



Vehicle - Grid Integration Initiative

Launch Workshop

March 15, 2019



Thank you to our hosts!



ENERGY FOUNDATION

Workshop Objectives:

- 1. Engage stakeholders*
- 2. Scope the Initiative*
- 3. Share the results of Gridworks VGI Literature Review and Stakeholder Interviews*
- 4. Socialize an approach to VGI Use Case evaluation*



Workshop Outcomes:

- 1. Stakeholder input: what have we got right, what needs more work, what are you optimistic about, what warrants caution.*
- 2. Stakeholder buy-in on next steps*
- 3. Momentum*

Agenda

10:00 – 10:45 – Introductions

10:45 – 11:15 – Overview of Initiative Scope (Gridworks)

11:15 – 12:15 – Introducing a Method for Use Case Evaluations (Gridworks)

12:15 – 12:45 – Working Lunch

Lunch provided by Gridworks

12:45 – 1:45 – Use Case Evaluation Discussion

1:45 – 2:30 – Intro to Gridworks Literature review and Stakeholder Interviews (Tim Lipman)

2:30 – 3:00 – Wrap up and Next Steps

3:00 – 5:00 – Networking and Community Building

Location: *Bar 333 (333 Battery Street, next door to workshop location)*

Introducing Gridworks

Mission:

To convene, educate and empower stakeholders to decarbonize electricity grids

Who We Are



Matthew Tisdale



Mike Florio



Deborah Shields



Alex Smith



Andrew Spreen



Eric Martinot



Katie Wu

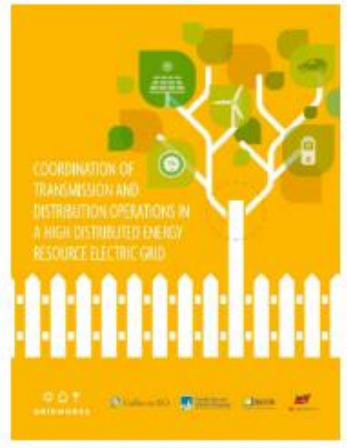
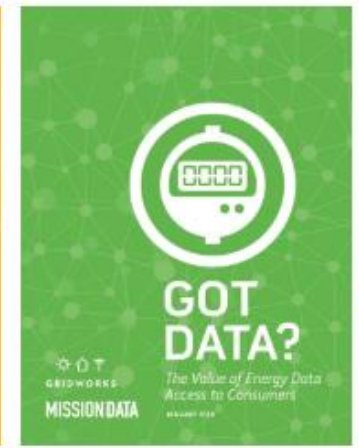
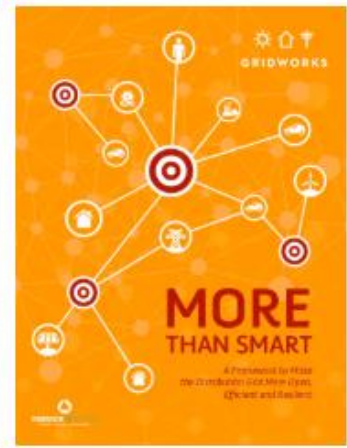
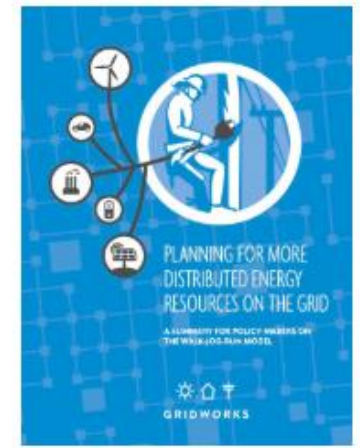
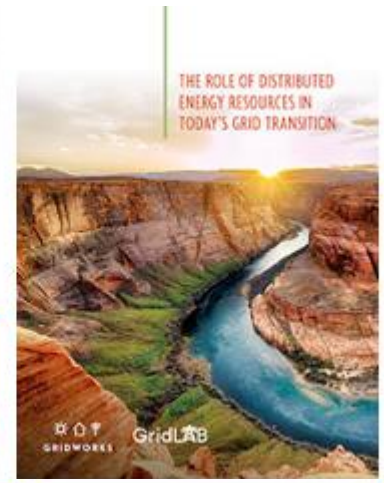
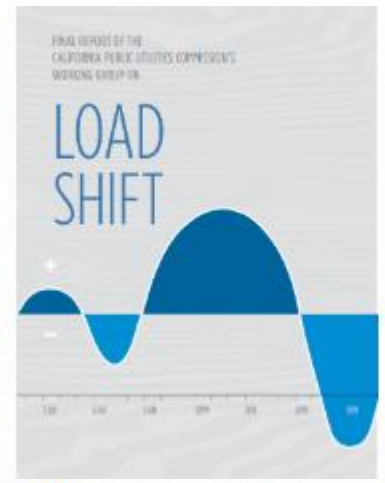
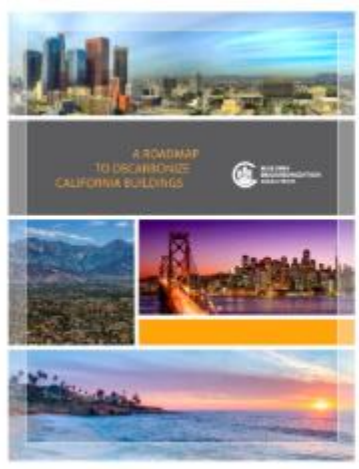
Past Initiatives

