DOCKETED	
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Project Title:	Electric Program Investment Charge (EPIC)
TN #:	262253
Document Title:	Powerpoint - Electric Vehicle Charging with Solar Microgrids – EPIC Scoping Workshop
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Submitter Role:	Commission Staff
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Docketed Date:	3/20/2025

Electric Vehicle Charging with Solar Microgrids – EPIC Scoping Workshop

California Energy Commission – Energy Research and Development Division

Presenter: Sean Dory, Renewable Integration Team

Date: March 18, 2025

Purpose

- Present a proposed funding concept for the EPIC 4 investment plan
- **Gather public feedback to incorporate into the final solicitation**

Agenda

Phase	Time	Item
Phase 1	1:00 - 1:30pm	Introduction and EPIC 4 Overview
Phase 2	1:30 - 1:45pm	PG&E Presentation
	1:45 - 2:00pm	SCE Presentation
	2:00 – 2:15pm	**BREAK**
Phase 3	2:15 - 3:30pm	Proposed Funding Concept - DER-Maximized Transportation Electrification - Research Considerations - Comments and Feedback
	3:30 - 3:40pm	Conclude

Renewable Integration Team

Webinar Assistance

Eric Ritter
Renewable Integration Supervisor

Webinar Lead

Sean Dory
Renewable Integration Specialist

Webinar Assistance

Liet Le
Renewable Integration Electrical Engineer

Webinar Operator

Alejandra Rios
Renewable Integration Specialist

Housekeeping

- Workshop is being Recorded
- Workshop Event Webpage: **https://www.energy.ca.gov/events**
- Closed captioning is enabled
- Virtual Participation through Zoom:
  - Dedicated opportunities for Q&A
  - Raise Hand or Q&A Box Feature
- Written comments to Docket # 23-ERDD-01: **https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=23-ERDD-01**
  - Subject: *Electric Vehicle Charging with Solar Microgrid – EPIC Scoping Workshop*
- Deadline: **5:00pm, April 1, 2025**

Commitment to Diversity

The CEC adopted a resolution strengthening its commitment to diversity in our funding programs. The CEC continues to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, CEC staff conduct outreach efforts and activities to:

- Engage with disadvantaged and underrepresented groups throughout the state;
- Notify potential new applicants about the CEC's funding opportunities;
- Assist applicants to understand how to apply for funding from CEC's programs;
- Survey participants to measure progress in diversity outreach efforts

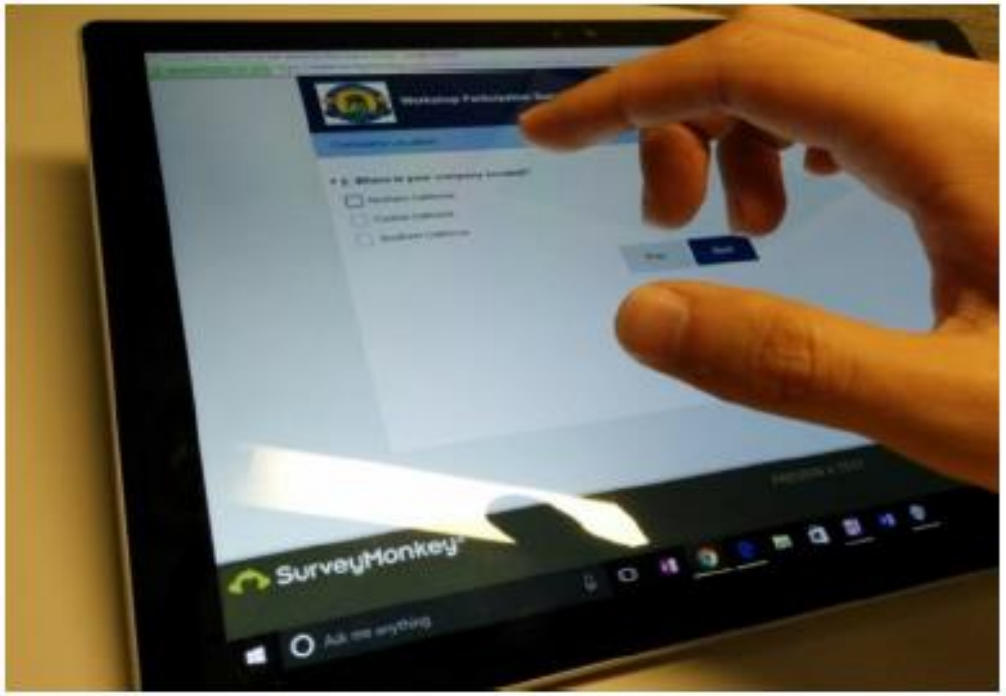
Diversity Survey

1 minute survey

The information supplied will be used for public reporting purposes to display anonymous overall attendance of diverse groups.

Please use this link:
https://forms.office.com/Pages/ResponsePage.aspx?id=RBI6rPQT9k6NG7qicUgZTmeZNlQp9I9DkewUoeRKPf9UNDBZVTBJNEQyUUFXSVlJNE5VSTlXRlU5Ri4u

Thanks!



Find a partner on Empowerinnovation.net

Empower Innovation strives to accelerate your clean tech journey with easy access to funding opportunities from the CEC and other funding providers, curated resources and events, and connections to people and organizations.

- **FIND A PARTNER** Announce your interest in this funding opportunity and message other interested parties to find potential partners.
- **RESOURCES & TOOLS** Browse the collection of resources for clean tech innovators including Resource Libraries, Funding Sources, Tools, and Databases.

Link to funding opportunities:

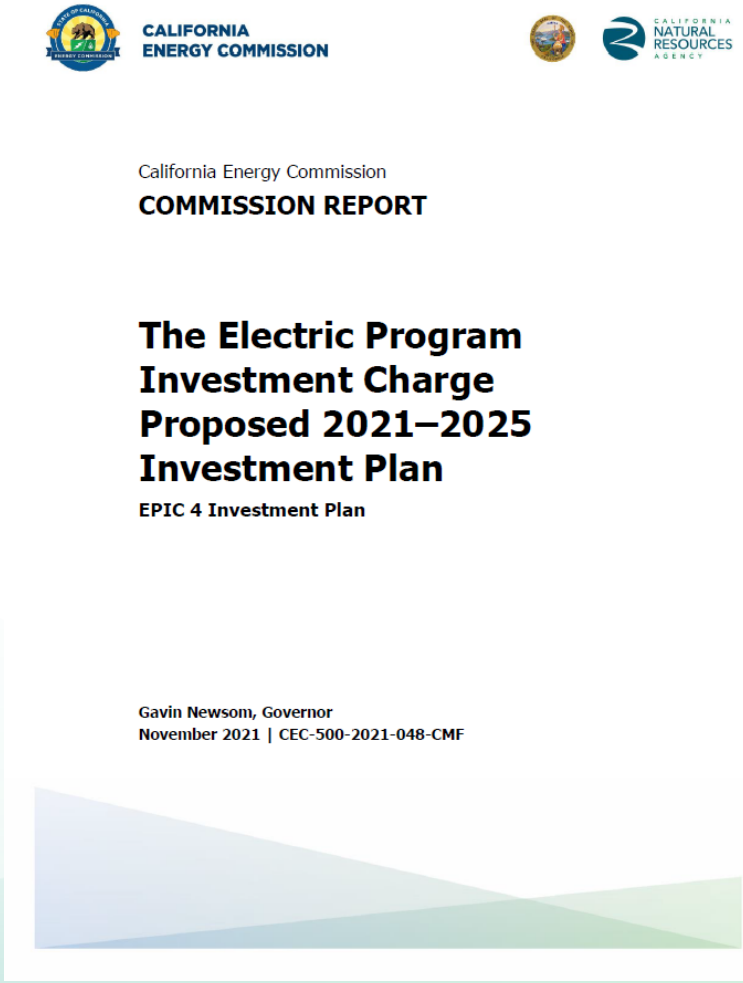
https://www.empowerinnovation.net/en/custom/funding/directory

