IEPR Commissioner Workshop on California's Progress Toward the Load-Shift Goal

2025 Integrated Energy Policy Report

June 25, 2025
California Energy Commission

IEPR Commissioner Workshop on California's Progress Toward the Load-Shift Goal

Introduction

- Remote workshop
- Recording will be posted
- Public comments
    - End of workshop
    - Written comments by 5pm on July 9, 2025

IEPR Commissioner Workshop on California's Progress Toward the Load-Shift Goal

Opening Remarks

- Siva Gunda, Vice Chair, CEC
- J. Andrew McAllister, Commissioner, CEC
- Darcie Houck, Commissioner, CPUC
- Anna McKenna, Vice President, Market Design and Analysis, CAISO
- Rachel Gold, Supervisor, Program Development Section, Climate Change Program Evaluation Branch, CARB

IEPR Commissioner Workshop on California's Progress Toward the Load-Shift Goal

Statewide Load-Shift Goal Overview

- Liz Gill, CEC

SB 846 Load Flex Update

Liz Gill, Program Manager, Reliability Analysis Branch June 25, 2025

SB 846 Load Flex Requirements

Adopt a **goal for load shifting** to reduce net peak electrical demand and shall adjust this target in each IEPR.

Recommend **policies to increase demand response and load shifting** that do not increase greenhouse gas emissions or increase electric rates.

PRC 25302.7

Why is Demand Flexibility needed?

Decarbonization is driving electrification.

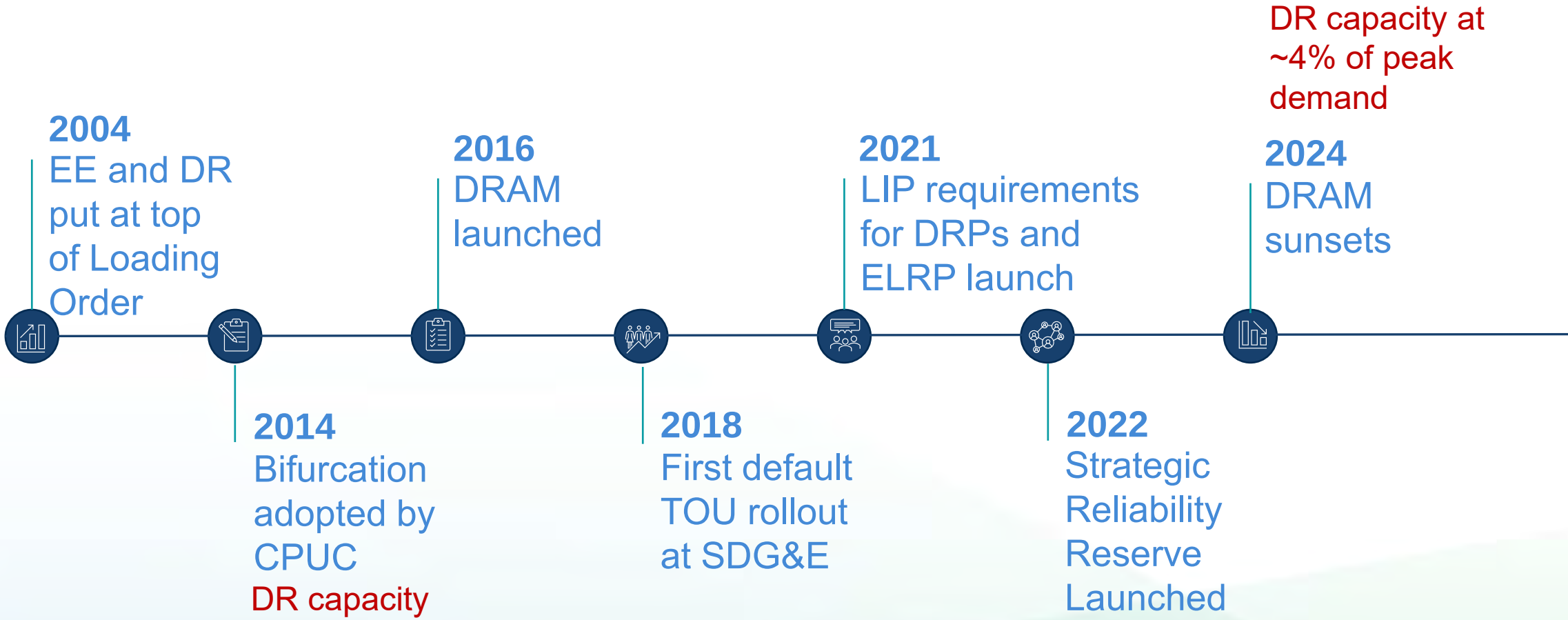
↓

Electrification is driving demand growth.

↓

Demand flexibility can help manage this growth and reduce costs.

California Demand Response Evolution (2004–2025)



CA's Demand Flex Resource Stack and SB 846 2030 Goal

Category	Intervention	Demand Flex Form	Dispatch	2030 Goal	Tools
Load Modifying	• TOU Rates • Dynamic Pricing • LM Programs	Shape	Out-of-market	3,000 MW	• Load Management Standards; • Rates (TOU and CalFUSE); • Infrastructure (MIDAS, AMI, and Data Access Platform); • Codes and Standards (FDAS, Interoperability, and Cybersecurity); • Programs (PDR, RDRR, ELRP, DSGS, and DEBA) • Technologies (VGI, VPP, Energy Storage, Smart Appliances, Smart Panels, and EMS)
Resource Planning and Procurement	• Economic Supply-side DR • Reliability Supply-Side DR • POU DR Programs (Non-ISO)	Shift/Shed	Market Integrated	4,000 MW	
Incremental and Emergency (I&E)	• I&E Programs • Emergency Back-Up Generators*	Shift/Shed	Out-of-market		

2025 IEPR Report Objectives

- Progress and updates on load flex in California
- Stakeholder feedback on strategies

Thank You!

IEPR Commissioner Workshop on California's Progress Toward the Load-Shift Goal

CEC Staff Presentation on Load Flexibility Analysis

- Kadir Bedir, CEC
- Tom Flynn, CEC

California's Progress Toward the 7GW Goal

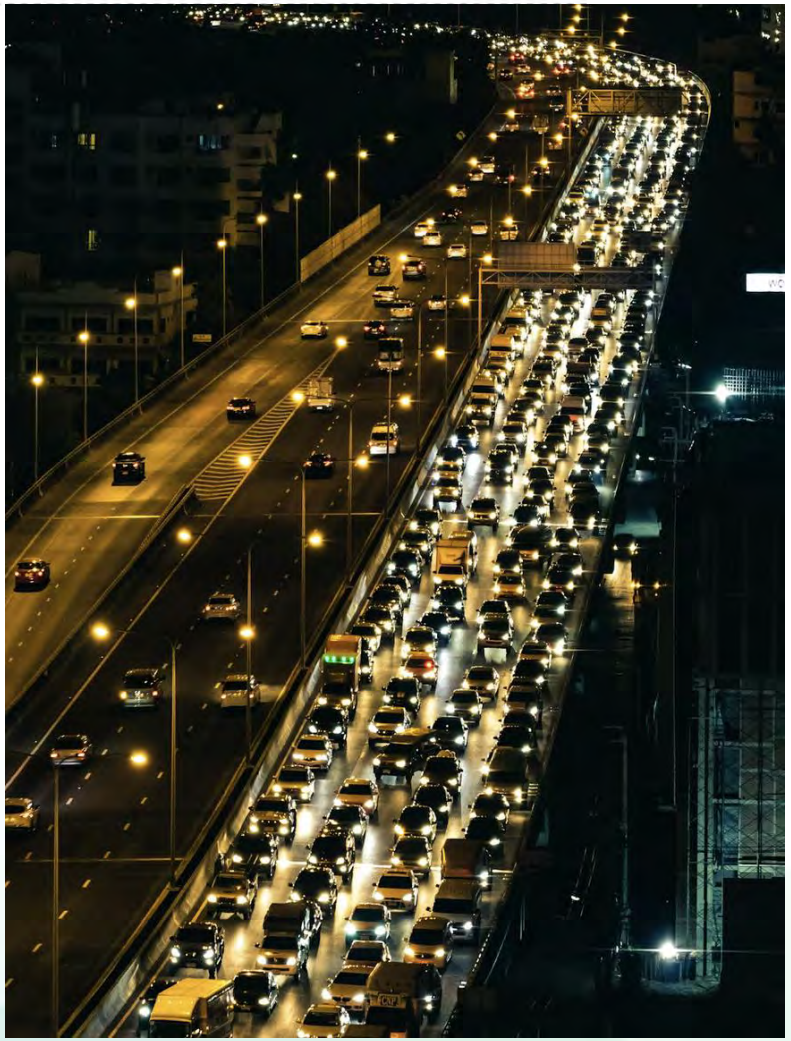
Kadir Bedir, Distributed Energy Resource Unit Supervisor

June 25, 2025

Load Flexibility Definition:

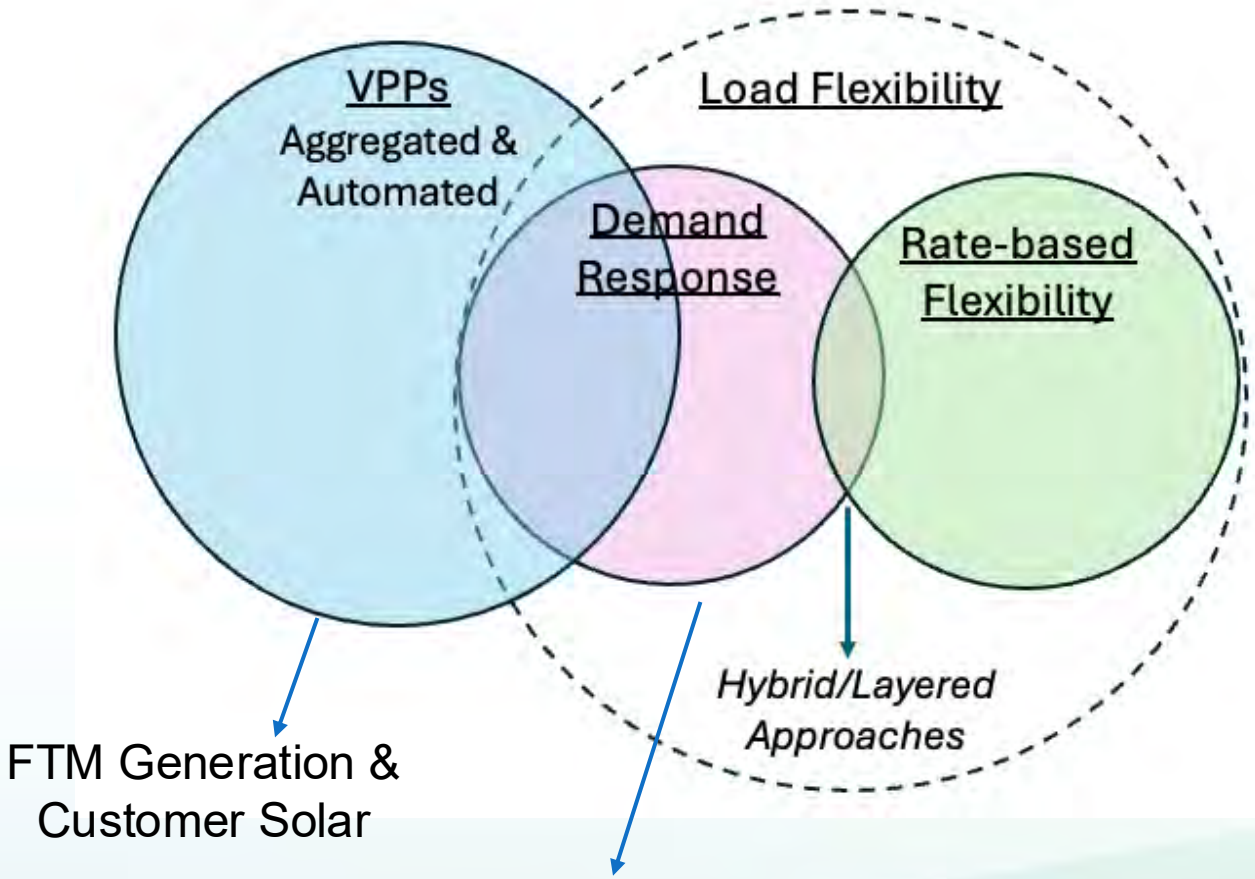
CEC's SB 846 Report (2023) Definition:

"Load flexibility is the capability to shift or shed electric load or demand away from times when electricity is expensive, polluting, and scarce to times when it is inexpensive, clean, and plentiful."



Load Flexibility and VPP Overlap

Key characteristics of load flexibility strategies



DR: Demand Response
FTM: Front-of-the-meter
VPP: Virtual Power Plant

Source: California Energy Commission

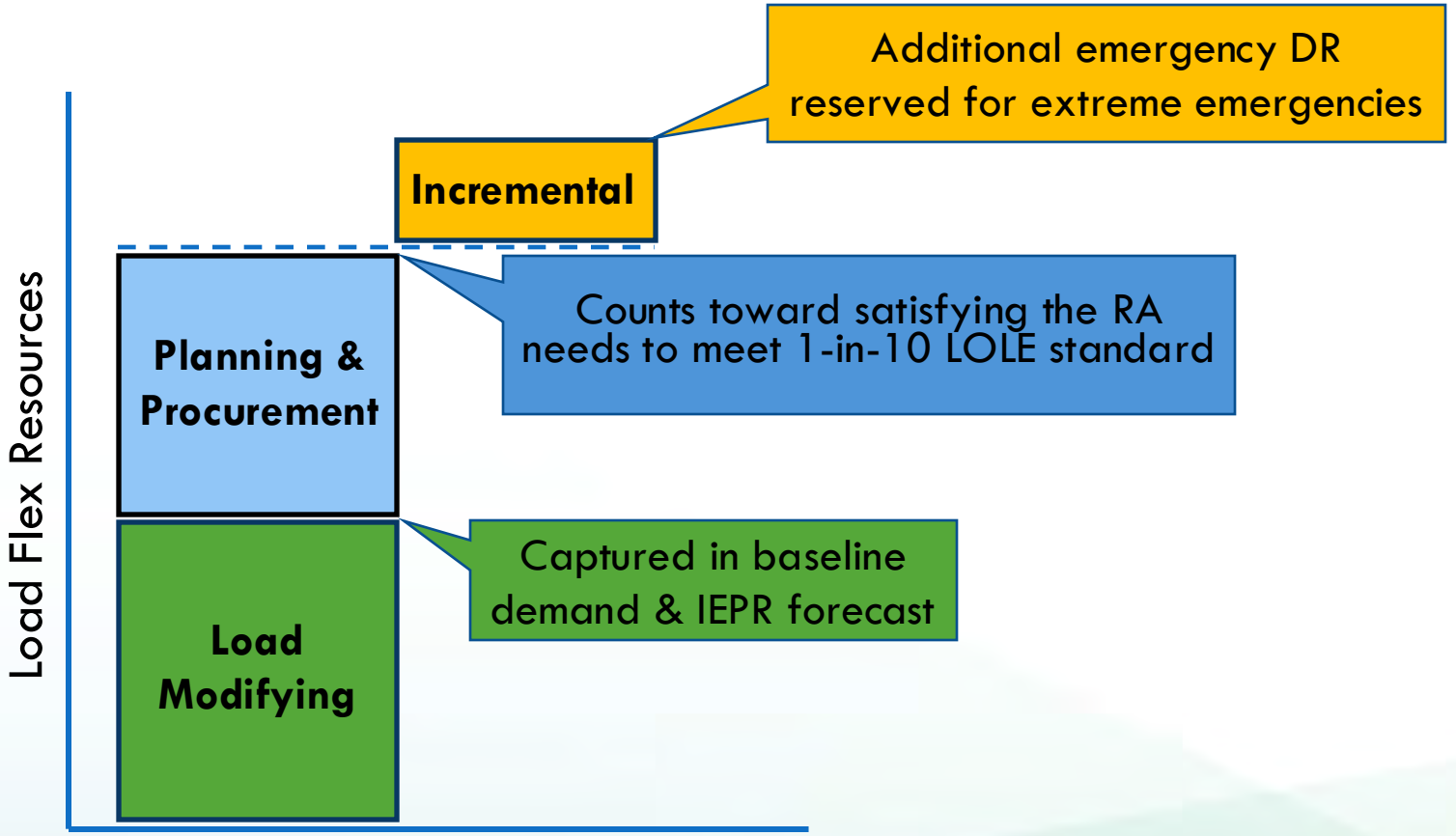
Defining “net-peak”

The SB 846 requirement for load-shifting goal to reduce the “net-peak” can be applied at multiple levels and different weather conditions:

- Distribution circuit-level
- Transmission-level (at each node)
- Utility-level (monthly or annual)
- CAISO-level system net-peak
- Statewide demand net-peak

**CEC’s 2023 D-FLEX modeling considered the CAISO net-peak and average (1-in-2) weather year in the reference scenario.*

CA Load Flexibility Resource Stack



Source: California Energy Commission

RA: Resource Adequacy
LOLE: Loss of Load Expectation

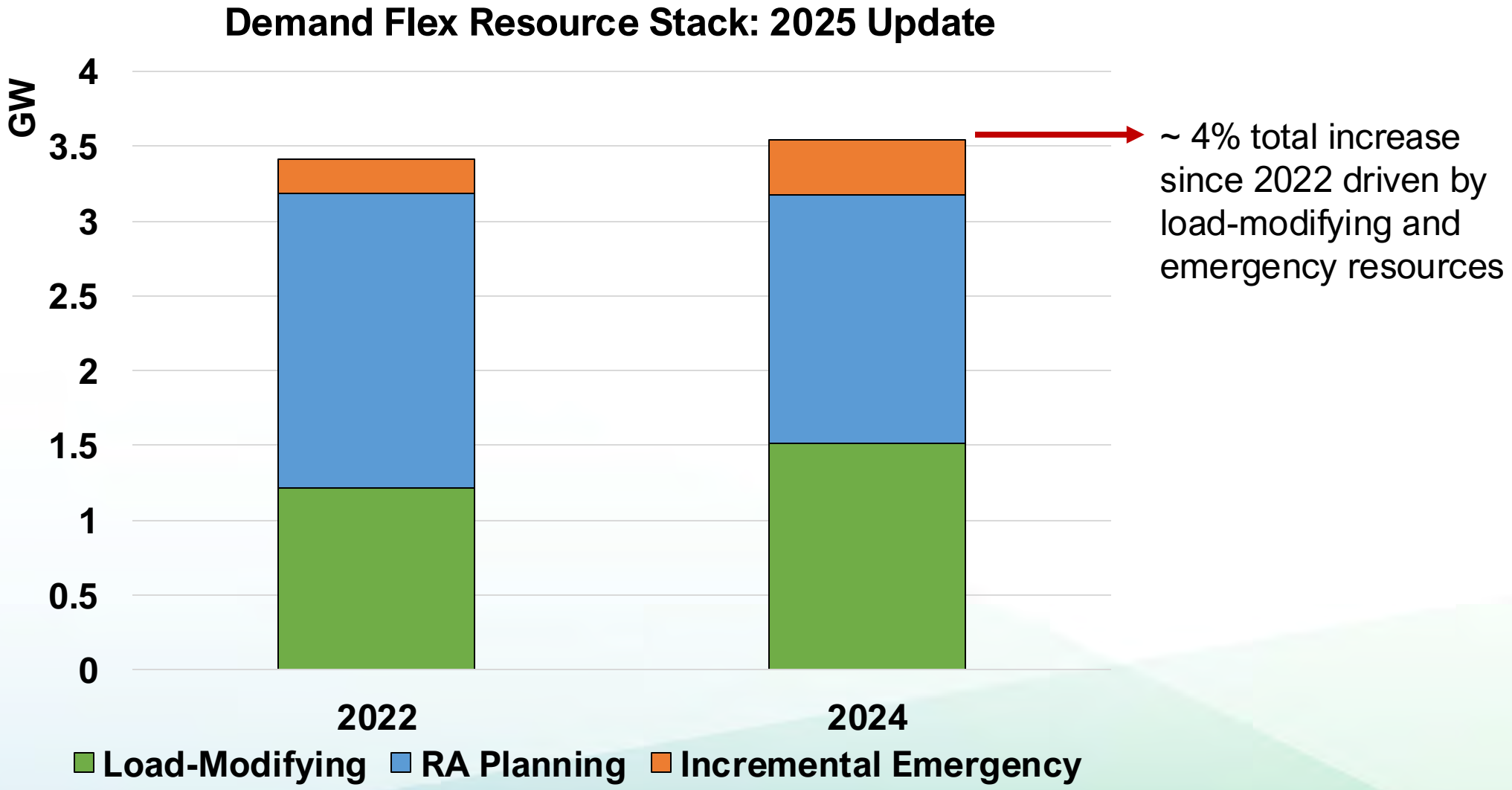
Drawing on multiple resources to assess value

1. IOU Load Impact Protocol (LIP) reports
2. IOU DR Net Qualifying Capacity reports
3. CAISO DR Performance reports
4. 2023 IEPR DER forecast
5. 2025 IEPR Demand Forms
6. POU Integrated Resource Plans
7. DSGS test event results and program enrollment records

Need a more consistent way to uniformly measure statewide load flexibility

IOU: Investor-Owned Utility
POU: Publicly-Owned Utility
CCA: Community Choice Aggregator
DSGS: Demand Side Grid Support

2024 Resource Estimate is ~ 3.5 GW



Source: California Energy Commission

2024 Estimates – Key Assumptions

(1) The load impact estimate of 1 GW for time-of-use (TOU) rates from the SB 846 (2023) report is considered as the baseline for 2022.

