person:

- Mauro Dresti (SCE)
- Carrie Sisto (CPUC)
- Jin Noh (CESA)
- Patty Monahan (CEC Commissioner)
- Noel Crisostomo (CEC)
- Karim Farhat (PG&E)
- Messay Betru (CEC)
- Matthew Tisdale (Gridworks)
- Eric Martinot (Gridworks)
- Jigar Shah (Electrify America)
- Dean Taylor (CalETC)
- Peter Klauer (CAISO)
- Stephanie Palmer (CARB)
- Hitesh Singhve
- Danielle Dooley (Public Advocates office)
- Chris King (Siemens)
- Tom Rose (CMG Consulting)
- John Holmes (Paratelic Systems)
- Ezra Beeman (Energeia)
- Michael Koenig
- Jeremy Weyling (EVgo)
- Eric Ritter (CEC)
- Amy Lilly
- Dan Bauer
- Taylor Marvin (SDG&E)
- Dean Kimports
- Phillip Kobernick (PCE)
- John Wheeler (Fermata Energy)
- Sarah Rafferson
- Marc Monbouquette (Enel X)
- Dennis Peters (CAISO)
- Alan Jung (UC Davis)
- Lance Atkins (Nissan)
- Katherine Rodriguez (Sierra Club)
- Ed Burgess
- Nik Flair
- Jordan Smith (SCE)
- Jackie Piero (NuVE)
- Hannah Goldsmith (CalETC)
- Glen Shout
- Adam Warrington
- Melody Black (SCE)
- Richard Schorske (ZNE Alliance)
- Wendy Fong (LeHigh University)

Participants attending via phone: about 50 participants were attending by phone at the start of the meeting, but names were not recorded. In future meetings, attendance of those participating by phone will also be recorded.

Vehicle Grid Integration Working Group Materials:

[Working Group OneDrive](#)

[Action Items List](#)

[Gridworks Landing Page](#)



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Workshop Introduction and Presentations by Joint Agencies

Energy Commissioner Patty Monahan: Failing to succeed in VGI means we cannot meet our climate goals. Succeeding in VGI provides an opportunity for saving consumers money, meet pollutant emission standards, and provide new opportunities. This working group is on the cutting edge of developing an effective plan for VGI. VGI is the first step, building decarbonization is going to be a fast following opportunity to drive emission reductions.

CPUC: The goal of this Working Group is to provide a valuation framework and return the value back to end-users. Needs of the grid have to be aligned with the needs of end-users. There are existing activities in this sector that are testing a wide variety of strategies to give an identification of values and details.

CEC: Vehicle to Grid Integration is thoroughly embedded in the current work of the CEC. Will finish the VGI Roadmap/Compass in 2020. Also ties closely to the PUC Rule 21 proceeding and the Distributed Energy Resources Research Roadmap. Infrastructure roll-outs and modeling needs are interactive and informing one another within the Energy Commission and the larger regulatory sphere.

California ISO: Currently measuring performance of ESDER and developing a Phase 4 storage model. CAISO recognizes the complexity of the business case needed to effectively value VGI in the wholesale market.

CPUC: [VGI Initiative](#) by Gridworks earlier in 2019 did a lot of the initial legwork for this initiative, including what gaps exist, and the Framing Document produced by that initiative should help create success for this endeavor.

- Streamline definition: SB676 definition is still changing but may not fully capture the potential of VGI and may need to be addressed at some point in the Working Group process.

CPUC: Scope of this VGI Working Group defined in DRIVE OIR:

PUC Question 1: Identify what VGI use cases can provide value now, and how that value can be captured.

PUC Question 2: Evaluate how the value of VGI use cases compare to other storage or DERs

PUC Question 3: Provide policy recommendations to the CPUC if any changes are to allow additional use cases to be deployed in the future.

Note: the Working Group agreed to maintain this numbering scheme henceforth, which transposes the original order of Questions 2 and 3 and is less confusing.



Important to utilize the other work in this sector from the 2017 VGI Working Group, which focused on communications protocols, the joint agencies VGI Roadmap Update, other interagency endeavors. Also should address costs and benefits of both V1G and V2G.

Out of Scope:

- Pros/cons of specific communication pathways (Previous VGI WG)
- Technical interconnection requirements (R21)

Comments/Questions:

Comments from participants emphasized the good starting point for this VGI Working Group based on the previous Gridworks VGI Initiative, and said a successful outcome will require finding a good combination of both active and passive solutions in the development of a successful valuation framework, and will require anchoring the discussion in the three scoped PUC Questions.

