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CA Energy Commission Workshop for Grid Modernization Research

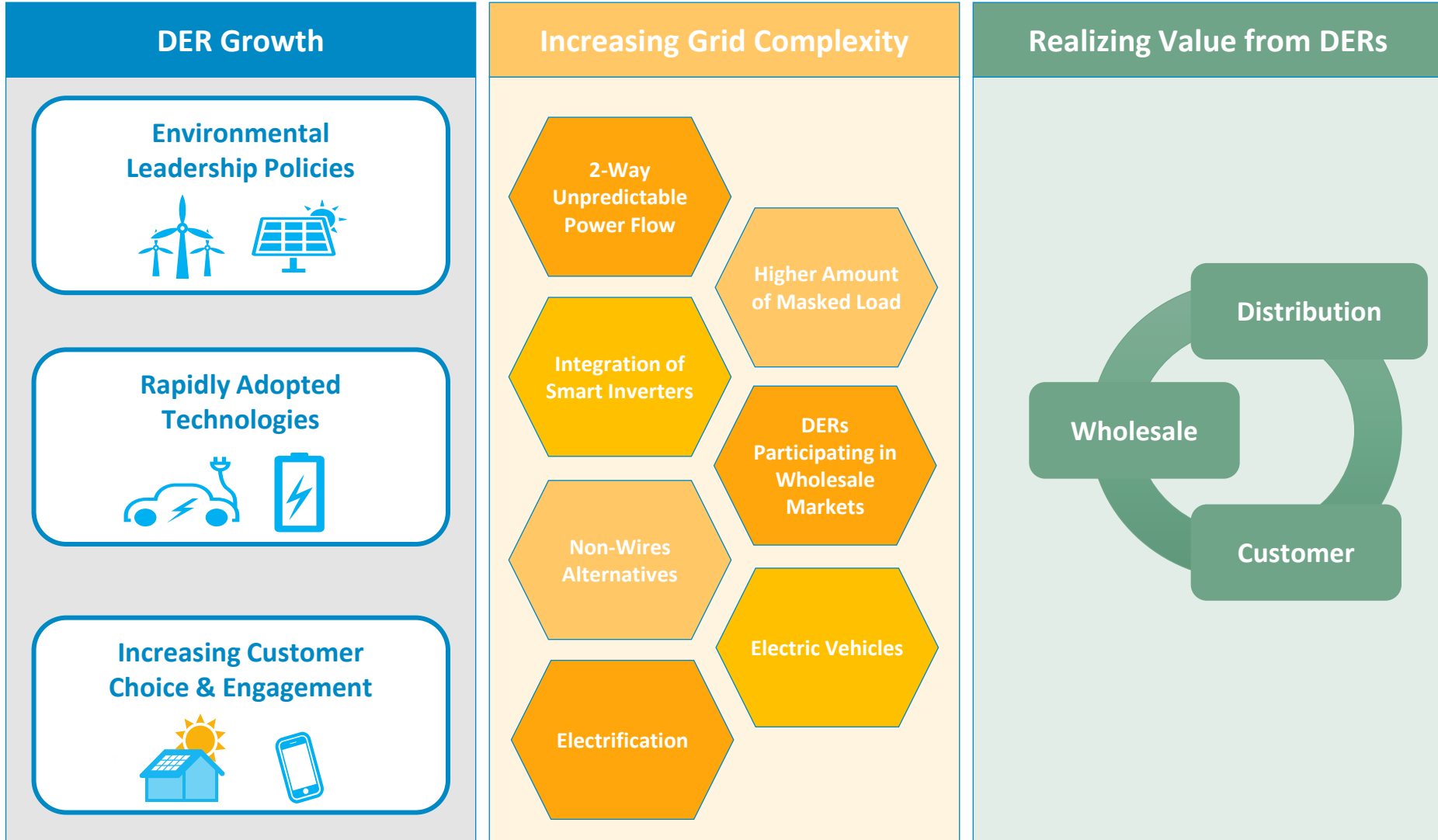
Omid Sarvian
July 21, 2023





On June 23rd, PG&E published its inaugural R&D Strategy Report:

- The report outlines PG&E's R&D priorities and how they align with our True North Strategy.
- Helps potential vendors identify how their technology fits into PG&E's priorities.
- Helps the utility industry, research institutes, and government agencies with their R&D projects/priorities.





