

Application: A.22-05-XXX

Exhibit No.: SDGE-1A

Witness: E Bradford Mantz

**PREPARED DIRECT TESTIMONY OF
E BRADFORD MANTZ – CHAPTER 1A
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



May 2, 2022

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND FOR DEMAND RESPONSE PROGRAMS FOR 2023	1
	A. Bridge Funding for 2023	1
	B. Customer Demographics and Its Impact on DR in SDG&E’s Territory	2
	C. DR is Transitioning.....	2
III.	PORTFOLIO COST EFFECTIVENESS FOR 2023	3
IV.	SUPPLY SIDE DEMAND RESPONSE PROGRAMS FOR 2023	5
	A. Base Interruptible Program (BIP) for 2023	5
	B. Capacity Bidding Program (CBP) for 2023 - Existing Products.....	6
	C. Capacity Bidding Residential (CBR) Pilot for 2023	6
	D. AC Saver for 2023	7
	E. Heat Pump Water Heaters	8
	F. Prohibited Resources (PR Activity for 2023).....	8
V.	LOAD MODIFYING DEMAND RESPONSE Programs in 2023	9
	A. EMERGENCY LOAD REDUCTION PROGRAM (ELRP) Pilot in 2023	9
VI.	ENABLING TECHNOLOGY PROGRAMS AND EMERGING TECHNOLOGIES.....	9
	A. Technology Deployment (TD)	9
	1. Background.....	9
	2. Proposed Program Changes.....	10
	B. Technology Incentive Program (TI) for 2023	11
	1. Background.....	11
	C. Emerging Technology Demand Response (ET-DR) Program	11
	1. Background.....	11
	2. ET-DR Proposal for 2023	13
	3. ET-DR Proposed 2023 Budget	13
VII.	PILOTS FOR 2023	14
	A. Prior Pilots – Over Generation Pilot and Armed Forces DR Pilot	14
VIII.	THIRD-PARTY DEMAND RESPONSE: ELECTRIC RULE 32 OPERATIONS AND THE DEMAND RESPONSE AUCTION MECHANISM PILOT (DRAM) FOR 2023.....	14
	A. SDG&E Support for Direct Market Participation through SDG&E’s Electric Rule 32 for 2023	14

1.	Background.....	14
2.	Current Status	14
3.	Request for Operational Support for 2023.....	15
B.	Demand Response Auction Mechanism Pilot (DRAM) for 2023	16
1.	Background.....	16
2.	Current Status	16
3.	Customer Information Working Group (WG).....	16
IX.	RELATED ACTIVITIES TO SUPPORT DEMAND RESPONSE IN 2023.....	17
A.	Demand Response Regulatory Policy, Financial Services and General Support Activities.....	17
X.	ZIGBEE TECHNOLOGY UPDATE	18
A.	Background.....	18
B.	SDG&E’s Proposal to Discontinue ZigBee Support.....	19
XI.	CONCLUSION.....	20
XII.	WITNESS QUALIFICATIONS.....	21

APPENDIX A - SDG&E Program Implementation Plans Demand Response 2023

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2
3
4
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**PREPARED DIRECT TESTIMONY OF
E BRADFORD MANTZ
CHAPTER 1A**

I. INTRODUCTION

My testimony gives an overview of San Diego Gas & Electric Company’s (SDG&E) Demand Response (DR) programs that are the subject of this application, requests program changes, proposes new pilots, and provides other updates as necessary or appropriate to be included. Additionally, my testimony provides a budget request in the total amount of \$12,029,657 to cover the costs for the DR activities described herein for 2023.¹

II. BACKGROUND FOR DEMAND RESPONSE PROGRAMS FOR 2023

SDG&E continues to provide its customers with innovative DR programs that offer customers options that fit their lifestyles, homes and businesses. Since SDG&E serves all of San Diego County and Southern Orange County, SDG&E is in a unique position and is best suited to provide these innovative offerings that work toward the State’s climate goals as well as SDG&E’s focus on a stronger more integrated more reliable grid of the future.

A. Bridge Funding for 2023

This section of my testimony addresses SDG&E’s request for an extension of SDG&E’s approved 2022 DR budget plus modifications for 2023 as a bridge year and as such SDG&E proposes no new programs or pilots for 2023. For program years 2024 -2027, SDG&E is requesting approval for its DR program changes and new pilots, and funding for that period as it transitions DR into a new vision for the future while building on an established foundation.

The use of 2023 as a bridge year is important to DR as SDG&E-continues to implement and manage the revisions to the Emergency Load Reduction Program (ELRP)

¹ SDG&E is requesting that its DR funding application be broken out into two phases: (1) Phase One to address SDG&E’s DR programs and budgets for 2023; and (2) Phase Two to address SDG&E’s DR programs, pilots and budgets for years 2024-2027. This testimony supports SDG&E’s bridge funding request for 2023. See Prepared Direct Testimony of E Bradford Mantz Chapter 1B for my direct testimony supporting SDG&E’s DR budget request, pilots and program changes for 2024-2027.

