

# CALFLEXHUB SYMPOSIUM

SEPTEMBER 24 | 8am-6pm PT



DENVER HINDS



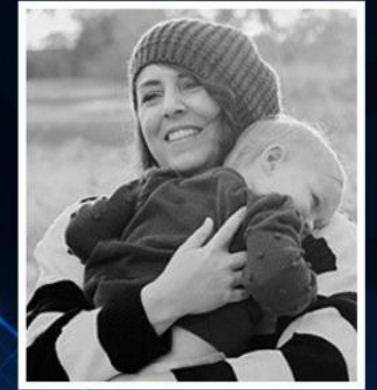
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## FROM PILOT TO PRACTICE: UNDERSTANDING UTILITY DYNAMIC RATE PROGRAMS

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2024

# **SCE Flexible Pricing Rate Pilot**

**CALFLEXHUB SYMPOSIUM 2024**

**9/23/24**

# Southern California Edison (SCE) Overview

One of the largest electric utilities in the U.S.

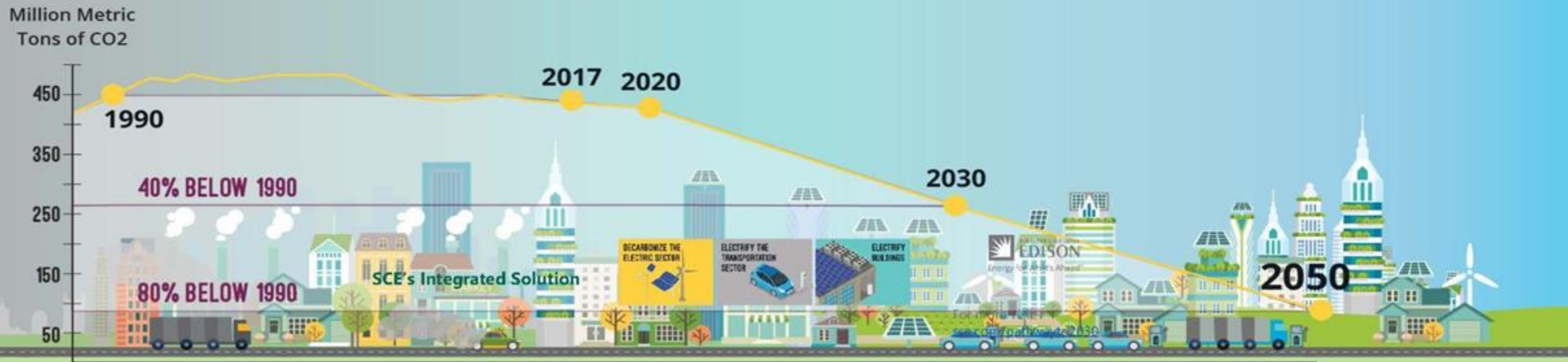
- **50,000 sq. mi.** service area with nearly **15 million** residents & **5 million** customer accounts
- **1.4M** power poles
- **52,000 miles** of SCE overhead distribution and transmission lines
- Prioritizing infrastructure investments to modernize the grid, maintain and improve reliability, prepare for clean energy future
- Regulated by the CPUC; rates are determined through the general rate case
- Over **99%** of Non-Residential customers are on Time-of-Use (TOU) rates, with **58%** of Residential customers on TOU rates, and **92** commercial/ industrial customers on a Real-time Pricing rate, with the trigger being the day ahead temperature in downtown LA.



# Setting the Stage: SCE's Clean Power Pathway

If we want to get to **reduce emissions**, we have to move towards 100% renewables by 2045