PG&E's Challenge

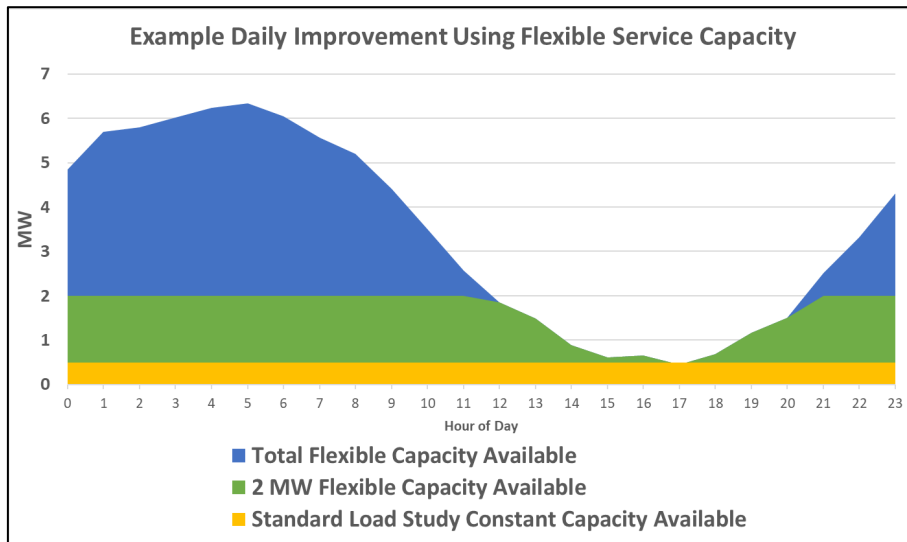
Serving a forecasted large growth in grid generation and load by maximizing utilization of the grid. This will require orchestration of these new loads within the bounds of grid constraints.

Pilot Flexible Service/Generation Connections:

Some locations on PG&E's grid do not currently have enough capacity to serve new customers without capacity upgrades that may take years to complete. In a high DER future and increased transportation and building electrification, the grid will need to orchestrate these devices within grid constraints.

New technologies that orchestrate these capabilities need to be integrated into existing utility data environments and business processes. **Through implementation within the utility environment, new tech is put through their paces, contributing to the advancement of the technology, the relevant standards, and system integrations.**

Example:



Daily Constraint Improvement Example

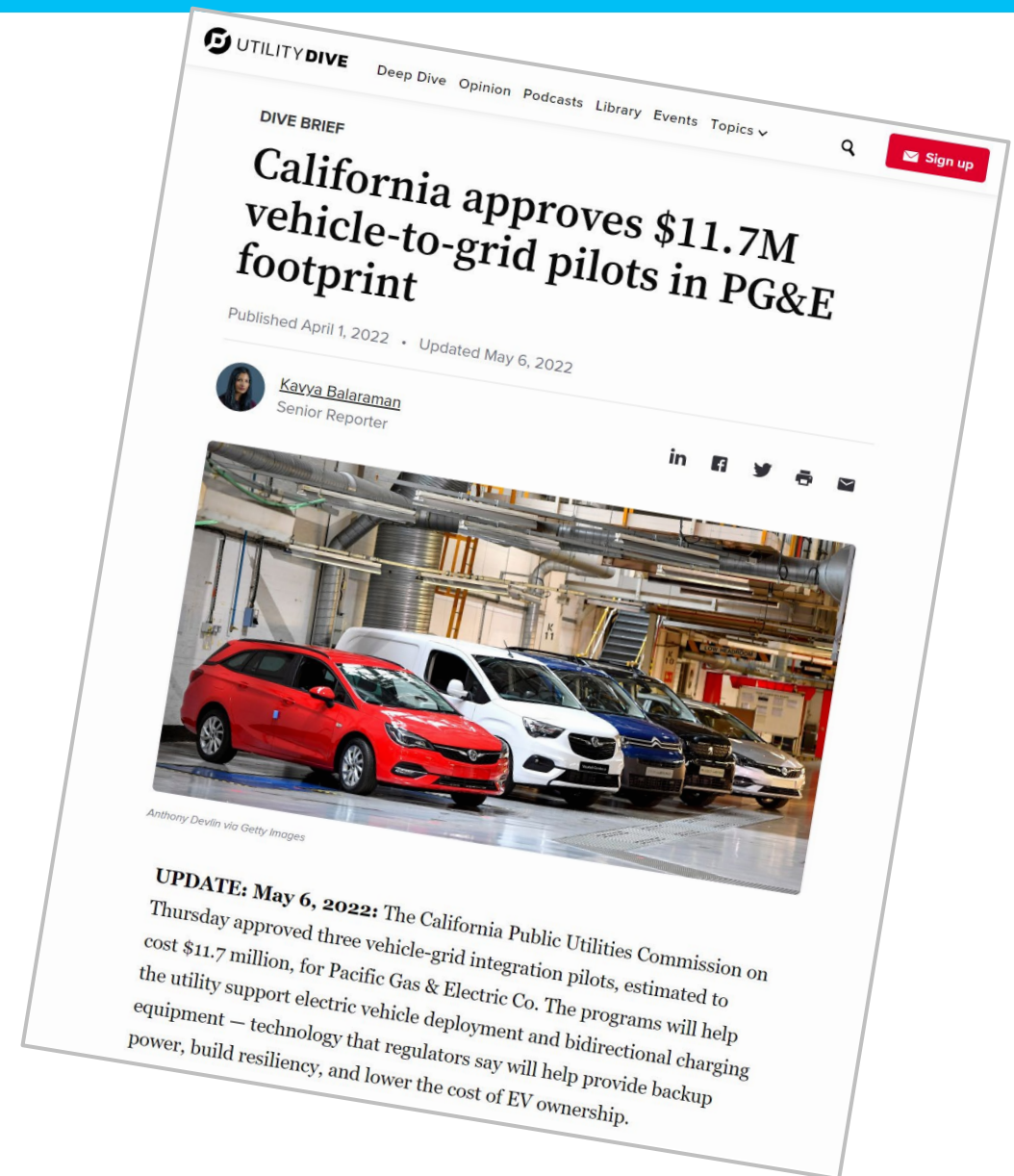
Standard Load Study Capacity Available	2 MW Flexible Capacity Available	Total Flexible Capacity Available
0.5 MW (constant)	0.5-2 MW (time dependent)	0.5 to 6.0 MW (time dependent)
12 MWh / Day	39 MWh / Day	82 MWh / Day