1 Pilot and other DR programs that were approved in the Summer Reliability OIR Phase 2
2 Decision (“D.”) 21-12-015.²

3 **B. Customer Demographics and Its Impact on DR in SDG&E’s Territory**

4 SDG&E continues to struggle to grow DR. Unfortunately, unlike other utilities in
5 the State, SDG&E’s DR programs cannot be reliant on large industrial or manufacturing
6 customers who can shut down or shed load at their commercial or industrial sites to be able
7 to contribute large load reductions during DR events. Instead, SDG&E’s programs must
8 focus on the predominantly smaller customer classes that make up the majority of our
9 service area, such as small and medium commercial and light industrial customers and our
10 residential customer base. This requires us to have to focus our efforts to enroll thousands
11 of customers with much smaller loads to shed to get any sizable DR load shed. Also,
12 because of our predominantly residential and small commercial customer mix it is hard to
13 get those customers to agree to shed load between the hours of 4-9 pm when a majority of
14 our customers are at home and many of our commercial customers have shut down for the
15 day and only have minimal loads. Moreover, because of this mix of customers, which is
16 different from the other utilities, it is difficult to get them to agree or be willing to shed load
17 during events based on our existing programs.

18 **C. DR is Transitioning**

19 DR is in a period of transition as we move from older traditional DR programming
20 that has been mostly unchanged for many years. Where historically DR was primarily used
21 to maintain the integrity and function of the transmission grid by providing load reductions
22 during periods of extreme load, and by curtailing demand on overstretched power generation
23 capacity, the future role of DR is changing.

24 We are entering the era of the smart, digitally enabled grid, connected to a growing
25 amount of solar photovoltaics (PV) and other distributed energy resources (DER) such as
26 storage batteries, EV charging and discharging whole home devices and Cloud based Energy
27 Management Systems (EMS). These new innovations and technologies make modern
28 demand response a very different concept in order support the grid and support the State’s

² Per the Decision, the ELRP was modified and expanded to include three new sub-groups A.4, A.5 & A.6, added the Smart Thermostat Program (SCT), and approved the addition of the CBP Elect option to SDG&E’s existing CBP program offerings.

1 clean energy and Resource Adequacy goals. This transition from the old DR to the new DR
2 of the future will require sophisticated programs that are potentially capable of providing a
3 wide array of closely targeted services providing direct benefits to the distribution network,
4 reflecting the transformation of demand response from a way to shave peak demand to an
5 increasingly valuable tool to manage the modern grid. So, alongside its role in balancing
6 supply and demand and managing load at the wholesale level, the need to optimize the
7 modern distribution grid also calls for demand response to be applied in a more localized
8 manner to influence the utilization of grid resources.

9 In playing this new role, DR is essentially about leveraging customer flexibility to
10 help optimize distribution networks by matching supply and demand faster, more
11 responsibly, more effectively and above all more locally.

12 As discussed above and further discussed in more detail below, SDG&E will not be
13 modifying its DR programs in 2023 to allow a more streamlined and expedited approval process
14 so that SDG&E can hopefully receive approval of our funding request in time to be ready for the
15 2023 DR season. This will simplify our requests and also allow the Commission to take the time
16 needed to review and approve our Program and Pilots requests for 2024-2027.

17 **III. PORTFOLIO COST EFFECTIVENESS FOR 2023**

18 SDG&E's DR portfolio as proposed is not cost effective.³ SDG&E's proposed DR
19 portfolio, as filed in this application, achieves a total resource cost (TRC) cost effectiveness
20 score of 0.2 for 2023. SDG&E acknowledges that this number does not rise to the desired level
21 that we envision for our programs. This is due to several factors. First, as mentioned above,
22 SDG&E's territory has fewer large commercial and industrial customers which can shed larger
23 amounts of load. For example, in SDG&E's service area we do not have any refining or heavy
24 electric industrial users such as auto manufacturing facilities or refineries. The number of our
25 heavy industrial accounts with larger loads are small (~10), and instead, SDG&E's service area
26 is made up mostly of medium and smaller manufacturing sites, the military, and educational and
27 research facilities. Even with much of our load being residential, we still have less than half of
28 the residential customers that Pacific Gas and Electric Company (PG&E) and Southern
29 California Edison (SCE) have in their service areas. Thus, we have to enroll thousands of

³ See Prepared Direct Testimony of Brenda Gettig Chapter 5A.

1 customers to bring any meaningful MW into DR. Second, DR is dependent upon technology,
2 which is expensive and the costs to support new technology also require sophisticated IT
3 systems, IT support and licenses. These costs continue to go up year over year for license fees
4 and system support. Additionally, San Diego housing and land costs are one of the most
5 expensive in the State and thus large manufacturing and agricultural loads tend to move to other
6 lower cost areas of the state. Also due to our temperate climate, we tend to have lower electrical
7 usage per customer than in other parts of the State. Thirdly, SDG&E's portfolio is not cost
8 effective also because SDG&E's current DR programs need to be revamped to become more
9 innovative and focus on the utilization of new technology to help fit into the grid of the future.

10 While it is important not to offer unnecessary demand response programs, SDG&E
11 maintains that its proposed programs still play a role in providing system reliability for the
12 near future. Our cost effectiveness will be discussed more in the Prepared Direct Testimony
13 of Brenda Gettig Chapter 5A submitted in support of this application.