The EV initiatives funded within California should also look to larger scale projects that have been undertaken in other countries to draw ideas, data, and potentially conclusions. Participants in the Working Group, such as Fiat, have experience with communications measures and how they impact fast charging planning, deployment, and integration that are likely to be core components of the discussion during this working group. In spite of this, there are still concerns about the reliability of grid engagement from vehicle owners.

Part of a successful framework is how to talk about and compare benefits and costs, and whether to fall back to traditional approaches using public cost data and proxies, or innovate new ways to compare benefits and costs. Questions around costs from participants largely focused on the availability or lack thereof of data, including proprietary cost data, and how to ensure quantifiable results. SCE indicated that their main concern for VGI costs were going to be ongoing networking costs rather than initial infrastructure costs. Information from previous Working Group and other efforts may be of value. Energeia offered that they were aware of some publicly available sources on EVs being major peak load drivers.

CPUC in response to a query on PUC Question 2, indicated that comparison between DER and other technology is key to help target funding streams to the most cost effective solutions.

Discussion: What would make for a successful outcome of this Working Group:

Comments on a successful Working Group focused around a couple of key points including:

- The need for “quantifiable” leaves some fuzziness with existing policies in place.
 - Gridworks: There is a need to justify/prioritize with some of the existing use cases
 - CPUC: Some degree of prioritization is necessary, and quantification is one approach to do so. How can the conversation be advanced in this Working Group, and how can we utilize existing information better?



- Need for frameworks to consider alternative points of view, provide quantification for hypothetical comparisons.
 - Gridworks: Are there identifiable evaluation frameworks to utilize?
 - Suggestion to consider the Solar+Storage tool or principles of quantifying varied benefit streams and whether they can be leveraged into VGI.
- Suggestion that the current state of the VGI discussion reflects the early implementation of TOU. Effectively identifying and understanding barriers is going to be important.
 - Gridworks: Part of our answers to PUC Question 3 is to facilitate new rulemakings that could potentially focus on increasing data access.
- The role of demand elasticity and how personal preference may be impacted by some of the solutions being considered. Failing to account for the human element may limit the uptake of VGI by the public.
- Concerns about technology and business model neutrality were discussed. There are already a lot of existing framework documents that haven't accomplished what they set out to do. Finishing existing projects and utilizing data from specific projects would be of benefit. While the Working Group should find an approach to valuation that can be technology and business model neutral, the end result of that approach, in relation to specific markets, likely won't be.
- Some concerns were voiced from previous VGI activities and working groups, including concern about how CEC rulemaking and CEC directives would be impacted, and the visibility of results. CPUC replied that the Working Group's Final Report would become part of the DRIVE OIR.
- The proposed criteria for success #5 was discussed, including concerns that the Working Group results should not be "pre-destined" or focused on just what utilities are already doing. It was clarified that criteria #5 was not about distribution system planning itself, and that further clarification or adjustment of criteria #5 should be made.

Presentation and Discussion on Work Plan

Gridworks presented Version 1 of the Work Plan and took questions and comments.

- Gridworks clarified that draft reports will be issued for each stage at the conclusion of the stage, with a cycle of stakeholder review of these draft reports in parallel with the following stage.
- Participants will have the ability to submit proposals, engage at workshops, participate in sub-groups, and comment on interim reports.
- As requested by participants in the Working Group, workshops and major calls will all be calendared and invitations distributed to the Working Group participants.
- Gridworks will be facilitating the Working Group, but is not intending to interpret studies or reconcile conclusions that are at odds.



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- The purpose of the workshops is to provide a forum for participant input, receiving feedback, and create a report that reflects the process and can be submitted to the Commission.
- The final report will be filed to the CPUC and all stakeholders, regardless of prior engagement, will be able to comment on multiple drafts before final submission.
- Next steps would be determined by the commissioners. Other state agencies have been in discussion on how this may be engaged with on their terms as well.