For questions related to the Empower Innovation platform:

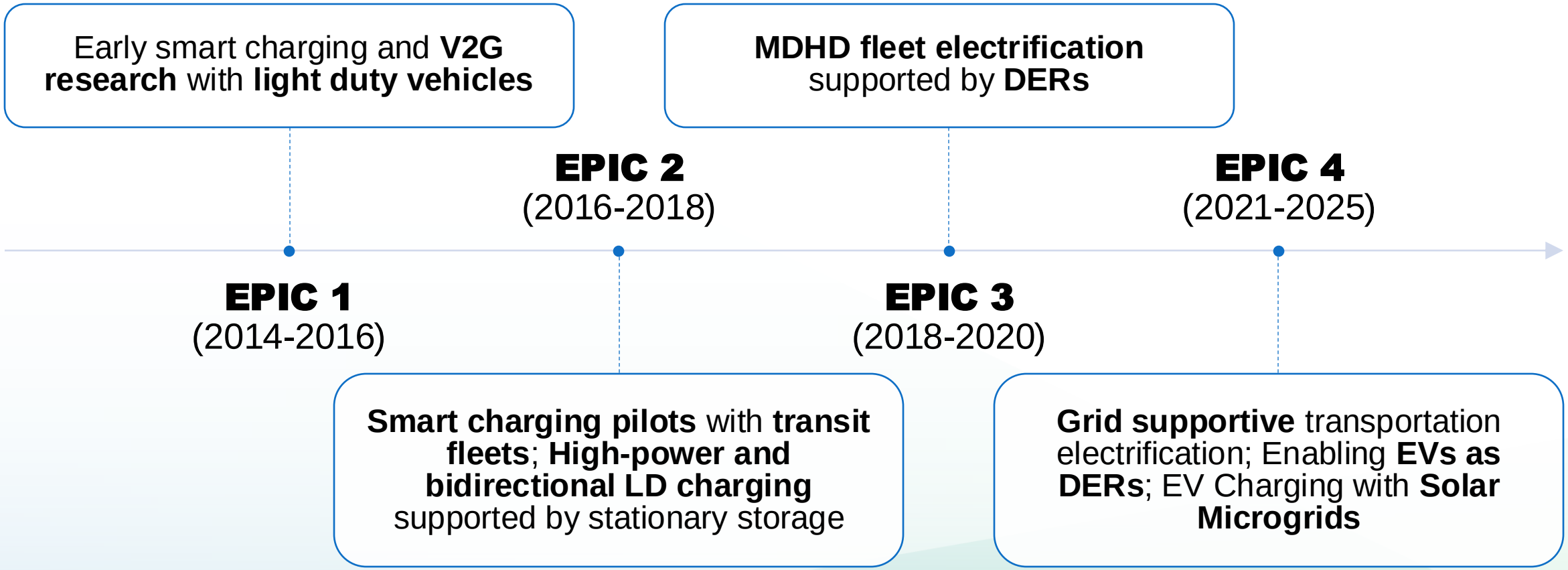
https://www.empowerinnovation.net/en/contact_us

EPIC Program Background

- Established by the CPUC in 2011 to fund research leading to technological breakthroughs supporting California's clean energy goals.
- Invests in pre-commercial technology innovation, complementing other state activities including standards, regulations, and incentives for commercial technology
- ~$130 million annual budget, funded by an investor-owned utility electricity consumption surcharge
- Provide electricity ratepayer benefits including improving safety, reliability, affordability, environmental sustainability, and equity



Previous EPIC Investments in DER-Integrated Transportation Electrification



Policy Drivers

California State Policy	
EO N-79-20	- All new in-state passenger vehicle sales to be zero-emission by 2035; - All medium- and heavy-duty vehicles to be zero-emission by 2045 where feasible and by 2035 for drayage trucks; - All off-road vehicles and equipment to be zero-emission by 2035 where feasible.
AB 2127	Requires CEC to biennially assess EV charging infrastructure needed to meet state goals
AB 2061	Requires CEC to establish EV charger uptime recordkeeping and reporting standards for state or ratepayer-funded chargers

Relevant CPUC Proceedings	
High DER *(R.21-06-017), Track 3*	- Order instituting rulemaking to modernize the grid for a high distributed energy resources future. - Track 3 prioritizes technology enablers for operational flexibility
Energization Timelines *(R.24-01-018)*	Establish reasonable average and maximum target energization time periods, and a procedure for customers to report energization delays to the Commission, among other requirements.
Transportation Electrification *(R.23-12-008)*	Proceeding focused on policy and infrastructure needs to accelerate the state's transition to zero-emission vehicles

EPIC 4 Initiative: EV Charging with Solar Microgrids

Topic 14. Direct Current Systems for Efficient Power Delivery

- *Research motivation*: Fund the advancement of DC-based power systems that improve DER system efficiency and achieve energy cost savings by eliminating power conversions.

Topic 22. Integrating Distributed Energy Resources for Grid-Supportive Vehicle Charging

- *Research motivation:* Fund the development, testing, and validation of hardware and software solutions to advance load management capabilities and reduce installation and operating costs

Proposed Funding Concept:

Enhance commercial EV charging by using existing grid capacity through flexible service agreements and integrating on-site DC solar microgrids for supplemental power.

Integrate DC solar microgrids and power control systems with charging infrastructure to reduce grid strain, avoid upgrades, improve resiliency, and ensure cost stability for providers.