**Flexible Rates Provide Accurate Signals To Encourage Use at the Right Times and minimize the impacts of this shift**



**The Challenge: How to Get Customers Thinking about When They Use Energy as well as How Much They Use**

# SCE's Flexible Pricing Rate Pilot and Expanded Flexible Pricing Rate Pilot Designs



	Current Flex Rate Pilot	Expanded Flex Rate Pilot
<b>Pilot length</b>	Through 2024	Through 2027
<b>Eligibility</b>	Bundled customers from any rate class who have a controllable technology, such as a thermostat, that is managed by an Automation Service Provider (ASP).	Bundled or unbundled customers from select rate classes not currently enrolled in most DR programs. Participants can be self-enrolled or enrolled via an ASP. No CCAs have committed to participation yet, but our largest CCA has expressed interest.
<b>Enrollment</b>	Via ASP	Via Online Portal, no ASP needed. Only exception is those on the current pilot who will be transitioned over.
<b>Rate Design</b>	The generation rate is based on the day-ahead CAISO market prices, with the distribution dynamic rate based on the load on the customer specific circuit. A monthly subscription amount is calculated based on their historical usage. The subscription price incorporates fixed and non-volumetric charges and credits based on the Retail tariff (eg, demand charges, baseline credits).	Same except dynamic distribution component will be at the A-bank to increase customer simplicity in finding their price information online.
<b>Billing</b>	Customers remain and are billed on their current rate, and they are "shadow billed" monthly by a vendor. Customers are paid an incentive at the end of their 12 months (or the end of their relevant period for net energy metering customers) through their ASP. If customers pay more on the Flexible Pricing Rate than their current rate, no further \$\$ are collected.	Same except the calculation vendor will be different and the incentive can also be paid directly for those not managed by an ASP.

Southern California Edison is currently piloting a special flexible pricing program for customers with select smart meters devices, such as smart thermostats, battery storage devices, or an electric vehicle. The pilot will utilize hourly energy prices that will vary a responsibility of customer's smart meters to automatically shift energy usage to times of day when energy is less expensive and carbon generated with lower emissions. Shifting energy usage to optimal times has the potential to improve the reliability of the electric system while providing savings for customers.

The pilot program is under consideration by the state of California as a demonstration to help accelerate the transition to a cleaner, more resilient, and more reliable electricity system. The pilot will reduce the cost of providing electricity.

The pilot program is being facilitated by the Energy Automation Service Provider (ASP) partnering with SCE, in conjunction with a vendor network, to help customers and their smart devices optimize energy consumption.

**How will I be compensated under this pilot?**  
You will continue to receive electric service from SCE on your current rate, and you are expected to pay your regular bill as normal. At the same time, you will receive monthly updates from your ASP on any calculated savings you may have achieved by your device as a result of the flexible pricing rates in the pilot.

At the end of 12 months of participation, the monthly regular bill you pay will be compared against the bill based on the SCE flexible pricing rate under the pilot. If you save money on the SCE flexible pricing rate, your ASP will provide you with an incentive payment for the difference. If you do not save money on the SCE flexible pricing rate, you will incur no cost. Customers who are on Net Energy Metering plans will receive their compensation (if any) at the end of their relevant period, even if it comes before the 12 months. Customers are free to leave the pilot at any time -- if you need not pay savings based on flexible pricing, you will be compensated within 10 weeks of your departure from the pilot.

**What devices are eligible?**  
To participate in this study, you must have an SCE smart meter device and one or more smart devices. Smart devices include, but are not limited to:

- Devices that control when and how much energy is consumed or produced, such as thermostats, heat-pump water heaters, pool pumps, etc.
- Battery storage hardware
- Electric vehicles
- An energy management system

**EDISON**  
Energy for What's Ahead™

**IMPORTANT INFORMATION ABOUT YOUR SCE FLEXIBLE PRICING RATE PILOT PARTICIPATION**  
[\(this is not a bill\)](#)

Service Account Number: *Service Account Number*  
Service Address: *Service Address*

Dear Valued Customer,

We are sending you this Flexible Rate Comparison Report as part of your voluntary participation in SCE's Flexible Pricing Rate Pilot. This is not an actual SCE bill -- it is a tool to show your activity during your pilot participation. We will continue to send you this monthly statement to keep you updated on how flexible rates would impact your bill. As you know, this pilot is intended to produce lessons about how flexible rates can support affordability and clean energy goals.

Statement Date: Month XX, 2021

Billing Period	Start Date	End Date	kWh Usage (month)	SCE Bill Subtotal (month)	Flexible Pricing Rate Subscription	Flexible Pricing Rate Transactions	Flexible Pricing Rate Incentive
1	01/01/21	01/31/21	100	\$100.00	\$0.00	\$0.00	\$0.00
2	02/01/21	02/28/21	100	\$100.00	\$0.00	\$0.00	\$0.00
3							
4							
<b>TOTAL</b>							<b>\$0.00</b>

This amount shown on the Flexible Rate Comparison Report includes rates paid under other rates shown on the actual SCE bill and does not represent a change to your participation in the pilot.

At the end of 12 months of participation, the monthly regular bills you pay will be compared against the bills based on flexible pricing rate under the pilot. If you saved money on the flexible pricing rate, you will be provided with an incentive payment through your ASP for the difference. If you did not save money on the flexible pricing rate, you will not pay any additional amount.

