



Opinion **Dynamics**

BEHAVIORAL DEMAND RESPONSE MARKETING, EDUCATION & OUTREACH EFFECTIVENESS STUDY

FINAL REPORT

CPUC ENERGY EFFICIENCY PROGRAM
OVERSIGHT AND EVALUATION OF THE
GROUP B SECTORS

SEPTEMBER 9, 2024

CALMAC ID: CPU0350.21



CONTENTS

1. Executive Summary.....	4
2. Introduction.....	8
3. Methodology.....	12
3.1 Residential Behavioral DR Portfolio Landscape Analysis	12
3.1.1 Literature and Secondary Data Review.....	12
3.1.2 Stakeholder Interviews	12
3.1.3 Systems Mapping.....	13
3.2 Customer Pathway Analysis	13
4. Findings.....	14
4.1 Demand Response Policy Landscape	14
4.1.1 Demand Response and Related Policy: Past to Present	14
4.1.2 Demand Response Policy Goals and Objectives	17
4.1.3 Demand Response Systems Map ..	20
4.2 Residential Demand Response Nomenclature	22
4.3 Residential Demand Response Program Landscape.....	24
4.3.1 Programmatic Offerings.....	24
4.3.2 Customer Journey Pathways	26
4.3.3 The Role of Marketing, Education, & Outreach	29
5. Key Takeaways and Recommendations	33

TABLES & FIGURES

Table 1. Flex Alert and PSR Metrics.....	10
Table 2. In-Depth Interviews with Key Residential DR Stakeholders	12

Table 3. Residential DR Policy Objectives and Goals	17
Table 4. Assessment of Alignment Between FAs, PSR, and Policy Objectives	18

Table 5. Stakeholders' Perceived Benefits of Residential DR	19
Table 6. Priority Customer Types for Residential DR Offerings	25
Table 7. Statewide Flex Alert ME&O Campaign Strategies	30
Table 8. Degrees of Alignment Between Residential DR Offerings and Policy Goals and Objectives.....	39
Table 9. Alignment Map of Policy Goal 1 with Residential DR Offerings	39
Table 10. Alignment Map of Policy Goal 2 with Residential DR Offerings	40
Table 11. Alignment Map of Policy Goal 3 with Residential DR Offerings	40
Table 12. Alignment Map of Policy Goal 4 with Residential DR Offerings	41
Table 13. Alignment Map of Policy Goal 5 with Residential DR Offerings	41

Figure 1. 2022 Flex Alert Campaign Program Theory Logic Model	9
Figure 2. Residential Demand Response Policy Timeline	16
Figure 3. Landscape System Map of Residential DR in California.....	21
Figure 4. Stakeholder Definitions of Demand Flexibility and Behavioral DR	23
Figure 5. Stakeholder Categorization of DR Offerings	24
Figure 6. Residential DR Programs Across IOU, CCA, and 3 rd Party DRP Stakeholders (as of January 2024)	25
Figure 7. Customer Journey Pathway for a Residential PG&E Customer.....	27
Figure 8. Customer Journey Pathway for a Residential SCE Customer.....	28
Figure 9. Customer Journey Pathway for a Residential SDG&E Customer	28
Figure 10. Customer Journey Pathway for a Sonoma Clean Power Residential Customer.....	29

APPENDICES

Appendix A. Landscape Analysis Interview Guide ...	35	Appendix C. Breadth of Policy Alignment.....	39
Appendix B. Policy Catalog	36		

I. EXECUTIVE SUMMARY

This report presents results from the Behavioral Demand Response (BDR) Marketing, Education, and Outreach (ME&O) Effectiveness Study conducted by Opinion Dynamics to understand whether and how the effectiveness of the residential BDR portfolio ME&O should be enhanced. In 2021, the California Public Utilities Commission (CPUC) approved the Statewide Flex Alert ME&O Campaign. Authorization of the Statewide Flex Alert ME&O Campaign marked a departure from the role that Statewide ME&O played historically under the Energy Upgrade California (EUC) brand in increasing ratepayer awareness of energy efficiency, demand response, and distributed generation and offering ways for consumers to manage their energy use better. In this latest iteration, the Statewide ME&O Campaign sought to bolster customers' energy-saving actions during Flex Alerts to help prevent power outages.¹ It also aimed to increase customer awareness of Flex Alerts and energy usage in general.

Following energy supply deficits and grid reliability concerns in California, exacerbated by extreme weather events driven by climate change, Governor Newsom issued an Emergency Proclamation in July 2021 ordering state energy agencies to review and revise their plans for meeting peak energy demand.² This action aligned with a root cause analysis conducted by the CPUC in 2020, which found that an additional 2,000–3,000 MW of power was needed to ensure grid reliability over the summers of 2022 and 2023.³ In coordination with the California Independent System Operator (CAISO) and the California Energy Commission (CEC), the CPUC released a set of decisions through rulemaking (R.)20-11-003,⁴ to increase available energy supply and reduce demand during peak events. Further, the rulemaking authorized making additional resources available to prevent outages from weather events with sustained high temperatures for the 2021–2023 summers.⁵ These additional resources were to be made available in an expedited fashion.

The approval of the Statewide Flex Alert ME&O Campaign was a core component of these emergency reliability rulemakings and decisions, positioning the campaign to support a new policy and programmatic ecosystem. California offers a variety of programs and initiatives to support grid reliability and resiliency in line with the State's clean energy goals. These offerings include the following:

- Demand Response (DR) Programs: A wide range of DR programs encourage California residents to reduce or shift their electricity usage during peak times. These include BDR efforts, which are behavioral approaches that rely on voluntary customer actions to shape energy usage and demand.
- Time-Varying Rate Structures: These rate plans incentivize California residents to use electricity during off-peak hours to help balance the grid and reduce costs.

In tandem with statewide ME&O efforts, DR programs and time-varying rates are supported by dedicated ME&O campaigns, each with a unique communications and recruitment strategy and participation pathway. These tailored approaches ensure that residents are well-informed about the benefits and requirements of each program. However, given the complexity of the landscape, California residents may be confronted with multiple messages and opportunities to participate. The extent to which this overlap is beneficial or obfuscates from intended grid resiliency goals has not yet been evaluated from a portfolio perspective.

¹ California Public Utilities Commission. "Decision 21-03-056: Summer Reliability Decision." March 25, 2021. <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M373/K745/373745051.PDF>.

² California Public Utilities Commission. "CPUC Ensures Reliability During Extreme Weather for Summers 2022 and 2023." December 2, 2021. <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-ensures-electricity-reliability-during-extreme-weather-for-summer-2022-and-2023>

³ Proposed Decision: Adopting Microgrid and Resiliency Solutions to Enhance Summer 2022 and Summer 2023 Reliability. Rulemaking 19-09-009. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M418/K717/418717729.PDF>.

⁴ See CPUC Newsroom for details on these efforts: <https://www.cpuc.ca.gov/summerreadiness/>

⁵ Proposed Decision: Summer Reliability. Rulemaking 20-11-003. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M418/K927/418927517.PDF>.

RESEARCH OBJECTIVES

The overarching objective of this study was to understand how to enhance the effectiveness of residential BDR portfolio marketing and messaging design and implementation strategies to support California’s grid and energy goals. More specifically, we sought to answer the following research questions:

- What programs, services, and information are available to Californians?
 - How should the residential BDR “Portfolio” be defined? What Portfolio offerings exist in the marketplace? What entities are involved?
 - What residential customers are targeted? Who is eligible? Who is auto-enrolled? Are there gaps in coverage?
 - What, if any, coordination takes place across offerings?
 - What kind of overlap or competition exists across offerings?
- How do program administrators engage with customers?
 - What ME&O strategies and messaging are used to support Portfolio offerings?
 - Is there customer confusion?
 - Are there opportunities for enhancements?
- How effective are these services in supporting the management of demand in the present and the future:
 - How does the Portfolio (as defined in the landscape analysis) align with stated policy objectives?
 - Are there gaps or opportunities for policy alignment?
 - What role can ME&O play in addressing gaps or realizing opportunities?

METHODOLOGY

The findings from this study are based on an in-depth exploration of available literature and secondary data, in-depth interviews with key stakeholders, the development of a systems map and customer participation pathways, and an analysis of policy achievement as highlighted below:

- Review of 21 policy-related documents, including core policy Decisions and Rulemakings, Orders Instituting Rulemaking (OIR), Petitions for OIRs, joint agency reports, legislation, and existing law. The review allowed us to document the evolution of policy goals and objectives and contextualize residential BDR and associated ME&O in a broader set of load management offerings. We also conducted a thorough review of publicly available information on residential DR in California to understand the array of available information, programs, and services available to California residents.
- In-depth interviews with 15 key stakeholders in the California residential DR marketplace. The purpose of the interviews was to learn more about how residential DR programs are designed and delivered with an emphasis on the outreach strategies used to reach targeted customer groups.
- Development of a systems map to capture a holistic view of the key stakeholders and their relationships, key activities related to residential DR program design and deployment, and dynamics and feedback loops.
- Development of various customer pathways to participation to explore and illustrate the options available to customers, provide insight into the nature of their participation experiences, and identify potential barriers. This analysis allowed us to reflect on customer-facing choices and perspectives and identify any possible areas of overlap and confusion.

- Analysis of the outputs from each research activity to assess whether the BDR portfolio supports overall stated policy objectives, identify gaps and opportunities, and consider the role of ME&O in support of the policy objectives.

SUMMARY OF RESULTS

The evaluation team presents the following key findings/conclusions and recommendations based on the research conducted as part of this study:

- **Conclusion 1.** Evolving policy goals and objectives have led to a broad range of DR programs and supporting ME&O efforts to meet emerging energy and grid needs. In the current landscape, multiple stakeholders are involved in California’s policy development, design, implementation, and dispatch of DR programs. Despite this complexity, our research shows (1) a strong alignment of current programs with existing policy goals and objectives, (2) a collaborative DR policy process, and (3) an integrated process for designing and delivering DR programs. That said, stakeholders are not always aligned on classifications and definitions of demand flexibility and BDR. A common classification and nomenclature framework⁶ would deepen productive stakeholder conversations, minimize confusion, and establish further continued alignment with policy goals and objectives.
 - **Recommendation 1.** The CPUC should consider revisiting DR nomenclature and definitions to establish a common framework for classifying DR programs and initiatives. Such a framework should ideally be forward-looking and incorporate the elements of the emerging policy goals and objectives, such as a focus on demand flexibility principles and dynamic pricing models.
- **Conclusion 2.** Despite being well coordinated, the California DR landscape is nonetheless crowded in terms of programs and initiatives, which can lead to confusion regarding the availability and eligibility for residential customers. Our analysis shows that, in almost all cases, participants can engage in at least three load-modifying programs, including time-of-use rates. The landscape is more complex for Community Choice Aggregator (CCA) customers and customers residing in areas with active demand response provider (DRP) presence—those customers need to navigate a more complex and multi-layered environment. This complexity exhibits itself in terms of program availability, eligibility, marketing, and a variety of incentive levels rewarding participation. While processes exist to guide customers through the enrollment and engagement process, customer perceptions, including awareness and confusion, are not known. Despite uncertainty about the true customer experience, the myriad of program options and their characteristics suggest possible customer confusion. We hypothesize that customer confusion can constrain customer enrollment, participation, and performance. With customer engagement being a key barrier to advancing demand flexibility in the state, understanding customer sentiment is an important factor in shaping the role and value of future ME&O efforts.
 - **Recommendation 2.** The CPUC should consider conducting customer research to assess awareness and understanding of DR program options, engagement pathways, and any possible confusion and blockers to engagement. This research would deepen the understanding of customer participation and experience with residential DR offerings across the state and assess the degree of confusion in the marketplace to better inform future ME&O.
- **Conclusion 3.** California policy goals and the program landscape continue to evolve. The sunset of Power Saver Rewards (PSR) and a general shift toward the demand flexibility and dynamic pricing vision, while continuing to advance an array of dispatchable and behavioral DR programs available to customers, will likely shape the future landscape. Our extensive research into Statewide ME&O suggests the effectiveness of ME&O efforts in deepening customer awareness, understanding, and, more importantly, preparedness for Flex Alerts. Building upon these empirically established outcomes and leaning upon a range of successful approaches applied over the last ten years of administering Statewide ME&O efforts, future ME&O can advance customer awareness, understanding,

⁶ By nomenclature framework we mean a system of naming.
Opinion Dynamics

and comfort with new demand flexibility paradigms and concepts, leading to greater participation and deeper engagement.

- **Recommendation 3.** The CPUC should consider exploring additional options for ME&O to support emerging flexible load program needs by leveraging a strong body of best practices and proven outcomes. One of the options could include leveraging ME&O and customer research to increase awareness and understanding of demand flexibility, its benefits, preparedness, and customer journey. Similar to the performance metrics associated with the Flex Alert campaign, CPUC could create demand flexibility performance metrics, which would be measured through customer research to assess ME&O effectiveness. Another option could support enhancing customer decision-making regarding suitable program choices and a customer journey toward more sophisticated alternatives as customer experience grows and opportunities (such as the adoption of enabling technologies, connected devices, and automation capabilities) for different engagements present themselves. One tangible and relatively low burden option (once up and running) could be the use of an AI-powered website hosted by the CPUC that helps guide the customer through their multiple options for participation and the associated benefits, based on their customer characteristics.

2. INTRODUCTION

In 2021, the California Public Utilities Commission (CPUC) approved the Statewide Flex Alert Marketing, Education, and Outreach (ME&O) Campaign. Authorization of the Statewide Flex Alert ME&O Campaign marked a departure from the role that Statewide ME&O played historically under the Energy Upgrade California (EUC) brand in increasing ratepayer awareness of energy efficiency, demand response, and distributed generation and offering ways for consumers to manage their energy use better. This shift was catalyzed by energy deficits and grid reliability issues in the State exacerbated by climate change-driven extreme weather.⁷

Following a CPUC analysis in 2020 indicating a need for 2,000–3,000 MW more power for grid reliability in 2022–2023,⁸ the CPUC released Rulemaking 20-11-003, which included a set of decisions to increase energy supply and reduce peak demand.⁹ Emergency Reliability rulemaking R.20-11-003 also expedited additional resources to prevent outages during high-temperature summers from 2021 to 2023. A core component of these emergency reliability Rulemakings and Decisions was the approval of the Statewide Flex Alert ME&O Campaign, which sought to bolster customers' energy-saving actions during Flex Alerts to help prevent power outages.¹⁰ It also aimed to increase customer awareness of Flex Alerts and energy usage in general. In 2022, the Flex Alert paid media campaign was also required to promote the new residential Emergency Load Reduction Program (ELRP A.6), which uses the customer-facing name of Power Saver Rewards (PSR).