Verify and advance the performance of power control systems and DC power system technologies to meet utility requirements in EV charging applications

PG&E – Flex Connect Pilots

Adarsh Madhavan

Grid Innovation Engineer

Pacific Gas and Electric (PG&E),

Grid Research Innovation and Development (GRID)

PG&E Flexible Service Connection

Program Overview

March 2025

PG&E | Grid Edge Innovation

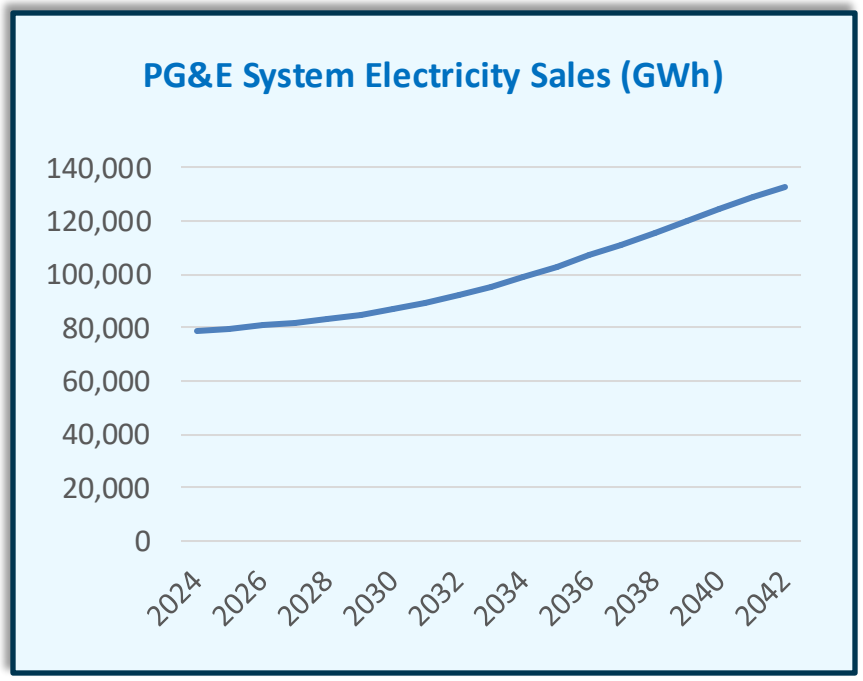
Grid Research Innovation & Development

Building the grid of the future, today.

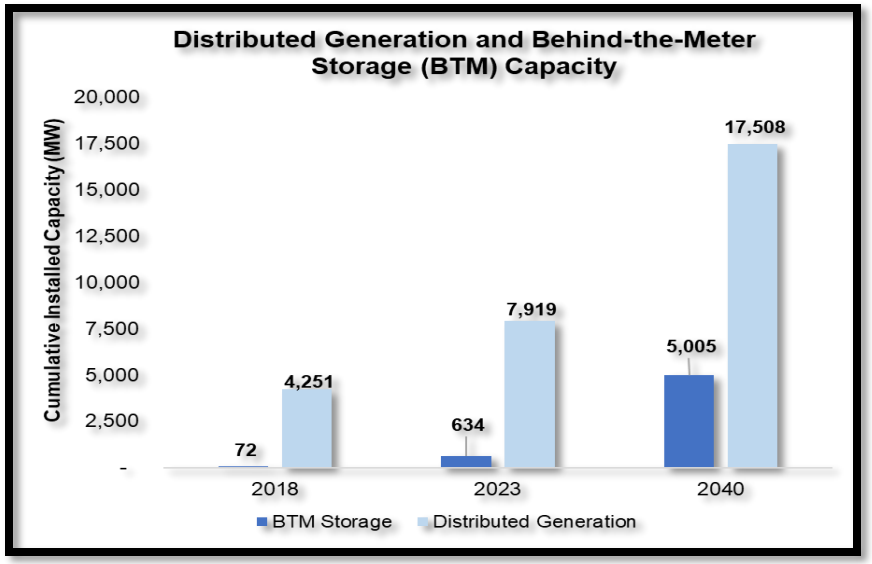
Context Setting: The need for new DER Management Tools & Processes

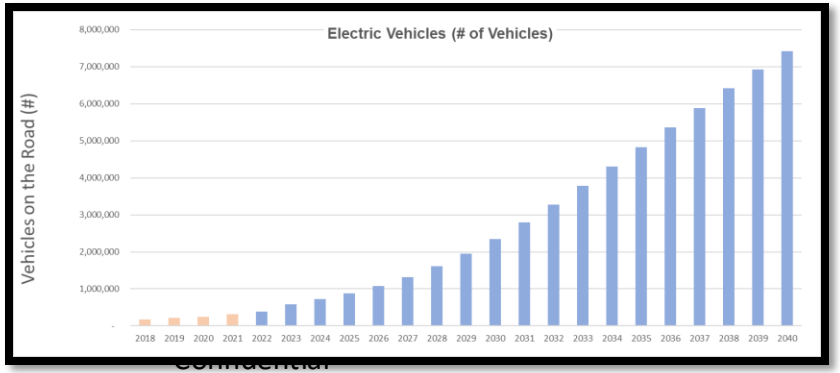
PG&E anticipates increased load driven by EV adoption and building electrification – coupled with continued adoption of distributed solar, significant growth of behind-the-meter storage and flexible loads such as EV charging.

New tools and processes to orchestrate Distributed Energy Resources (DERs) are necessary to safely and effectively operate the grid.



Source: PG&E's Spring 2023 Annual Load Forecast





7/25 PG&E Innovation Summit announcing DERMS Initiative

DER Orchestration Vision Enabled by DERMS

Present focus has been on uses cases to maximize capacity utilization on constrained distribution circuits. Over time, focus will expand to orchestrating DERs across multiple value streams (e.g. customer, grid, system)

Now (2023/2024)	Mid-Term (2024-2027)	Longer-Term (2028-2030)
Deploy foundational DERMS platform including 2030.5 DER headend for low-cost telemetry	Scale DERMS capabilities to the entire system rather than spot locations	Simplify customer experience via a single PG&E interface and engagement platform
Implement initial use cases to enable EV fast chargers' maximum capacity on constrained circuits (Flex Connect)	Transition demand response and load management programs to Enterprise DERMS	Optimize customer value of DERs for energy markets, transmission and distribution needs
Dispatch contracted DERs as a non-wires alternative to capacity projects	Enable electric vehicles as flexible loads via managed charging and V2X	Evolve DERMS into a grid edge computing platform to automatically optimize at the hyper local level
	Orchestrate DERs and LM across multiple value streams	
	Integrate real-time pricing pilots and initiatives to utilize DERs as a system resource	

PG&E's Flexible Service Connection Concept

Flexible Service Connection is a bridge solution that aims to allow customers with controllable loads to connect to the system without waiting for a service upgrade

Customer Value

Quicker connections

- Avoid Long Wait Times
- More Available Energy
- Improved Utility Partnership

Distribution Value

Improved customer experience

- Unlock Available Capacity
- Higher Grid Utilization
- Operational Flexibility

Energy System Value

Support industry goals

- Timely Energization
- Cost Effectiveness
- Manage Grid Constraints

Real World Example of Potential Benefits

Hour of the Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
1	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
2	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
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22	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
23	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%