Joint IOU Presentations - Subgroups and Foundational Materials:

- When discussing the second subgroup that addresses use cases that can provide value “now”, per PUC Question 1, the Working Group discussed at length what is the definition of “now.” There was some agreement to use a definition of “now” that recognizes the IOUs current Demand Response window (2018-2022) in order to allow for rapid implementation of appropriate ideas.
- To note: Potential VGI projects under Demand Response may not adhere to today’s definition of Demand Response and may reflect desired changes in policy to empower specific project use cases.
- Question regarding the definition of “Future” for the purposes of the Working Group - Nuvve mentioned the IPCC target of 12 years to significantly address and reduce GHG emissions to maintain a livable environment.
- Valuation framework should empower IOUs, Munis, and CCAs to the extent possible and be accessible to anyone who can design an effective business case.
- Recognize that some use cases may be a moving target and could expire after market saturation. The subgroup could identify and flag such use cases.
- Subgroup 4 is likely to draw on initial work in other subgroups that should streamline their process and so not be as hindered by the short timeframe given in the Workplan.
- Subgroups do not have exclusive domain over decision-making, but will bring their work to the whole Working Group for discussion and decisions.

Working Group Process Forum:

- There is a concern that international groups, automakers, or other organizations representing a diverse stakeholder body may find it difficult to engage in the rapid turnaround outlined in the current work plan (i.e., 1 week review of certain materials). This may feel like a reflection of previous Working Groups that have largely resulted in highly California specific results, or felt as if sidelining groups that cannot commit as fully to the aggressive timeline.
- Engaging in productive conversations offline to bring largely realized documents, proposals, and ideas to the Workshops or calls will be a vital
- Deployment of EVs and EV charging stations is still a major 2025 goal, then some of the valuation questions may be better realized when there is also higher penetration. There is some degree of tradeoff in this situation



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- Concerns about missing stakeholder groups (MHV manufacturers, end-users, others?)
- Need for ample time for public comment due to the pace and volume of work.
- Specific objectives and questions have helped other Working Groups (Rule 21 WG3) stay on task with a logical course of action.
- Is there a risk that the range of value for use cases is too broad for manufacturer engagement over the long term?
- Ensure that the VGI arena doesn't become overly circumscribed with regulation and accidentally stifle innovation. Allowing for broad and neutral rules with the opportunity to drive innovation and creativity will yield richer results.

PG&E Valuation Framework:

- Questions surrounding data availability/openness to it being shared between competitors and if there is a projected solution for this concern.
- PG&E commented that some instances of data sharing have occurred through the use of a third party aggregator before distributing out to the participant groups for overall market analysis.
- There are questions about the command and control mechanisms and the extent of host control and the overall descriptions of alignment.
- CAISO would like to consider the risk to wholesale markets with grid reliability is a major issue committing and failing to deliver could disrupt the wholesale market.
- Returning to the question of data, who has it, what can be accessed or shared? How will data be transferred? Relates to the valuation framework and the degree of granularity you want to develop. A starting point can use publicly available data and start establishing potential use cases.
- Addressing the nuances of the market and customer participation will be a major concern in establishing VGI. Properly documenting the assumptions that we make during the Working Group regarding the framework will be important
- The first 2017 VGI Working Group didn't answer the question of value. Identifying value estimates to some degree will help to establish certainty for automakers and drive the VGI conversation forward.
- The CEC is serious about understanding the impact of medium/heavy duty electrification. Planning for new capacity would entail a long term planning process that would require us to start sooner rather than later.
- The inclusion of MHV in the Working Group is likely to see significant changes to any existing valuation framework focused on light-duty vehicles. Use cases, vehicle types, and stakeholders will all vary significantly from light-duty vehicles. Subgroup 1 to consider MHV electrification for the inclusion in this WG and potential suggestions for new stakeholder outreach.

Launching Subgroup 1:



The Working Group launched the first subgroup, for Stage 2 of the work plan on assessing the PG&E Valuation Methodology. The Working Group elected a sub-group leader, and called for those wishing to participate to identify themselves..

Subgroup 1 lead:

- Mauro Dresti (SCE)
- Jordan Smith (SCE)

Subgroup 1 Participants:

- Karim Fahrat (PG&E)
- Jin Noh (CESA)
- Vincent Weyl (Kitu Systems)
- Rich Scholer (Fiat Chrysler)
- Taylor Marvin (SDG&E)
- Phillip Kobernick (PCE)
- Mark Monbouquette (Enel X)
- Ann Smart (Chargepoint)
- Tom Ashley (Greenlots)
- Dean Taylor (CalETC)
- Lance Atkins (Nissan)
- Adam Langton (BMW)
- John Holmes (Paratelic Ventures)
- Jigar Shah (Electrify America)
- Jessie Denver (EBCE)
- John Wheeler (Fermata Energy)
- Dave McCready (Ford)



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