Opinion Dynamics has evaluated the effectiveness of the Statewide Flex Alert ME&O campaign since 2021. The 2022 evaluation assessed the effectiveness of the campaign against key metrics, informed and evaluated the stakeholder engagement process, and assessed the contributions and effectiveness of the community-based organizations (CBOs) supporting the campaign. Additionally, it sought to explain the “why” behind Flex Alert event performance. The 2023 evaluation focused exclusively on assessing the effectiveness of the campaign against key metrics such as awareness of the campaign and promoted energy-saving actions. A central component of these evaluations was examining how the campaign could best support grid resiliency efforts and exploring any enhancements that could be made to optimize campaign reach and effectiveness moving forward. With this study, we attempt to address these areas of inquiry from a different perspective, taking a holistic view of the environment in which Flex Alerts operate to assess residential DR marketing and programmatic offerings from both a portfolio and policy perspective.

OVERVIEW OF THE STATEWIDE ME&O CAMPAIGN

The objectives of the 2022 and 2023 campaigns were to increase awareness of Flex Alerts and ELRP and notify Californians when a Flex Alert event was occurring.¹¹ The campaign slogan, “The Power is Ours to prevent outages with Flex Alerts,”¹² highlights the campaign's focus on preventable power outages, compared to non-preventable outages such as a Public Safety Power Shutoff (PSPS).

Key campaign stakeholders for the Statewide Flex Alert campaign included the CPUC, California Independent Service Operator (CAISO), and the three electric IOUs: Southern California Edison (SCE), Pacific Gas and Electric (PG&E), and

⁷ California Public Utilities Commission. “CPUC Ensures Reliability During Extreme Weather for Summers 2022 and 2023.” December 2, 2021. <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-ensures-electricity-reliability-during-extreme-weather-for-summer-2022-and-2023>

⁸ California Public Utilities Commission. “Proposed Decision: Adopting Microgrid and Resiliency Solutions to Enhance Summer 2022 and Summer 2023 Reliability. Rulemaking 19-09-009.” October 29, 2021. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M418/K717/418717729.PDF>.

⁹ See CPUC Newsroom for details on these efforts. <https://www.cpuc.ca.gov/summerreadiness/>

¹⁰ California Public Utilities Commission. “Decision 21-03-056: Summer Reliability Decision.” March 25, 2021. <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M373/K745/373745051.PDF>

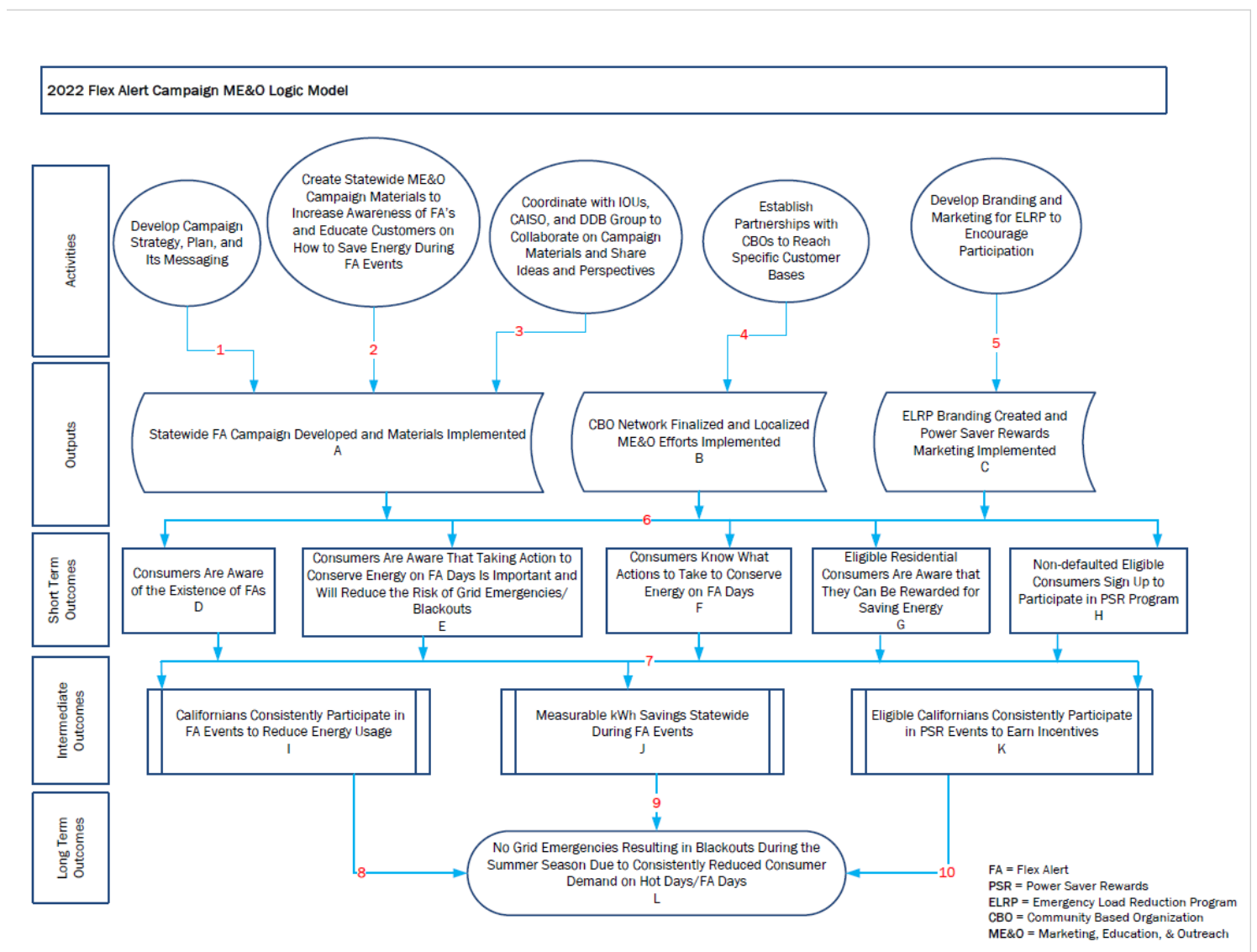
¹¹ Discouraging the use of back-up generators (BUGs) during Flex Alerts was also an original objective for the 2022 campaign but was discontinued by the CPUC in October 2022.

¹² Energy Upgrade California. “Flex Alerts.” Accessed May 22, 2022. <https://energyupgradeca.org/flex-alert/>.

San Diego Gas and Electric (SDG&E). Furthermore, DDB was a key stakeholder serving as the campaign implementer.¹³ DDB’s team included the public affairs firm, DDC, and the media communication agency, Optimum Media Direction (OMD). DDC engaged CBOs as campaign partners to reach core customer groups who are typically harder to reach, including low-income, rural and agricultural, multicultural, and senior residents, as well as residents living with disabilities. DDC also distributed media assets designed by DDB for the general public and IOU customers to CBOs to share with their networks. OMD, which shares the same parent company as DDB, was responsible for executing the digital media assets.

Due to privacy restrictions around customer data, stakeholders decided that DDB would be responsible for statewide Flex Alert marketing efforts. At the same time, the IOUs would develop and implement their own direct-to-consumer PSR strategies. This split the larger campaign into two components: statewide Flex Alert marketing and PSR marketing. DDB, in coordination with DDC and IOUs, developed some PSR materials for CBO and IOU distribution, respectively. Figure 1 provides a visual depiction of the program's theory of change in achieving desired outcomes.

Figure 1. 2022 Flex Alert Campaign Program Theory Logic Model



¹³ The DDB Group has recently rebranded and is also goes by the business name “adam&eveDDB.” We refer to them as DDB Group throughout the report, which also includes their partner agencies.

DDB utilized multiple marketing channels throughout the campaign, including:

- Television and radio ads focused on the general and Hispanic markets
- Outdoor digital and print placements
- Newspapers
- Paid search on Google and social media (Facebook®, Instagram®, and Twitter®)¹⁴
- Multiple digital channels, including displays, videos, streaming audio
- SMS texts to Californians across the state, using available records
- Various partnerships (Nextdoor® and CBOs)

Campaign assets were designed for the general English and multicultural Spanish, Chinese, Vietnamese, and Korean markets.

Table 1 outlines the approved core metrics of the campaign for 2023.

Table 1. Flex Alert and PSR Metrics

Metric	Measurement Approach
AWARENESS	
Objective: Increase Flex Alert and Power Saver Rewards brand awareness	
Unaided Awareness	% of Californians who are aware of Flex Alerts (unaided) % of Californians who are aware of Power Saver Rewards (unaided)
Aided Awareness	% of Californians who are aware of Flex Alerts (aided - % of Californians who have heard the Flex Alert name)
	% of Californians who are aware of Power Saver Rewards (aided - % of Californians who have heard the Power Saver Rewards name)
	% of Californians who are aware a Flex Alert that has been called after alert
	% of Californians who are aware of the actions they can take to save energy during Flex Alerts
UNDERSTANDING	
Objective: Increase understanding of the reason behind the need to take action during Flex Alerts	
Flex Alert/Power Saver Familiarity	% of Californians who correctly match the Flex Alert campaign name with the campaign's message % of Californians who correctly match the Power Saver Rewards campaign name with the campaign's message
Understanding of the connections between grid conditions and Flex Alerts	% of Californians who identify the correct purpose of Flex Alerts % of Californians who identify the correct purpose of Power Saver Rewards % of Californians who correctly answer a series of True/False statements that make connections between heatwaves, electricity supply, and power outages
INTENT TO ACT AND BEHAVIOR CHANGE	
Objective: Increase intent to sign up for Power Saver Rewards (when not already enrolled) and to take action during a Flex Alert	
Likelihood to take action during a Flex Alert	% of Californians who would be likely to take the specified Flex Alert actions featured in the campaign
Likelihood to sign up	% of Californians who have signed up/intend to sign up for Power Saver Rewards program with their IOU
Action	% of Californians who took one or more of the specified Flex Alert actions featured in the campaign

¹⁴ All product or company names that may be mentioned in this publication are tradenames, trademarks, or registered trademarks of their respective owners.

EVALUATION OBJECTIVES

The overarching objective of this study was to understand how to enhance the effectiveness of residential BDR portfolio marketing and messaging design and implementation strategies to support California’s grid and energy goals. More specifically, we sought to answer the following research questions:

- What programs, services, and information are available to Californians?
 - How should the residential BDR “Portfolio” be defined? What Portfolio offerings exist in the marketplace? What entities are involved?
 - What residential customers are targeted? Who is eligible? Who is auto-enrolled? Are there gaps in coverage?
 - What, if any, coordination takes place across offerings?
 - What kind of overlap or competition exists across offerings?
- How do program administrators engage with customers?
 - What ME&O strategies and messaging are used to support Portfolio offerings?
 - Is there customer confusion?
 - Are there opportunities for enhancements?
- How effective are these services in supporting the management of demand in the present and the future:
 - How does the Portfolio (as defined in the landscape analysis) align with stated policy objectives?
 - Are there gaps or opportunities for policy alignment?
 - What role can ME&O play in addressing gaps or realizing opportunities?

DEFINITIONS AND REFERENCES

For the purposes of this report, we define “load management” as any measure, policy, or activity that aims to shape customer load to achieve a set of energy and grid goals and objectives. This includes measures like demand and load flexibility, distributed energy resources (DERs), and DR, all of which are discussed throughout the report. When referencing BDR throughout this report, we define it as behavioral approaches that rely on voluntary customer actions to shape both energy usage and energy demand. Flex Alerts and Power Saver Rewards are examples of BDR offerings.

3. METHODOLOGY

The evaluation team employed a mixed-methods research approach that leveraged existing data sources and new primary data from in-depth interviews. The following sections provide detailed information on each of the activities that our team completed as part of the study.

3.1 RESIDENTIAL BEHAVIORAL DR PORTFOLIO LANDSCAPE ANALYSIS

We conducted a landscape analysis to characterize the landscape of residential DR offerings. While the study design initially focused exclusively on behavioral DR, the evaluation team quickly determined that a broader review was necessary given the interconnections between stakeholders, program offerings and target customers, and policy objectives. The landscape analysis had three components: (1) literature and secondary data review, (2) in-depth interviews with key stakeholders, and (3) development of a systems map.

3.1.1 LITERATURE AND SECONDARY DATA REVIEW

Opinion Dynamics completed an extensive review of core policy Decisions and Rulemakings, Orders Instituting Rulemaking (OIR), Petitions for OIRs, joint agency reports, legislation, and existing law. We consolidated essential information into a policy catalog to both guide our findings and provide a snapshot of the current policy landscape for residential DR (please see Appendix B of this report). In total, we cataloged and analyzed 21 documents, most of which were CPUC Decisions and Rulemakings, joint agency reports, and approved legislation. The review allowed us to document the evolution of policy goals and objectives and contextualize residential BDR and associated ME&O in a broader set of load management offerings.

We also conducted a thorough review of publicly available information on residential DR in California to understand the array of available information, programs, and services available to California residents. This included a review of government websites, policy documents, key CPUC Decisions and Rulemaking documents, demand response provider (DRP) websites (DRPs are also program administrators such as IOUs, CCAs, and third-party DRPs), information hubs, marketing materials, and relevant process or impact evaluation reports. In addition, we requested ad hoc materials from key stakeholders during interviews, including shareable program marketing and messaging materials, program frequently asked question (FAQ) sheets, and any additional informational documents helpful to our research.

3.1.2 STAKEHOLDER INTERVIEWS

The evaluation team used the knowledge gained from the literature and data review to inform in-depth interviews with key stakeholders in the California residential DR marketplace. The purpose of the interviews was to learn more about how residential DR programs are designed and delivered with an emphasis on the outreach strategies used to reach targeted customer groups. We completed seven interviews with a total of 15 stakeholder representatives between December 2023 and January 2024 (Table 2). The evaluation team conducted a systematic thematic data analysis of the interview transcripts using the qualitative analysis software NVIVO to identify and analyze consistent themes across interviews.

Table 2. In-Depth Interviews with Key Residential DR Stakeholders

Stakeholder Type	Stakeholder Organization	# of Representatives
Policy and Oversight	Government Agencies	3
	CPUC CEC	

Stakeholder Type		Stakeholder Organization	# of Representatives
Program Administrators	IOUs	SDG&E	7
		SCE	
		PG&E	
	CCAs	Sonoma Clean Power	4
	3rd Party DRPs	DRP ^a	1

^a This source requested to remain anonymous in reporting.

3.1.3 SYSTEMS MAPPING

Based on the preceding evaluation activities, the evaluation team developed a systems map to capture a holistic view of the key stakeholders and relationships among them, key activities related to residential DR program design and deployment, and dynamics and feedback loops. Systems map analysis is a method used to understand, visualize, and analyze the components and interactions within a complex system. It involves creating a visual representation, or “system map,” that illustrates the elements of the system and how they are connected. This analysis is used to identify key components, relationships, potential gaps, and potential areas for improvement.