# SCE's Flexible Pricing Rate Pilot Customers and Key Learnings

- Customers started shadow billing on the current pilot rate in July 2023
- 40 bundled customers currently billing on the pilot
  - 24 are Residential - 4 of those are NEM
  - 16 are Non-Residential - 11 of those are NEM, majority on TOU-GS-2 rate, 1 is participating on Paired Storage
- SCE intends to survey customers on their experience
- Manual tracking and partnering with a vendor who does not have our interval data has been challenging and led to delays
- Res non-NEM customers with at least 5 months of data are losing as much as 19% and saving as much as 31% (NEM customers have higher variability in savings and losses) – initial average savings for those non-NEM Res customers is currently roughly 0.5% above their current tariff
- Non-Res NEM as a whole are not saving (this includes comparing against both legacy TOU rates and non-legacy TOU rates)
- Subscription development becomes challenging when customers have a major change in the 12 months prior to starting on the dynamic rate (be it from a change to NEM, or just a large change in usage)
- The CARE discount not only discounts charges, but it also reduces savings



## Export Compensation Pilot Overview



Sept. 24, 2024

# San Diego Gas & Electric<sup>®</sup> Overview

- SDG&E<sup>®</sup> is a regulated public utility that provides safe and reliable energy service to 3.5 million consumers through 1.5 million electric meters and more than 900,000 natural gas meters in San Diego and southern Orange counties. The utility's area spans 4,100 square miles.
- SDG&E employs about 4,700 people throughout its service area whose main job is to provide safe, reliable energy and exceptional customer service to residences and businesses throughout San Diego and south Orange County. We are committed to enhancing the quality of life in the area and developing energy solutions for a competitive regional economy.
- SDG&E has had a clean vehicle dynamic pricing pilot rate for eight years.





# Dynamic Export Compensation Rate



## Illustrative Generation Capacity Rates

Dynamic Export Rate Pilot: Commodity Credit	
CAISO day-ahead hourly price	updated daily, day-ahead
Generation Capacity Component (additional payment in top 150 hours)	
Schedule TOU-A	\$0.32072
Schedule EV-HP, AL-TOU	\$0.36511

### Rate Design

- The Dynamic Export Rate Pilot consists of two marginal cost components
  - California Independent System Operator (CAISO) day-ahead hourly pricing
  - Generation Capacity Component

### Billing

- The customers' import consumption and export will be netted at the 15-minute interval to determine if the customer will be:
  - Billed electricity consumption for imports under the otherwise applicable rate schedule the customer is taking service on (e.g., Schedules EV-HP, AL-TOU, or TOU-A), or
  - Will be provided a bill credit for the electricity exported under this schedule

### Website

- <https://www.sdge.com/dynamic-export-rate-pilot-program>





# Pacific Gas and Electric Company Overview

We are focused on providing safe, reliable, clean and affordable natural gas and electricity to our customers.