STATUS QUO: Planning Limits for 5MW EV Charging Station

Hour of the Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	100%	100%	100%	99%	86%	83%	75%	63%	73%	72%	100%	100%
1	100%	100%	100%	100%	81%	86%	76%	68%	74%	72%	100%	100%
2	100%	100%	100%	99%	86%	84%	76%	70%	78%	74%	100%	100%
3	100%	100%	100%	98%	85%	82%	76%	69%	70%	75%	100%	100%
4	100%	100%	100%	95%	84%	75%	63%	61%	56%	68%	100%	100%
5	98%	94%	93%	87%	70%	68%	49%	50%	47%	59%	100%	92%
6	84%	81%	82%	80%	73%	58%	40%	37%	39%	49%	86%	83%
7	76%	77%	75%	74%	46%	45%	34%	29%	36%	43%	76%	79%
8	72%	73%	72%	77%	48%	39%	32%	29%	33%	42%	65%	73%
9	76%	77%	76%	82%	61%	41%	33%	34%	36%	48%	66%	76%
10	76%	77%	77%	78%	53%	38%	31%	30%	34%	47%	64%	76%
11	80%	78%	84%	81%	55%	40%	30%	29%	32%	45%	65%	75%
12	81%	77%	80%	76%	54%	35%	27%	24%	25%	43%	66%	77%
13	78%	78%	78%	82%	41%	35%	27%	24%	28%	37%	73%	80%
14	81%	78%	77%	77%	41%	36%	20%	26%	34%	40%	75%	80%
15	82%	79%	88%	73%	45%	33%	19%	20%	31%	42%	77%	80%
16	83%	79%	87%	78%	46%	38%	27%	30%	33%	45%	80%	85%
17	86%	85%	91%	80%	57%	46%	34%	37%	40%	50%	88%	88%
18	90%	86%	91%	80%	64%	53%	41%	41%	42%	49%	91%	91%
19	97%	91%	93%	84%	67%	58%	48%	43%	48%	51%	95%	96%
20	99%	97%	95%	78%	69%	59%	48%	45%	51%	57%	97%	99%
21	100%	100%	99%	91%	74%	65%	55%	53%	54%	56%	100%	100%
22	100%	100%	100%	94%	81%	74%	64%	60%	64%	62%	100%	100%
23	100%	100%	100%	97%	84%	81%	71%	64%	67%	67%	100%	100%

FLEX CONNECT

Key Takeaway – Some sites can still have access to partial power despite being limited to 0MW during the daytime hours

Flexible Service Connection Operations

24hr ahead DER customer import limits

Enabling customers with eligible loads to connect sooner by dynamically managing consumption based on grid availability