(2) 2023 IEPR's incremental customer battery resource estimate is scaled to reflect the entire battery population for 2024.

(3) Potential overlap between EV-TOU rate impacts and the tariff-based customer battery impacts is ignored.

2022-2024 Estimates (Breakdown)

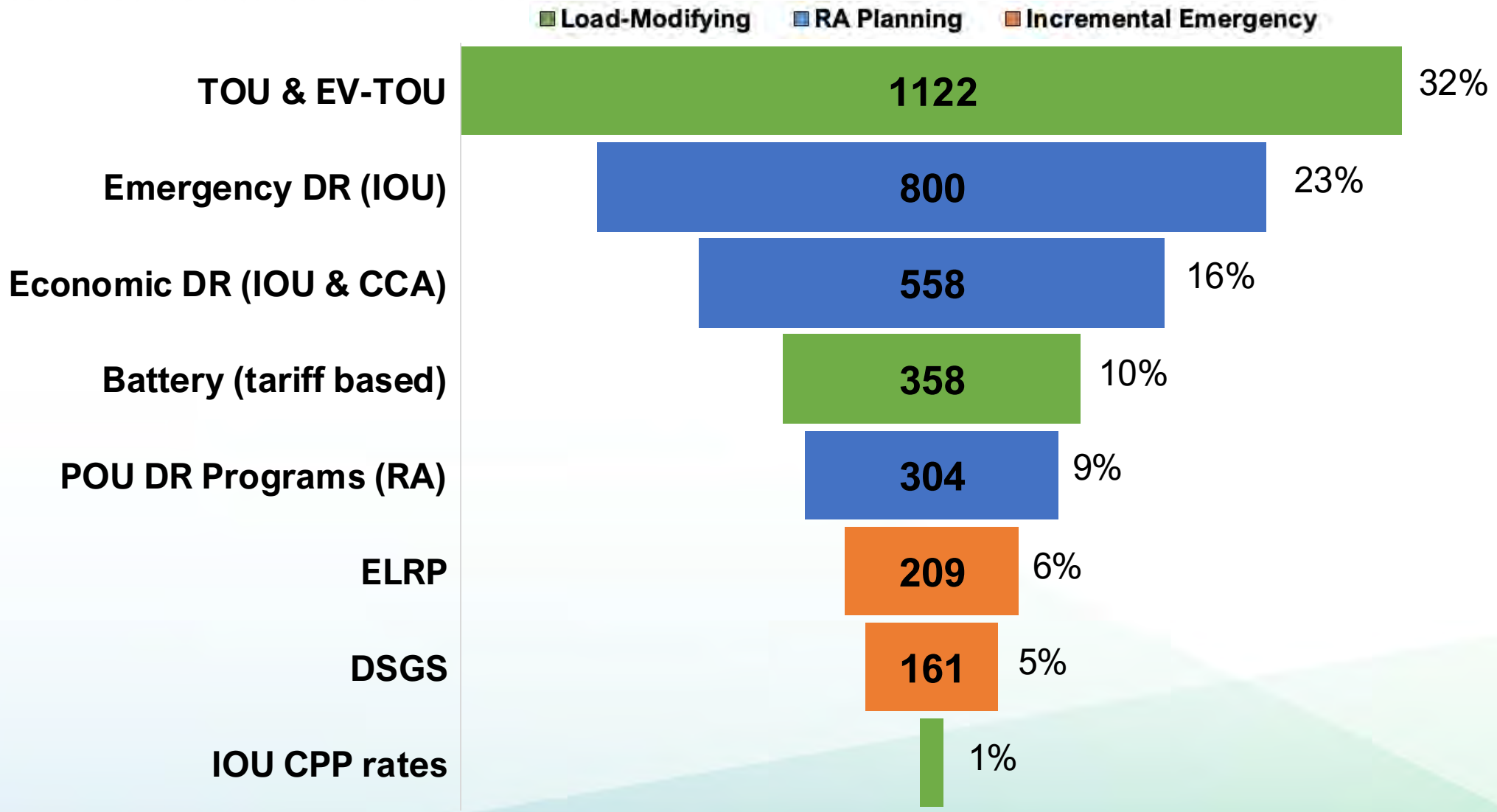
Load-Modifying	2022	2023	2024
Time of use (TOU) & EV-TOU rate impacts	1000	1078	1122
Customer storage (non-event based)	173	266	358
IOU Critical Peak Pricing (CPP) impacts	30	21	31
CCA customer programs	7	3	3
RA Planning			
Emergency DR (IOUs)	740	750	800
Economic DR (IOUs & CCA)	1014	906	558
POU DR Programs	210	233	304
Incremental Emergency			
ELRP	190	190	209
DSGS*	46	46	161
GRAND TOTAL	**3410**	**3493**	**3546**

**The DSGS estimates are based on a preliminary CEC staff analysis and are subject to change.*

Source: California Energy Commission

Efforts such as FlexAlert and Department of Water Resources pumping load curtailments can provide additional load flex under stressed system conditions

2024 Load Flex Resource Mix Ranked (in MW)



Source: California Energy Commission

Key Takeaways: The Progress

Overall, load-shifting resources have increased by about 4 percent between 2022 and 2024:

- Non-RA DR (Load-Modifying and Incremental Emergency) has increased about 32 percent (or 438 MW),
  - ➢ Growth is largely driven by EVs, batteries, and the DSGS contributions.
- CAISO-integrated DR portfolio has decreased by about 23 percent (or 302 MW).
  - ➢ DRAM program sunset might have been a contributing factor.

2030 Projections – Key Assumptions

(1) IOUs' market-integrated DR portfolio is assumed to stay flat based on IOU projections.

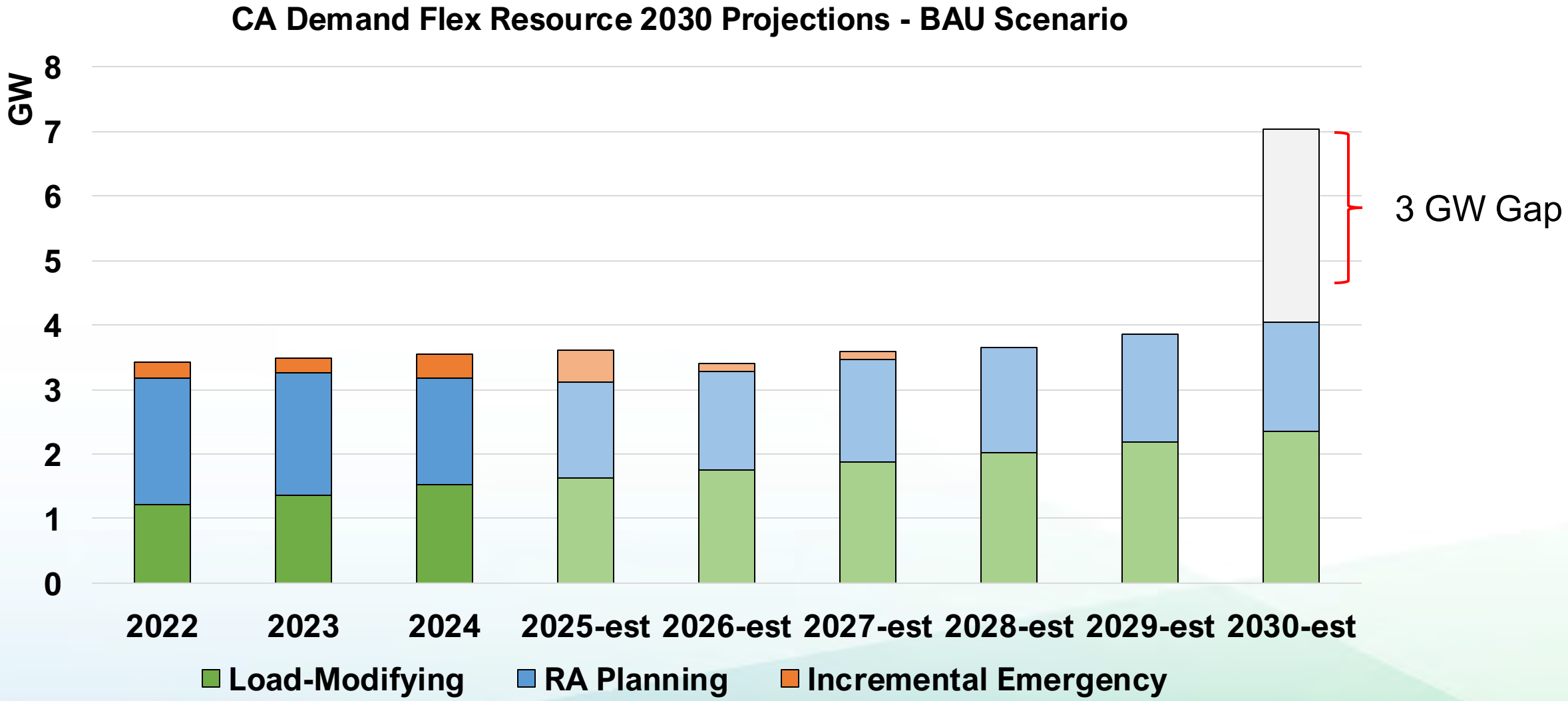
(2) IOU's 2024 DR NQC reports provide estimates through 2026. The load impacts from EV-TOU rates are assumed to grow linearly through 2030.

(3) No extensions for ELRP and DSGS beyond current program end dates.

- Reflects the Governor's proposed budget for FY25/26 for DSGS

NQC: Net Qualifying Capacity

2025-2030 Projections: Business-As-Usual (BAU) Conditions



Source: California Energy Commission

Key Takeaways

2030 Projections:

- CA may not reach the 7 GW target under BAU market conditions.
- CA needs additional near-term strategies to reach the 7 GW target by 2030.

The Unknowns:

- V2X and data center potential impacts are largely unknown
- New IOU efforts, such as hourly dynamic rates, may improve the outlook.
- Changes in state and federal electrification incentives will likely impact the 2030 projections.

V2X: Vehicle-to-Everything

Emerging Policy/Planning Questions

1. What should be California's strategy for doubling Load Modifying resources over the next 5 years?
2. Should the progress tracking effort for the 7 GW target be inclusive of the FlexAlert or CalOES text alert impacts?
3. What is California's long-term plan for Incremental & Emergency resources?

CalOES: Governor's Office of Emergency Services

Next steps:

1. 2025 IEPR report to analyze the load flexibility growth and stakeholder outreach results.

2. Updated D-FLEX tool modeling results in 2026:
   - Incorporates the 2025 IEPR forecast results
   - Informs the 2027 IEPR load-shift goal setting process.

3. Big data insights related to existing DER utilizations to inform modeling assumptions and future goal-setting efforts:
   - Informed by CEC's smart meter data repository
   - Will be shared under CEC's informational DER proceeding.