14 SDG&E continues to have challenges that, as mentioned above, are related to the
15 customer mix in our service area. Our largest customers seem to prefer newer programming
16 that is not Supply Side but Instead Load Modifying such as the pay for performance
17 programs with high incentives and no penalties like the revised Emergency Load Reduction
18 Program (ELRP) Pilot.⁴ In 2021, SDG&E signed up 14 new commercial customers that did
19 not previously participate in DR programs. Also, at this point there has been no Evaluation
20 Measurement and Verification (EM&V) studies done to see if the ELRP is cost effective.
21 However, the ELRP has been effective in bringing in incremental MW from customers that
22 normally do not participate in DR programs which has helped the grid.⁵

23 Although SDG&E is not satisfied with its current cost effectiveness numbers,⁶ The
24 analysis provides a baseline to be used over the application's timeline to determine whether
25 some programs modifications have worked and if other programs should be terminated.
26 Also, SDG&E believes it is still premature to value SDG&E's cost effectiveness in light of

⁴ D.21-03-056.

⁵ *Id.*, p. 5 (ELRP Subgroup A.1).

⁶ Detailed Cost Effectives analysis is provided in the Prepared Direct Testimony of Brenda Gettig Chapter 5A supporting this application.

1 the new ELRP emergency programs and the fact that we have not seen the latest DRAM
2 evaluation study which has been delayed.

3 SDG&E requests that the Commission consider our customer mix and the impact it
4 has on program cost effectiveness. While SDG&E is requesting to continue to run its
5 current DR portfolio, it will stop offering any of its programs if its cost effectiveness
6 concerns lead the Commission to decide otherwise.

7 **IV. SUPPLY SIDE DEMAND RESPONSE PROGRAMS FOR 2023**

8 SDG&E proposes to continue to grow and improve its supply-side portfolio of
9 existing DR programs for 2023 and the following section describes our existing supply-side
10 DR Programs and Budget requests

11 **A. Base Interruptible Program (BIP) for 2023**

12 The Base Interruptible Program, or BIP, offers a monthly capacity payment to
13 commercial customers that can commit to curtailing at least 15% of Monthly Average Peak
14 Demand, with a 20-minute notification. It can be available for multiple reliability-only
15 events, including system emergencies (CAISO alerts and stages). This program qualifies as
16 a supply resource (as it is bid into the CAISO) and is open to bundled customers as well as
17 Direct Access (DA) customers and Community Choice Aggregation (CCA) customers. This
18 program aims for a DR product⁷ that enables emergency responsive demand response
19 resources to state and local situations.

20 With its incentive structure, as well as its penalties for non-performance, and a short
21 notification period, this program is most suitable for commercial customers who can shut
22 down production quickly, with certainty, and usually without a significant cost to its
23 business or severely impact its business operations. In SDG&E's experience, large

⁷ A DR "Product" is the term for a Demand Response offering that has a specific trigger, hours that it can be called, and a specific notification window. Products may differ by being triggered based off different scenarios, and their notification windows may differ such as the day before an event (aka "Day Ahead"). Alternatively, the scenario may be that circumstances warrant load drop based on a forecast for the same day; *i.e.*, a forecast for grid needs later in the day necessitate load shed the same day; the notification would be sent the same day the load shed is needed (as a "Day Of" product). Each product has specific hours during which events can be triggered. In this way, the customers know exactly during which hours of the day they will be called upon, and if they will be notified the day ahead, or on the same day. Typically, Day Of events pay more to customers for load shed, since there are less hours/days to prepare.

1 manufacturing or other large assembly line businesses, or businesses which operate
2 production 24 hours a day or run multiple shifts, tend to be the best candidates for
3 participation.

4 SDG&E is not proposing any changes to the BIP for 2023, and we intend to operate
5 the program as is. SDG&E is requesting to utilize the same budget that was previously
6 authorized for the BIP Program for 2022, which was approved and authorized in D.17-12-
7 003 dated December 14, 2017.

8 The decision approved the following budgets:

- 9 1) Administrative budget of \$96,390
- 10 2) Incentive budget of \$836,000.

11 SDG&E requests the Commission approve the 2023 BIP program funding in its entirety.

12 **B. Capacity Bidding Program (CBP) for 2023 - Existing Products**

13 The Capacity Bidding Program is a voluntary demand response program that offers
14 customers various product options by which they can earn incentive payments in exchange
15 for reducing energy consumption when requested by the Utility. This program is available
16 to bundled customers and customers being billed on a Utility commercial, industrial or
17 agricultural rate schedule. It is also available to Direct Access (“DA”) and Community
18 Choice Aggregation (“CCA”) customers. Bundled customers receive capacity and energy
19 payments from SDG&E and DDA customers receive capacity payments, with energy-based
20 compensation and savings subject to their contractual relationships with their DA providers.

21 SDG&E is requesting to utilize the same budget that was previously authorized for
22 the CBP core program for 2022, which was \$2,124,100 which was approved and authorized
23 in D.17-12-003 dated December 14, 2017.

24 **C. Capacity Bidding Residential (CBR) Pilot for 2023**

25 On March 26, 2021, the Commission authorized SDG&E’s Capacity Bidding
26 Residential Pilot⁸ budget of \$707,584 which included administrative costs and incentives.⁹

⁸ D.21-03-056, Attachment 1, p. 19.