Service Area

**70,000**  
SQUARE MILES



Service area population

**16 million**  
CALIFORNIANS  
(That's 1 in 20 Americans!)



**25,000**

EMPLOYEES WHO  
LIVE AND WORK

in the communities we serve



MORE THAN

**715,000**

SOLAR CUSTOMERS

representing **>6,900 MW**  
of solar energy generated



NEARLY

**500,000**

ELECTRIC VEHICLES

registered in our service area

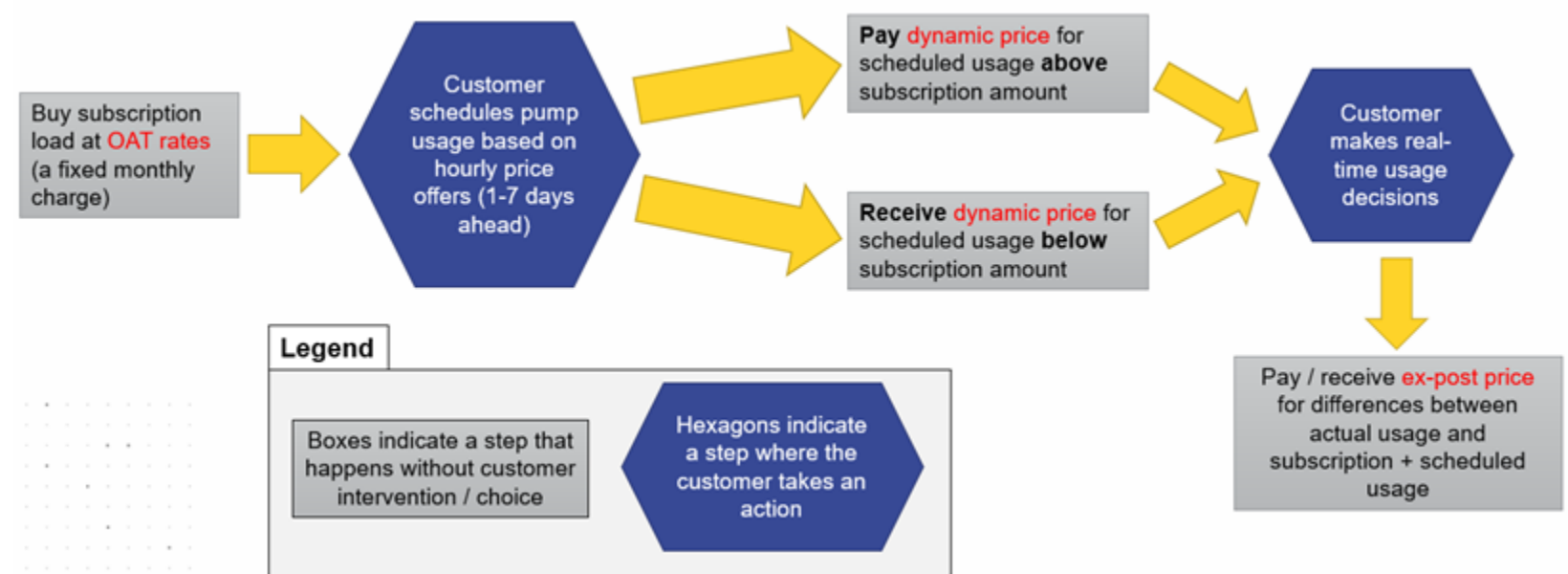


# DRET Agricultural Pumping Dynamic Rate Pilot

- Pilot Description

- Three-year pilot from 2022 through 2024
- Applicable to large agricultural pumping customers
  - Provides incentives to automate pumping loads
- Can enroll up to an aggregate peak load of 5 MW
- Dynamic hourly energy prices provide incentives to shift loads
- Pilot customers have bill protection

- Pilot Pricing Method



# DRET Agricultural Pumping Dynamic Rate Pilot mid term results

- Automation helps agricultural pumping customers respond to all price signals.
- Pilot participants reduced their share of usage during the peak pricing period (5 to 8 p.m.) relative to pre-Pilot levels.
- There is mixed evidence that the Pilot customers responded to dynamic price differences across days
- It has been difficult to find an appropriate method for anchoring AgFIT bills to OAT revenue recovery levels.
- The shadow bill credit method gives customers a strong incentive to continue to respond to OAT price signals while participating in AgFIT.

# PG&E 24-27 RTP Pilots summary

PG&E has a ~\$50M portfolio of RTP rates that will be evaluating program and rate design elements ahead of full implementation.

Pilot By Priority	Electric Vehicles (CET Team)	Agricultural Sector	Res/Commercial Sector
Target Use Cases	Vehicle to Grid (V2G)	Water Pumps/Sanitation, Electric Tractors	Box stores, office & industrial, Smart EV charging (V1G), Residential energy mgmt.
Timeline	Sept '24-'25	Nov '24 – Dec '27	Nov '24 – Dec '27
Budget	\$13M	\$7.5M / \$14M / \$21.5M	\$4.7M / \$10.5M / \$15.2M
Goals	1,000 Residential Service Points 250 Commercial Service Points	50 MW enrolled load	50 MW enrolled load
Key Challenges and Areas of Focus	<ul style="list-style-type: none"> <li>• Complex Rate Design and Price Dissemination</li> <li>• Customer Engagement and Support</li> <li>• Partnerships with Automation Service Providers (ASPs)</li> <li>• CCA Coordination and Adoption</li> </ul>		
Systems and Processes	<p><b>Vendor enabled “Shadow billing” Solution</b>  <b>Partner &amp; ASP enabled Customer Engagement Platform(s)</b></p>		



**Thank you**

For additional information:

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Principle Product Manager

# SMUD DER Flexibility Targets

Denver Hinds

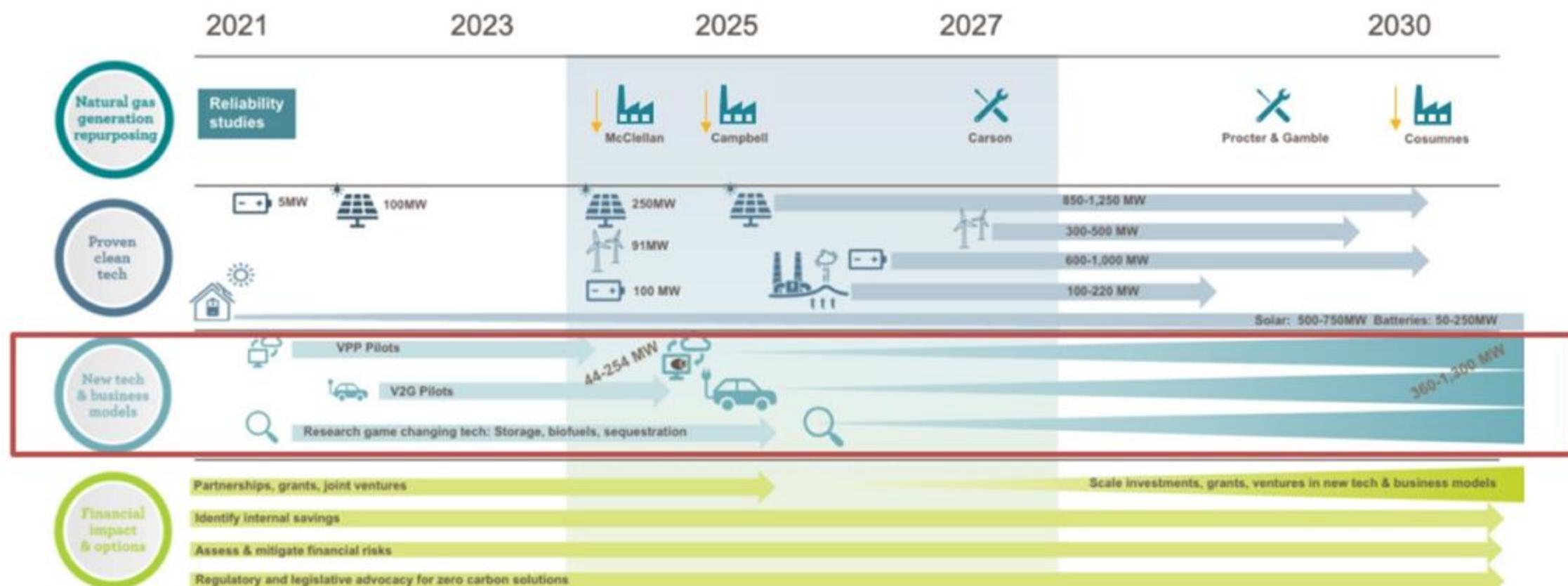
R&D Load Flexibility Supervisor, Principal Electrical Engineer