Thank You!

Kadir.Bedir@energy.ca.gov

California Energy Commission

Title: California Demand Flexibility Summit and Stakeholder Outreach Results

Presenter: Tom Flynn

Date: June 25, 2025

Stakeholder Input

Critical for understanding:

- Barriers to achieving California's load shift goal of 7 GW by 2030
- Solutions and strategies

CEC Stakeholder Survey

Demand Flexibility Summit

CEC Stakeholder Survey

Purpose: Get stakeholder input on barriers, solutions and strategies to achieving California's load shift goal of 7 GW by 2030.

Stakeholder Process

- Surveyed 39 stakeholders
  - Aggregators, technology providers
  - LSEs, utilities
  - Consultants, research groups
  - Industry associations, consumer advocacy groups
- Received 27 responses

Survey Topics

1. Policy barriers impacting the full utilization of load flexibility
2. Alternative market or regulatory models and approaches
3. Emerging trends in California's market
4. Other conceptual ideas to scale load flexibility

Demand Flexibility Summit

Objective:

Discuss the progress & challenges to achieving California's load shift goal of 7 GW by 2030

Participation:

- Policy makers (Legislators and State agency representatives)
- Broad spectrum of stakeholders

https://energy.ucdavis.edu/2025-california-demand-flexibility-summit/

Topics:

- Fireside: Unlocking CA's demand flexibility potential
- Keynote: Powering the future
- Plenary 1: Existing programs & incentives
- Plenary 2: Demand-side load flexibility
- Plenary 3: Scaling demand flex
- Plenary 4: Adopting demand flex innovations

Stakeholder Insights: Market Barriers

1. Frequent program changes result in market uncertainty
2. Program requirements can limit flexibility (e.g., dispatch duration, baselines, dual participation, DER exports, telemetry)
3. Lack of standards (e.g., communications, interoperability issues)

Market Barriers (continued)

4. Data access
5. Costly interconnection process for V2X
6. Ensuring affordability, equity, and seamless customer engagement

Stakeholder Insights: Solutions & Strategies

1. Streamlined and modernized wholesale market process, including 3rd party DR
2. California load-shift goal roadmap
3. Centralized data repository

Solutions & Strategies (cont.)

4. Unified and simplified utility programs
5. Promote distribution-optimized load flexibility
6. Simplify and incentivize V2X interconnection

Stakeholder insights: Models outside California

- New York State Public Service Commission's "Value Stack" framework for compensating DERs
- Texas' "Smart Meter Texas" framework for an independent statewide data access platform
- Massachusetts' ConnectedSolutions provides a single umbrella brand across DER classes with end-to-end marketing from the IOU down to the DER provider.

Summary Observation

Demand flexibility must be

- ✓ Reliable
- ✓ Predictable, and
- ✓ Integrated into the core of our energy planning and operations

Thank You!

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Alternative Load Flexibility Implementations

Moderated by David Erne, CEC

- Alex Ghanem, Piclo
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piclo®

The world's leading independent grid flexibility marketplace

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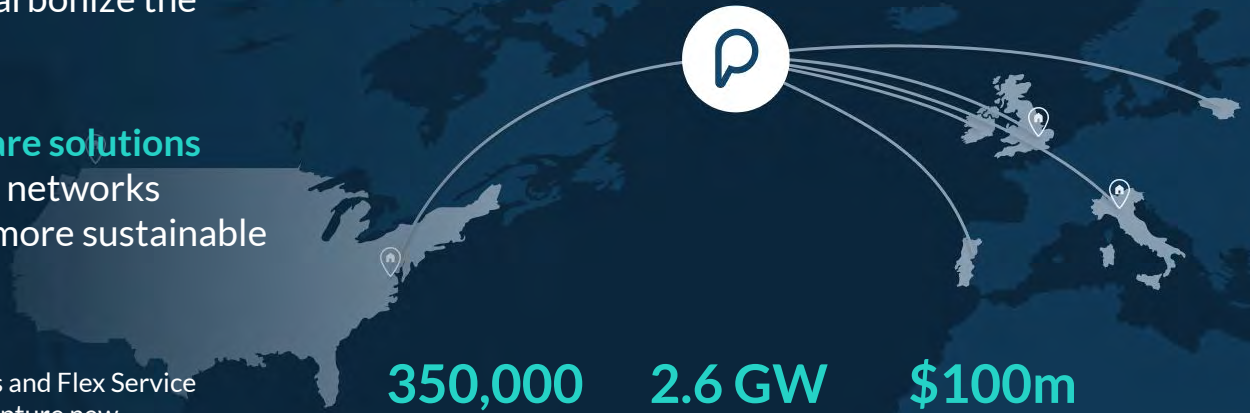
About Piclo

Our mission is to decarbonize the world's grids

Piclo develops **software solutions** that make our energy networks smarter, flexible and more sustainable



- Enable DER Providers and Flex Service Providers (FSPs) to capture new revenue opportunities
- Enable Utilities, Retailers, and Grid Operators to procure flexibility at scale
- Provide independent insight to help shape the future of flexibility

350,000
Flexible assets registered

2.6 GW
Flexible capacity procured

$100m
Of flexibility contracts awarded

26 GW
Flexible capacity registered

6
Countries live

11
Active grid operators

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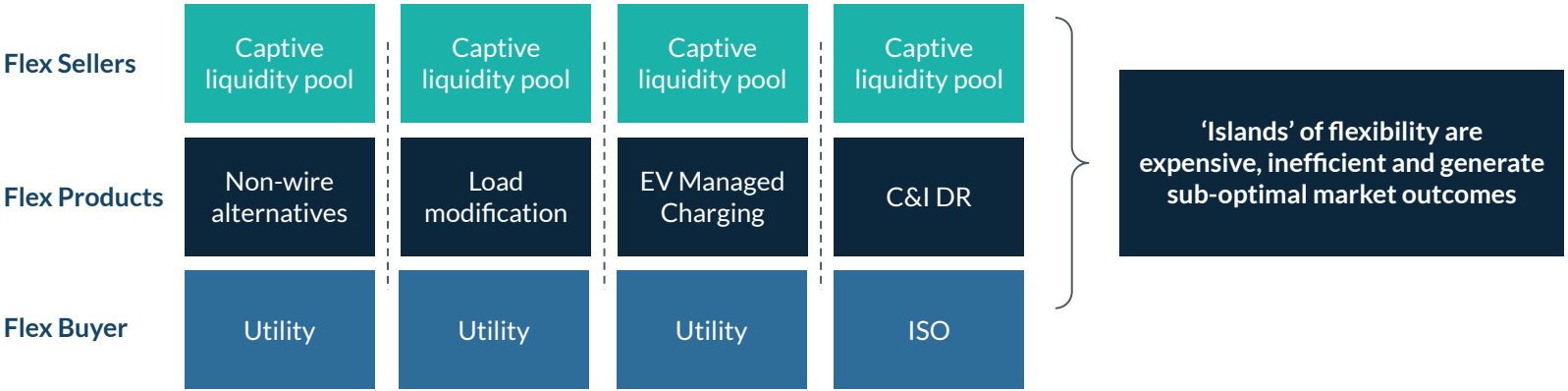
Today - flexibility procurement is broken



💡 *The complexity of Utility programs and difficulty in monetizing the full value of grid flexibility is a top five barrier for scaling up grid flexibility.*

Brattle, Jan 2025

Source: New York's Grid Flexibility Potential, Brattle

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Piclo: An independent marketplace to source DER grid flexibility

Utilities and Grid Operators

They seek flexibility to **reliably** and **efficiently** manage their grids

They leverage Piclo to **procure** capacity/energy flexibility from qualified DER providers

DER Marketplace

Marketplace efficiently and cost-effectively matches energy **buyers** and **sellers**

We advertise to and recruit DER providers to **participate** and offer their flexibility

piclo®

DER Providers / Flex Service Providers (FSPs)

Providers manage fleets of devices and resources to **maximize** their portfolio

They bid to **win opportunities**, enroll customers, respond to operational signals, and get paid

*DER Providers above do not necessarily have an account with Piclo; information is representative, not actual data

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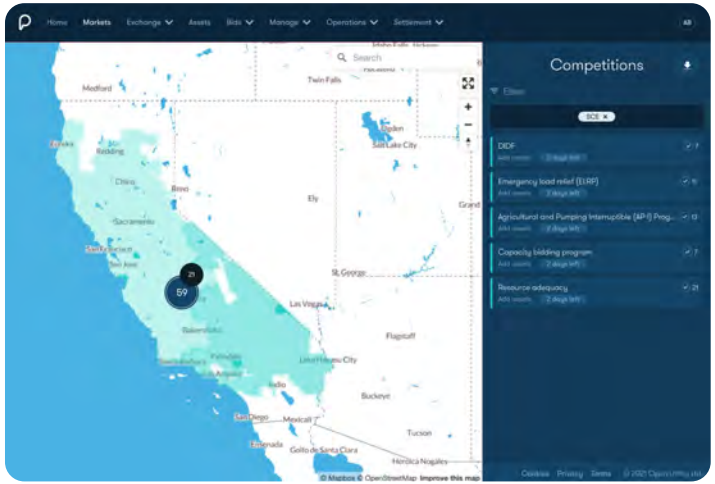
California Marketplace for Load Modifying Resources

- Piclo's marketplace launched in California in February 2025 to offer a range of products that enable load serving entities (LSEs) to secure flexible resources, directly supporting Resource Adequacy (RA) requirements by reducing peak load in 2026 and beyond
- The platform has streamlined the procurement process for CCAs in particular, enabling them to secure load-modifying resources well in advance of key deadlines
- Piclo has partnered with several major DER and VPP providers to offer 70+ MW of capacity across the state

sunrun leap NUVVE



A portion of assets available on the California Marketplace

"We're excited to partner with Piclo to bring new opportunities for grid flexibility to California. By listing our load-modifying capacity on Piclo's innovative platform, we're empowering utilities and CCAs to access the resources they need to meet their Resource Adequacy requirements while unlocking additional value for Sunrun and our customers."