⁹ D.17-12-003, p. 191, OP 22.

1 The funding granted for the CBP Residential pilot was part of the 2018-2022 DR
2 budget cycle and was scheduled to end at the end of 2021. However, in D.21.12.015,
3 SDG&E was authorized to continue its CBP residential pilot as approved in 2022.¹⁰

4 SDG&E is requesting to continue the pilot in 2023 and is requesting a budget of
5 \$708,000. SDG&E will conduct a post pilot evaluation as further described in the Prepared
6 Direct Testimony of Lizzette Garcia-Rodriguez (Chapter 4A).

7 **D. AC Saver for 2023**

8 Currently, SDG&E offers a program named AC Saver. AC Saver is a supply side
9 DR program that is bid into the CAISO market. AC Saver participants have either a direct
10 load control switch installed on their air-conditioner or a thermostat with settings that can be
11 adjusted by the manufacturer. Depending on the technology, AC Saver can be called either
12 for Day Ahead or Day Of. Events that last between two and four hours per day and may
13 only be called between April and October. The maximum number of annual events is 20
14 with 5 additional events that may be called during CAISO or SDG&E emergencies only.
15 The program is usually activated when SDG&E bids in and then receives an award from
16 CAISO, but the program may also be called at SDG&E's discretion in other circumstances
17 including local emergencies.

18 Participants with direct load control switches installed on their air-conditioner
19 receive an annual capacity payment based on the size of their air-conditioner and the cycling
20 option that they choose. Residential customers can select 100% or 50% cycling and
21 Commercial customers can select 50% or 30% cycling. This incentive is paid in December
22 each year.

23 SDG&E is not proposing any changes to the AC Saver Day Of program for
24 customers with switches for 2023, and SDG&E intends to operate the program as is.

25 SDG&E is requesting a budget of \$1,691,300. This is the same amount previously
26 authorized for the AC Saver Day Of program in D.17-12-003¹¹ dated December 14, 2017.

27 SDG&E is not proposing any changes to the AC Saver Day Ahead program for
28 customers with thermostats for 2023, and SDG&E intends to operate the program as is.

¹⁰ D.21-03-056.

¹¹ D.17-12-003, Attachment 3, p. 6.

1 SDG&E is requesting an AC Saver Day-Ahead administrative budget of \$164,948
2 and an AC Saver Day-Ahead incentive budget of \$539,055. This is the same amount
3 previously allocated and authorized for the AC Saver Day-ahead program in D.17-12-003
4 dated December 14, 2017, including the 10% reduction ordered by the Decision.¹²

5 **E. Heat Pump Water Heaters**

6 SDG&E will enroll customers that have received Small Generator Incentive Program
7 (SGIP) Heat Pump Water Heater (HPWH) incentives into any of SDG&E’s supply side DR
8 programs.¹³ SDG&E is not seeking any additional funding for 2013 and will fund HPWH
9 participation out of its approved program funding.

10 **F. Prohibited Resources (PR Activity for 2023)**

11 Annual audits have been conducted since 2019 by third-party verification administrator
12 (Nexant/Resource Innovations) pursuant to Resolution E-4906. These annual audits assess on a
13 sample basis compliance with the Prohibited Resources (PR) restriction originally set forth by a
14 2016 CPUC Decision.¹⁴ These audits were to be paid by each of the IOUs’ 2018 – 2022 DR
15 funding cycle. There was no consideration of funding beyond 2022.

16 Separately, each of the IOUs submitted applications¹⁵ on October 18, 2018,
17 providing information on DR programs and how to monitor third-party aggregated
18 customers’ use of back-up generators (BUGs), the technology available, and associated
19 costs. Also, there was a “test year” deployment of meters/loggers in 2019. Together with
20 the audits, the applications, and the test year date, the CPUC is expected to make a
21 determination about the permanent framework for PR compliance. This permanent
22 framework may include a permanent deployment of meters/loggers and/or ongoing annual
23 verifications, as those activities are currently being considered by the CPUC in the BUGs
24 proceeding.¹⁶

¹² D.17-12-003, Attachment 3, p. 6.

¹³ D.20-04-036 (Decision Establishing Heat Pump Water Heater Requirements), COL 27 & 28.

¹⁴ D.16-09-056.

¹⁵ A.18-10-008, *et al.*

¹⁶ On March 28, 2022, the Commission issued a Proposed Decision extending the statutory deadline for completion of the BUGs proceeding until August 26, 2022. SDG&E reserves the

1 Because the CPUC has yet to issue guidance on BUGs compliance monitoring
2 beyond 2022, it is appropriate to include a request for funding of PR activities in both the
3 2023 bridge funding year and program years 2024–2027. These recommendations do not
4 pertain to policy matters on what a BUGs compliance framework if any should look like, but
5 rather, on contingency funding associated with ongoing audits in the absence of CPUC
6 guidance prior to the May 2, 2022, filings.