Customer and DER data

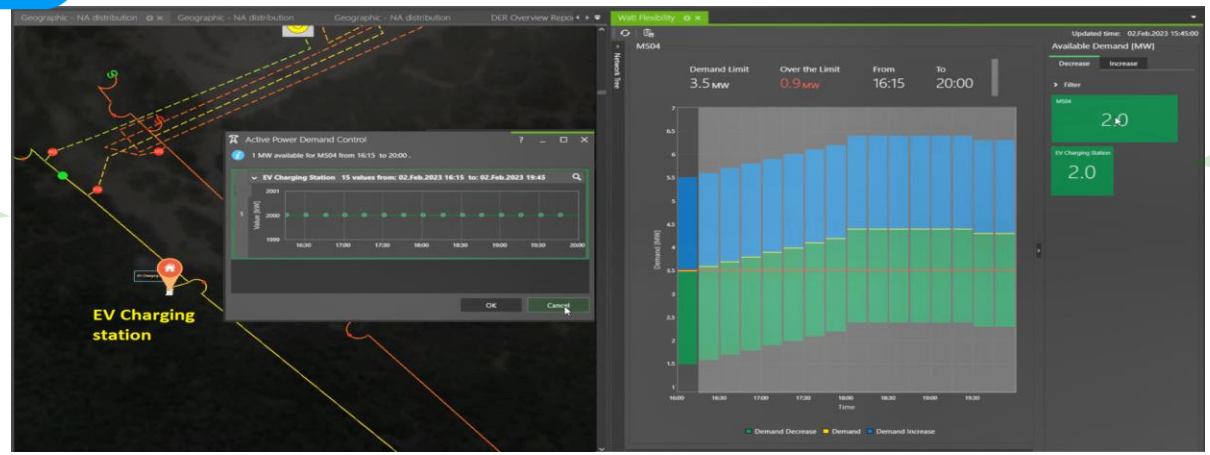
Flexible service parameters

Network connectivity data

Historical data

Weather data

Microsoft Azure



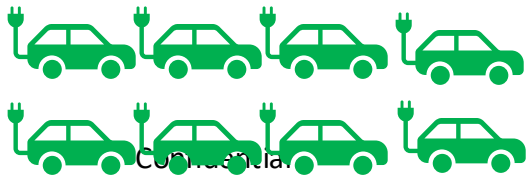
Determine dynamic site limit

Detect feeder loading capacity constraints

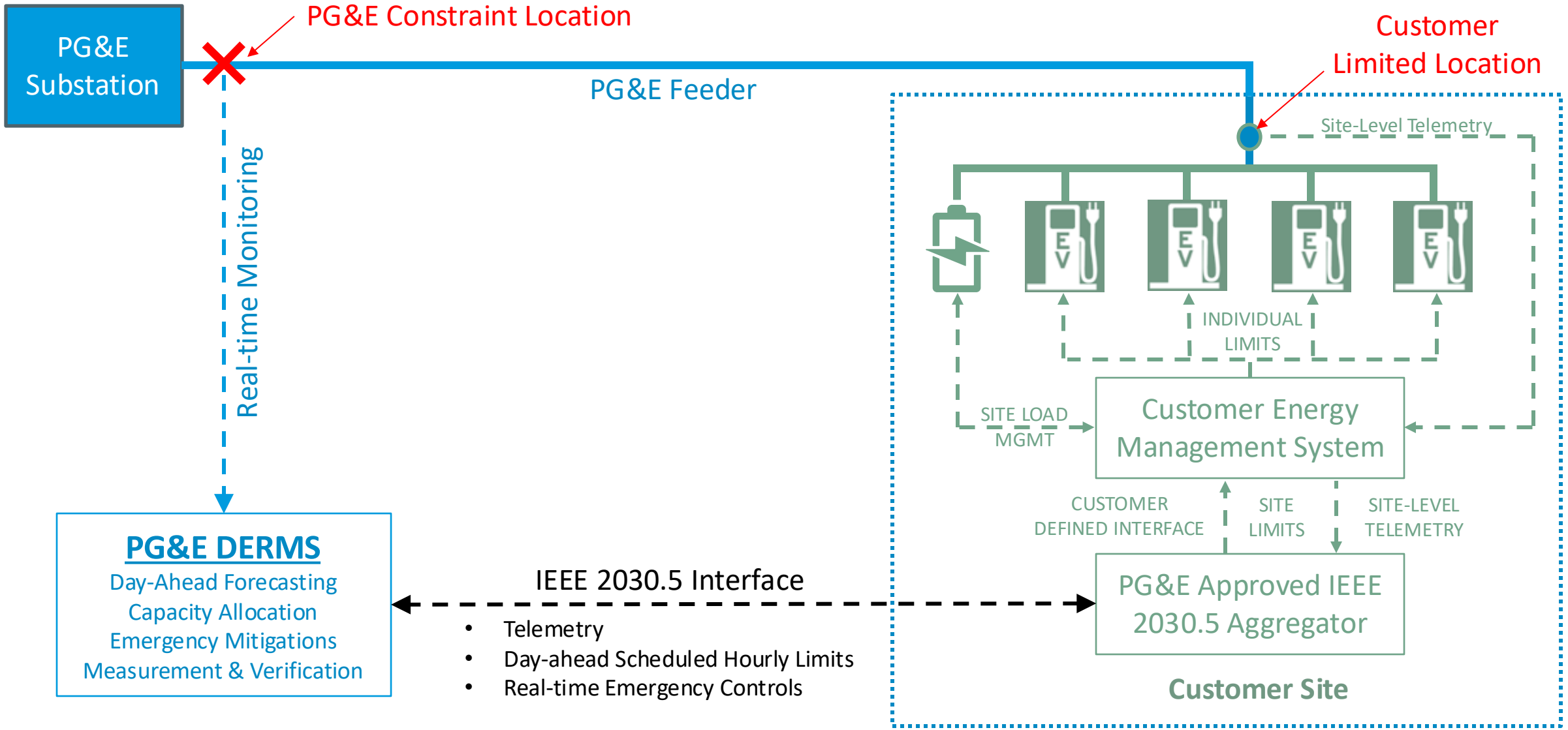
Re-calculate flexible capacity

Telemetry

Dynamic site limits



Illustrative Site Configuration



Customer Journey for participation in Flexible Service Connection MVP

In 2024 PG&E will be working to standardize customer engagement and site evaluation processes based on initial learnings

1 Identify

Customer identifies a site and PG&E checks eligibility

2 Evaluate

PG&E evaluates suitability for MVP & provides Customer with historical site analysis

3 Agree

Customer evaluates benefits and agrees to program terms

4 Build

Customer contracts with aggregator and controls vendors

5 Deploy

PG&E supports Customer with testing and commissioning

6 Operate

Customer automatically adheres to PG&E day-ahead hourly limit schedule

Results so far

PG&E Flex Connect Pilot Benefits Report

January 2025

Site Details

Site Name:		**Flex Connect Start Date:**	11/13/2024
Address:		**Requested Capacity:**	4.5 MW Charging
Asset Type:		**Existing Constraint:**	0 MW Limit 03:00-21:00 daily 3 MW Limit 21:00-03:00 daily

Flex Connect Participation Highlights

	This Month	Since Inception
	+137 MWh	+235 MWh
	68.7k miles (est)*	117.7k miles (est)
	2.6 MW Average Limit Increase	2.2 MW Average Limit Increase
	90% Time with Added Capacity	87% Time with Added Capacity

PG&E Flex Connect Pilot Benefits Report

January 2025

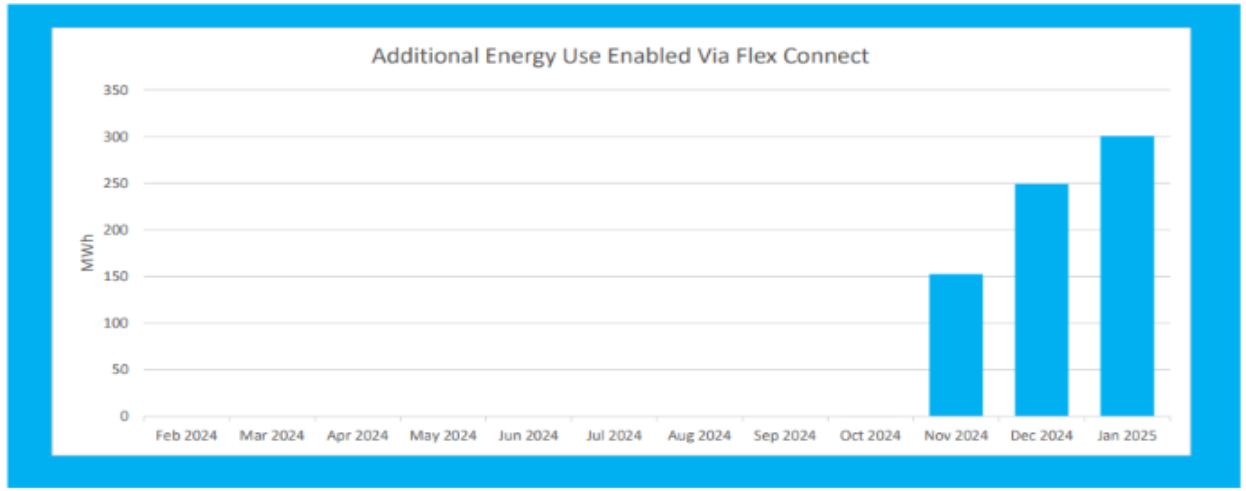
Site Details

Site Name:		**Flex Connect Start Date:**	10/31/2024
Address:		**Requested Capacity:**	6MW Charging
Asset Type:	Wholesale Market Participating Battery	**Existing Constraint:**	2MW Charging Limit 24/7/365

Flex Connect Participation Highlights

301 MWh
Additional Energy Use Enabled This Month

703 MWh
Additional Energy Use Enabled Since Inception



SCE – LCMS Pilots

Roger Salas

Principal Manager

Southern California Edison (SCE),

Generation and Microgrid Interconnection Department

EPIC Scoping Workshop
Load Control Management Systems (LCMS)

March 18, 2025

Roger Salas P.E., MSEE
Generation and MG Principal Manager

Discussion Topics

- LCMS Pilot and background
- Requirement for participating in the LCMS pilot
- Challenges to implement LCMS
- Pilot eligibility requirements
- LCMS pilot schedule and early findings
- Advancement in LCMS technology

LCMS Use Case As Bridging Solution

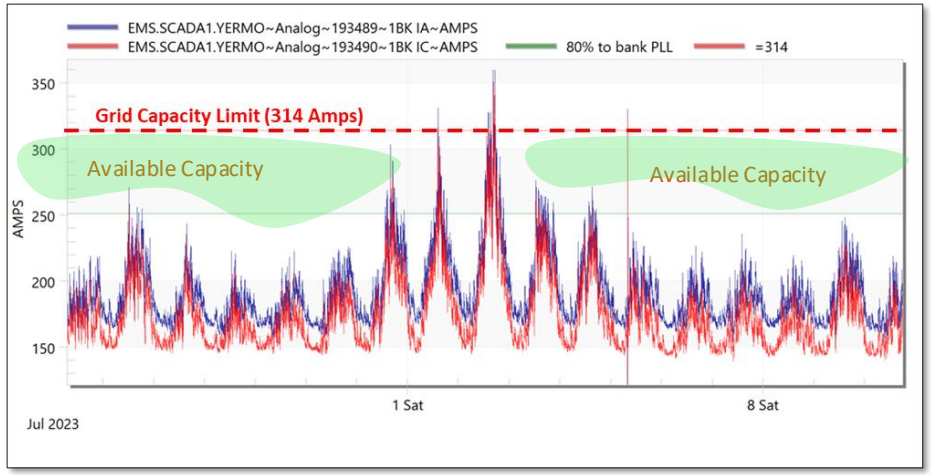
Faster Service Energization

Background

- Continued increase in electrical demand, much which is flexible(e.g., charging stations) is causing constraints in certain areas of the grid
- Grid upgrades to remove the constraints can take years to complete, which prompts utilities to start the planning and designing of grid upgrades much earlier
- These constraints can extend the energization of new projects, to limit the energization timeline, SCE proposed and received PUC approval for this LCMS pilot