– Chris Rauscher, Head of Grid Services and VPPs, Sunrun

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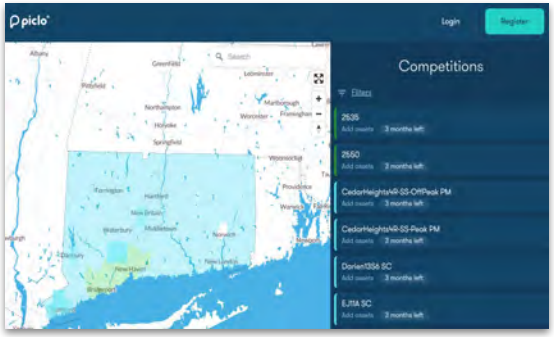
New England's first DER grid flexibility marketplace

EVERSOURCE Avangrid

- Piclo launched the first DER marketplace in New England with Eversource and United Illuminating (part of Avangrid) in Connecticut in early 2024
- Both utilities requested **over 70 MW** of flexibility across CT
- Piclo played a key role in defining the market design, eligibility, use cases, incentive structure, contracting, and provider engagement strategy
- **Coordinated across DER and DR program managers** to ensure communication with customers and flexibility partners (e.g., EV charging providers, C&I aggregators), and **coordination with other program activities**



Eversource and UI territories on the Piclo marketplace

Market Milestones

- **April '24** – Marketplace launched in CT
- **July - Sep '24** – Provider qualification period
- **Oct - Nov '24** – Bidding and contracting period
- **Dec '24 - Feb '25** – Winter dispatch season
- **Feb - Mar '25 -** Spring qualification, bidding, contracting
- **Apr - May '25** – Spring dispatch season

Key Outcomes

- **67 DER Providers** registered on the platform
- **70+ MW of flexibility requests** published from the utilities on the marketplace
- **>8k assets** and **67 MW** uploaded to platform
- **6 unique DER providers actively bidding and dispatching**

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Ongoing DER Market Deployment

nationalgrid

Scope of the Market

- Augment participation in existing programs = Term-DLM (DR), Auto-DLM (locational flex, storage), and NWAs - by bringing more awareness, attention, and knowledge to providers
- Tied to grid modernization proceedings in NY (Grid of the Future) and MA (ESMP)
- Streamline participation in grid services in a cost-effective way for both sides of the market
- Use cases include non-wires alternatives, constraint management, system peak shaving, and traditional demand response

Lessons Learned So Far

- Significant interest from DER/VPP providers and developers to a) support locational constraints and b) value stack LSE programs and ISO markets - but stakeholder coordination is lacking between them, the ISO, LSEs, PUC, et al. which creates FUD
- Establish regulatory framework and market rules that incentivize LSEs to pursue grid services from DERs **at scale (no more pilots)**, and create new opportunities for DERs/VPPs that make economic sense for them to invest long-term
- There are Dx constraints everywhere today, but we need to have started yesterday to fill them - start now to solve constraints 6-36 months from now
- Gather feedback from potential market participants of all sizes and technologies - not just the biggest players

Robust metrics of success and traction

★ New developers and providers participating in National Grid's DR, NWA, and storage programs
★ 2-5x increase in participation, and surpassed the MWs needed
★ 100+ registered DER providers across the US

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NY State VDER Tariff

Simplified & Innovative Load Flexibility Implementations

Luke Forster, Sr. Business Analyst

CA Load Flex Workshop

June 25, 2025

NEW YORK STATE OF OPPORTUNITY | NYSERDA

Overview

- New York State Energy Research and Development Authority (NYSERDA) is the state's renewable energy development agency, supporting Department of Public Service / PSC with analysis and program design and implementation
- In 2017, the Value of Distributed Energy Resources (VDER) tariff replaced net metering for most commercial/community-scale resources (solar, storage, wind, etc up to 5MWac).
- VDER provides time and location-specific price signals to project developers, encouraging project development to match grid demands

Elements of Value Stack

The "Value Stack" provides time- and location-specific compensation, based on

- **Energy:** The zonal day-ahead hourly NYISO auction price per MWh
- **Capacity**, as set by NYISO regional auction price. Represents a project's success in reducing annual statewide peak energy demand
- **Demand Reduction Value (DRV):** Deferred cost of distribution grid upgrades. Based on utility-specific Marginal Cost of Service Studies. Paid passed on a project's performance during a pre-set peaking window (~300 hours of summer evenings)
- **Location-Specific Relief Value (LSRV):** Locational adder on utility-selected congested substations. Projects paid for performance during call events
- **Environmental value:** Administratively-set price for the project's green attributes (REC). Calculated by NY Department of Public Service using a Social Cost of Carbon calculation. ~$31/MWh regardless of time of generation

Lessons Learned

It works!

- **~3.4 GWdc of distributed solar operational under VDER tariff, ~3 GW more at mature stage of development. Several GW of distributed energy storage are under development**

Need to balance precision with workability

- **Utilities and grid operators value precise price signals. Project developers and their financiers need a reasonable degree of revenue certainty.**
- **Compromise – energy and capacity values are fully merchant values, but the environmental value is locked in for 25 years to provide some revenue certainty. The demand reduction value price is locked for 10 years, but paid according to actual project generation.**

Developers are designing to the tariff

- **Shifting solar generation to evening hours with single-axis trackers and battery storage.**
- **Prioritizing development in congested, higher-value (downstate) regions**

Lessons Learned

Tariff certainty is crucial

- **Distributed PV and storage projects have a 3-6 year development cycle**
- **VDER is an open-enrollment tariff. No annual MW caps or concerns about eligibility**
- **VDER is revenue-neutral. Incentives have been de-coupled from VDER tariff, and are administered separately by NYSERDA's NY-Sun program**

Developer education and training are crucial

- **Webinars, ongoing support for questions**
- **Value Stack Calculator provides industry-standard baseline for revenue modeling**

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Hourly Rates in Illinois

Elevate for California Energy Commission

June 25, 2025

ELEVATE

Elevate's Mission

Elevate seeks to create a just and equitable world in which everyone has clean and affordable heat, cooling, power, and water in their homes and communities — prioritizing frontline communities.
Our programs, policy agenda, and partners reflect this commitment.

History of Dynamic Pricing in Illinois

Energy Smart Pricing Plan *(2003 – 2006)*

- 1,500 household pilot

ComEd Customer Applications Pilot *(2010)*

- 8,500 households
- Tested five different rates

COMED'S HOURLY PRICING PROGRAM

(2007)

- Rate option: **Real-time** PJM hourly pricing
- 53,625 households
- $50 million saved

Power Smart Pricing

Ameren ILLINOIS

(2007)

- Rate option: **Day-ahead** MISO hourly pricing
- 18,686 households
- $17 million saved

Elevate's Role: Program Administrator

- Customer service support – dedicated call center (English & Spanish)
- Marketing and outreach
- Education and enrollment
- Online bill comparison tool to show customers how they perform
- Price signal notifications to alerts customers of trending prices or high demand
- Ongoing customer communication to help existing customers maintain and improve savings

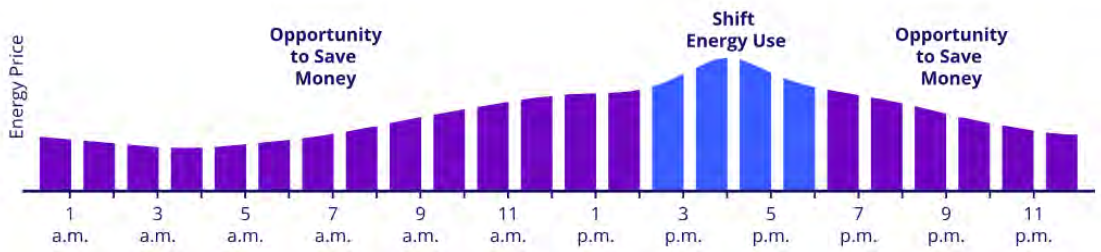
ComEd's Hourly Pricing Program: Overview

OVERVIEW

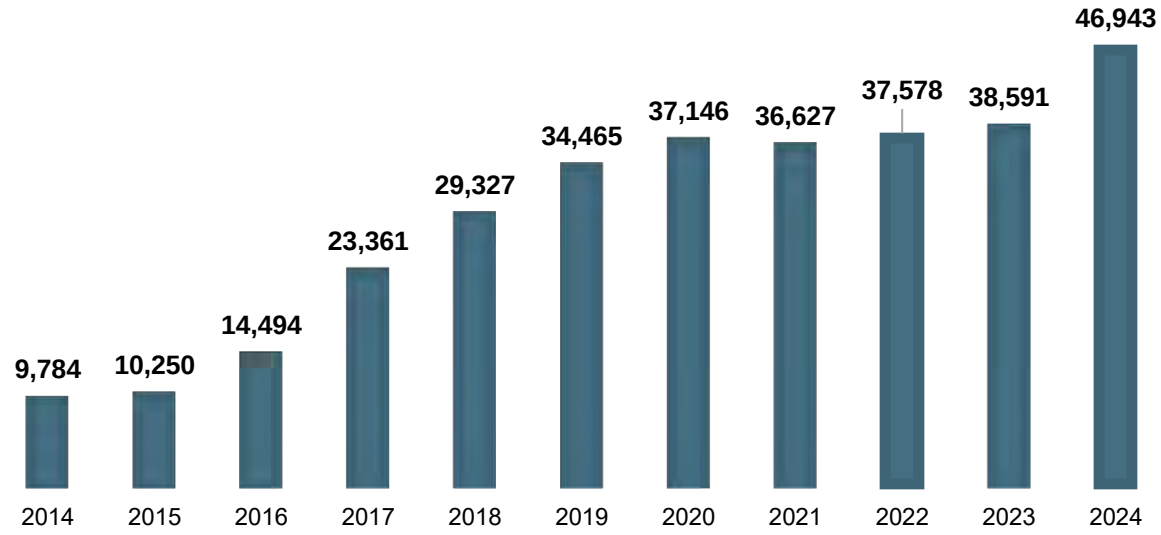
Residential customers can opt-in to Hourly Pricing. Rate BESH (*Basic Electric Service Hourly Pricing*) charges them the real-time hourly market prices for their usage. Rider RRTP (*Residential Real Time Pricing Program*) accounts for the supplementary tools, resources, ongoing education, and support to help customers paying real-time market prices on Rate BESH manage their energy use.

