

# CALFLEXHUB SYMPOSIUM

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**KEYNOTE SPEAKERS:** Mary Ann Piette, Associate Lab Director, Principal Investigator, Berkeley Lab; Andrew McAllister, Commissioner, California Energy Commission; Ram Narayanamurthy, Deputy Director, Department of Energy; Achintya Madduri, Senior Analyst, CPUC; Beth Reid, CEO, Olivine

# 2023





California Public  
Utilities Commission

# California Demand Flexibility and CalFUSE Proposal for Dynamic Retail Rates

**Achintya Madduri, PhD**

Senior Analyst | Retail Rates | Energy Division | California Public Utilities Commission



# California Electric Rates and Affordability: “A Tale of Two States”

- **Residential Rate Challenge:** Up to 40% of Californians are experiencing a range of affordability issues.
  - Forecasts show rates rapidly outstripping inflation over the next decade.
- **Current rate offerings are not incentivizing behavior that can reduce long-term electric system costs**
- **Silver Linings?**
  - EV sales momentum + greater electrification can lead to lower household energy costs.
  - A statewide **Flexible Unified Signal for Energy (CaFUSE)** aims to reform rates to create more value for all customers.



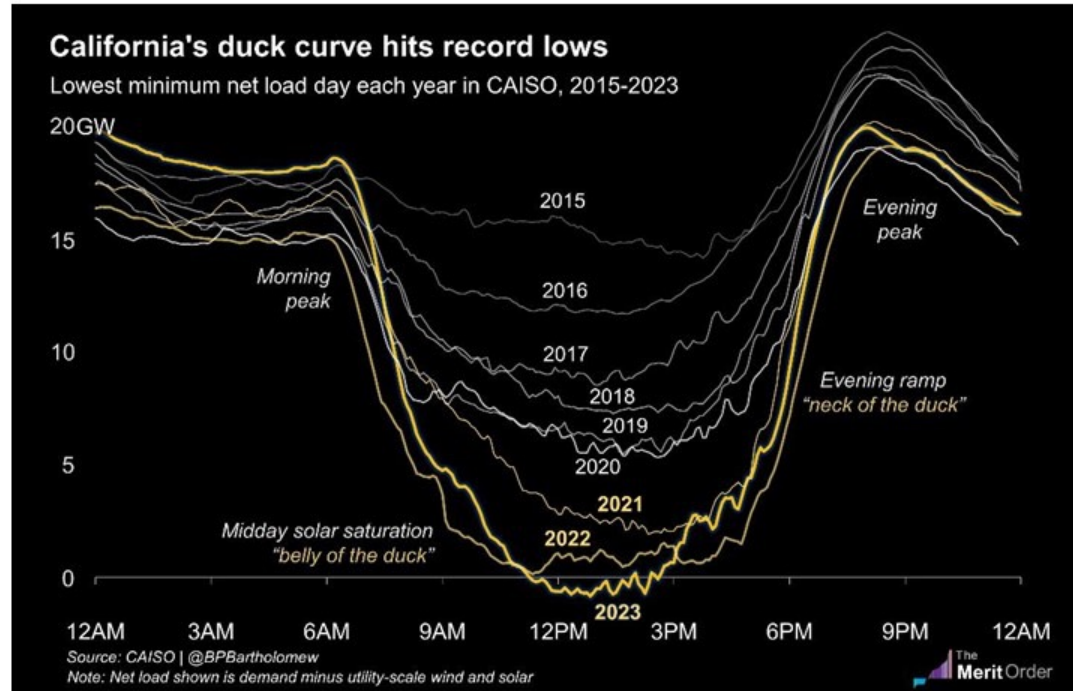
# Curtailment and Evening Ramp Cost Trends Require Greater Precision and Efficiency in Electricity Pricing

## Estimated System Trends by 2030:

- 60% increase in evening ramp
- 1.5x increase in renewables curtailment
- Reliability and stability challenges both drive and are a result of cost-of-service distortions and pricing inefficiency

## Going Forward – CalFUSE as One Tool:

- Demand Response and strategic rate design are cost-effective alternatives.
- *But highly scalable, integrated low-cost deployment strategies are essential*



# ED Staff Vision for Demand Flexibility



...leading to a reduction in peak loads,  
energy prices, and required infrastructure...



PEAK  
LOADS



Lower peak  
load means less  
infrastructure cost..

...and customers  
buy more electricity  
when it is cheaper



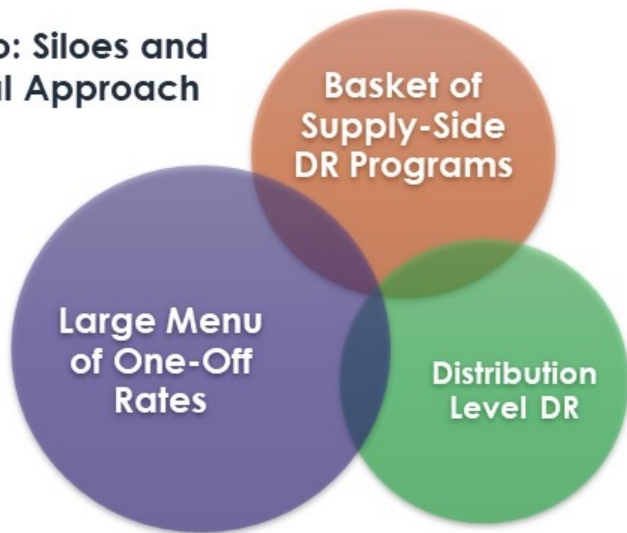
Wholesale  
Electricity Cost



- ➔ Widespread adoption of demand flexibility solutions
- ➔ Reduced peak loads, energy prices, infrastructure needs
- ➔ Reduced cost of service