Ensure affordable and timely connection for every customer

- Load management to avoid physical upgrades
- Scalable low-cost charging solutions for multi-family buildings
- Improved visibility and coordination of the charger installation process

Unlock potential of EVs as grid assets

- Enabling bi-directional capabilities
- Finding value for second life batteries
- EVs as mobile distribution assets

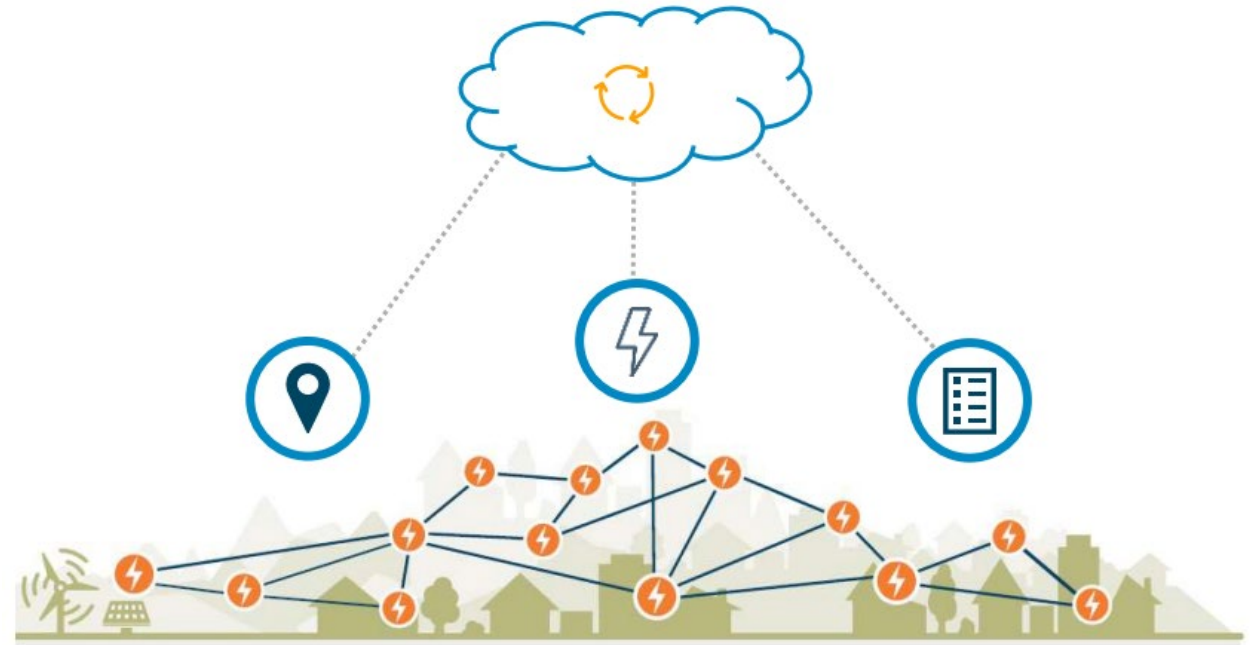


Expand load management capabilities across all levels of the system

- Visibility into demand response, DER, and EV load data
- Grid-edge computing and customer connection interface

Reduce the need for conventional capacity upgrades

- Optimize T&D buildout based on load profiles and resource flexibility
- Tools to test assets that could be reusable vs. thrown away





PG&E Innovation Summit

- [PG&E Innovation Summit](#): Tuesday, July 25th, 2023
- [PG&E R&D Strategy Website](#)

**PG&E
Innovation
Summit 2023**

Roundhouse Conference Center
San Ramon, California
July 25, 2023

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The graphic features a central globe icon with a heart and a house, surrounded by icons for a car, a wind turbine, a solar panel, a leaf, and a plug. A 'NET ZERO' icon is also present. The background shows a scenic view of green hills and a city in the distance.