We used a summative and iterative design process to ensure that we incorporated valuable stakeholder perspectives into the creation of our system map and verified our understanding of the landscape. After creating the draft map, we met with CPUC staff to review it and made revisions where needed to develop the final version.

3.2 CUSTOMER PATHWAY ANALYSIS

Given that we were not able to complete the customer research initially planned for this study, we developed visualizations of various customer pathways to participation to explore and illustrate the options available to customers, provide insight into the nature of their participation experiences, and identify potential barriers. This analysis allowed us to reflect on customer-facing choices and perspectives and identify any possible areas of overlap and confusion. We also leveraged data collected through our previous research activities to supplement this analysis. Notably, this analysis focused on the three IOUs, a CCA, and a DRP, and, as such, represents a partial but representative picture of the customer-facing opportunities for DR program participation.

4. FINDINGS

We have organized the findings from this study chronologically, beginning with the evolution of residential DR policy in California, the current landscape of DR programs, services, and offerings, and customer outreach and engagement with these offerings. While the findings speak to residential DR in California broadly, we focus on BDR (i.e., behavioral approaches that rely on voluntary customer actions to shape both energy usage and energy demand), specifically in considering Flex Alerts, PSR, and the ME&O campaign that supports them.

4.1 DEMAND RESPONSE POLICY LANDSCAPE

California has a rich and complex history of load management policy and program design that has shaped the current residential DR landscape. California's energy policy exists as a response to emerging grid and energy management needs. Through the policymaking process, goals and objectives are stated and continually evolve through additional policy cycles. This iterative process has resulted in a wide range of load management solutions that define the complex, multi-faceted, and wide-reaching California landscape today. Load flexibility and BDR are key components in this landscape. For example, basic load control programs have evolved into sophisticated, market-integrated solutions that leverage advanced technologies and consumer participation.

4.1.1 DEMAND RESPONSE AND RELATED POLICY: PAST TO PRESENT

Early DR efforts date back to the 1980s with the introduction of Time-of-Use (TOU) rates to encourage off-peak electricity usage,¹⁵ followed by the rollout of the first direct load control programs in the 1990s. The early 2000s marked the formal launch of the Flex Alert program, which established an emergency DR mechanism for CAISO to help manage peak demand during the summer months.¹⁶ During this time, investment in DR continued to accelerate, with the CPUC setting ambitious goals, such as DR accounting for 5% of peak load by 2007.¹⁷ The Flex Alert program evolved to incorporate more real-time data to better predict and respond to grid stress as part of these goals. A series of additional policy activities further accelerated the rise and importance of DR, including the development of a comprehensive DR framework in Assembly Bill 327 (2013) and the integration of DR resources into wholesale markets, treating them similarly to traditional generation resources.

In the late 2010s, DR was enhanced by the concept of load flexibility, which focused on ways to shift and automate energy use to times of higher renewable generation and emphasized the role of DR and load flexibility in achieving climate goals. In 2015, CPUC Decision 15-07-001 expanded load flexibility efforts by requiring the transition of customers to TOU rates. The transition began in earnest in 2019, and by the end of 2020, most residential customers of PG&E, SCE, and SDG&E had been transitioned to TOU rates, advancing CPUC's goals of cost reflectiveness,¹⁸ further grid reliability, and renewable integration.

In 2020 and 2021, severe heatwaves and wildfires stressed the grid and led to rolling blackouts across the state. This fostered a strong reliance on BDR to prevent future blackouts from similar grid stress events. The Flex Alert program, one of California's core BDR tools, was revamped heavily from an ME&O perspective in order to support grid reliability and resiliency. CPUC Decision 21-03-056 approved the Flex Alert ME&O campaign: a statewide general awareness and

¹⁵ Energy Upgrade California. "Time Matters – Frequently Asked Questions." June 2022. <https://energyupgradeca.org/time-of-use-faqs/>

¹⁶ California Public Utilities Commission. "Decision on CAISO Flex Alert Program Transfer Proposal." November 20, 2015. <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M156/K013/156013012.PDF>

¹⁷ California Public Utilities Commission. "Interim Opinion in Phase 1 Addressing Demand Response Goals and Adopting Tariffs and Programs for Large Customers." June 6, 2003. https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/26965.PDF

¹⁸ Not to be confused with cost-effectiveness, cost reflectiveness refers to the principle that the prices charged to customers should reflect the actual costs incurred by utilities to provide service.

call-to-action campaign focused on bolstering customer response during Flex Alert events. In 2022, a pilot program, ERLP A.6, otherwise known publicly as Power Saver Rewards (PSR), was rolled out with Decision 21-12-015 to reward residential IOU customers through a bill credit for voluntarily reducing their energy usage during a Flex Alert. Decision 21-12-015 also required the IOUs to auto-enroll income-qualified customers on CARE or FERA rates and high energy users to their PSR programs on a rolling basis. As part of continuous efforts to strengthen the effectiveness of the Flex Alert program, Decision 21-12-015 also mandated that the Flex Alert ME&O campaign was required to support the PSR program through its ME&O efforts. As such, marketing and messaging for PSR were embedded within the Statewide Flex Alert ME&O campaign.¹⁹

In 2021, there were further advancements in DR and load flexibility through the introduction of demand flexibility rulemaking. The CPUC initiated demand flexibility rulemaking to explore and implement strategies to enhance demand flexibility, improve grid reliability, and better integrate DERs.²⁰ Specifically, the rulemaking focused on developing and promoting dynamic pricing models, implementing fair compensation mechanisms for DERs, enhancing customer participation in DR programs, and addressing the needs of low-income and disadvantaged communities to ensure equitable access to the benefits of demand flexibility.

Figure 2 presents a condensed timeline of the discussed load management policy in California beginning from 2012 to the present.^{21,22}

California's Demand Response (DR) policymaking is responsive to emerging needs within the energy sector. The goals and objectives of these policies directly mirror the evolving demands for efficient energy use and grid management. A wide array of programs and initiatives is subsequently developed to meet these objectives, ensuring that California remains at the forefront of sustainable and effective energy policy. The existing funding for the Flex Alert paid media campaign is set to end in 2025 per D. 23-12-005. The CPUC and key stakeholders must continue to weigh the benefits and costs of running a Statewide ME&O campaign to support DR policy objectives as they evolve.

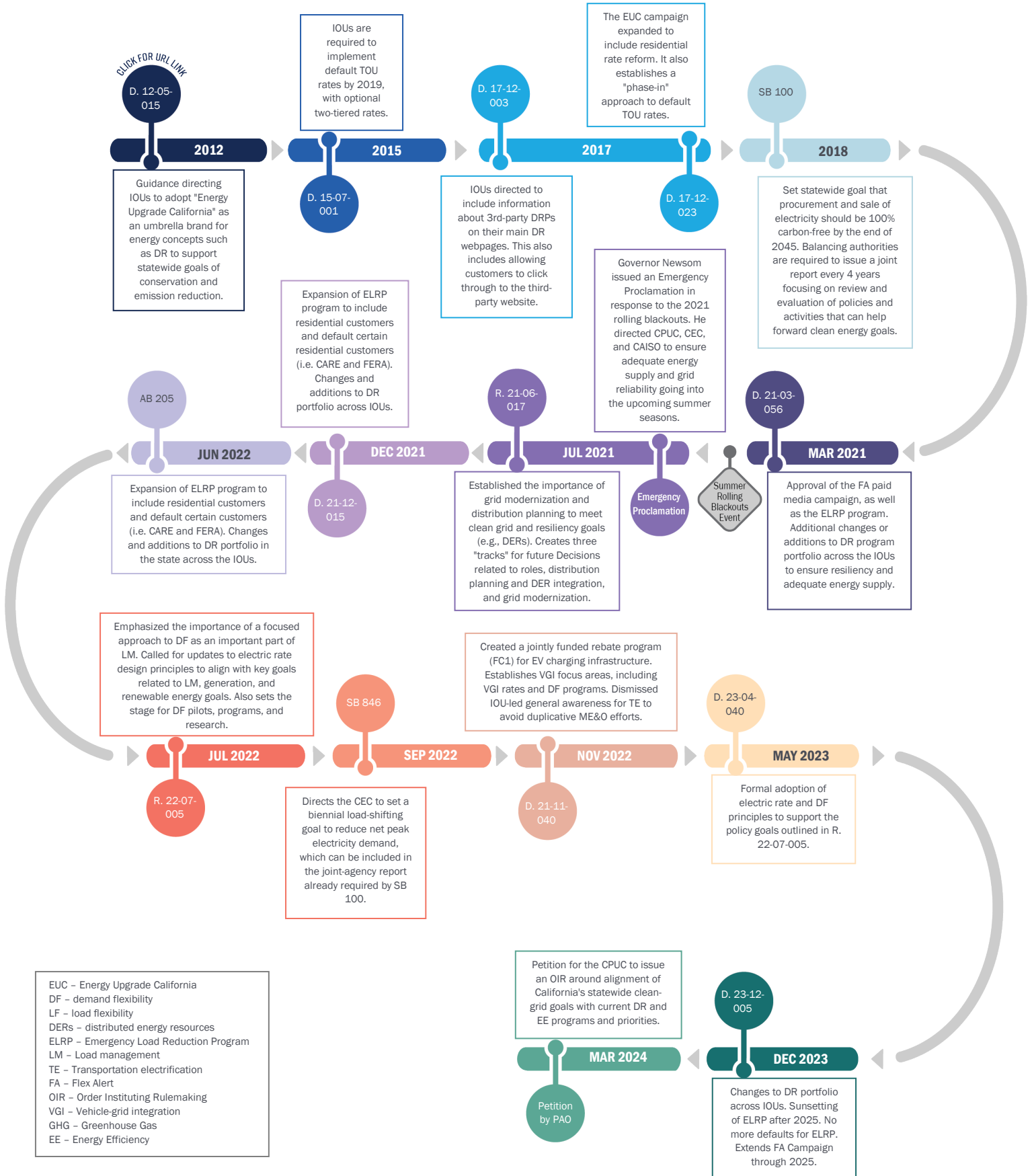
¹⁹ Currently, the embedded PSR campaign is in its third year and will likely end when the pilot program ends in 2025, per Decision 23-12-005. The pilot will not scale into a full program given cost-effectiveness concerns. In 2024, the process of defaulting customers through auto-enrollment was ended, by order of Decision 23-12-005. Customers must now opt-in to their IOU's PSR programs.

²⁰ California Public Utilities Commission. "Rulemaking 21-06-017." July 21, 2021.

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M390/K664/390664433.PDF>.

²¹ This timeline is a condensed visualization of our policy catalog, located in Appendix B, which contains the entirety of our cataloged documents.

Figure 2. Residential Demand Response Policy Timeline



4.1.2 DEMAND RESPONSE POLICY GOALS AND OBJECTIVES

Residential DR supports a range of policy goals and objectives²³ defined through the policymaking process discussed in the previous section. Our analysis of the policy goals and objectives as they relate to residential DR shows that residential DR in California, and BDR specifically, supports five key policy goals: a carbon-free grid, access to reliable generation and transmission of electricity, demand flexibility, customer awareness of their energy usage, and action during grid emergencies. These goals and the associated policy objectives are reflected in Table 3. Appendix C of this report contains additional detail on our assessment of the alignment of the Residential DR with California policy goals and objectives.

Table 3. Residential DR Policy Objectives and Goals

Policy Objectives	Policy Goals				
	California is powered by a carbon-free electric grid.	All Californians have access to reliable generation and transmission of electricity.	Californians' energy demand is flexible.	Customers are aware of energy usage and their impact on the grid.	Californians reliably and successfully take action during grid emergencies.
ME&O					
Implement coordinated ME&O approaches to energy efficiency, DR, TOU and dynamic rates, and smart technologies to effectively inform and engage residential customers.				✓	
Utilize coordinated ME&O strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.			✓	✓	✓
Grid Reliability					
Create and maintain an effective and reliable emergency response to grid stress.		✓			✓
Resource Adequacy					
Establish long-term reliable capacity to meet local and statewide grid needs, especially during demand peaks.		✓	✓		

²³ A goal is a general direction-setter. It is an ideal future end related to the public health, safety, or general welfare. A goal is a general expression of community values and, therefore, may be abstract in nature. An example of a goal is "Increase awareness for energy usage in California, especially during times of grid emergency." An objective is a specified end, condition, or state that is an intermediate step toward attaining a goal. It should be achievable and, when possible, measurable and time-specific. An example of an objective is "Curtail current statewide greenhouse gas emissions created from electricity generation by 50% in the next decade." California's Office of Planning and Research. "State of California General Plan Guidelines." 2017.

https://opr.ca.gov/docs/OPR_Appendix_E_final.pdf

Policy Objectives	Policy Goals				
	California is powered by a carbon-free electric grid.	All Californians have access to reliable generation and transmission of electricity.	Californians' energy demand is flexible.	Customers are aware of energy usage and their impact on the grid.	Californians reliably and successfully take action during grid emergencies.
Prioritize energy generation from renewable sources on an accelerated timescale to diminish reliance on fossil fuels and ensure adequate supply of power.	✓	✓			
Achieve 60% sale and procurement of electricity from clean and renewable sources by 2030 and 100% by 2045.	✓				
Demand Flexibility					
Invest in load flexibility measures to support the rapid introduction of electrified technologies onto the grid.		✓	✓		
Achieve 7,000 MW of net peak load shift by 2030.		✓	✓		
Default residential customers to TOU rates by 2019.			✓		

To assess the alignment of BDR efforts with these policy objectives, we looked closely at Flex Alerts and Power Saver Rewards (PSP), two key BDR mechanisms. Our assessment indicates multiple areas of congruence (see Table 4) related to relevant policy objectives around ME&O, grid reliability, resource adequacy, and demand flexibility.²⁴ **Generally, BDR is well-aligned with the relevant policy objectives identified in our policy literature review.** While there are further opportunities for alignment between BDR and policy objectives related to resource adequacy and demand flexibility, particularly around electrification and renewable power generation, BDR in California has continued to support the state's achievement of the policy goals and objectives discussed in this section.

Table 4. Assessment of Alignment Between FAs, PSR, and Policy Objectives

Policy Objectives	Degree of Alignment
ME&O	
<i>Implement coordinated ME&O approaches to energy efficiency, DR, TOU and dynamic rates, and smart technologies to effectively inform and engage residential customers.</i>	<ul style="list-style-type: none"> Overall, the Flex Alert ME&O campaign has raised customer awareness for both Flex Alerts and PSR and engaged customers statewide during Flex Alert and PSR events,²⁵ aligning BDR with this objective.