KEY FACTS & STATS

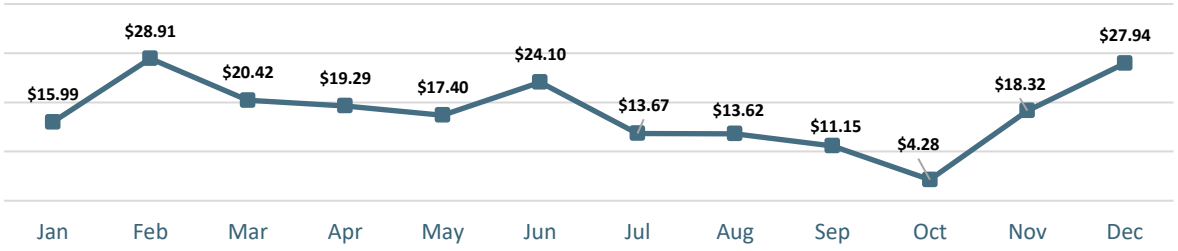
- 53,625 active participants
- 15,940 EV owners (30%)
- 2,338 Low-income customers (4%)
- 4,981 Solar Net Metering customers (9%)
- Cumulative supply savings since 2007: $50,929,852
- Avg. annual participants savings since 2007: $144 (19%)



PROGRAM PARTICIPANTS

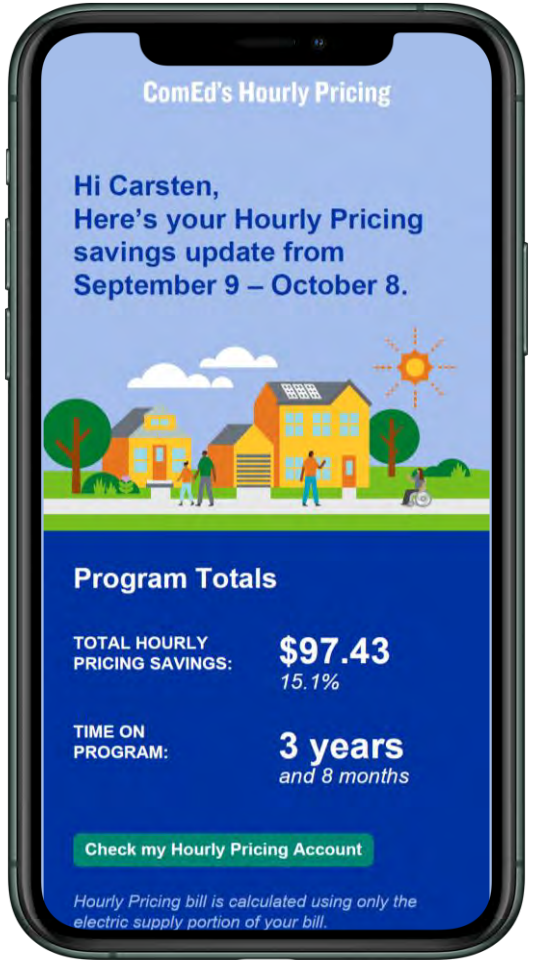


2024 Monthly Average Supply Savings

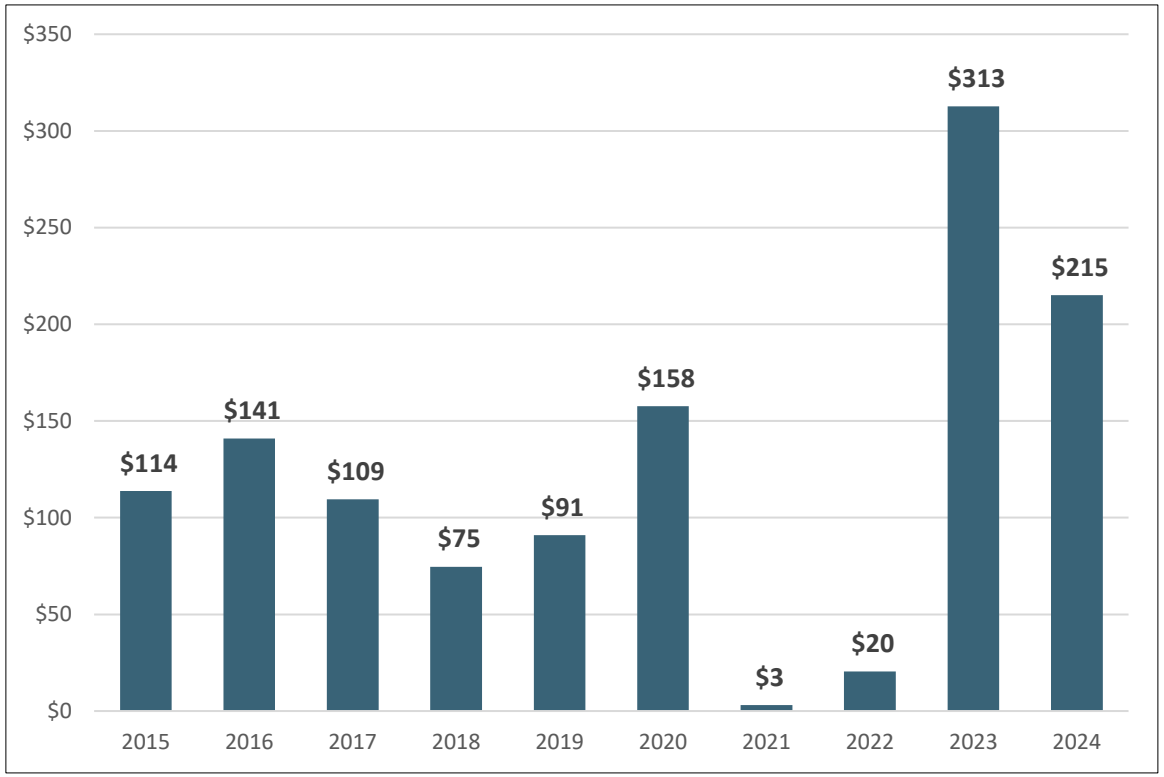


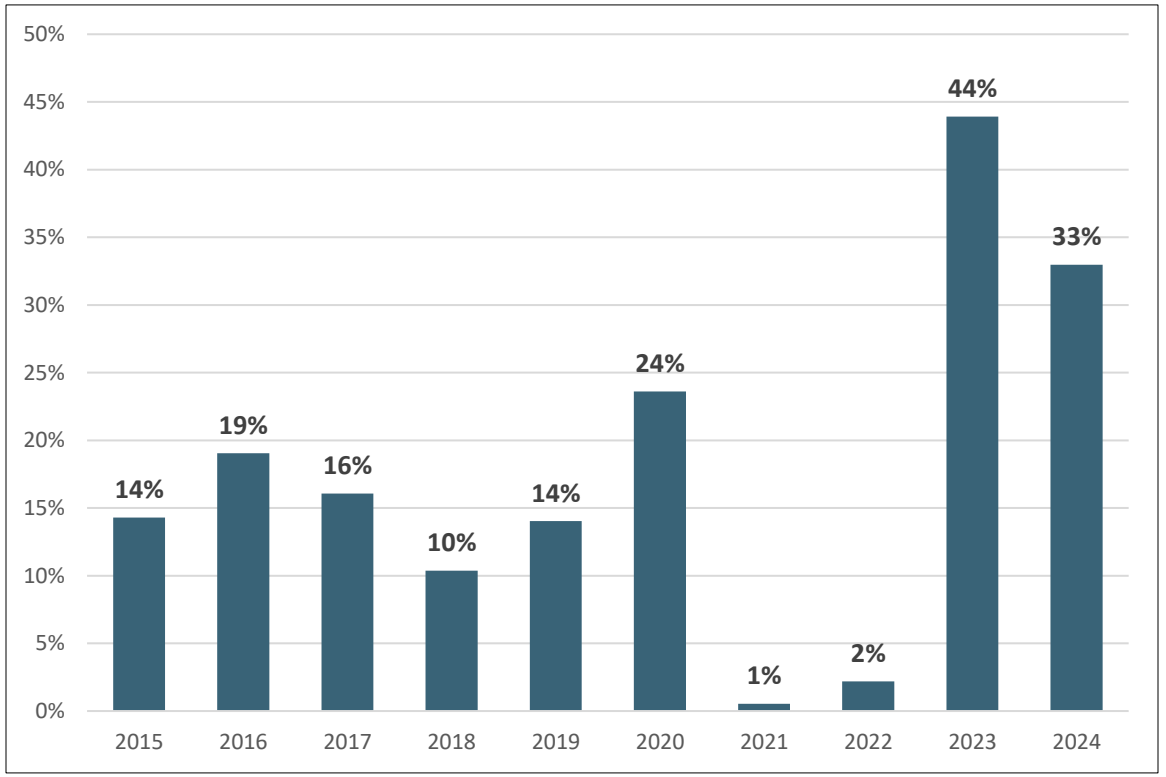
ComEd's Hourly Pricing Program: Tools & Resources

- My Hourly Pricing Account
  - Participant portal providing access to interval usage data, performance history, and ability to update alert preferences.
- Monthly and annual performance reports
  - Comparison of performance on hourly rate versus what the customer would've paid on fixed rate.
- Hourly Pricing Alerts
  - Notify participants when the real-time prices are trending high or when electricity demand is expected to be high the following day.
- Rate Comparison Tool
  - MyAccount tool that leverages customer's historical usage data and provides forward-looking projections of energy costs on Rate BESH.
- Dedicated Hourly Pricing program support specialist
  - Phone, email and live chat (M-F 9am-5pm)

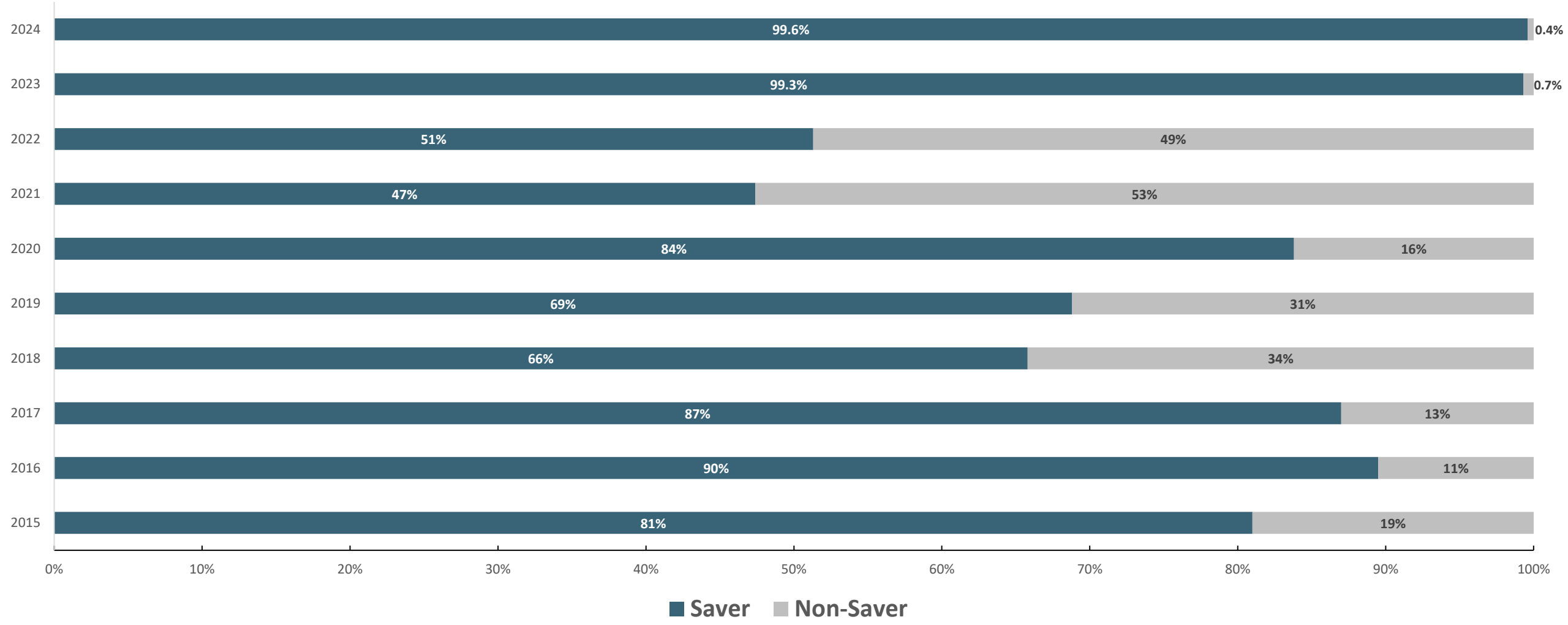


ComEd's Hourly Pricing Program:
Average Annual Supply Savings per Customer





ComEd's Hourly Pricing Program: Customer Savings



ComEd's Hourly Pricing Program: Customer Satisfaction

90% of survey respondents are satisfied with their overall Hourly Pricing experience

"The program has saved me hundreds of dollars since joining. I also like receiving texts about when prices are spiking so I can adjust my consumption appropriately."