# Why Dynamic Retail Rates over the Status Quo?

Status Quo: Siloes and Piecemeal Approach



- ➔ Complex, inefficient, expensive, confusing
- ➔ Difficult to scale, limited adoption
- ➔ High cost of controls and automation
- ➔ Experimental one-off tariff and program designs

Innovation: Integration, Automation, Pricing, and DER Compensation



- ➔ Reduced complexity, single point focus
- ➔ Highly scalable, widespread adoption
- ➔ Reduced cost of controls and automation
- ➔ Major technology growth and pricing optimization

# California Energy Commission

## Updated Load Management Standards

- **Requires CA's large IOUs, POU's, and CCAs to:**
  - Develop retail electricity rates that change at least hourly to reflect grid costs and greenhouse gas emissions and are approved by their governing board.
  - Maintain up-to-date rates in a database called the Market Informed Demand Automation Server (MIDAS), which will provide a central repository for all rate information.
  - Educate customers about time-dependent rates and automation technologies to encourage their use.

# Regulatory Timelines for Dynamic Retail Rates in CA

Date	Milestone
<b>Mid 2022</b>	CPUC Energy Division releases demand flexibility white paper with CalFUSE proposal
<b>Mid 2022</b>	CPUC-authorized CalFUSE pilots start (2022-2024)
<b>Mid 2022</b>	CPUC launches Demand Flexibility Rulemaking (R.22-07-005)
<b>Late 2022</b>	CEC adopts updated Load Management Standards (LMS)
<b>Late 2023</b>	CPUC proposed decision regarding expansion of CalFUSE pilots
<b>Early 2024</b>	CPUC proposed decision (expected) regarding rate design guidance and systems/process for dynamic rates
<b>2030</b>	CEC's adopted CA load shift goal – 7,000 MW





# 3<sup>rd</sup> Party Roles in Load Flexibility Tariffs Opportunities and Challenges

Beth Reid, CEO | Date: November 3, 2023

*Keynote Panel Presentation | From California to the Capitol: Unlocking Load Flexibility Nationwide*

# Role of 3<sup>rd</sup> Parties in the Flexible Load Transition Process

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- Flexible load programs transitioning from supply-side DR to behind-the-meter price response
  - Auto-DR to Auto-PR
- 3<sup>rd</sup> parties will need to transition from role of “revenue-based aggregators” to “bill savings-based service providers” in this emerging program space
- Requires new business models and service delivery methods for 3<sup>rd</sup> parties
- Policy makers across the nation will have to navigate competing issues of equity and equal access, fairness, bill caps, 3<sup>rd</sup> party roles, consumer protection and a host of others

## Challenges

# Challenges for 3<sup>rd</sup> Parties in the Flexible Load Transition Process

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- Addressing costs to transition
- Competition and differing priorities among ASPs, aggregators, and OEMS
  - Gaining equitable access to control devices
  - Balancing customer bill savings, 3<sup>rd</sup> party operating costs, and OEM API and device fees while maintaining a financially viable business model
- Ensuring customer choice
  - when and how devices and loads are managed - and by whom
- Educating all customers on how to achieve bill savings with dynamic rates
- Providing equitable and cost-effective access for customers located in DACS and/or LI customers

## Opportunities

# Opportunities for 3<sup>rd</sup> Parties in the Flexible Load Transition Process

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- Providing expertise in managing customer devices and loads
  - 3<sup>rd</sup> parties are historically better at managing customer loads than OEMs
- Optimizing customer loads for rates, DR and emergency reliability needs
  - Ability to capture value streams from multiple sources
- Managing customer loads with multiple devices
  - Smart T-stats, batteries, EVs and chargers, HPWHs etc.
- The need for all stakeholders to work together to ensure equal access for customers and equal opportunity for 3<sup>rd</sup> parties to access data, devices, and incentives.

# Demonstration of 3<sup>rd</sup> Party Role in CalFlexHub Demo Projects

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- Olivine is managing several field demonstration projects to test and highlight the benefits of:
  - Providing dynamic price and GHG signals, optimizing signals for cost-effective load flexibility, dispatching functional load control signals, and reporting on results
  - Working with OEMs to control the “last mile” to devices directly
  - Controlling more than one device in a facility
  - Capturing multiple value streams (dynamic rates, CO2 reduction, demand response, and emergency reliability through ELRP/DSGS)
  - Aggregating residential customers located in DACs and/or LI customers
- Olivine is taking lessons learned to:
  - Improve customer experience and reliability of load flexibility in the future
  - Inform new baseline methodologies for improving the accuracy of reported bill savings



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THANK YOU!