7 Since the annual verification audit normally begins in September of each year and
8 concludes by around the end of the first quarter of the following year, the 2022 verification
9 audit would include expenditures that need to be paid in early 2023. While SDG&E
10 believes we have authority to pay invoices in 2023 for the 2022 audit as part of the 2018 –
11 2022 DR funding cycle, it warrants inclusion of explicit language in the Commission’s final
12 decision on the 2023 bridge funding request with regard to both the timing and authority for
13 payments to be made in 2023. As such SDG&E requests CPUC approval to use unspent
14 approved PR funding from 2022 to pay the final third-party verification administrator
15 (Resource Innovations, formerly Nexant) in 2023.

16 **V. LOAD MODIFYING DEMAND RESPONSE PROGRAMS IN 2023**

17 **A. EMERGENCY LOAD REDUCTION PROGRAM (ELRP) Pilot in 2023**

18 SDG&E is not proposing any changes to the ELRP for 2023, and SDG&E intends to
19 operate the ELRP in 2023 as approved in D.21-12-003.¹⁷

20 **VI. ENABLING TECHNOLOGY PROGRAMS AND EMERGING**
21 **TECHNOLOGIES**

22 **A. Technology Deployment (TD)**

23 **1. Background**

24 SDG&E’s Technology Deployment (TD) Program provides an upfront incentive for
25 enrolling a device that curtails energy use in an eligible demand response program. Below
26 is a summary of the current program:

right to amend or modify its funding requests for PR activities to reflect any additional
Commission directives that may result from the BUGs proceeding.

¹⁷ D.21-12-003, Attachment 2 - Emergency Load Reduction Program (ELRP).

- TD is a “bring your own device” program (sometimes referred to as “BYOD”), which means that the purpose of the upfront payment is to incentivize customers to enroll a device of their choice in a demand response program.
- TD offers fixed incentives to customers who enroll an eligible device in a qualifying demand response program. The incentive per device is calculated by taking an average load impact per device and multiplying by \$100. Load impacts may come from either measurement and evaluation results or engineering estimates. The average load impact may be calculated either for all customers or by sub-group (*e.g.*, customer class or by climate zone).
- Customers are required to enroll in either a rate with events, the AC Saver Program, the Capacity Bidding Program (CBP), or a program run by a third-party with a DRAM contract in order to qualify.

SDG&E has seen consistent growth from smart thermostats via the TD program. Except in 2021 when we did not have access to our Nest pct’s. However, SDG&E did see an increase in the number of ecobee PCT’s that were registered in 2021. Below is a summary of new accounts that have received incentives each year since SDG&E launched the bring your own thermostat offer in 2017.

**TABLE EBM-1
Customers Receiving TD Incentive (2017 – July 2021)**

Year	Number of customers who received a TD incentive
2017	6,082
2018	6,119
2019	4,742
2020	6,571
2021	3,604

2. Proposed Program Changes

SDG&E proposes no program changes for TD for 2023. SDG&E is requesting a budget of \$766,800; this is the same amount authorized for 2022 in D.17-12-003¹⁸ for the Technology Deployment Program

¹⁸ D.17-12-003, Attachment 3, p. 7.

1 **B. Technology Incentive Program (TI) for 2023**

2 **1. Background**

3 The Technology Incentives (TI) Program offers incentives for the purchase and
4 installation of qualified demand response measures that provide verified, dispatchable, on-
5 peak load reduction at customer-owned facilities.

6 The TI Program is requesting \$577,617¹⁹ for continuation of the current program in
7 2023. Approval of this budget will allow the TI Program to continue unabated with the
8 necessary staff and resources to procure and execute TI projects that are aligned with DR
9 portfolio objectives. The incentive amount requested in this portion of the application for
10 2023 has been reduced significantly due to historically low program participation.

11 **C. Emerging Technology Demand Response (ET-DR) Program**

12 **1. Background**

13 The Emerging Technology Demand Response (ET-DR) Program focuses on the
14 challenging and increasingly important area of identifying and evaluating emerging
15 innovative technologies and strategies with a focus on demand response of the future for the
16 San Diego region while also helping the State overcome challenging grid conditions. In
17 today’s evolving environmental conditions and focus on demand reduction needs during
18 critical supply challenges, the opportunity for creative, innovative, cost effective and
19 flexible demand response solutions has never been greater. Therefore, the ET-DR Program
20 staff are looking forward to this opportunity and will continue to research companies and
21 more complex technologies that promise significant flexible demand reduction potential in
22 the short or mid-term time horizon. Beyond smart devices and systems that provide the
23 foundation for building out a network of flexible behind-the-meter (BTM) resources to
24 support DR of the future, the ET-DR Program will also seek to identify technologies that
25 complement the changes throughout our core DR Program portfolio such as Auto Demand
26 Response, Integrated Distributed Energy Resources (IDER), Microgrids, Virtual Power
27 Plants and focus on whole facility smart technologies that enhance ratepayers’ ability to

¹⁹ The budget consists of \$100,000 for incentives and \$477,617 for program administration. This is the same amount allocated and authorized in D.17.12.003, Attachment 3, p. 7 (issued December 14, 2017) including the 10% reduction as ordered in OP 53. However, the incentive amount has been severely reduced for 2023 to reflect low participation numbers.