"I am a Senior on a fixed income. Anything to help reduce costs is extremely beneficial. I am grateful."

"I love saving money. I'm only 9 months in and have saved hundreds already. I tell everyone."

ComEd's Hourly Pricing Program: Conservation Effects

	Spring	Summer	Fall	Winter	Annual
Avg Annual Electric Savings 2008–2010	-2.40%	-5.00%	-4.80%	-3.20%	-4.00%
Avg Annual Electric Savings 2011–2014	-4.60%	-6.00%	-7.20%	-6.70%	-6.20%
Avg Annual Electric Savings 2011–2015	-5.70%	-6.40%	-7.90%	-7.30%	-6.80%
Avg Annual Electric Savings 2011–2016	-6.30%	-6.40%	-8.10%	-7.70%	-7.10%
Avg Annual Electric Savings 2007–2017	-6.40%	-6.30%	-7.90%	-7.30%	-7.00%
Avg Annual Electric Savings 2007–2018	-6.10%	-6.70%	-7.50%	-6.70%	-6.80%
Avg Annual Electric Savings 2007–2019	-4.60%	-5.90%	-6.40%	-6.10%	-5.80%
Avg Annual Electric Savings 2007–2020	-4.20%	-5.40%	-5.70%	-6.10%	-5.30%
Avg Annual Electric Savings 2007–2021	-3.36%	-5.39%	-6.26%	-5.36%	-5.25%
Avg Annual Electric Savings 2007–2022	-3.00%	-5.23%	-5.51%	-4.46%	-4.70%
Avg Annual Electric Savings 2007–2023	-2.64%	-5.05%	-4.65%	-4.29%	-4.05%
Avg Annual Electric Savings 2007–2024	**-2.05%**	**-3.86%**	**-3.71%**	**-2.99%**	**-3.21%**

ComEd's Hourly Pricing Program: Net Benefits

- In 2024, Hourly Pricing participants…
  - Averaged $215 (33%) bill savings
  - Conserved an average of 312 kWh
  - 99.6% saved

Program Benefits	
Avoided Capacity Cost	$0
Consumer Surplus	$7,944,539
DRIPE	$12,628,891
Environmental Benefits	$925,019
Avoided T&D	$0
Improved Participant Satisfaction	$86,680
Improved National Security	$96,993
Total Program Benefits	**$21,682,122**
Program Costs	
Fixed Administration Costs	$1,842,744
Variable Administration Costs	$258,385
Fixed ComEd Costs	$10,000
Variable ComEd Costs	$181,898
New Enrollment Costs (Building Awareness)	$324,950
Total Program Costs	**$2,617,977**
Net Benefits	
2024 Net Benefits	**$19,064,145**

ComEd's Hourly Pricing Program: Electrification Study

- Nearly all customers (99.2%) in each group showed overall cost reductions on Hourly Pricing, with annualized average supply savings percentages ranging from 30.6% (Hybrid/dual fuel heat pump homes) to 35.7% (Fully electrified homes) on their electricity supply charges, post-electrification.
- Findings suggest seasonal variations in savings, likely due to fluctuating electricity usage patterns, hourly prices, and market conditions.
- On average, electrified homes benefit financially from Hourly Pricing, because of their increased electric usage and how the bulk of that increased usage tends to occur during off-peak, lower-cost times.
- Fully electrified homes show the highest savings potential

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ELEVATE

IEPR Commissioner Workshop on California's Progress Toward the Load-Shift Goal

Alternative Load Flexibility Implementations

Moderated by David Erne, CEC

- Alex Ghanem, Piclo
- Luke Forster, NYSERDA
- Brian Groskreutz, Elevate
- **Karsten Feddersen, Denmark Energy Agency**

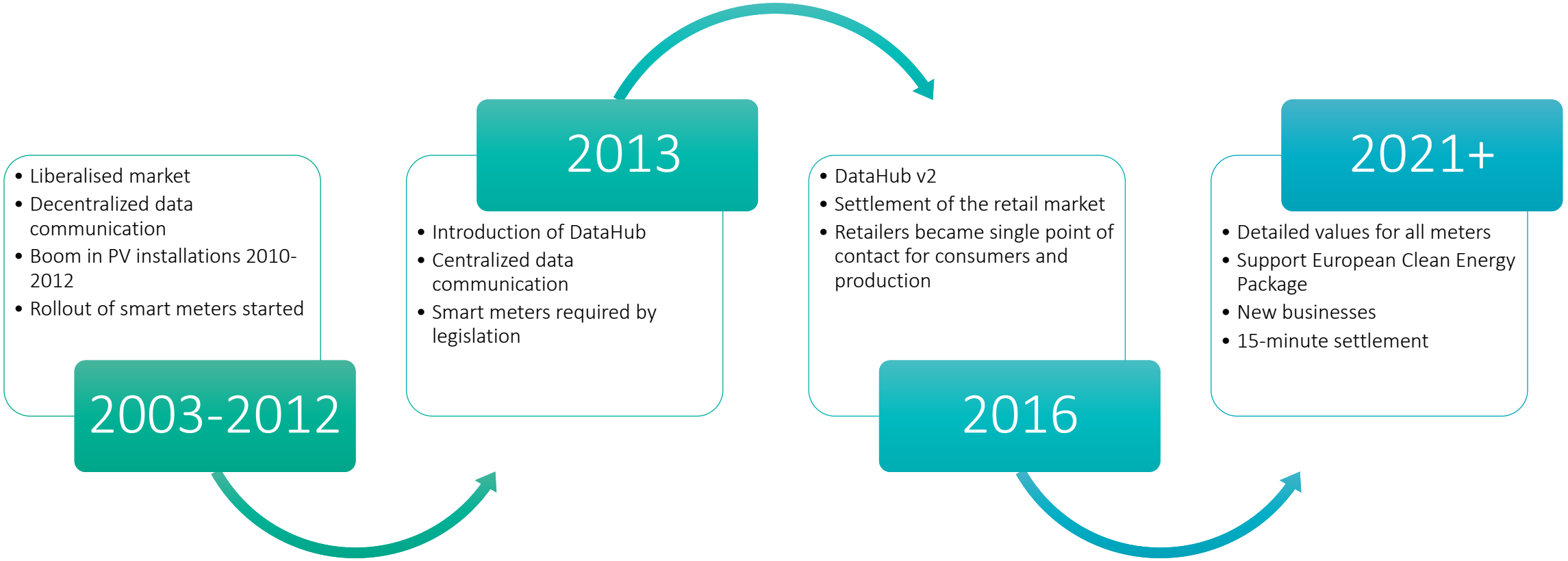
LOAD SHIFT IN DENMARK

How the retail market supports load shifting

Karsten Feddersen, Chief Consultant, Energinet, Denmark

Til arbejdsbrug/Restricted

EVOLVEMENT OF THE DANISH ELECTRICITY RETAIL MARKET



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FUTURE FOCUS IS ON **ACTIVE CUSTOMERS**

Today active customer can

- Generate and store energy
- Sell energy
- Have flexible consumption/generation
- Participate in parts of the balancing markets

In the future active customers will be able to

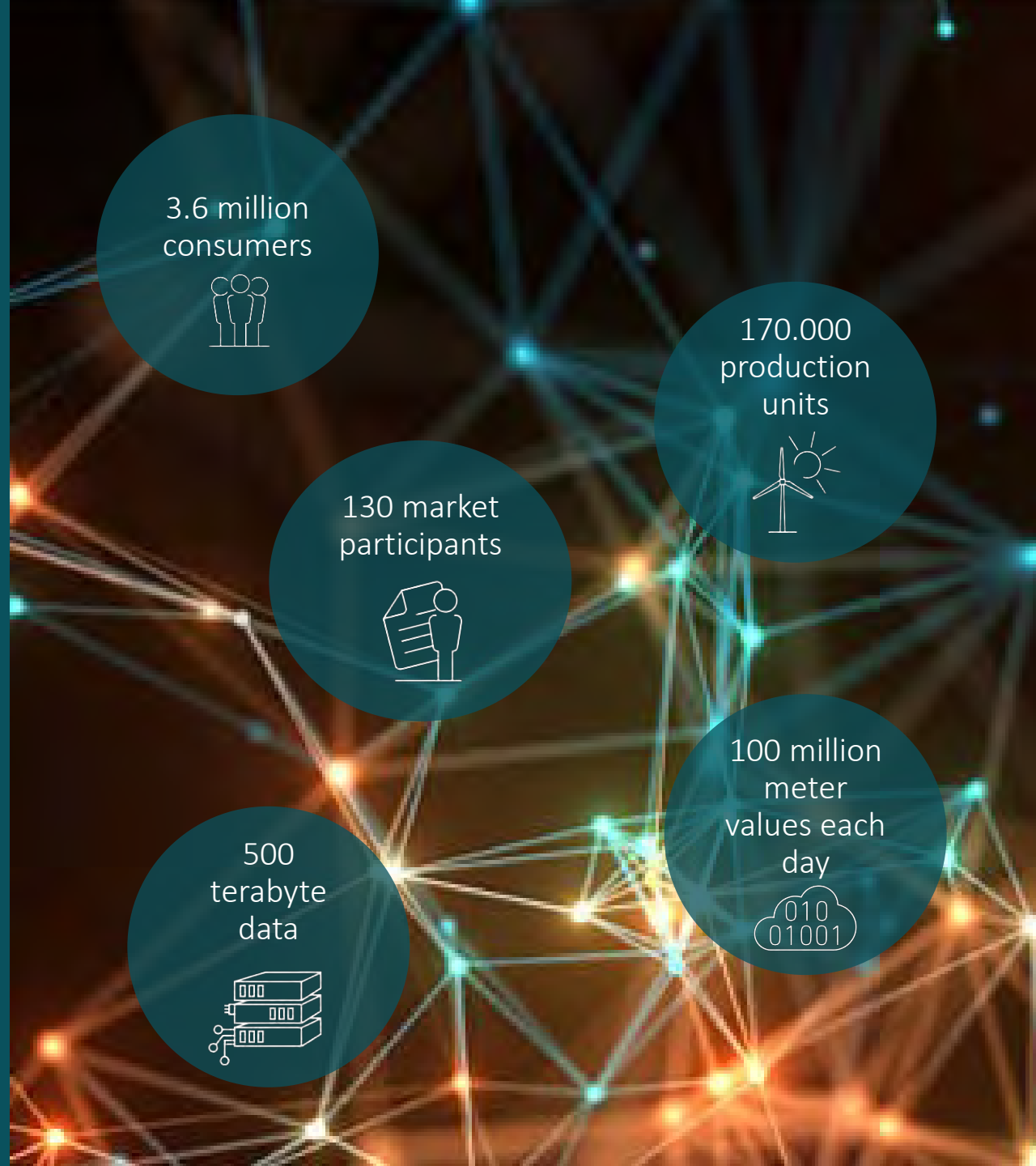
- Sell all sorts of balancing services by using independent aggregators
- Sell congestion management services
- Have several electricity contracts based on submeters for a single grid connection
- Share energy across the grid with other active customers