²⁴ Please note that this table only includes policy objectives from Table 3 that are relevant to residential BDR.

²⁵ Flex Alert awareness has increased from 41% at the start of the campaign cycle in 2021 to 58% at the end of the 2023 campaign cycle and PSR awareness has increased from 18% at the start of the campaign cycle in 2022 to 28% at the end of the 2023 campaign cycle. Opinion Dynamics. "2023 Flex Alert Marketing Evaluation." January 9, 2023.

https://www.calmac.org/publications/2023_CPUC_FA_Tracking_Survey_Report_CALMAC.pdf.

Policy Objectives	Degree of Alignment
<i>Utilize coordinated ME&O strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.</i>	<ul style="list-style-type: none"> The Flex Alert ME&O campaign has raised customer awareness for both Flex Alerts and PSR. The campaign has also helped mobilize coordinated outreach to alert customers of when events occur.
Grid Reliability	
<i>Create and maintain an effective and reliable emergency response to grid stress.</i>	<ul style="list-style-type: none"> Flex Alerts are important to reducing energy usage during grid stress, and programs like PSR help encourage utility customers to take action during Flex Alerts through incentives.
Resource Adequacy	
<i>Establish long-term reliable capacity to meet local and statewide grid needs, especially during demand peaks.</i>	<ul style="list-style-type: none"> Flex Alerts have played an important role in ensuring adequate energy capacity during extreme peaks in demand since 2000.²⁶
<i>Prioritize energy generation from renewable sources on an accelerated timescale to diminish reliance on fossil fuels and ensure adequate supply of power.</i>	<ul style="list-style-type: none"> Flex Alerts encourage shifting energy usage to times when energy is abundant and supplied from clean sources like solar (e.g., precooling), but this could be more explicitly communicated to customers. For example, 6 in 10 Californians do not know precooling uses more clean energy from solar power than regular cooling.²⁷
Demand Flexibility	
<i>Invest in load flexibility measures to support the rapid introduction of electrified technologies onto the grid.</i>	<ul style="list-style-type: none"> To date, Flex Alerts and PSR have been focused on voluntary energy conservation by influencing customer behavior, less so on electrified technologies with load flex capabilities. There are opportunities to raise awareness and market saliency of smart technologies that promote load flexibility, further promoting beneficial changes in customer energy consumption.
<i>Achieve 7,000 MW of net peak load shift by 2030.</i>	<ul style="list-style-type: none"> The main goal of Flex Alerts is to reduce and/or shift net peak load during times of grid stress, which helps contribute to net peak load shift. The PSR program is a mechanism to help encourage customer performance during Flex Alerts.

In addition to understanding the alignment between residential DR, including BDR, offerings, and objectives, we explored alignment from a stakeholder perspective during our in-depth interviews by exploring the perceived benefits of DR and BDR offerings in the marketplace. As shown in Table 5, resource adequacy/meeting the needs of the grid was mentioned most frequently (5 mentions), followed by education and awareness for energy usage (4 mentions) and load shed/energy reduction (4 mentions). **These perceived benefits align with the policy objectives listed in Table 4, indicating that DR and BDR offerings are aligned with stated policy objectives and stakeholder perspectives.**

Table 5. Stakeholders' Perceived Benefits of Residential DR

Perceived Benefits	# of Stakeholder Mentions ²⁸	Description
Resource Adequacy/Meeting Grid Needs	5	<ul style="list-style-type: none"> Residential DR programs are designed to help maintain a reliable grid during times of high demand.
Education & Awareness for Energy Usage	4	<ul style="list-style-type: none"> While residential DR programs are designed to shape a customer's energy usage, they also raise customer awareness and knowledge of energy usage in general.

²⁶ California Independent System Operator. "Grid Emergencies History Report." <https://www.caiso.com/Documents/Grid-Emergencies-History-Report-1998-Present.pdf>

²⁷ Opinion Dynamics. "2023 Flex Alert Marketing Evaluation." January 9, 2023. https://www.calmac.org/publications/2023_CPUC_FA_Tracking_Survey_Report_CALMAC.pdf

²⁸ Please note that stakeholders often mentioned more than one benefit.

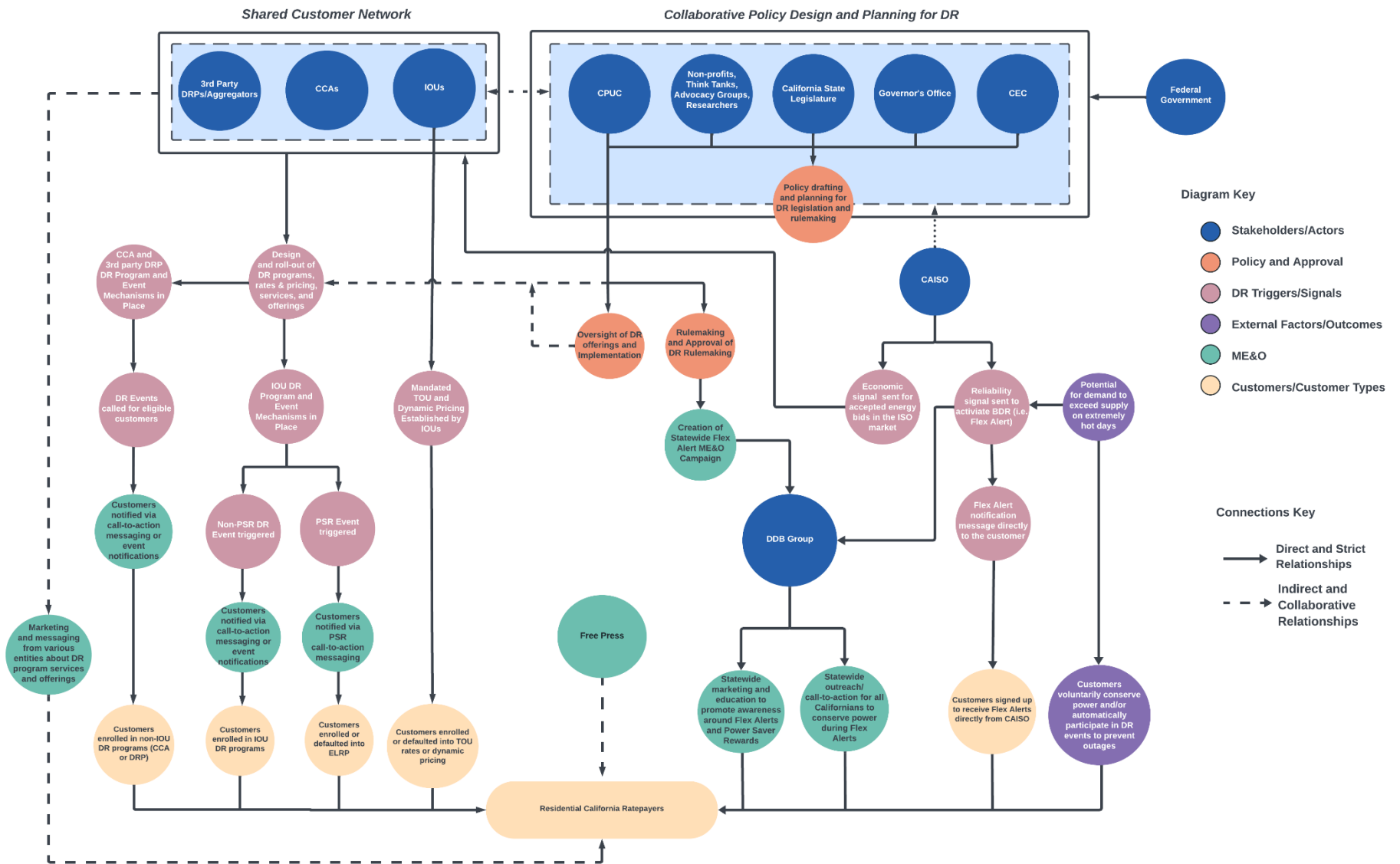
Perceived Benefits	# of Stakeholder Mentions ²⁸	Description
Load Shed/Energy Reduction	4	<ul style="list-style-type: none"> When necessary, residential DR programs can reduce energy usage by customers on the grid.
Customer Satisfaction and Engagement	3	<ul style="list-style-type: none"> While changing energy usage behavior can sometimes be inconvenient, residential DR programs are often designed to mitigate discomfort, monetarily reward customers, and keep them engaged in their energy usage.
Program Channeling	2	<ul style="list-style-type: none"> BDR programs can often act as “channels” to other DR offerings that automate demand response.
GHG Reduction and Use of Clean Energy	2	<ul style="list-style-type: none"> Residential DR programs help reduce energy usage when “dirty” energy is produced and shift usage to when renewables are abundant.

4.1.3 DEMAND RESPONSE SYSTEMS MAP

The evolving needs of the CA energy system and grid and the emergence of new DR programs and offerings over the years have resulted in a complex web of stakeholder relationships, interactions, and activities. The system map presented in Figure 3 displays the stakeholders involved in policy, planning, design, implementation, and engagement with residential DR programs. The map also illustrates the existing direct and indirect relationships among the stakeholders. Key insights include the following:

- DR Policy Development and Planning.** There are many stakeholders involved in California’s DR policy development process, including the CPUC, CEC, California State Legislature, the Governor’s Office, California IOUs, CCAs, DR service providers, nonprofits, think tanks, advocacy groups, and researchers. Representatives from these organizations are often in close communication about DR policy issues or are directly involved in formal policy negotiations alongside one another.
- Creation and Rollout of DR Programs.** Demand response providers (DRPs) such as the California IOUs, CCAs, and third-party DRPs are responsible for creating and implementing DR programs. The CPUC approves and oversees IOU and CCA DR offerings and their implementation in the state.
- DR Signals and Triggers.** Economic and reliability signals dispatched by CAISO trigger responses across residential DR programs. DRPs respond to these CAISO signals to trigger the activation of their DR program events, such as a PSR event.
- ME&O.** Program Administrators (PAs) conduct marketing, education, and outreach to raise awareness around residential program offerings and activate residential participants to take action during DR events. In addition, the Statewide Flex Alert ME&O campaign provides statewide education and outreach to urge Californians to reduce energy usage during stressed grid conditions.
- Customers/Ratepayers.** Several residential customer populations are involved in the DR market (both program participants and non-participants). California ratepayers can receive a wide variety of marketing and messaging from DRPs and statewide entities.

Figure 3. Landscape System Map of Residential DR in California



The landscape system map demonstrates an interconnected system of stakeholders and activities related to DR policy and program design, execution of DR offerings, and implementation of DR ME&O to customers. The largest area of overlap we identified occurs among stakeholders involved in DR policymaking. PAs, grid operators, government bodies, and external organizations all have a role in setting DR policy that ultimately sets the stage for program offerings and eventually reaches California customers, the end users.

BDR initiatives, namely Flex Alerts and PSR, are woven into the residential DR system. As seen in the system map, multiple stakeholders are involved in managing, curating, and ensuring the effectiveness of the BDR efforts, requiring coordination and collaboration. More specifically, CAISO dispatches Flex Alert signals and coordinates with IOUs and CCAs on the dispatch of PSR events (which are synonymous with Flex Alert events). A statewide ME&O campaign, a key marketing mechanism for informing residential customers of these DR events, is closely coordinated across CAISO and the CPUC, with the DDB Group acting as the campaign implementer. The DDB Group handles both statewide general awareness marketing for Flex Alerts and PSR and the statewide call-to-action messaging pipeline when Flex Alerts are called. Californians can also sign up to be notified when a Flex Alert is called via CAISO's website, and IOU customers participating in PSR are also notified of an event by their respective IOUs.

4.2 RESIDENTIAL DEMAND RESPONSE NOMENCLATURE

California's need for DR and load flexibility now goes beyond episodic, event-based interventions and ensures continuous load flexibility, thus creating a nuanced and complex environment. The system map demonstrates the complexities associated with stakeholder engagement and coordination and highlights the multitude of voices in the DR space. Further, with different DR offerings providing different grid benefits (shifting, shedding, shaping²⁹) and leveraging differing signal dispatch mechanisms (behavioral vs. direct load control vs. rate-based), consistent nomenclature to define, describe, and classify the various DR offerings is important to effective coordination, alignment, and policy and goal setting.

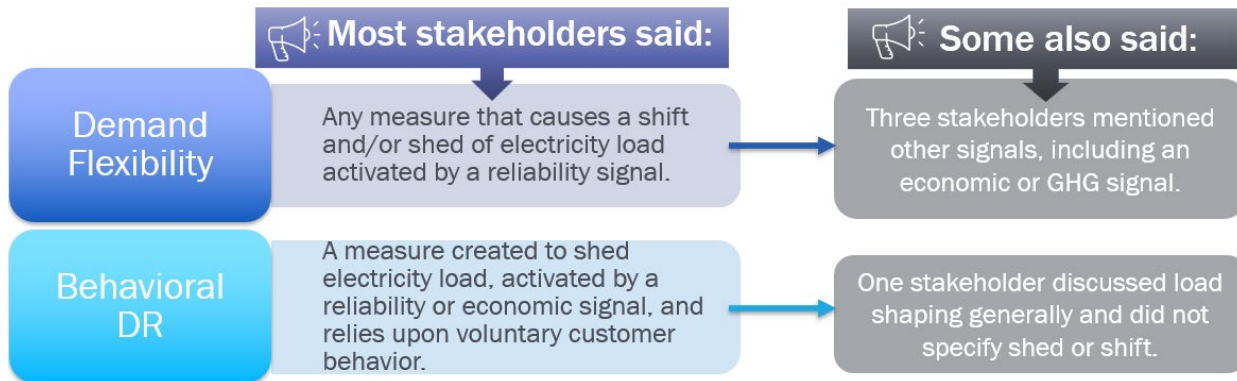
As part of our research, we explored whether such consistency exists. We did so through interviews with stakeholders supported by a review of the key definitions existing in the state. We focused on the topics of demand flexibility and BDR. As such, we asked interviewees to define both demand flexibility and BDR and list the programs and program types that fall under each. **Our research found that while there is general alignment in terms of nomenclature, there are opportunities for further enhancements.**

Related to the definitions of demand flexibility and BDR, most stakeholders generally understand that demand flexibility and BDR measures involve shaping electricity load to respond to grid reliability or economic signals. This definition is generally aligned with the CEC's definition.³⁰ Based on stakeholder responses, one main difference was that demand flexibility measures are thought to shift and/or shed load, while BDR measures are thought to typically shed electricity load through voluntary action on the part of the customer (See Figure 4).

²⁹ Lawrence Berkeley National Laboratory. "2025 California Demand Response Potential Study – Charting California's Demand Response Future: Final Report on Phase 2 Results." March 2017. <https://eta-publications.lbl.gov/sites/default/files/lbnl-2001113.pdf>.