LCMS Pilot

- While grid upgrades are completed, the service can be energized if power control functions are used to limit power usage (Load Control Management Systems- LCMS)
- Using LCMS technology will allow faster service energization, will allow for maximum utilization of grid assets, and will provide good customer service while traditional infrastructure are built
- LCMS is highly depending on load profiles and will not be option in all cases



An LCMS can be used to allow the flexible load (e.g., charging station) to use more capacity outside the peak period

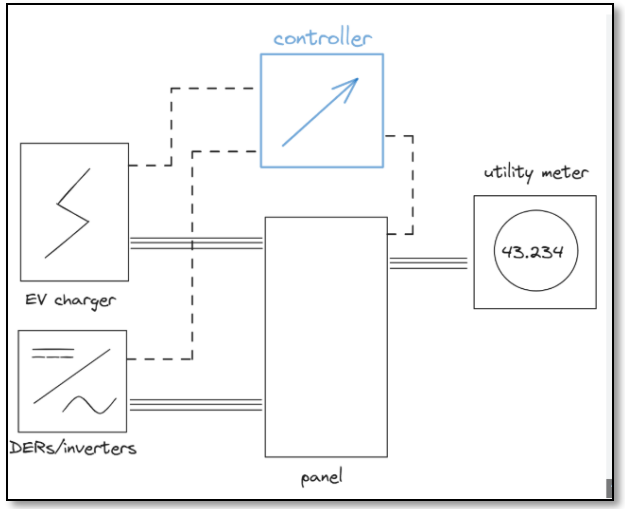
LCMS Pilot Research and Goals

LCMS Pilot Goals

- Energize our customer electrical service ahead of grid upgrades without causing grid safety events
- Test functionality with a variety of customer types and LCMS integrator types
  - 15 projects in the two-year pilot (not firm)
  - 3 different LCMS integrators (not firm)
- Develop and test certain functionality in the communications-based LCMS
  - Telemetry
  - Bi-directional Communication

Power System Control Research Activities

- Determine if load control technology is sufficiently mature to use in grid safety and reliability applications
- Test the functionality of power control to operate as intended and does not create grid safety issues
- Test the process by which technology's performance can be verified and accepted by SCE's engineering and operations departments
- Research and test the operability and responses from customer for real time grid contingencies



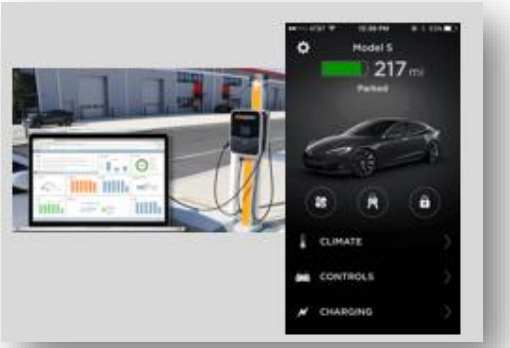
Eligibility For Participating In The Pilot

- Customer must have submitted the complete energization load request to SCE
- SCE engineering has determined that SCE cannot meet the energization timelines due to distribution grid capacity limitations
- SCE engineering analysis has determined that partial capacity is available (based on peak values or time of day profile values)
- Customer agrees to enter the LCMS pilot with the capacity as determined by SCE engineering
- Customer agrees to install a power control system (PCS) that SCE approves to limit power import as determined by the engineering studies
- Customer agrees with the terms and conditions of the LCMS pilot agreement and signs the agreement
- Once grid distribution grid upgrade is completed, the LCMS pilot agreement will be terminated, and SCE will provide the full capacity as requested by the customer
- As telemetry and bi-directional communication functionality becomes available, this will be become a requirement to participate in the pilot.

Challenges in Implementing LCMS

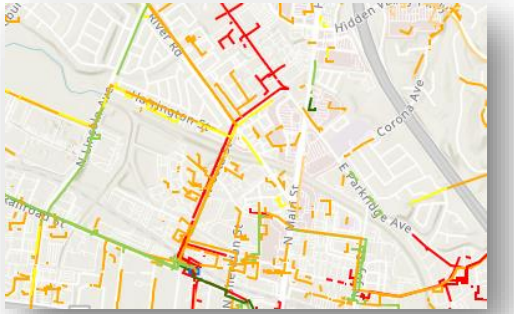
Technology Challenges

- There are no national standards for testing and certifying LCMS equipment
- SCE participated in the development of UL3141. The standard was published in October 2024 and anticipated to be used after May 2025. While the standard were developed, SCE evaluated and accepted LCMS for system that meet SCE's technical requirements.



Operational Challenges:

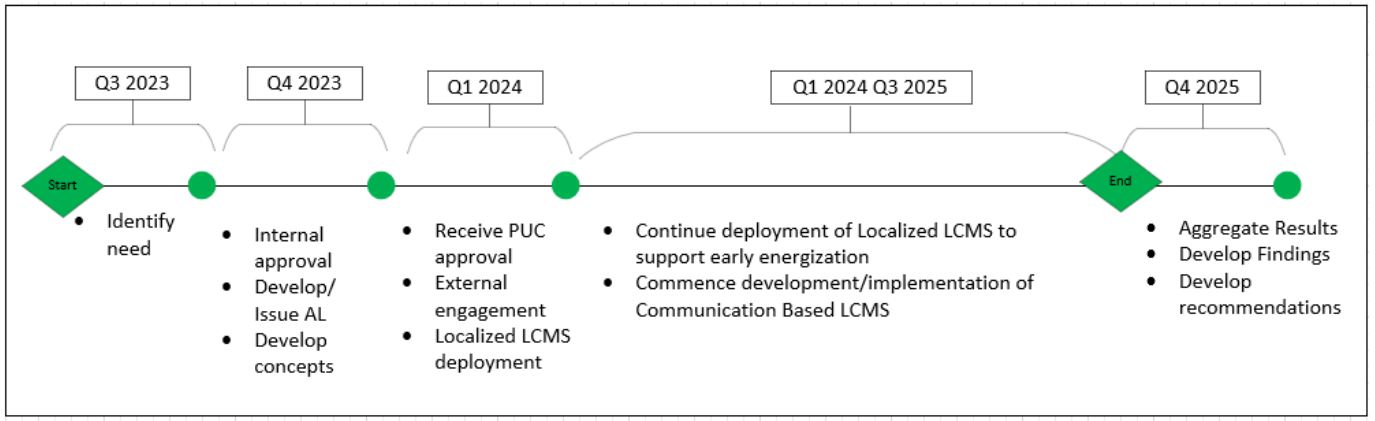
- No established operating procedures for operating the grid when using LCMS technology
- SCE developed operational procedures
  - What actions are taken in real time if LCMS fails?
  - How are real time operations coordinated with facilities that employ LCMS control?



