



# Addressing PUC Question (C)

California Vehicle Grid Integration Working Group – Phase II  
WG Call on 04/30/2020

# Participants

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# Overview of our work



## Scoping: Topics of discussion to answer the question

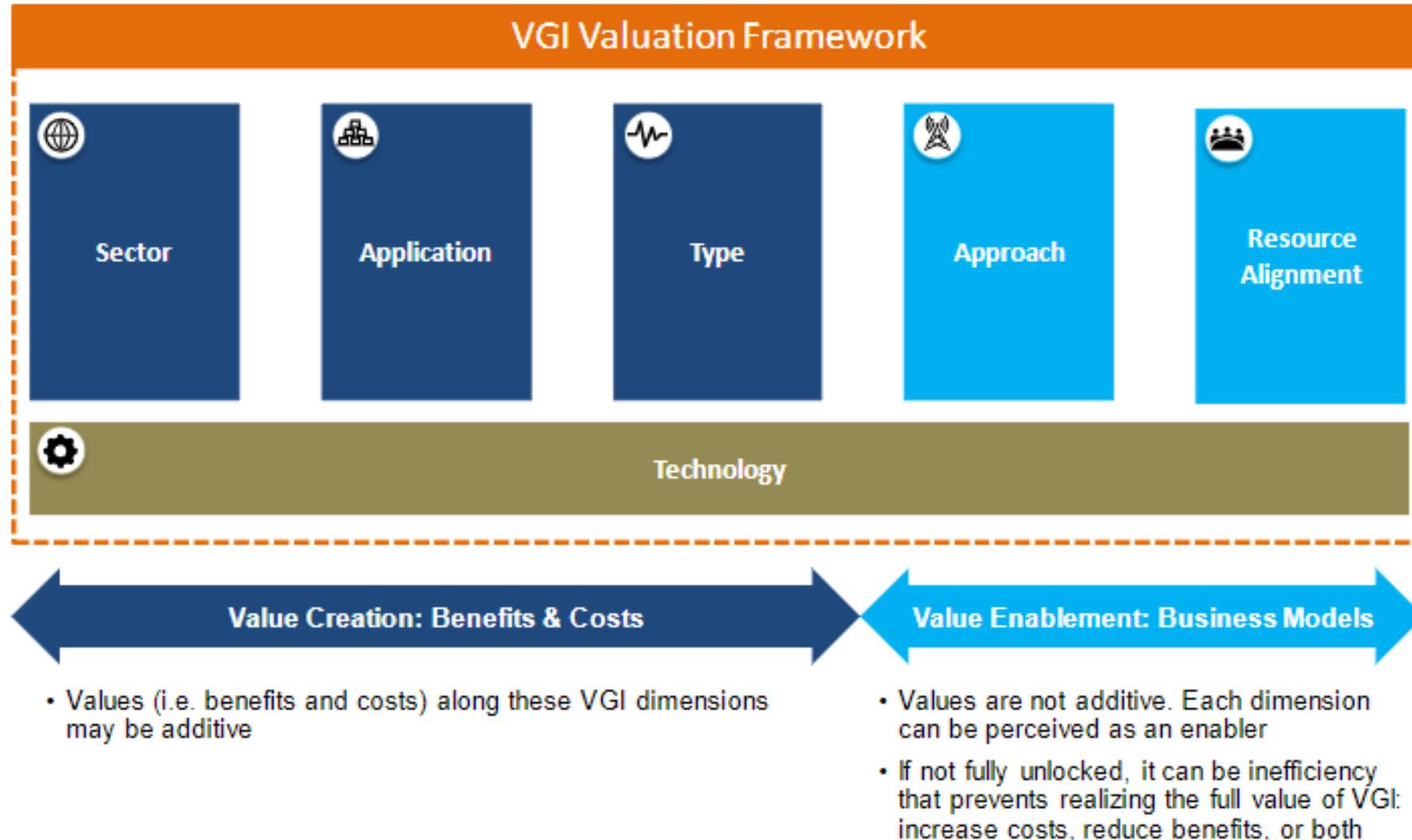
- Framework to compare VGI to DERs
- Value comparison between VGI and DERs



## Deliverables: The outcomes from this group's efforts

- Recommendations to this WG
- Discussions topics for this WG to consider

# Reminder: VGI Framework



# Reminder: VGI Framework

VGI Use-Case Matrix elements

Value Creation			Value Enablement	
Sector	Application	Type	Approach	Resource Alignment
Resi_SFH	Customer_bill_mgmt	V1G	Indirect (passive)	EV-EVSE Unified, Aligned
Resi_SFH_Rideshare	Customer_upgrade_deferral	V2G	Direct (active)	EV-EVSE Fragmented, Aligned
Resi_SFH_Rideshare	Customer_backup_resiliency			
Resi_MUD	Customer_renewable_self			EV-EVSE Fragmented, Misaligned
Resi_MUD_Rideshare	Sys_upgrade_deferral			
Com_Workplace	Sys_backup_resiliency			
Com_PubDest	Sys_voltage_support			
Com_PubDest_Rideshare	Sys_DayAhead_Energy			
Com_PubComm	Sys_RealTime_Energy			
Com_PubComm_Rideshare	Sys_Renewable_Integration			
Com_Fleet_TrasitBus	Sys_GHG_Reduction			
Com_Fleet_SchoolBus	Sys_RA_system_capacity			
Com_Fleet_SmallTruck	Sys_RA_flex_capacity			
Com_Fleet_LargeTruck	Sys_RA_local_capacity			
	Sys_frequency_regulation			
	Sys_spin			
	Sys_non-spin			