³⁰ "Load flexibility, also called demand flexibility, is the practice of adjusting load (or energy usage) to match the supply of electricity. Electricity customers with smart devices can automatically shift their energy usage to when electricity is cheaper and clean, and use less energy when the grid is under stress or running polluting power plants." California Energy Commission. "Load Flexibility." Accessed 05/15/2024. <https://www.energy.ca.gov/programs-and-topics/topics/load-flexibility>

Figure 4. Stakeholder Definitions of Demand Flexibility and Behavioral DR



Notably, one interviewee did not think there was a specific, widely accepted definition of either demand flexibility or BDR. They indicated this as a potential area of miscommunication with others who may think of demand flexibility and BDR differently when discussing these matters.

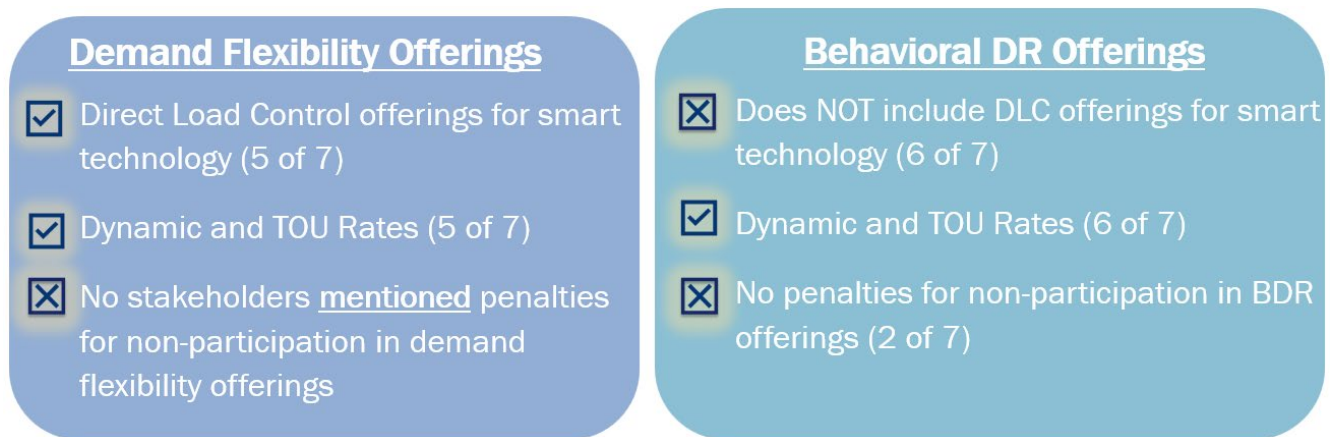
Two other interviewees had a more fluid understanding of TOU rates specifically. One described TOU rates and Direct Load Control as DR offerings that become behavioral over time. As people become more familiar with, or used to, these offerings and realize there is a monetary stake in participating, they will actively choose to enroll and participate in these programs. The other felt that TOU rates are behavioral on their own but become non-behavioral in the context of automated DR programs. Once a customer enrolls in a direct load control program that automatically adheres or adjusts to TOU rates, it is no longer a behavioral choice on the part of the customer.

“[TOU] will end up becoming behavioral over time as people get used to it, but right now, most customers are just getting used to TOU rates. Most of those [Direct Load Control] programs now are more behavioral as people have skin in the game.”

“TOU rates in and of themselves are a different animal. Without a program like [a DLC Smart Thermostat program], or even BYOT, they are behavioral. Unless we're signaling devices or formally under contract with an agent who does signal devices, it falls under the behavioral category.”

Likely as a result of the differences in definitions associated with DR and demand flexibility, interviewees used differing criteria to categorize programs and offerings as demand flexibility or BDR (see Figure 5). More specifically, most interviewees felt that programs that directly control customer load through smart technology are demand flexibility programs, not BDR programs since automation of load control requires no action by the customer. Additionally, most interviewees described dynamic and TOU rates as both demand flexibility and behavioral DR measures, given that there is both customer choice to adhere to certain rates, as well as a defaulted participation to rates.

Figure 5. Stakeholder Categorization of DR Offerings



Given the areas of departure described above, the California landscape may benefit from standardizing terms such as demand flexibility to ensure further alignment and minimize miscommunication.

4.3 RESIDENTIAL DEMAND RESPONSE PROGRAM LANDSCAPE

As previously stated, the DR policy landscape has evolved notably over the past few decades, leading to a variety of DR programs and services, including direct load control, rate-based, and behavioral offerings. Understanding the landscape is critical to mapping the environment in which BDR operates and identifying gaps and areas of overlap in DR services and offerings. We completed a detailed review of the residential DR program portfolios across the three IOUs, a CCA (Sonoma Clean Power), and a third-party DRP to build upon the systems map.³¹ While such a review does not present a complete picture of the California DR program landscape, it presents a representative version. As such, it allows the reader to consider the limitations and opportunities of the BDR programs.

4.3.1 PROGRAMMATIC OFFERINGS

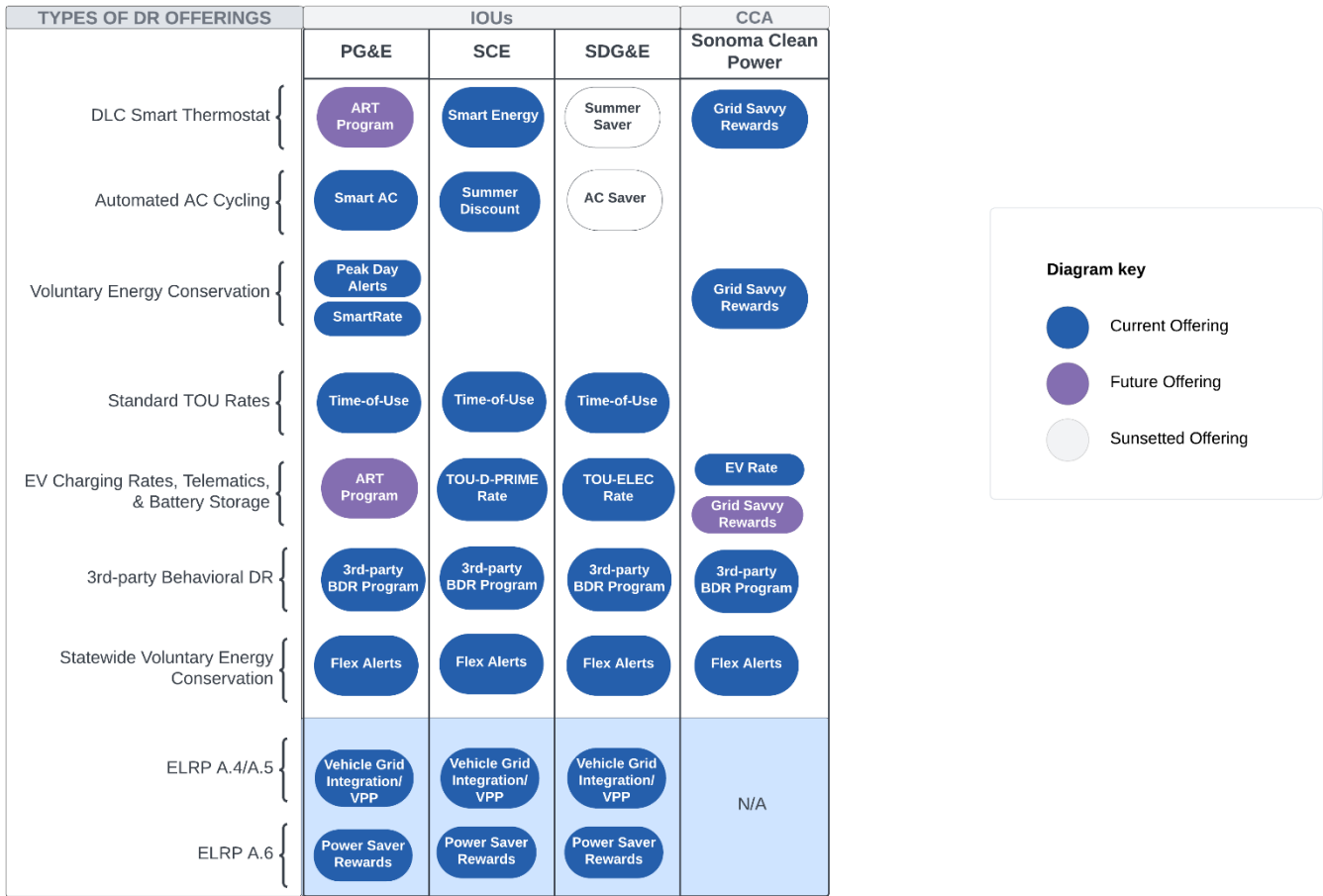
Figure 6 presents the available residential demand response programs as of January 2024. It also includes any offerings yet to be launched and ones that have been sunset.³² Depending on the provider, residential customers have different options regarding DR programs. Each IOU's offerings are varied and include rate-based solutions, BDR offerings, and, for two out of three IOUs, direct load control programs. Most customers are defaulted to TOU electricity rates and have additional TOU rate options available to them. All other DR programs, apart from Flex Alerts, which gets dispatched to all customers across the state, and PSR, which defaulted certain customers into the program in 2022 and 2023,³³ are currently operating on an opt-in basis, where customers must proactively enroll to participate. The third-party BDR program we reviewed is available for customers across the three IOUs and Sonoma Clean Power, in some cases in addition to or instead of the existing programs. In the context of CCAs, Sonoma Clean Power's service territory overlaps with PG&E's, and as such, SCP's customers can take advantage of PG&E TOU rates but not the DR programs.

³¹ This DRP wished to remain anonymous in our reporting.

³² Two programs previously offered by SDG&E—"Summer Saver" and "AC Saver"—were cut from the residential DR portfolio as of 2024 as they no longer met cost-effectiveness requirements. PG&E plans to implement a new program in the next several months called the Automated Response Technology (ART) program, which will focus on DR associated with residential smart technology. Further, ELPR A.6, with the customer-facing name of Power Saver Rewards, is currently offered but will sunset in 2025.

³³ Starting in 2024, PSR will no longer default customers into the program.

Figure 6. Residential DR Programs Across IOU, CCA, and 3rd Party DRP Stakeholders (as of January 2024)



Customer eligibility criteria, such as the presence of enabling technologies like smart thermostats and smart EV chargers, further define customer engagement possibilities. PAs highlighted two key residential groups who are eligible for their DR offerings: (1) ratepayers with smart technology such as smart thermostats, meters, and Wi-Fi-enabled electric vehicle (EV) chargers and (2) ratepayers with or without smart technology who are willing to reduce their electricity load when called upon. Within these groups, these programs prioritize a wide variety of residential customer types. Table 6 details the customers who fall into these groups and have been or are priority participants for these programs.

Table 6. Priority Customer Types for Residential DR Offerings

Residential Customer Types	Description of Priority
High Energy Users	Customers who traditionally consume larger amounts of energy than others, especially during peak times
Low-Income Customers	Customers who could greatly benefit from energy savings to reduce their bills and earn money through energy incentive programs
Renters	Customers who live in multifamily units and are traditionally left out of DR programs
Participants Of Dissolved Programs	Customers who were participants in a previously existing DR program that has now ended
EV Owners	Customers who own electric vehicles (EVs) and/or EV chargers
Smart Technology Customers	Customers who own and have installed technology capable of being programmed or controlled by their utility

Note: While low-income customers and renters are less common targets for DR programs, two different PAs specifically mentioned them in relation to GridSavvy Rewards and Peak Day Alerts.

We asked stakeholders to what degree PAs coordinate on the design and implementation of their residential DR programs to understand potential programmatic overlap and how this may affect customer participation. **Generally, program design and implementation are left to the discretion of the individual DRP, though some degree of coordination occurs.** Across each of the PA types, we learned about the following collaborative relationships:

- CCAs and IOUs. Two representatives from different IOUs said that IOUs meet occasionally with larger CCAs to coordinate existing and future program offerings and maintain visibility into customer overlap. This way, customers can be served appropriately and adequately.
- IOUs and third-party DRPs. Representatives from each of these organization types said coordination on program offerings only occurs for CPUC-mandated data-sharing rules and marketing requirements, which require that IOUs display clickthrough links for third-party DR programs on their DR homepages. Outside of this, no other coordination around program offerings takes place.
- Third-party DRPs and CCAs. One representative from the third-party DRP shared that CCAs without DR programs are usually open to coordinating with third parties to offer DR programs to their customers.

4.3.2 CUSTOMER JOURNEY PATHWAYS

To further understand the choices available to customers, we documented a range of journey pathways that customers can take. Collectively, these pathways demonstrate that customers are consistently presented with several residential DR programs and program types with differing participation rules and requirements. Given the number of offerings, it may be difficult for the average customer to discern the available offerings and the various participation rules that may affect their enrollment eligibility.

Below, we outline the different pathways for customers of each of the California IOUs and SCP, a CCA.³⁴ As shown in Figure 6, each of the California IOUs has a unique set of residential DR offerings available to prospective participants. However, some commonalities exist, including the PSR program, which is offered across all three IOUs as part of the Emergency Load Reduction Program (ELRP), Flex Alerts, and TOU rates.³⁵ Generally, prospective participants of IOU residential DR programs must be either IOU customers or eligible CCA customers. Like IOUs, CCAs can design and implement their own residential DR programs. IOU residential DR programs are often available to CCA customers as well,³⁶ though there are exceptions depending on IOU rules or the availability of residential DR offerings from a customer's CCA. We found that many CCAs did not run in-house programs and often partnered with third parties or overlapping IOUs. Our CCA customer pathway focuses on SCP, one of a handful of CCAs offering residential DR programs to their customers.

Pathways follow a linear structure, beginning with the residential customer on the left and the flow of programs and offerings to the right. Each pathway is accompanied by a color-coded legend that provides context for participation with respect to other offerings available to a given customer.

³⁴ These pathways are limited to the utilities explored as part of our landscape analysis. Additionally, please note that while we do consider third-party DRP programs in our landscaping of program options and analysis of program participation, we do not showcase a customer journey pathway beginning from a third-party DRP perspective. Customer choice for DR programs begins at the utility customer level, with third-party DRP programs being one option among others for IOU and CCA ratepayers.