1 respond to changes in demand conditions and help overcome supply challenges.
2 Furthermore, ET-DR will explore and investigate dynamic price signals combined with
3 smart technologies and communication networks that are necessary to enable and motivate
4 bundled customer participation to provide grid-benefits when needed. Each evaluation
5 project will address at least the following, but not limited to:

- 6 • The technologies or strategy's overall merits
- 7 • Applicability to existing SDG&E customer programs
- 8 • Benefits to both demand reduction and energy efficiency where applicable
- 9 • Possible adoption barriers
- 10 • Cost-effectiveness
- 11 • Risks
- 12 • Collaboration with the State's IOUs
- 13 • Recommendation on the utilities' support and future involvement.

14 The ET-DR 2018-2022 program cycle was very successful in the types of projects
15 that were able to be initiated and completed during the program budgeted period. Some of
16 the technologies researched throughout the 2018-2022 program cycle included: Smart Voice
17 Assistant device, a time of use (TOU) messaging app and device, a Distributed Energy
18 Resources (DER) Data Analytics tool to identify customers for Demand Response
19 participation, an Electric Vehicle Charging impact study, a Thermal Storage for
20 Refrigeration project and a Whole Home DR study.

21 The DER Data Analytics tool has helped identify non-residential customers who are
22 most likely to benefit from participating in DR programs as well as by leveraging distributed
23 energy resources such as solar and battery. The tool will help the DR team target market
24 customers to encourage more participation in DR programs.

25 SDG&E recently initiated an exciting new Virtual Power Plant project that is
26 expected to continue into 2023. The ET-DR team is working with vendors to develop a
27 Virtual Power Plant that will include a variety of devices across several customers. A
28 Virtual Power Plant has the potential to grow into a vast collection of devices that could
29 potentially be spread out across the SDG&E service area and serve as a grid resource for DR
30 events as well as other grid needs. This type of project requires significantly more funding
31 to not only install the various devices installed at customers' premises but also to ensure the
32 devices can be signaled on a third party developed platform and controlled by SDG&E.
33 This is an example of a more complex and technical project that requires additional funding

1 due to the extensive coordination with external stakeholders and focus on multiple types of
2 devices installed at customers' premises. The menu of devices offered will vary by
3 customer based on their potential to participate in the Virtual Power Plant and could include
4 but not be limited to Smart Thermostats, Water Heating Controllers, Electric Vehicle
5 Charging Controllers and battery storage.

6 For more detailed information on these projects, please see the Demand Response
7 Emerging Technology SDG&E Semi-Annual Reports, submitted to the Commission, dated
8 March 31 and September 30 of each year within the program cycle.²⁰

9 **2. ET-DR Proposal for 2023**

10 The ET-DR proposal for 2023 is the same as what was approved for 2022 in the
11 2018-2022 filing including the Decision's 10% reduction.²¹ The ET-DR Program believes
12 the funding will continue to help ensure the ability to evaluate more innovative and technical
13 solutions that stand to provide greater grid benefits and are aligned with the Demand
14 Response Portfolio per the CPUC's guidance. The expected outcome for this approach is
15 the execution of up to 4 to 6 projects per year based on the 2018-2022 project history.

16 **3. ET-DR Proposed 2023 Budget**

17 **EBM-Table 2**
18 **ET-DR Budget**

	2023
ET-DR	\$738,900

19 This budget will allow the ET-DR Program to function as stated above, while
20 keeping the minimum necessary staff to procure and execute DR projects that are aligned
21 with the DR portfolio objectives and the State's increased focus on more significant demand
22 reduction tactics and strategies.

²⁰ See A.11-03-001. These reports are submitted as compliance filings pursuant to D.12-04-045, pp. 145-146 and 225, OP 59.

²¹ D.17-12-003, Attachment 3, p. 7.

1 **VII. PILOTS FOR 2023**

2 **A. Prior Pilots – Over Generation Pilot and Armed Forces DR Pilot**

3 SDG&E operated two pilots in the 2018-2022 demand response cycle: (1) the Over
4 Generation Pilot and (2) Armed Forces DR Pilot. SDG&E requested to retire both of those
5 pilots in its midcycle review advice letter (AL 3522-E), which remains pending before the
6 Commission at this time.²² SDG&E reiterates its request for approval to retire both of these
7 pilots.

8 **VIII. THIRD-PARTY DEMAND RESPONSE: ELECTRIC RULE 32**
9 **OPERATIONS AND THE DEMAND RESPONSE AUCTION MECHANISM**
10 **PILOT (DRAM) FOR 2023**

11 **A. SDG&E Support for Direct Market Participation through SDG&E’s Electric**
12 **Rule 32 for 2023**

13 **1. Background**

14 SDG&E’s Electric Rule 32 (Rule 32) governs how SDG&E interacts with third-party
15 Demand Response Providers (DRPs). The Commission, in D.15-03-042 and later in D.16-
16 18-06-008, authorized SDG&E to put into place certain processes and systems to facilitate
17 third-party DRPs’ ability to bid demand response resources into the CAISO wholesale
18 market as Proxy Demand Resources (PDRs) and/or Reliability Demand Response Resources
19 (RDRRs).