Til arbejdsbrug/Restricted

CENTRALIZED MARKET PLATFORM

Owned and operated by Energinet

DataHub



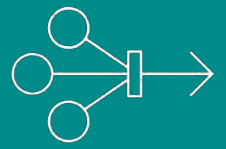
DATA IN THE DANISH DATAHUB

All meters provide detailed data for settlement

Data has a business purpose for the data provider and the receiver

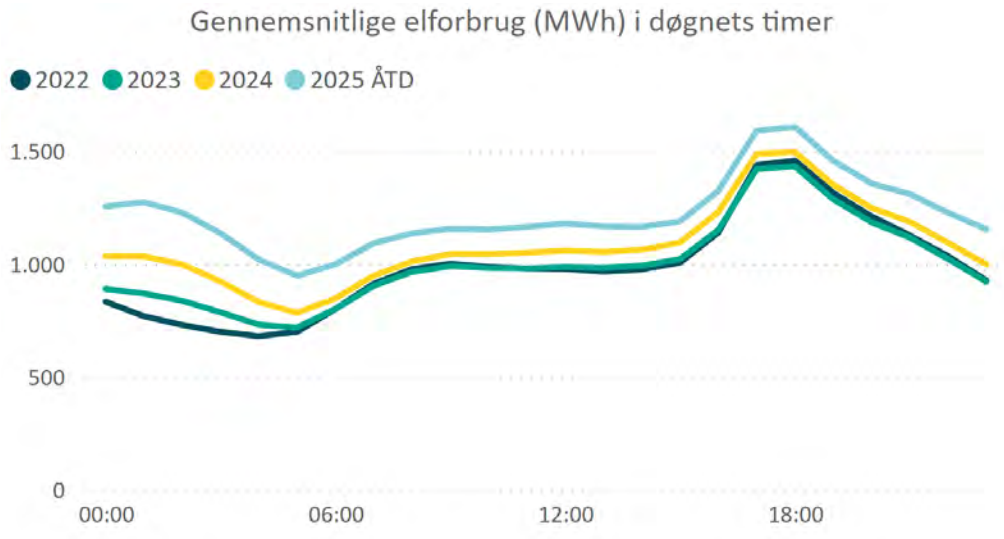
Settlement prognoses each day and market settlement each week/month

Setting data free as delegated and public data but also protect personal data



Til arbejdsbrug/Restricted

PRICE SIGNALS TO PROMOTE FLEXIBILITY



Tarifs must be cost reflective

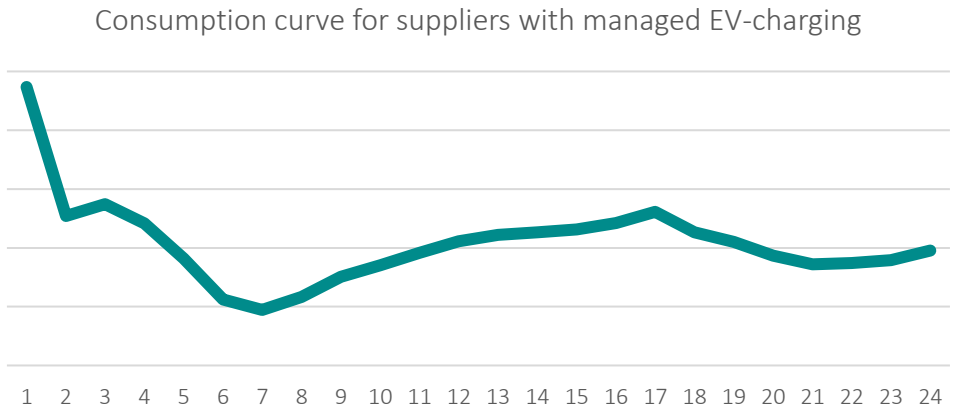
- Polluter pays principle

Encourage maximum use of the grid without further grid investments

- Move the grid load to low load hours
- Base load as today but flexible load during low load hours
- Energinet will charge DSOs

Less volume -> more capacity

Future increase in energy consumption should cost as little as possible as long as it is placed right during the day.



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MIN STRØM (MY POWER) – APP

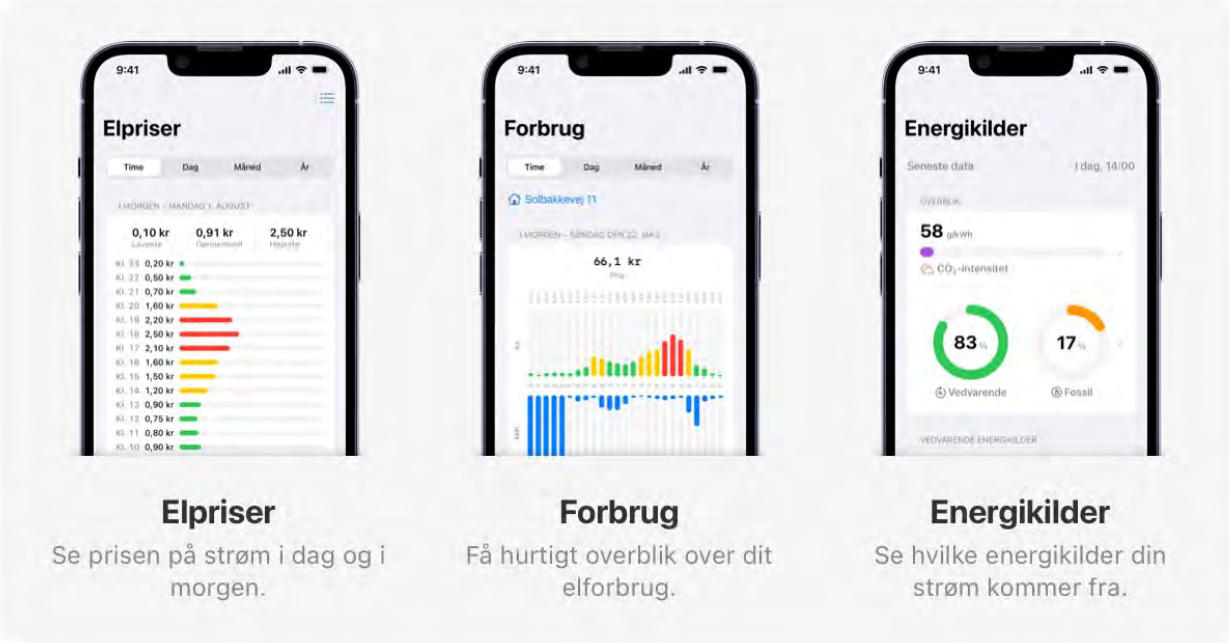
Free app for consumers

Free service for end user to

- Show prices
- Show consumption
- Plan usage for appliances

The revenue comes from ads in the app or purchase of an ad free app.

Providing plenty of implicit demand response



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Questions

Public Comment

Zoom

- Use the “raise hand” feature

Telephone

- Dial *9 to raise your hand
- *6 to mute/unmute your phone line. You may also use the mute feature on your phone.

Zoom/phone participants, when called upon

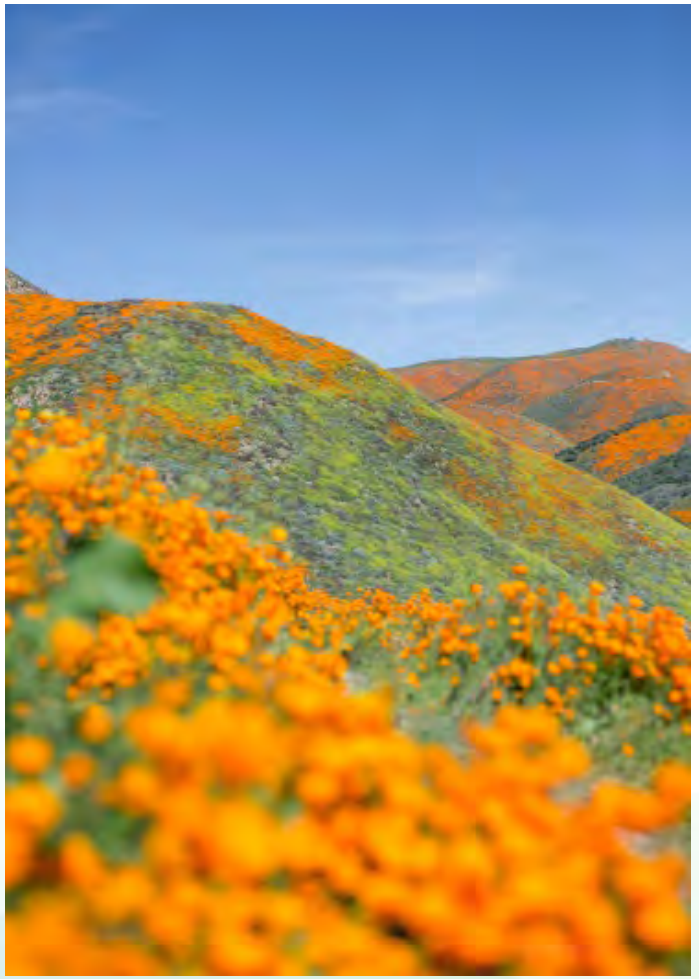
- Your microphone will be opened
- Unmute your line
- Spell your name for the record, begin comments

3 Minute Time Limit

- Limited to one representative per organization
- Time may be adjusted

2025 IEPR Workshop Dates

- **July 14:** Accelerating Interconnection and Energization (Date may be changed)
- **July 29:** Firm Zero-Carbon Resources and Hydrogen
- **August 6:** Energy Demand Forecast Inputs and Assumptions
- **August 26:** Energy Demand Forecast Load Modifier Scenario Design
- **November 13:** Load Modifier Results
- **December 11**: Forecast



Closing Remarks

Submit written comments from the 2025 IEPR page:

- Click on **“25-IEPR-05 California's Progress Toward the Load-Shift Goal"**
- Click on **“Submit e-Comments (25-IEPR-05)”**
- Comments are due by 5pm on **July 9, 2025**