Source: Updated V2IOU Joint Proposal for VGI WG, Stage 2, Sub-group A: VGI Valuation Method



# Our team's recommendations on comparing the value of VGI to that of DERs

## Recommendation 1: Framework

Use the **VGI Framework** as the starting point to articulate, scope, and compare the space of VGI and that of DERs.

## Recommendation 2: Value comparison

The value comparison between VGI and other DERs should be conducted at the **use-case** level, to the extent possible.

- Several of the VGI use-cases can also be DER use-cases, characterized along the same 6 dimensions.

## Discussion Topic 1

# Alternative comparison?

The group considered and debated the option of comparing the value of VGI to that of DERs at a less granular level than use-cases. One particular option is comparing value at the dimensional-element level.

The matrix structures below provides example templates on how to conduct the value comparison at the dimensional-element level:

DER / Application	Solar	Wind	Battery Storage	[...]
<i>Customer – Bill Management</i>	VGI better or worse?	VGI better or worse?	....	...
<i>Customer – Upgrade Deferral</i>	...			
<i>Customer – Backup, Resiliency</i>	...			
[...]				

DER / Sector	Solar	Wind	Battery Storage	[...]
<i>Residential</i>	VGI better or worse?	VGI better or worse?	....	...
<i>Commercial</i>	...			
[...]	...			

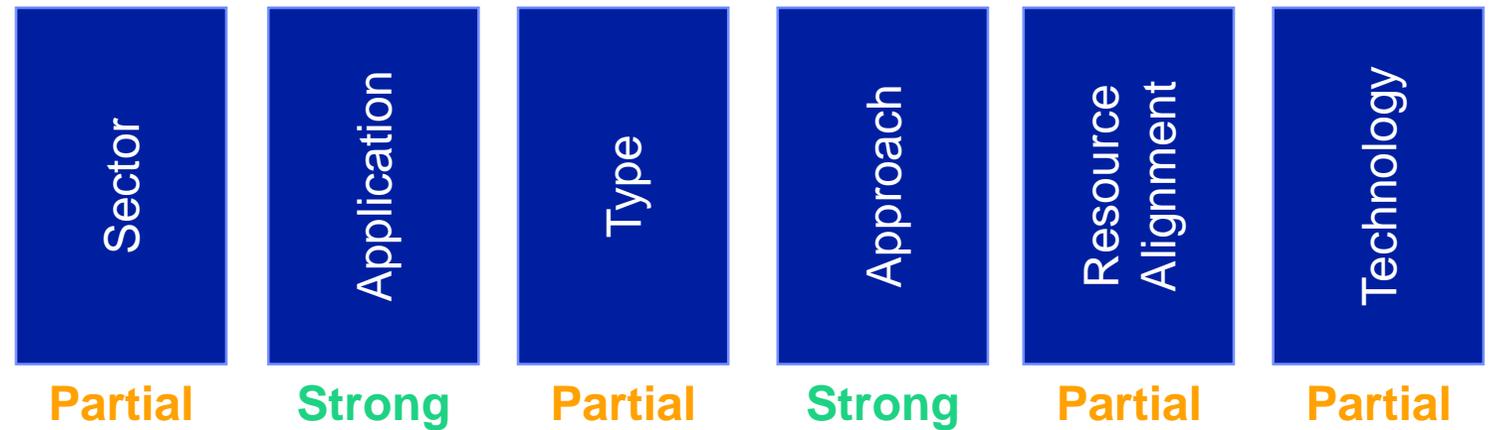
Major trade-off identified:

- Might be simpler to conduct the analysis for DERs
- Might be harder to reconcile with the work already done for VGI

## Discussion Topic 2

# VGI & DER overlap?

The group identified strong or partial overlap between VGI and DERs along the six dimensions in the VGI Framework



## Discussion Topic 3

# Next steps?

Over the next few days, the WG can continue to work on addressing question (c) in a couple of ways:

1. Provide input on whether and how VGI and other DERs can be compared on use-case basis. In other words, comment on the pros and cons, risks and opportunities, associated with the proposed approach in Recommendations 1 & 2.
2. Develop hypotheses on how the value of VGI would compare to the value of DERs for the most prominent VGI use-cases; those use-cases that emerged as very attractive in the Scoring exercise (high benefit, low cost, and high implementability)
3. Provide input on why comparing the value of VGI to that of DERs is important for your organization? How does this effort help (or not) your business efforts?