20 **2. Current Status**

21 As of March 31, 2022, SDG&E had approximately 57,000 customers with active
22 Customer Information Service Request for Demand Response Providers (CISR-DRP) s on
23 file, authorizing to share their personal energy-related data with DRPs under Rule 32. As of
24 March 31, 2022, SDG&E had approximately 65,500 active and inactive Rule 32 customers
25 in SDG&E’s systems including 38,100 customers actively registered in the CAISO Demand
26 Response Registration System (DRRS) with DRPs under Rule 32.

27 SDG&E filed AL 3746-E on May 12, 2021, to increase customer registrations by
28 200,000 for a total of 260,000. This advice letter was approved on October 12, 2021.

²² See AL 3522-E mid-cycle update in compliance with D.10-09-056, OP 9, p. 6, sections IV and V (filed March 27, 2020).

1 Current enrollment forecasts provided by DRPs estimate a total of approximately
2 75,000 enrollments by the end of 2023.

3 **3. Request for Operational Support for 2023**

4 SDG&E is requesting funding to provide operational and production support for
5 third party market participants, and Rule 32 information technology related processes. The
6 operational costs consist of program management, administrative support, systems support
7 and licensing fees.²³

8 **EBM – Table 3**
9 **Rule 32 Budget Proposal 2023**

	2023
Rule 32	\$632,000

10 SDG&E notes that these costs are associated with SDG&E’s support for direct
11 market participation by third parties and therefore are tracked separately from SDG&E’s DR
12 portfolio. Furthermore, because these costs are for third-party support, they are not included
13 in SDG&E’s cost-effectiveness analysis of its own DR programs. The Commission should
14 consider these costs as part of the cost-effectiveness of third-party market participation in
15 the future.
16

17 SDG&E’s budget request and staffing plan reflects SDG&E’s DR budget practice
18 that provides for a “best case” scenario where SDG&E supports a robust program and large
19 number of third-party market participants without risking being underfunded. Upon
20 approval, SDG&E will use its prudence and only staff as necessary to support this process.
21 It is important to note that SDG&E only recovers actual costs spent which means SDG&E
22 will only recover actual expenditures relating to the approved funding request.²⁴

²³ These costs do not include IT or Measurement and Evaluation support. IT staffing costs associated with Rule 32 support are included in the Prepared Direct Testimony of Ellen Kutzler – Chapter 2A, Table EK-1:Information Technology Budget Proposal 2023. Measurement and Evaluation staffing costs associated with Rule 32 support are included in the Prepared Direct Testimony of Lizzette Garcia-Rodriguez – Chapter 4A, Table LG-10: 2023 Measurement and Evaluation Budget for Rule 32.

²⁴ SDG&E does not collect in rates its approved budget or refund unspent funds in rates. Please see the Prepared Direct Testimony of Kenneth Pitsko, Chapter 6A for more detail on the cost recovery mechanism.

1 **B. Demand Response Auction Mechanism Pilot (DRAM) for 2023**

2 **1. Background**

3 D.14-12-024 approved SDG&E, and the other California Investor-Owned Utilities
4 (IOUs), to offer a two-year DRAM pilot for 2016 and 2017 to the third-party DRPs to
5 participate directly in the CAISO market. Later the Commission issued decision D.16-06-
6 029 and D.17-10-017 to extend the DRAM pilot into 2018 and 2019. The Commission then
7 issued decision D.19-07-009 to extend the DRAM pilot through 2023 and D.19-12-040 to
8 further refine the DRAM.

9 **2. Current Status**

10 The DRAM Pilot is currently in its seventh implementation in 2022. The 2023
11 DRAM Request for Offer (RFO) was launched on February 1, 2022, and selected contracts
12 are scheduled to be executed on April 29, 2022. The administration budget for the year
13 2023 was authorized in D.19-07-009, OP 2 on page 107. SDG&E is not requesting any
14 additional funding for DRAM for 2023.

15 SDG&E has seen a steady decline in the number of DRPs submitting bids in the
16 DRAM RFOs and the number of DRPs awarded contracts. In the 2017 DRAM RFO,
17 SDG&E had a high of eleven DRPs bid into the RFO and awarded contracts to five DRPs.
18 In the 2022 DRAM RFO, SDG&E had only three DRPs bid into the RFO and awarded
19 contracts to only two DRPs. SDG&E has had no new market entrants in the auctions since
20 the 2020 DRAM RFO which took place in 2019 for 2020 delivery.

21 **3. Customer Information Working Group (WG)**

22 Resolution E-5110 issued on December 18, 2020, authorized the Energy Division to
23 initiate a Customer Information WG no later than 60 days after the adoption of the
24 Resolution. The WG is tasked to study The California Efficiency + Demand Management
25 Council’s proposal from the DRAM WG and produce a report by June 1, 2021.²⁵ The
26 Resolution also ordered the IOUs to include the Customer Information Working Group
27 report in their 2023-2027 DR Portfolio Applications.²⁶ The Customer Information WG was

²⁵ Resolution E-5110, p. 49, OP 5.

²⁶ Resolution E-5110, p. 50, OP 6.

1 never initiated by the Energy Division, and therefore there is no report to include in this
2 testimony.