September 2024

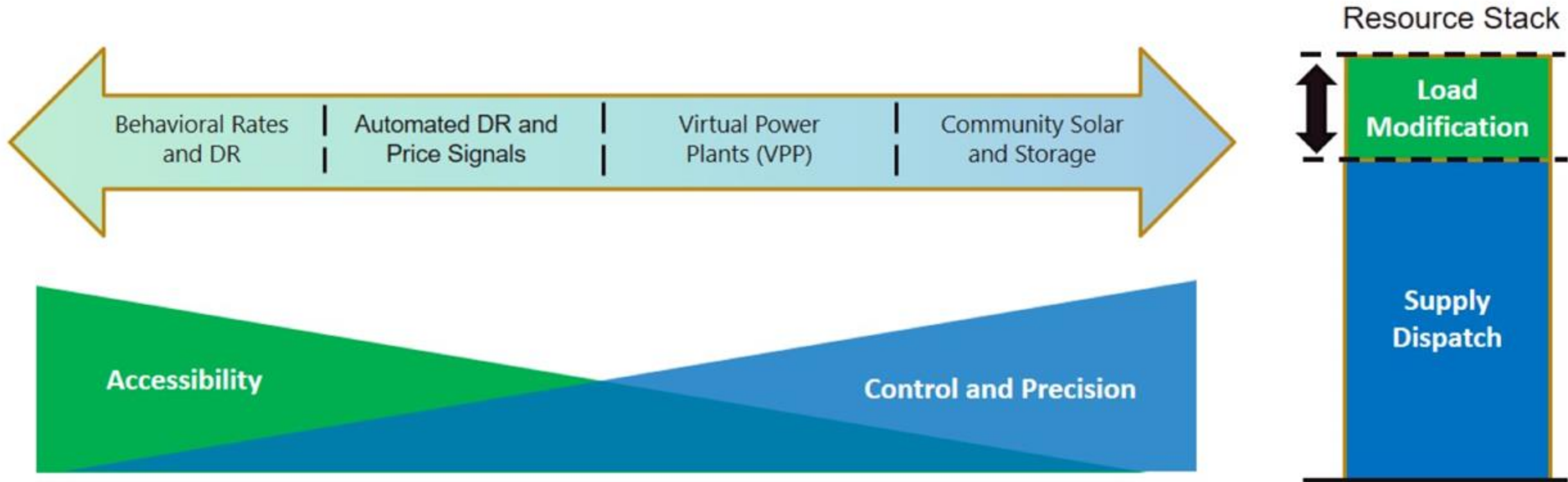




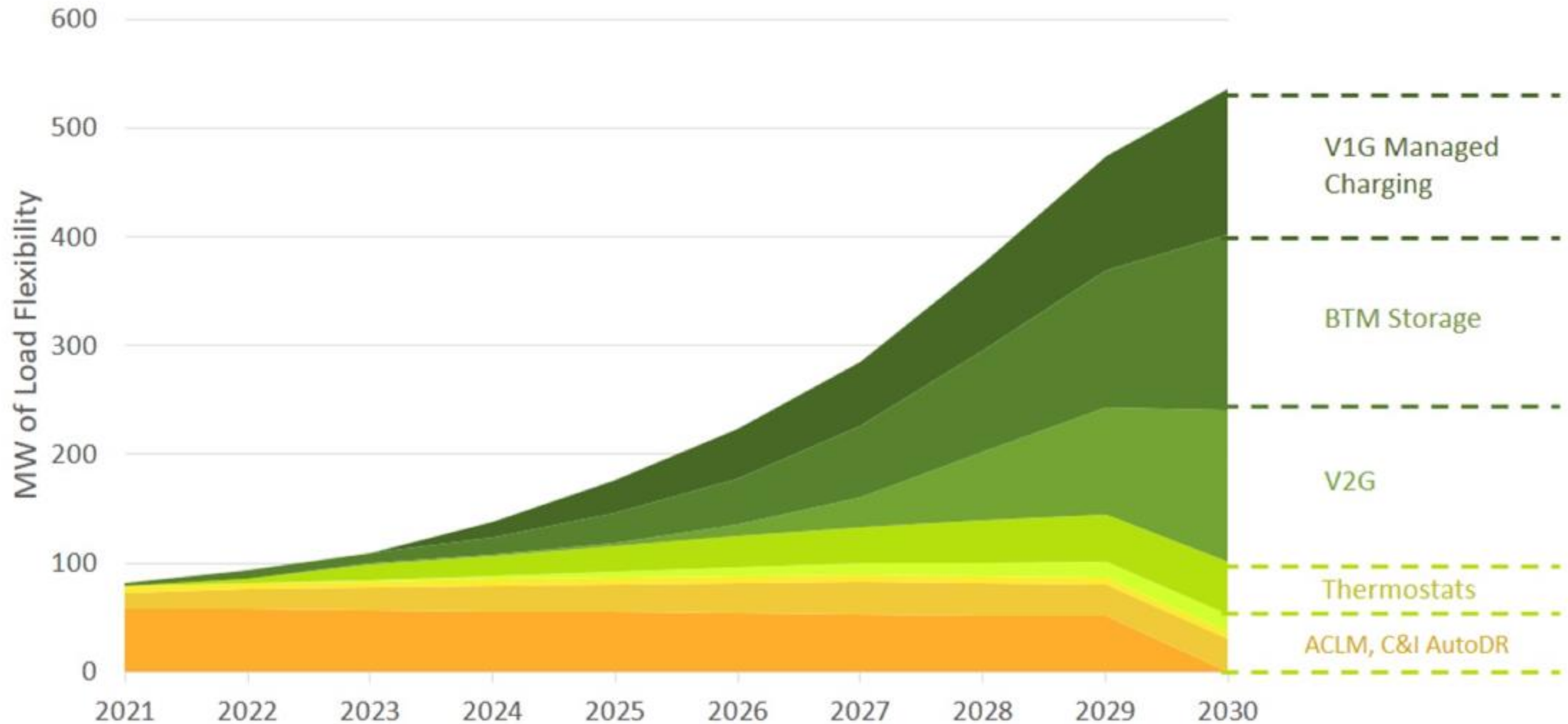
# 2030 Zero Carbon Timeline



# Load Flexibility Spectrum



# Forecasted Load Flexibility to 2030 (MW)



# PANEL DISCUSSION