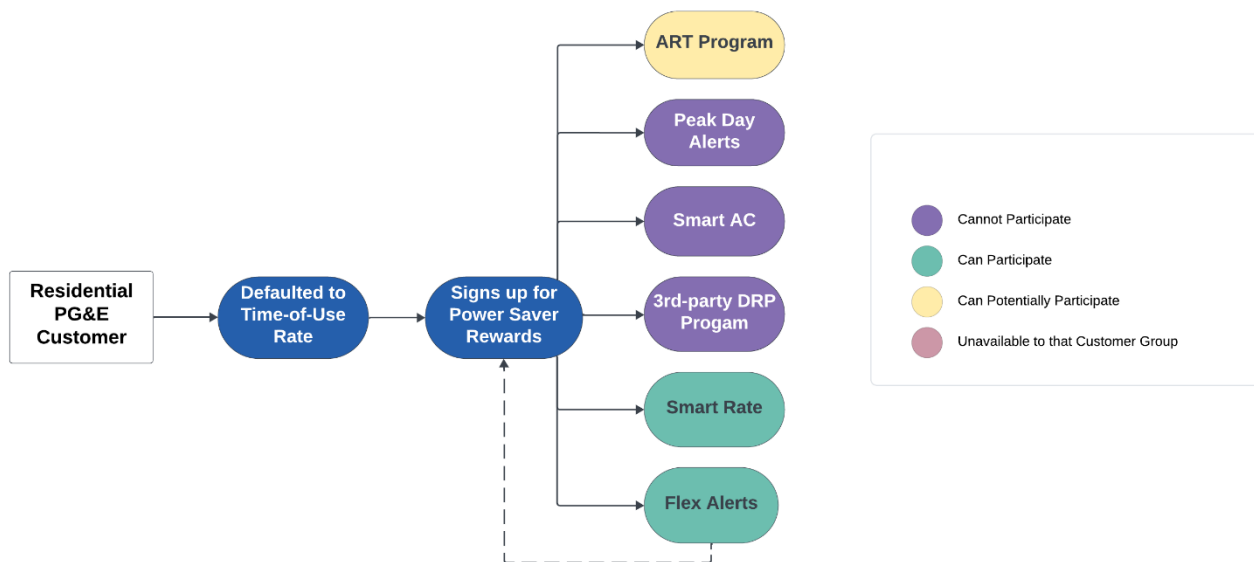
³⁵ All Californian's were defaulted onto TOU rates regardless of their utility; however, each utility can offer additional TOU rates in which customers can choose to participate.

³⁶ <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/demand-response-dr/dr-information-and-faqs-for-consumers>.

PG&E

The PG&E customer journey (see Figure 7) demonstrates a potential pathway for a residential PG&E customer who signs up for PG&E's Power Saver Rewards program.³⁷ In addition to being enrolled in PSR, this customer may opt-in to the PG&E Smart Rate program, which offers customers lower rates for reducing or shifting energy usage when asked to do so throughout the summer months.³⁸ This customer can participate in Smart Rate because, according to PG&E's Electric Rule 24, PG&E can set its own enrollment rules for programs within its organization, and PG&E allows dual participation in some of its DR-focused programs. However, once a PG&E customer is enrolled in either or both programs, they may not participate in a third-party DR program or any of PG&E's additional residential DR programs (Smart AC or Peak Day Alerts).³⁹ The one exception may be PG&E's ART Program, which is still under development and has not begun actively accepting participants.

Figure 7. Customer Journey Pathway for a Residential PG&E Customer



SCE

While SCE offers a large number of DR programs, Figure 8 demonstrates that a residential SCE customer who signs up for SCE's Power Saver Rewards program may also participate in two additional programs: Flex Alerts, which are voluntary and do not require prior enrollment,⁴⁰ and the TOU-D-PRIME rate plan, which is meant for customers who have electric vehicles, battery storage, or a heat pump for water or space heating.⁴¹ This customer may not, however, enroll in the Smart Energy Program, a direct load control smart thermostat program,⁴² or the Summer Discount Program, an automated AC cycling program.⁴³ Based on SCE's Electric Rule 24, the IOU does not allow dual

³⁷ Please note that a customer who is enrolled in Power Saver Rewards also, by nature of the program, participates in a Flex Alert.

³⁸ Pacific Gas and Electric. "PG&E SmartRate™." <https://www.pge.com/en/account/rate-plans/find-your-best-rate-plan/smartrate.html#accordion-aab9e3dddd-item-b862c44e20>.

³⁹ According to PG&E's [Electricity Rule 24](#), a participant may not be dually enrolled in an IOU DR program and a third-party DR program.

⁴⁰ Most PSR events are triggered when the CAISO issues a Flex Alert; however, this is not always the case. If a Flex Alert is issued on short notice and does not allow for day before notification, then the IOU may not call a PSR event, thus creating an opportunity to take action during a Flex Alert outside of the PSR program.

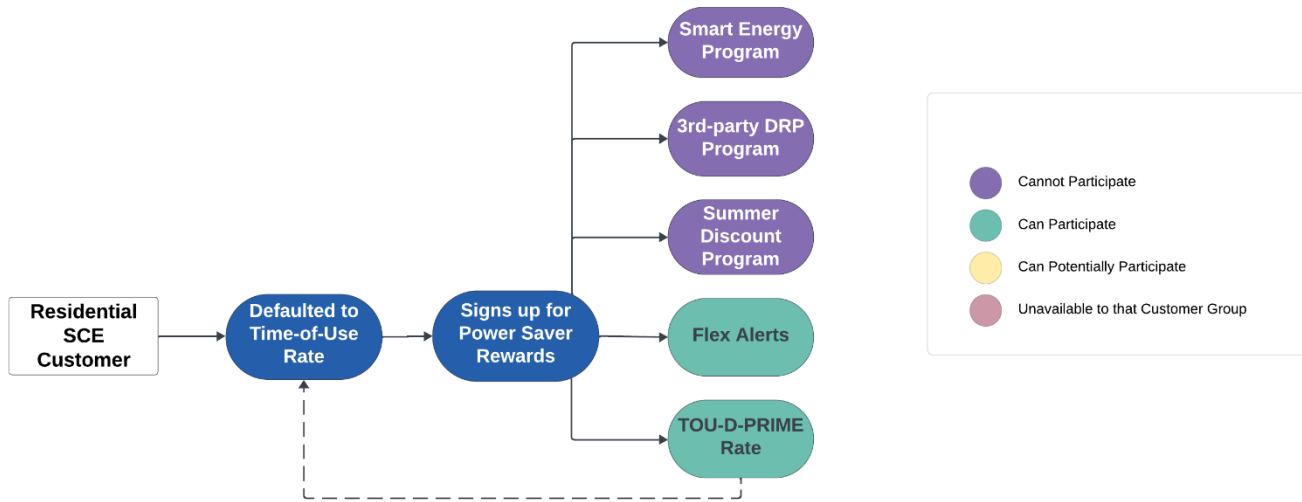
⁴¹ Southern California Edison. "Time-Of-Use Residential Rate Plans." <https://www.sce.com/residential/rates/Time-Of-Use-Residential-Rate-Plans>.

⁴² Southern California Edison. "Smart Energy Program Terms and Conditions, and Smart Energy Program Disclaimer." <https://www.sce.com/tnc/smart-energy-program-terms-and-conditions>.

⁴³ Southern California Edison. "Summer Discount Plan." <https://www.sce.com/residential/rebates-savings/summer-discount-plan>.

participation in more than one SCE DR-focused program. Under the same rule, SCE prohibits dual enrollment in an SCE program and a third-party DRP program.

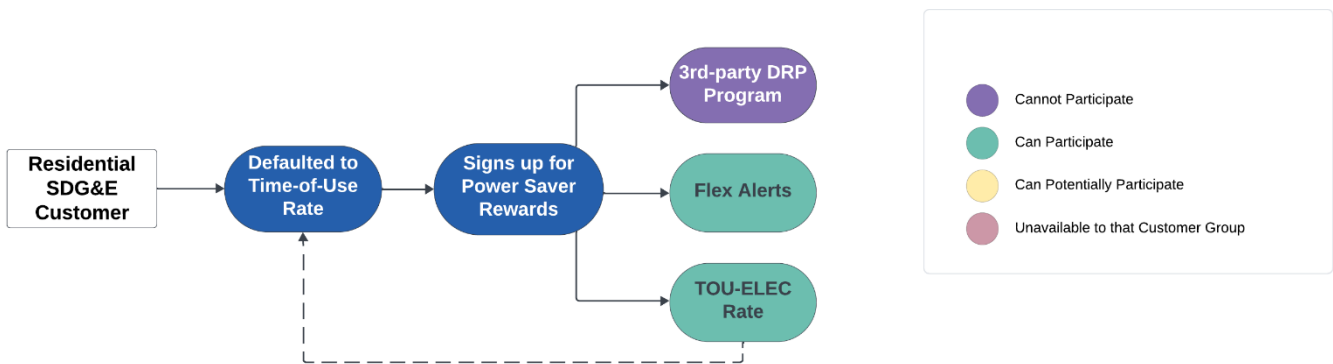
Figure 8. Customer Journey Pathway for a Residential SCE Customer



SDG&E

In the case of an SDG&E customer who signed up for PSR, two other programmatic options are available (see Figure 9). In addition to PSR, this customer may participate in Flex Alerts or switch their TOU rate plan to the TOU-D-ELEC rate plan,⁴⁴ which is meant for customers who have electric vehicles, battery storage, or a heat pump for water or space heating. Under SDG&E’s Electric Rule 32, however, they may not enroll in any other SDG&E residential DR offering or third-party DR program.⁴⁵

Figure 9. Customer Journey Pathway for a Residential SDG&E Customer



Note: We learned in our stakeholder interviews that two SDG&E programs—Summer Saver and AC Saver—are no longer in operation and, therefore, excluded from this pathway.

⁴⁴ Most PSR events are triggered when the CAISO issues a Flex Alert, however this is not always the case. If a Flex Alert is issued on short notice and does not allow for day before notification, then the IOU may not call a PSR event, thus creating an opportunity to take action during a Flex Alert outside of the PSR program.

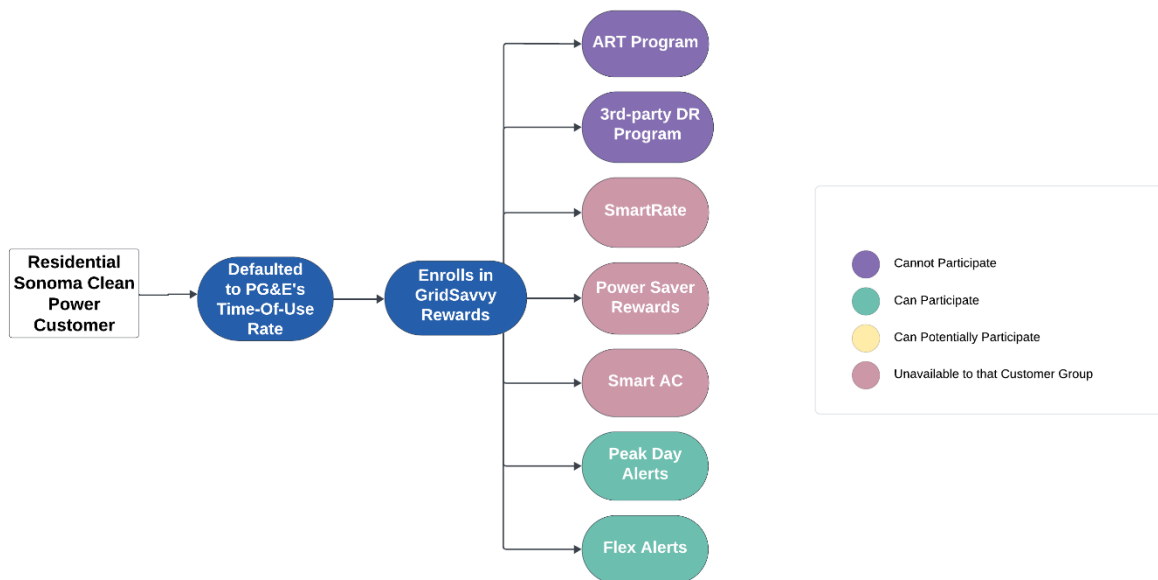
⁴⁵ San Diego Gas and Electric Company. “Rule 32: Direct Participation Demand Response.” December 21, 2017. https://tariff.sdge.com/tm2/pdf/tariffs/ELEC_ELEC-RULES_ERULE32.pdf.

Sonoma Clean Power (SCP)

Overall, CCA customers have a unique and more complex set of options in terms of program availability, as demonstrated through the SCP case, primarily because of additional options available to CCA customers from IOUs. More specifically, SCP customers generally have access to some PG&E programs, but not all. For instance, neither SmartRate nor Power Saver Rewards are available to SCP customers; however, they can participate in SmartAC or Peak Day Alerts (though, SmartAC program is currently not accepting applications and Peak Day Alerts program is an opt out program). At the same time, SCP offers its own DR program, GridSavvy, which is available to SCP customers with smart thermostats, EV charging, or other smart home devices enabling load curtailment during peak hours. Customers with eligible technologies can enroll in the program. Once enrolled, customers will not be eligible for any other programs offered by SCP or PG&E except Flex Alerts.

Figure 10 shows a potential customer journey pathway for a residential SCP customer who signs up for SCP’s GridSavvy Rewards program. This customer may also participate in PG&E’s Peak Day Alerts program,⁴⁶ which automatically enrolls customers, and Flex Alerts. According to PG&E’s Electric Rule 24, a DR customer is prohibited from dual enrollment with more than one DRP registered with the CAISO,⁴⁷ which prevents this residential SCP customer from participating in other PG&E programs or any offering from a third-party DRP.

Figure 10. Customer Journey Pathway for a Sonoma Clean Power Residential Customer



4.3.3 THE ROLE OF MARKETING, EDUCATION, & OUTREACH

ME&O STRATEGIES

Understanding the complexities of demand response and navigating the available programmatic options necessitates educational and promotional efforts on the part of PAs and the State. The Statewide Flex Alert ME&O campaign provides broad, foundational messaging and content to support awareness raising, education, and voluntary action. At the same time, the PAs promote specific program offerings to spur enrollment and participation.

⁴⁶ Please note that dual enrollment across DRPs in this case is allowed, given that Peak Day Alerts is not a CAISO-registered DR program.

⁴⁷ Pacific Gas and Electric. “Electric Rule No. 24: Direct Participation Demand Response.” December 12, 2017.

https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_RULES_24.pdf

At the Statewide level, the Flex Alert ME&O campaign focuses on promoting Flex Alerts and the PSR program to Californians using a range of marketing strategies. A key goal of the Flex Alert campaign is to build awareness of these offerings and educate Californians on the actions they can take during grid stress events to reduce their energy usage and strain on the grid to prevent blackouts. The campaign also includes a Flex Alert call-to-action response to notify Californians when a Flex Alert event is called and motivate energy-saving action. Overall, the campaign messaging is focused on reinforcing a sense of self-efficacy—*The Power is Ours*—in addressing grid emergencies.