- CPUC Working Groups
 - Distribution Resource Planning
 - Load Shift
- Pathways to an Open Grid: Oahu
- Pacific States Sharing Power
- Sustaining Solar Beyond Net Metering
- Roadmap to Decarbonize California Buildings
- Role of Distributed Energy Resources in Today's Energy Transition

Current Initiatives

- EPIC Grants:
 - DER Research Roadmap
 - GridLAB-D, an open-source distribution system modeling software
- CPUC Working Group: Rule 21
- Vehicle-Grid Integration

Publications



Initiative Scope:

While we

- *reduce emissions from the transportation sector*
- *provide new, more affordable mobility*

VGI can

- *defer/displace new grid infrastructure investment*
- *reduce grid operational challenges*
- *avoid emission increases from electricity generation*

Initiative Scope:

Initiative Objectives:

- 1. Identify and assess opportunities in which VGI can create value from multiple market participants' perspectives*
- 2. Identify regulatory, labor, or industry market barriers to realizing VGI value creation, and*
- 3. Provide recommendations on the market or policy actions needed.*

Initiative Scope:

Out of Scope

- *Communication standards and protocols*
- *Recommendations on transportation electrification beyond VGI (e.g., new infrastructure investment proposals)*
- *Other?*

Initiative Scope:

Timeline:

- *March - June: Preparing for the CPUC's Working Group*
 - *Scope the work needed to answer the PUC's questions*
 - *Develop an approach to completing that work*
 - *Identifying what further information we need and start gathering*
 - *Finalize Framing Document*
 - *Build community*
- *July - ?:*
 - *Execute steps needed to answer PUC's questions*

Initiative Scope:

Participation

- *SDG&E*
- *PG&E*
- *SCE*
- *Nissan USA*
- *American Honda Motor Company*
- *eMotorWerks*
- *ChargePoint*
- *Siemens*
- *EVgo*
- *Nuvve*
- *TURN*
- *CalETC*
- *E3*
- *Greenlots*
- *NRDC*
- *Energy Foundation*
- *BMW*
- *CPUC*
- *Transportation Sustainability Research Center*
- *Other?*