Legal/Regulatory Challenges

- Currently no established regulatory procedures to accept this type of technology in the planning and operation of the distribution system
- SCE filed and received CPUC approval to implement an LCMS and related LCMS agreement via Advice Letter 5138-E/E-A, which we are using for pilot participants

SCE Pilot Updates and Early Findings

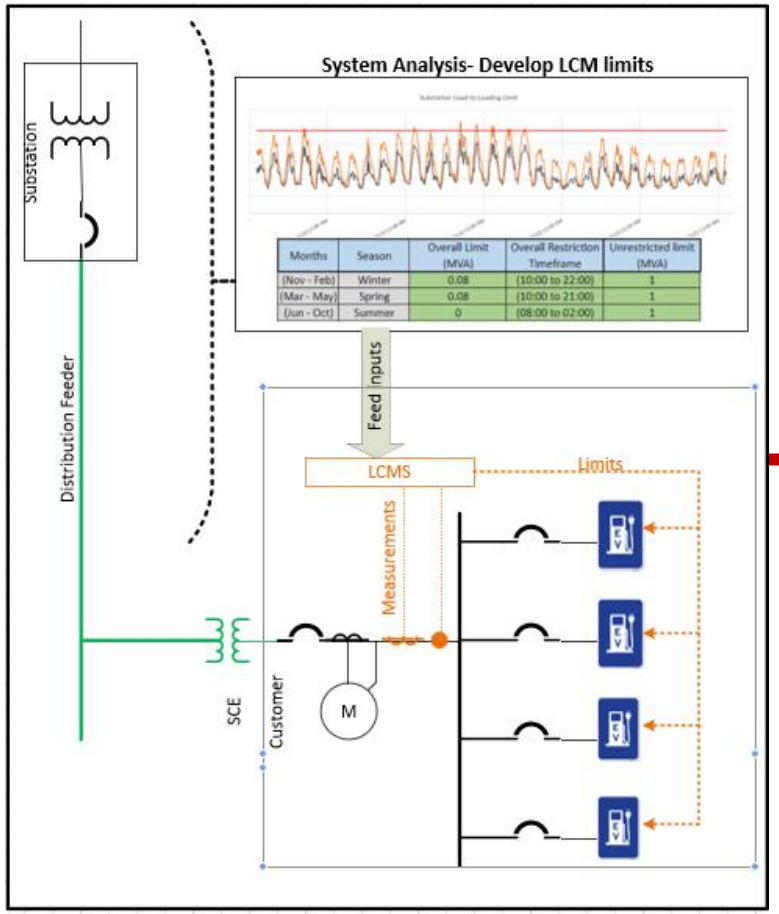


- 4 Load projects have been energized using LCMS technology
  - 3 EV charging stations one non-EV
- 2 projects have exited the pilot, grid upgrades completed, full capacity provided
- 2 more projects have LCMS agreement and waiting to be energized
- 3 different integrators (LCMS controls systems) have been used
- Early finding show that customer's load control systems have operated as intended (not exceeding their approved limits)
- Customer have been generally accepted the limits if that allows the project to be energized faster
- With UL3141 having been released in October 2024, SCE will be requiring the use of UL3141 NRTL certified devices for new LCMS projects after May 2025
- Currently in progress development technical requirements for communication-based LCMS

Advancing LCMS Technology

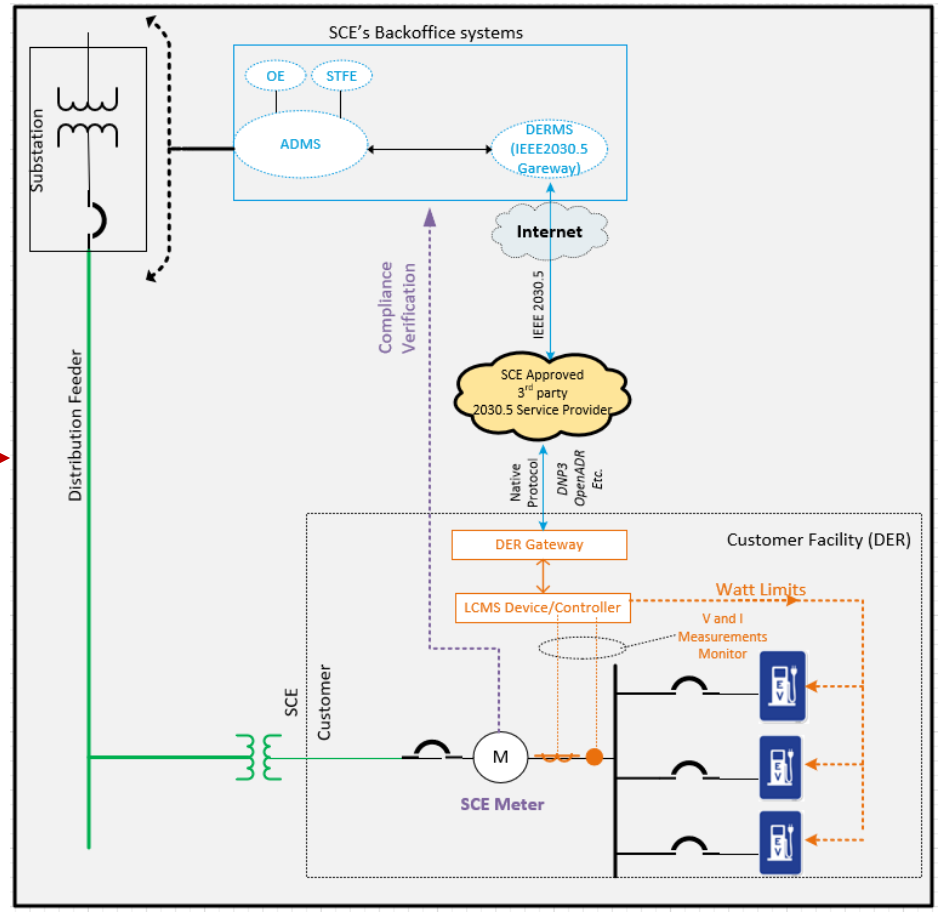
Currently Being Deployed

- Localized LCMS at the facility
- Limits are programmed into the local control
- No real time communication to SCE



Future of LCMS

- Limits provided via communication
- Back provided via static table for loss of comm
- Provides real time operational information for grid operations
- Likely provide higher level of capacity



BREAK

Proposed Solicitation Concept
DER-Maximized EV Charging

Staff are scoping Topic 14 and 22 into the following proposed solicitation funding concept with accompanying research considerations:

Concept: **DER-Maximized EV Charging**			
Research Considerations	**#1** **DC Power System Integration**	**#2** **Utility Coordination**	**#3** **Use Cases**

Concept
DER-Maximized EV Charging

Background:

- The growing number and size of IOU service applications can overwhelm existing energization queues, especially when additional capacity is needed to accommodate expected load *(R. 24-01-018)*
- On-site generation from solar microgrids has emerged as a strategy to energize EVSE while enhancing resiliency and cost stability and mitigating strain on the distribution grid.
- DC Power Systems allow developers to capture more value from on-site generation paired with EVSE by minimizing redundant AC-DC / DC-AC conversions
- Existing IOU flexible energization pilots allow customers to energize load with existing grid capacity and defer upgrades by integrating load limiting power control systems
    - These flexible service options accelerate energization timelines and present an opportunity to consider the value of supplemental on-site generation, particularly in grid constrained areas

Concept
DER-Maximized EV Charging (cont…)

Goals:

- Design and develop a DC-microgrid-integrated EV charging system for a commercial use energized through an IOU flexible service pilot
- Advance UL 3141-certified power control systems to improve load limiting capabilities
- Advance the TRL of microgrid-integrated DC power system technologies (DC-DC converters, solid state transformers, etc.)
- Align with IOUs' research goals to improve the scalability of flexible service options by expanding use cases and improving transparency and design of enabling hardware and software
- Assess the potential for on-site generation to substitute distribution grid upgrades

DER Maximized EV Charging
Possible Project Focus

- Develop a DC solar microgrid-integrated EV charging architecture that energizes through an IOU flexible service pilot
  - Adhere to a (dynamic or static) limited load profile utilizing available grid capacity
  - Integrate on-site solar-and-storage to bolster system resiliency and reliability, and supplement limited load
  - Advance power control system hardware and software (obtain UL 3141 certification) to verify adherence to limited load profile and integrate with on-site solar and storage
  - Advance DC power systems to maximize efficiency between solar microgrid and EVSE
  - Integrate sophisticated charge/energy management systems to meet charging needs while coordinating with DC solar microgrid and limited load profile

DER Maximized EV Charging
Discussion Questions

- What level of funding would be required for this concept?
- What verifications are needed to ensure power control systems' interoperability with IOUs and coordination with customer energy management systems?
- What kinds of data/measurements should be collected to align with goals of IOU flexible service pilots?
- How can the projects create DER valuation frameworks to inform additional incentives or shared savings models for self-generation distribution upgrade deferrals?
- Should there be a minimum size for the integrated solar microgrid (e.g. 1.5 MW solar, 3MWh storage)?

To participate...

- **Use the raise hand feature in zoom**

OR

- **Type Questions in the Q&A Box in Zoom**

*Please provide name and affiliation
*Keep questions/comments under 3 minutes to allow time for others

Proposed Solicitation Concept
DC Power System Integration

Staff are scoping Topic 14 and 22 into the following proposed solicitation funding concept with accompanying research considerations:

Concept: **DER-Maximized EV Charging**			
Research Considerations	**#1** **DC Power System Integration**	**#2** **Utility Coordination**	**#3** **Use Cases**

Research Considerations

DC Power System Integration

Background:

- High-power charging of electric vehicles from DERs presents one of the most useful applications for DC power systems *(Solid State Power Substation Technology Roadmap, DOE 2020)*
- Losses from AC-DC / DC-AC conversions inhibit developers from capturing the full value from behind-the-meter, DC (e.g. solar/storage) generation
- High power/current DC-DC converter technologies/approaches are limited

Goal:

- Demonstrate and advance DC power systems that can directly couple EVSE with DERs to reduce energy losses with fewer redundant power conversions.
- Improve DC-DC components that enable high voltage and high current transfer between various DC equipment
- Collect data on performance and cost improvements by integrating DC power systems

Discussion Questions

DC Power System Integration

- What DC components need to be advanced to enable more efficient integration of EVSE with DER generation?
- What is the current TRL of these DC power system components (e.g. DC-DC power converters, solid-state transformers, controllers to manage various functions, communications, protections)?
- What are the interoperability considerations for pairing DC power systems with automated load management systems, solar and storage, and other DER energy management systems?
- What level of funding should be dedicated to DC power system verification and integration?

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Proposed Solicitation Concept
Utility Coordination

Staff are scoping Topic 14 and 22 into the following proposed solicitation funding concept with accompanying research considerations:

Concept: **DER-Maximized EV Charging**			
Research Considerations	**#1** **DC Power System Integration**	**#2** **Utility Coordination**	**#3** **Use Cases**

Research Considerations
Utility Coordination

Background:

- IOU flexible service pilots have independent research goals and eligibility requirements
- EV charging infrastructure paired with behind-the-meter solar and storage is not considered as an integrated system in utility commissioning
- Commercial EVSE are energized through Rule 15/16 or 29, while solar and storage are separately interconnected via Rule 21
    - These processes can be opaque, timely, and costly to developers

Goals:

- Partner with IOU staff to align proposed funding concept with research goals and eligibility requirements of flexible service pilots
- Work alongside IOUs to develop a pathway for simultaneous energization/interconnection when commissioning generation-paired loads

Discussion Questions
Utility Coordination

- How do we verify support from IOUs in the application phase?
  - Letters of support?
- Is it feasible for IOUs to treat these projects as combined systems, alleviating the need for *separate* energization and interconnection requests?
- How should the CEC coordinate with IOU staff to align research goals?
  - Are there additional considerations for the scope of work?

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Proposed Solicitation Concept
Use Cases

Staff are scoping Topic 14 and 22 into the following proposed solicitation funding concept with accompanying research considerations:

Concept: **DER-Maximized EV Charging**			
Research Considerations	**#1** **DC Power System Integration**	**#2** **Utility Coordination**	**#3** **Use Cases**

Research Considerations
Use Cases

Background:

- Need for accelerated and grid-supportive electrification of emerging transportation segments wherever feasible
- Solar microgrid-integrated EV charging solutions may be most valuable in areas with limited distribution capacity (where traditional distribution upgrades would be most costly)
- Very limited research on solar microgrids' viability as alternatives to distribution grid upgrades in grid constrained locations

Goals:

- Demonstrate projects with commercial applications (e.g. public charging plazas, medium and heavy-duty depot charging, en route fast charging) in grid constrained areas
- Analyze the potential for solar microgrids to defer or eliminate the need for utility distribution upgrades in locations where utility infrastructure upgrades would be especially timely/costly

Discussion Questions
Use Cases

- What kinds of sites would benefit most from solar microgrid-integrated EVSE?
  - Where are they located?
  - Who do they serve?
  - How is the value of load management, DC power system and solar microgrid integration maximized here?
- How should “grid-constrained” be defined?
- How should the creation of a value framework comparing the ratepayer cost of distribution grid upgrades to the alternative of on-site generation be approached?
  - Is the necessary data for such a model accessible?

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OR

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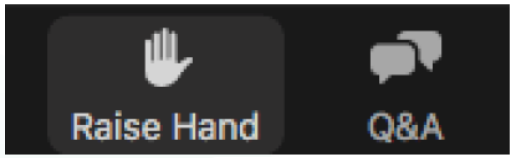
Final Q&A / Public Comment

1. **Use the raise hand feature in Zoom:**
   - Zoom phone controls:
     - *6 – Toggle mute/unmute
     - *9 – Raise hand
   - Introduce yourself by stating your name and affiliation
   - Keep questions under 3 minutes to allow time for others

2. **Type questions in the Q&A Box in Zoom:**
   - Please provide name and affiliation



Next Steps

CEC staff will compile and consider feedback in developing solicitations.

Submit written comments to…..

- Deadline: 5:00 pm, April 1, 2025
- Comment page:
  - Docket # 23-ERDD-01
  - https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=23-ERDD-01.
  - Subject: “Electric Vehicle Charging with Solar Microgrids – EPIC Scoping Workshop”
- Email: docket@energy.ca.gov
  - Subject: “Electric Vehicle Charging with Solar Microgrids – EPIC Scoping Workshop”

Thank You!

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