Table 7. Statewide Flex Alert ME&O Campaign Strategies

Campaign Actors	Description of Responsibilities	ME&O Activities
Campaign Slogan: “The Power is Ours”		
DDB Group	<i>Statewide campaign marketer and implementer focused on both Flex Alerts and Power Saver Rewards branding and marketing</i>	<ul style="list-style-type: none"> ▪ Television and radio ads ▪ Outdoor digital and print placements Newspapers <ul style="list-style-type: none"> ▪ Paid search on Google and social media (Facebook, Instagram, and Twitter) ▪ Multiple digital channels, including displays, videos, streaming audio ▪ SMS texts to Californians across the state, using available records ▪ Various partnerships (Nextdoor and CBOs) ▪ Website hosting: https://energyupgradeca.org/flex-alert
CAISO	<i>Grid operator responsible for issuing Flex Alerts and notifying customers when Flex Alerts are called via opt-in SMS</i>	<ul style="list-style-type: none"> ▪ SMS texts to customers who signed up for notifications ▪ Website hosting: Flexalert.org
IOUs	<i>Utilities responsible for Power Saver Rewards program implementation and promotion</i>	<ul style="list-style-type: none"> ▪ Emails ▪ Bill inserts ▪ Newsletters ▪ Letters and mailings ▪ Website notification banners
CBOs	<i>Community-based organizations partnered with DDB Group to educate local communities about Flex Alerts and Power Saver Rewards and notify them when Flex Alerts are issued</i>	<ul style="list-style-type: none"> ▪ Tabling/canvassing at community-focused events ▪ Door-to-door canvassing ▪ Newsletters ▪ Letters and mailing ▪ Emails ▪ SMS texts to CBO contact lists ▪ Radio broadcasts ▪ Social media posts

In concert with Statewide ME&O, the entities administering residential demand response programs, including BDR in the form of PSR, actively promote their program offerings to target customer segments. Across the PAs interviewed for this study, approximately half of the respondents mentioned each of the following strategies.

- **Direct Mail Marketing:** Marketing materials sent directly to the customer via mail to provide details about the program or offering(s).
- **Social Media Marketing:** Online posts on social media platforms like Facebook, Instagram, and Twitter publicizing DR programs or offerings to residential customers.
- **Email Marketing:** Digital marketing materials sent directly to the customer via email to provide details about the program or offerings(s).
- **Community-Based Marketing:** Paid partnerships and collaborations with CBOs to spread the word about DR and associated offerings and programs to their constituents.

- Cross-Program Promotion/Channeling: While only mentioned by one PA, in-home audits present a unique opportunity to talk with customers about DR program opportunities. Within this context, one of the PAs has energy efficiency program staff provide information to customers as part of delivering that programming.

Overall, promotional strategies are generally consistent across the Statewide and PA ME&O efforts, although the PAs often target their programs and associated outreach to specific groups of customers, whereas the Statewide campaign is intended to reach a broader set of consumers. Furthermore, messaging differs between the Statewide campaign and PA marketing efforts, with the PAs emphasizing the financial incentives they can offer customers through enrollment and participation. The following themes emerged in the discussion of PA marketing messaging for DR programming:

- Personal financial rewards: All of the PAs have focused their messaging on the financial rewards available to those who participate in these programs and make clear that there is no penalty for failing to reduce energy usage during event periods. In some cases, an enrollment bonus was also offered to encourage participation.
- Supporting the electric grid. A few PAs specifically mentioned the support participants provide to the electric grid by reducing their energy use during periods of high demand.
- Helping the State and/or local communities. A couple of PAs utilized messaging around the role that customers can play in helping their local community and the state more broadly in times of strain on the electric grid.

Due to the different objectives of the Statewide and PA ME&O efforts (i.e., education versus enrollment), it is not surprising that coordination on ME&O has been limited to Flex Alerts and PSR. Interviews with the various PAs revealed that outside of the requirement that IOUs display links for third-party DR programs on their DR homepages, there is no coordination on ME&O for residential DR offerings. There was also no mention of coordination between the IOUs and CCAs in this area. Coordination does occur at the statewide level related to ME&O for Flex Alerts and the PSR program. Within this context, various stakeholders attend a monthly Flex Alert Stakeholder meeting facilitated by the DDB Group. During these meetings, DDB provides updates on the statewide campaign and data related to campaign reach through its various channels. When the PSR program was rolled out in 2022, the IOUs also used these stakeholder meetings to keep each other up-to-date and coordinate some program design elements, such as the timing of the incentive payment.

CUSTOMER CONFUSION

As articulated by the CPUC in Decision 17-12-023, there is a risk of customer confusion if ME&O is not coordinated:

“The most important objective for all of the ME&O activities for demand-side programs in general is that they be coordinated.” [Decision 12-05-015]

“Coordination and integration [of ME&O] will allow more efficient and effective messaging. In contrast, duplicative or unsynchronized messaging poses risks of confusing or even alienating customers.” [Decision 17-12-023]

While this study did not ultimately include research with consumers throughout the State, our analysis of the programmatic landscape for residential DR suggests the possibility that customer confusion exists. As mentioned in Section 4.3.2, DRPs like the IOUs and CCAs can set enrollment rules that may vary across their DR programs. There are also third-party DRPs that offer programs to these same customers, which further expands DR participation options. Navigating these options and deciding which one to choose may be a challenge for some customers, especially those who are not already familiar with DR or other energy-related incentive programs. This is supported by our exploration of

various program participation pathways (Section 4.3.2), which demonstrated a variety of ways in which a customer can engage with the marketplace of DR offerings available to them.

In addition, over half of the PA representatives with whom we spoke (3/5) believed customer confusion existed. They expressed that, when faced with various messages and marketing from multiple sources, customers can become confused about grid and energy management concepts, what DR offerings are available to them, who can offer DR services to them, and their current program participation status. That said, one respondent did not believe there was sufficient messaging in the market to cause customer confusion.

Our review of literature supports the sentiment expressed during stakeholder interviews. A recently published Lawrence Berkeley National Laboratory study⁴⁸ highlights complex DR program landscape as a barrier to realizing DR potential. More specifically, the study authors claim the following:⁴⁹

“The number of possible options for participating in DR programs, as well as the complex rules around program participation, baselining, and settlement, serve as barriers to program participation. At the highest level, customers have a choice between participating in a supply side CAISO program (often through a third-party aggregator) and/or a local IOU program. In addition, there are voluntary statewide programs, such as FlexAlerts (non-compensated conservation alerts called by CAISO), which some customers may confuse with DR events called by their IOU DR program (McGuire & Company 2014). When deciding whether to participate in a program or which one to participate in, customers must understand whether they are eligible to participate, how they will be notified about events, and how their incentive payment (and non-performance penalty if applicable) will be calculated. The program marketing materials and customer education are often not sufficiently tailored for different customer segments to address their specific needs (Campbell and Patterson 2014). For CCA customers, there may be confusion about whether and how they can participate in DR programs run by the local IOU. This complex landscape requires effective program design and customer education.”

⁴⁸ Gerke, Brian, Sarah Smith, Samanvitha Murthy, Sun Baik, Shreya Agarwal, Peter Alstone, Aditya Khandekar, et al. 2024. “The California Demand Response Potential Study, Phase 4: Report on Shed and Shift Resources through 2050.” https://eta-publications.lbl.gov/sites/default/files/phase_4_dr_potential_study_final_2024-05-21.pdf.

⁴⁹ Ibid, 129.

5. KEY TAKEAWAYS AND RECOMMENDATIONS

We synthesized findings across our research tasks to identify several conclusions and recommendations for the CPUC and other relevant stakeholders to consider. We summarize these conclusions and recommendations below.

- **Conclusion 1.** Evolving policy goals and objectives have led to a broad range of DR programs and supporting ME&O efforts to meet emerging energy and grid needs. In the current landscape, multiple stakeholders are involved in California’s policy development, design, implementation, and dispatch of DR programs. Despite this complexity, our research shows (1) a strong alignment of current programs with existing policy goals and objectives, (2) a collaborative DR policy process, and (3) an integrated process for designing and delivering DR programs. That said, stakeholders are not always aligned on classifications and definitions of demand flexibility and BDR. A common classification and nomenclature framework would deepen productive stakeholder conversations, minimize confusion, and establish further continued alignment with policy goals and objectives.
- **Recommendation 1.** The CPUC should consider revisiting DR nomenclature and definitions to establish a common framework for classifying DR programs and initiatives. Such a framework should ideally be forward-looking and incorporate the elements of the emerging policy goals and objectives, such as a focus on demand flexibility principles and dynamic pricing models.
- **Conclusion 2.** Despite being well coordinated, the California DR landscape is nonetheless crowded in terms of programs and initiatives, which can lead to confusion regarding the availability and eligibility for residential customers. Our analysis shows that, in almost all cases, participants can engage in at least three load-modifying programs, including time-of-use rates. The landscape is more complex for CCA customers and customers residing in areas with active DRP presence—those customers need to navigate a more complex and multi-layered environment. This complexity exhibits itself in terms of program availability, eligibility, marketing, and a variety of incentive levels rewarding participation. While processes exist to guide customers through the enrollment and engagement process, customer perceptions, including awareness and confusion, are not known. The results from our study, however, do suggest possible customer confusion. We hypothesize that customer confusion around engagement pathways can constrain customer enrollment, participation, and performance. With customer engagement being a key barrier to advancing demand flexibility in the state, understanding customer sentiment is an important factor in shaping the role and value of future ME&O efforts.
 - **Recommendation 2.** The CPUC should consider conducting customer research to assess awareness and understanding of DR program options, engagement pathways, and any possible confusion and blockers to engagement. This research would deepen the understanding of customer participation and experience with residential DR offerings across the state and assess the degree of confusion in the marketplace to better inform future ME&O.
- **Conclusion 3.** California policy goals and the program landscape continue to evolve. The sunset of PSR and a general shift toward the demand flexibility and dynamic pricing vision, while continuing to advance an array of dispatchable and behavioral DR programs available to customers, will likely shape the future landscape. Our extensive research into Statewide ME&O suggests the effectiveness of ME&O efforts in deepening customer awareness, understanding, and, more importantly, preparedness for Flex Alerts. Building upon these empirically established outcomes and leaning upon a range of successful approaches applied over the last ten years of administering Statewide ME&O efforts, future ME&O can advance customer awareness, understanding, and comfort with new demand flexibility paradigms and concepts, leading to greater participation and deeper engagement.
 - **Recommendation 3.** The CPUC should consider exploring additional pathways for ME&O to support emerging flexible load program needs by leveraging a strong body of best practices and proven outcomes. One of the pathways could include leveraging ME&O to advance awareness and understanding of demand flexibility, its benefits, preparedness, and customer journey. Another pathway could support enhancing

customer decision-making regarding suitable program choices and a customer journey toward more sophisticated alternatives as customer experience grows and opportunities (such as the adoption of enabling technologies, connected devices, and automation capabilities) for different engagements present themselves.

APPENDIX A. LANDSCAPE ANALYSIS INTERVIEW GUIDE

As part of our landscape analysis, we conducted in-depth interviews with stakeholders to deepen our understanding of residential DR offerings in the state and understand their perspectives on the residential DR market in California overall. Please find the interview guide attached below.



Landscape Analysis
Interview Guide_Maste

APPENDIX B. POLICY CATALOG

We created a policy catalog of all load management policy documents relevant to residential DR in California. Figure 2 displays a condensed timeline of this information.

Document Title	Shortened Document Title	Implementing Organization	Date Issued/Adopted	Summary	Web Links for All Documents
The Public Advocates Office Petition To Open A Rulemaking Pursuant To Public Utilities Code Section 1708.5	Petition of Order to Institute Rulemaking Around Policy Goals and Program Design	Public Advocates Office (PAO)	3/18/2024	This Petition calls for the CPUC to issue an OIR around the alignment of California's "electrification, decarbonization, equity, and reliability" goals with current "demand-side program designs and budgets" (p. 1). Specifically, energy efficiency, demand response, and Energy Savings Assistance (ESA).	Link
Decision Directing Certain Investor-Owned Utilities' Demand Response Programs, Pilots, And Budgets For The Years 2024-2027	Decision 23-12-005: Decision for DR Programs and Pilots 2024-2027	CPUC	12/20/2023	This Decision implemented changes to the DR portfolio across IOUs. It stops defaulting customers into the ELRP program and sunsets ELRP after 2025. It also extends the Flex Alert Campaign through 2025. In addition, dual participation rules will remain unchanged, though future changes will be considered after more research is done on the issue.	Link
California Energy Commission Report: Senate Bill 846 Load-Shift Goal Report	CEC SB 846 Load-Shift Goal Report	CEC	5/26/2023	This report, as mandated to be published under SB 846, established a goal of 7,000 MW of load shift by 2030. This is to be achieved through various pathways including supply-side programs, load-modifying measures, and incremental and emergency measures.	Link
Decision Adopting Electric Rate Design Principles And Demand Flexibility Design Principles	Decision 23-04-040: Adoption of Electric Rate Design and Demand Flexibility Principles	CPUC	5/3/2023	This Decision acted as the formal adoption of electric rate and demand flexibility principles in order to support the policy goals outlined in the associated rulemaking.	Link
Final Commission Report: Clean Energy Reliability Investment Plan	Clean Energy Reliability Investment Plan	CEC	3/2/2023	This report is in response to SB 846's requirement that the CEC develop a plan to "invest in programs and projects that would accelerate the deployment of clean energy resources, support demand response, assist ratepayers, and increase energy reliability" (p. 1). The report identifies priority investment areas: (1) transmission upgrades to accommodate clean energy coming onto the grid, (2) customer demand response and energy efficiency measures, (3) supply-side technologies (i.e. battery storage), and (4) further investment in strengthening reliability during extreme weather events.	Link
Order Instituting Rulemaking To Continue The Development Of Rates And Infrastructure For Vehicle Electrification.	Decision 22-11-040: Decision on OIR to Develop Rates and Infrastructure for EVs	CPUC	11/21/2022	This decision authorizes a jointly funded rebate program for EV charging infrastructure in the state (FC1). It also creates three focus areas for VGI deployment: "rates and demand flexibility programs, technology enablement, and planning" (p. 172). This aligns VGI with existing load management goals in the state and builds off of policy in previous Decisions and Rulemaking. It also dismissed an IOU-led general awareness ME&O effort for TE to avoid duplicative ME&O efforts.	Link
Updates to Load Management Standards (2022)	Load Management Standards (2022)	CEC	10/22/2022	This update to the Load Management Standards (LMS) incorporated new requirements for large utilities and CCAs to promote demand flexibility and load flexibility measures such as hourly time-varying rates and automation technologies.	Link
California Senate Bill 846	SB 846	California State Legislature	9/1/2022	This bill directs the CEC, in coordination with the CPUC and CAISO, to set a biennial load-shifting goal to reduce net peak electricity demand. This is to be included in the energy policy report already required under existing law (SB 100). CEC, along with the CPUC and Air Resource Board, shall publish, every four years, a joint report that reviews existing policy and evaluates other potential modes of reaching renewable energy and GHG goals for the state (and other goals outlined in the bill).	Link