Introducing Use Case Evaluation Method

Use Case Evaluation Method

This is a straw proposal for overhaul and/or refinement

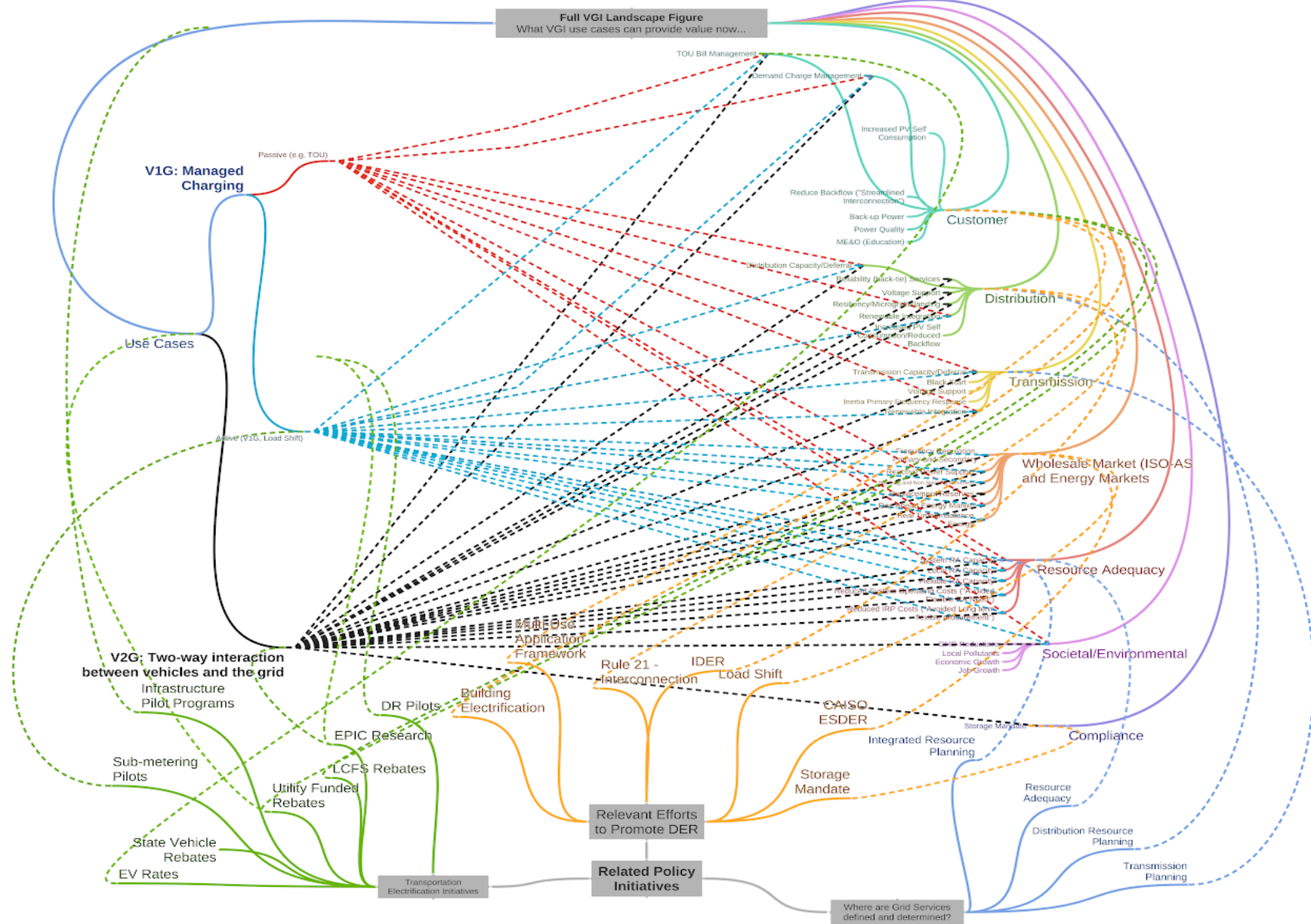
Steps

- 1. Organize Use Cases*
- 2. Refresh Benefits Stack*
- 3. Identify Use - Case Benefit Connections*
- 4. Approximate Benefit Elements (\$-\$\$\$\$)*
- 5. Identify Policy - Benefit Connections*
- 6. Identify Policy - Use Case Connections*
- 7. Draw conclusions and make recommendations*

Use Case Evaluation Method: LSR 2.0 Example

- a proposed CAISO tariff that allows load to participate in CAISO wholesale markets.
- load can be compensated for power consumption during negative price events, allowing flexible loads to better align with times of low prices and emissions.
- resource has to overcome market integration challenges and accept specified performance obligations

See Coggle Diagram



Illustrating why your head hurts when you think about VGI

Group Exercise

Steps

1. *Organize Use Cases*
2. *Refresh Benefits Stack*
3. *Identify Use - Case Benefit Connections (SQ)*
4. *Approximate Benefit Elements (\$-\$\$\$\$)*
5. *Identify Policy - Benefit Connections (SQ)*
6. *Identify Policy - Use Case Connections (SQ)*
7. *Draw conclusions and make recommendations*

Questions

- *Are the steps clear, doable, and on target?*
- *Are there steps missing?*
- *Would you reorder the steps?*
- *What steps will be most challenging? And why?*
- *What alternatives to this approach would you suggest?*

Literature Review and Survey Results

Tim Lipman

Co-Director

Transportation Sustainability Research Center

Wrapping Up

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How did we do?

Wrapping Up

Next Steps

- Stakeholder engagement
- Revising the framing document
- Regroup in April
- Other?



Thank you!