Document Title	Shortened Document Title	Implementing Organization	Date Issued/Adopted	Summary	Web Links for All Documents
Order Instituting Rulemaking to Advance Demand Flexibility Through Electric Rates.	Rulemaking 22-07-005: Order Instituting Rulemaking to Advance Demand Flexibility Through Electric Rates.	CPUC	7/22/2022	This Rulemaking emphasized the importance of a focused approach to demand flexibility and recognized it as an important tool in California's load management repertoire. It called for updates to electric rate design principles to align with key goals related to load management, generation, and renewable energy goals. It also set the stage for demand flexibility pilots, programs, and research.	Link
California Assembly Bill 205	Assembly Bill 205	CA State Legislature	6/30/2022	This bill authorized the implementation of two key CEC-led DR programs: the Demand Supply Grid Support (DSGS) program and the Distributed Electricity Back-Up Assets (DEBA) program.	Link
CPUC Distributed Energy Resources Action Plan Aligning Vision and Action	DER Resource Plan 2.0	CPUC	5/21/2022	A comprehensive action plan that works to coordinate CPUC efforts with the implementation of energy-forward policy to meet climate goals.	Link
Energy Emergency: Proclamation of Emergency	Proclamation of Emergency	Governor's Office	7/31/2021	This Emergency Proclamation was issued in response to the rolling blackouts during the summer of 2021. It called upon California agencies to ensure adequate electricity procurement through "rapid deployment of clean energy and storage projects" (p. 3) and the implementation of grid resiliency measures to protect the integrity of the grid, especially during emergent situations related to climate change.	Link
Phase 2 Decision Directing Pacific Gas And Electric Company, Southern California Edison Company, And San Diego Gas & Electric Company To Take Actions To Prepare For Potential Extreme Weather In The Summers Of 2022 And 2023	Decision 21-12-015: Summer Reliability Decision 2022-2023	CPUC	12/6/2021	Decision 21-12-015 was passed in 2021 in response to Governor Newsom's Emergency Proclamation. It called for expanding the ELRP program to include residential customers and defaulting certain residential customers (i.e., CARE and FERA). It also included changes and additions to the demand response portfolio in the state across the IOUs.	Link
Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future	Rulemaking 21-06-017: High DER Future	CPUC	7/21/2021	This rulemaking establishes the importance of grid modernization and distribution planning to accommodate the rapidly growing DERs in the state, in alignment with the state's clean energy and grid resiliency goals. It creates three distinct "tracks" through which to focus research and next steps, including (1) Roles and Responsibilities, (2) Distribution Planning and DER Integration, and (3) Grid Modernization Interventions.	Link
Decision Directing Pacific Gas And Electric Company, Southern California Edison Company, And San Diego Gas & Electric Company To Take Actions To Prepare For Potential Extreme Weather In The Summers Of 2021 And 2022	Decision 21-03-056: Summer Reliability Decision 2021 - 2022	CPUC	3/26/2021	This Decision approved the Flex Alert paid media campaign, as well as the Emergency Load Reduction Program. It also instituted changes and additions to the DR program portfolio across the IOUs.	Link
SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future	2021 SB 100 Joint Agency Report	CPUC, CEC, California Air Resources Board	3/15/2021	This report presents findings from modeled scenarios on how to effectively implement SB 100 to achieve 2030 and 2045 electricity sale and procurement goals (60% and 100% renewable, respectively). Solar and Battery Storage technology need to come online in record-setting fashions over the next two decades. Natural Gas can help reduce updated grid costs in the interim years as more 100% clean technology comes online. Further modeling will be done in the next report to ensure fulfillment of California's grid reliability standards.	Link
The 100 Percent Clean Energy Act of 2018	SB 100	California State Legislature	9/10/2018	SB 100 updated key sections of the Public Utilities Code. It established that electricity sales and procurement should be 100% renewable by the end of 2045. It also required the CEC, CPUC, and Air Resource Board to issue a joint report every 4 years focusing on the review and evaluation of policies and activities that can help the State reach its renewable energy goals. Agencies shall utilize existing resources at their disposal to reach these goals.	Link
Decision Adopting Demand Response Activities And Budgets For 2018 Through 2022	Decision 17-12-003: Decision for DR Programs and Activities 2018 - 2022	CPUC	12/21/2017	This Decision directed IOUs to update their DR webpages to include a list of third-party DRPs operating in their territory to "ensure a level playing field" and "ensure customer choice" (p. 102). The IOUs should also allow the customers to be able to click through to the third-party site.	Link

Document Title	Shortened Document Title	Implementing Organization	Date Issued/Adopted	Summary	Web Links for All Documents
Decision Addressing Statewide Marketing, Education, And Outreach For Residential Rate Reform	Decision 17-12-023: Decision for Residential Rate Reform (RRR) ME&O	CPUC	12/20/2017	This decision expanded the EUC campaign and DDB's work on statewide energy efficiency to include statewide residential rate reform (RRR) ahead of default TOU in 2019. This also established a phased-in approach to TOU instead of a "big bang approach" (p. 48) where IOU customers would all transition at once.	Link
"Decision On Residential Rate Reform For Pacific Gas And Electric Company, Southern California Edison Company, And San Diego Gas & Electric Company, And Transition To Time-Of-Use Rates"	Decision 15-07-001: Decision on Residential Rate Transition to TOU Rates for IOU customers	CPUC	7/3/2015	This Decision directed IOUs to begin research and evaluation efforts to transition their residential customers to default TOU rates and an optional 2-Tiered Rate option. It also mandated IOUs to implement TOU pilots and build rate comparison tools before default IOU rates could be fully implemented. The Decision also called for ME&O to customers to raise awareness for TOU rates. These default rates were to be fully adopted by 2019.	Link
Decision Adopting Local Procurement And Flexible Capacity Obligations For 2015, And Further Refining The Resource Adequacy Program	Decision 14-06-050: Decision for 2015-2017 Local Procurement and Flex Capacity Obligations	CPUC	7/1/2014	This Decision affirmed local and all-combined capacity requirements for 2015. More importantly, it established a "flexible capacity framework" (p. 2) and additional Resource Adequacy requirements. It also defined "flexible capacity need" as "the quantity of resources needed by CAISO to manage grid reliability during the greatest three-hour continuous ramp each month" (p. 2).	Link
Decision Providing Guidance On 2013-2014 Energy Efficiency Portfolios And 2012 Marketing, Education, And Outreach	Decision 12-05-015: ME&O Guidance Decision/Full Adoption of EUC Campaign	CPUC	5/18/2012	This Decision directed IOUs to adopt Energy Upgrade California as an "umbrella brand" (p. 300) for statewide marketing of demand response and energy efficiency to support statewide goals of energy conservation and emission reduction.	Link

APPENDIX C. BREADTH OF POLICY ALIGNMENT

Generally, we found that the current suite of residential DR (and BDR) offerings included in this study aligns with most of California’s energy policy goals and objectives. Opportunities for further alignment of DR offerings to policy objectives are specific to ME&O-related objectives, which are contained within Policy Goals 3 and 4. The following subsections take a closer look at each of our assessments of alignment for the DR offerings to each of the policy goals and associated objectives.



Table 8. Degrees of Alignment Between Residential DR Offerings and Policy Goals and Objectives

Degrees (“Scores”) of Alignment	Description	Alignment Map Key
Aligned	The suite of residential DR offerings is aligned with the given policy objective and directly supports California’s overarching energy policy goals.	
Opportunities for Further Alignment	The suite of residential DR can be better aligned with the given policy objective to support California’s overarching energy policy goals more directly.	
Misaligned	The suite of residential DR is completely misaligned with the given policy objective and does not directly support California’s overarching energy policy goals.	

POLICY GOAL 1: CALIFORNIA IS POWERED BY A CARBON-FREE ELECTRIC GRID.

For Policy Goal 1, we found the suite of residential DR offerings to be aligned with each of the policy objectives listed in Table 9. Both objectives provide direction for increased capacity and sale of clean and renewable energy, which are directly supported by load management measures like DR programs.






Table 9. Alignment Map of Policy Goal 1 with Residential DR Offerings

Policy Goal 1: California is powered by a carbon-free electric grid.		
Objectives	DR Offerings Alignment	Additional Context
<i>Achieve 60% sale and procurement of electricity from clean and renewable sources by 2030 and 100% by 2045.</i>		These DR offerings promote load flexibility and reduced energy demand, which helps support energy on the grid from clean sources.
<i>Prioritize energy generation from renewable sources on an accelerated timescale to diminish reliance on fossil fuels and ensure an adequate supply of power.</i>		These DR offerings promote load flexibility and reduced energy demand, which will aid the addition of renewable energy sources and help diminish reliance on fossil fuels.

POLICY GOAL 2: ALL CALIFORNIANS HAVE ACCESS TO RELIABLE GENERATION AND TRANSMISSION OF ELECTRICITY.

For Policy Goal 2, we also found the suite of residential DR offerings to be aligned with each of the policy objectives listed in Table 10. The objectives outline key directives for general and renewable energy capacity, grid reliability, and demand-side load management, all of which DR programs support.




Table 10. Alignment Map of Policy Goal 2 with Residential DR Offerings



Policy Goal 2: All Californians have access to reliable generation and transmission of electricity.		
Objectives	DR Offerings Alignment	Additional Context
<i>Establish long-term reliable capacity to meet local and statewide grid needs, especially during demand peaks.</i>		These offerings promote load shed and shift during demand peaks throughout the year, especially in the summer, which contributes to positive grid capacity.
<i>Create and maintain an effective and reliable emergency response to grid stress.</i>		To date, the suite of programs includes offerings that activate during events of grid stress and encourage residential customers to reduce or shift their energy usage.
<i>Prioritize energy generation from renewable sources on an accelerated timescale to diminish reliance on fossil fuels and ensure an adequate supply of power.</i>		These DR offerings promote load flexibility and reduced energy demand, which will aid the addition of renewable energy sources and curtail carbon-producing energy sources.
<i>Invest in load flexibility measures to support the rapid introduction of electrified technologies onto the grid.</i>		These offerings provide residential customers with a diverse array of DR options that include electrified technologies.
<i>Achieve 7,000 MW of net peak load shift by 2030.</i>		These offerings all promote load shed and load shift by nature, which will contribute positively to net peak load shift.

POLICY GOAL 3: CALIFORNIANS' ENERGY DEMAND IS FLEXIBLE.

For Policy Goal 3, we found that the current suite of DR offerings is aligned with all the objectives in Table 11, except for the one related to ME&O. Specifically, the suite of offerings can be further aligned to better support the utilization of coordinated strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage. Generally speaking, the design and implementation of residential DR ME&O is a localized effort to individual DR providers and thus does not support a coordinated ME&O effort. However, the statewide BDR Flex Alert campaign and the related Power Saver Rewards program are aligned with this objective.

Table 11. Alignment Map of Policy Goal 3 with Residential DR Offerings



Policy Goal 3: Californians' energy demand is flexible.		
Objectives	DR Offerings Alignment	Additional Context
<i>Establish long-term reliable capacity to meet local and statewide grid needs, especially during demand peaks.</i>		These offerings promote load shed and shift during demand peaks throughout the year, especially in the summer, which contributes to positive grid capacity.
<i>Default residential customers to TOU rates by 2019.</i>		The current suite of offerings includes TOU rate plans as well as the original default plans.
<i>Utilize coordinated ME&O strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.</i>		Residential DR ME&O is generally localized to individual PAs and their programs, except for the statewide Flex Alert and Power Saver Rewards media campaign.

Policy Goal 3: Californians' energy demand is flexible.		
<i>Invest in load flexibility measures to support the rapid introduction of electrified technologies onto the grid.</i>		These offerings provide residential customers with a diverse array of DR options that include electrified technologies.
<i>Achieve 7,000 MW of net peak load shift by 2030.</i>		These offerings all promote load shed and load shift by nature, which will contribute positively to net peak load shift.

POLICY GOAL 4: CUSTOMERS ARE AWARE OF ENERGY USAGE AND THEIR IMPACT ON THE GRID.

We found that the current suite of DR offerings is not fully aligned with the two objectives connected to Policy Goal 4 in Table 12. This is because the current suite of offerings does not fully implement coordinated ME&O approaches to inform and engage residential customers on load management topics effectively, nor does it utilize coordinated strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.


Table 12. Alignment Map of Policy Goal 4 with Residential DR Offerings

Policy Goal 4: Customers are aware of energy usage and their impact on the grid.		
Objectives	DR Offerings Alignment	Additional Context
<i>Implement coordinated ME&O approaches to energy efficiency, DR, TOU and dynamic rates, and smart technologies to effectively inform and engage residential customers.</i>		Coordinated ME&O to raise general awareness of energy concepts and technologies has mostly been localized to statewide general awareness campaigns like EUC and the Flex Alert paid media campaign, not residential DR programs, where ME&O is PA dependent.
<i>Utilize coordinated ME&O strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.</i>		Residential DR ME&O is left to the discretion of individual PAs and is not coordinated across DR and demand flexibility offerings.

POLICY GOAL 5: CALIFORNIANS RELIABLY AND SUCCESSFULLY TAKE ACTION DURING GRID EMERGENCIES.

Lastly, for Policy Goal 5, we found that the suite of offerings is not fully aligned with all the respective objectives listed in Table 13. As in Policy Goals 3 and 4, there is an opportunity for further alignment around the implementation of coordinated ME&O that prioritizes customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.

Table 13. Alignment Map of Policy Goal 5 with Residential DR Offerings

Policy Goal 5: Californians reliably and successfully take action during grid emergencies.		
Objectives	DR Offerings Alignment	Additional Context
<i>Utilize coordinated ME&O strategies that prioritize customer understanding and market saliency of residential DR and demand flexibility offerings so that customers will take action to modify their energy usage.</i>		Residential DR ME&O is left to the discretion of individual PAs and is not coordinated across DR and demand flexibility offerings.

Policy Goal 5: Californians reliably and successfully take action during grid emergencies.

Create and maintain an effective and reliable emergency response to grid stress.



To date, the suite of programs includes offerings that activate during events of grid stress and encourage residential customers to reduce or shift their energy usage.



Opinion **Dynamics**

CONTACT:

Hannah Howard
Senior Vice President
hhoward@opiniondynamics.com

BOSTON
PORTLAND
SAN DIEGO
SAN FRANCISCO

All product or company names that may be mentioned in this publication are tradenames, trademarks or registered trademarks of their respective owners.