3 **IX. RELATED ACTIVITIES TO SUPPORT DEMAND RESPONSE IN 2023**

4 **A. Demand Response Regulatory Policy, Financial Services and General**
5 **Support Activities**

6 There are a number of activities that support the DR programs with costs which are
7 not related specifically to singular programs. They are general administration and support
8 areas that support the entire portfolio support, and systems support of SDG&E's business
9 systems which directly serve DR programs. SDG&E requests funding at the following
10 levels for each of the years in the cycle as follows:

11 **EBM- Table 4**
12 **SUPPORT ACTIVITIES BUDGET**

	2023
Policy and Financial Support	\$869,400
System Support and Maintenance	\$2,285,563

13
14 Policy and Financial Support includes the discreet costs related to regulatory policy
15 staff who oversee and respond to DR data requests, compile DR filings and Commission
16 reports, participate in Commission-created or required working groups and work with the
17 DR team to ensure compliance. It also includes costs related to the financial staff who track
18 DR budgets and track actual expenses, oversee the financial reporting of the DR portfolio
19 and advise the DR team on financial matters. System Support and Maintenance expenses
20 include the costs directly related and limited to supporting the systems that serve SDG&E's
21 DR team and its DR customers. The system support and maintenance budget also include
22 any ongoing fees for systems such as software service fees, maintenance fees, and license
23 fees. The proposed budget is based on the anticipated scope and capabilities required to
24 effectively and centrally integrate, manage, and operate SDG&E's utility portfolio of DR
25 programs. These costs take into consideration some fundamental and high-level assumption,
26 based on the utility DR program proposals. The requested amount in this area of \$2,285,536
27 is higher than the amount requested in 2022 which was \$1,285,000. Additional funds are
28 being requested to cover the maintenance fees for a new system scheduled for deployment in

1 2023. In addition, the costs for some systems vary based on the number of customers or
2 devices enrolled. In these cases, the budget is based on a high-end estimate of potential
3 program enrollments in order to ensure that the budget can accommodate program growth.

4 **X. ZIGBEE TECHNOLOGY UPDATE**

5 The purpose of this section of my testimony is to notify the Commission on
6 SDG&E's intent to discontinue its support of demand response and/or other devices that
7 connect to SDG&E's Smart Meters via ZigBee technology.

8 **A. Background**

9 ZigBee technology was a common, if not the premier, meter communication
10 functionality offered in the initial roll outs of smart meters, such as SDG&E's.²⁷ It was the
11 communications technology that was contained in SDG&E's meters that were initially
12 installed between 2009 and 2011. All of SDG&E's approximately 1.4 million meters today
13 use ZigBee. This technology also was originally utilized by SDG&E in its retail
14 enablement²⁸ of the Home Area Network (HAN) devices and early programmable
15 controllable thermostats (PCTs) that were paired with a customer's meter in order to share
16 data. First generation HAN devices were connected to meters directly by the IOU, after
17 testing by the IOU and approved to link with SDG&E's smart meter network. The devices
18 provide near real time usage data to devices in the home. SDG&E also used ZigBee to
19 communicate other data to the HAN in early pilots; most often pricing or bill total estimates
20 when paired with device algorithms that calculated usage and multiplied it by per kW rate,
21 etc. This was done to display a proxy for billing information to test customer awareness of
22 energy usage, enable greater understanding of energy usage and its relation to price, and to
23 test behavior.²⁹

²⁷ ZigBee meters were adopted by all three of the large investor-owned utilities in California: SDG&E, SCE and PG&E.

²⁸ On September 27, 2012, the CPUC approved Energy Division's resolution E-4527 (directing the Utilities, via OP 1, to submit filings that incorporate specific implementation requirements to enable the retail purchase of devices by customers and for those devices to be tested and paired on SDG&E's meters via ZigBee (detailed in the ordering paragraph). SDG&E filed 2307-E-A with its HAN plan (AL 2307-E-A) which was adopted.

²⁹ The devices displayed estimated energy costs, which are not accurate reflections of SDG&E billing, but rather are intended to provide a general idea of approximate energy costs to help

1 From the beginning, SDG&E has employed various means to pair devices to meters,
2 and today it uses a third party-run portal and pairing system. Starting in 2014 and through
3 2016, SDG&E provided customers free of charge and installed ecobee thermostats equipped
4 with ZigBee communicating chips. Currently 7,500 devices (+/- 6,500 ecobee, about 1K
5 other, including HANs that display usage) have been paired with SDG&E's smart meters.
6 However, the technology is limited, and it is not possible to determine exactly how many of
7 those customers utilize the ZigBee feature to view real time meter data. Since the
8 thermostats normally stay with the home when it is sold, SDG&E would surmise that many
9 customers do not even know about the feature in an older PCT.

10 Today, ZigBee technology is no longer the favored path for meter technology. Wi-fi
11 is the preferred technology for residential. Today, all communication for DR events with
12 smart thermostats now occurs via a wi-fi signal. For example, neither Nest nor ecobee
13 currently offer a product with a ZigBee chip, as was so prevalent a decade ago.

14 **B. SDG&E's Proposal to Discontinue ZigBee Support**

15 SDG&E's initial smart meter roll out is nearing the end of its life. Installations of
16 SDG&E's first smart meters will be almost 20 years old by the time this instant DR cycle
17 ends in 2027. SDG&E has issued in early 2022 a Request for Proposals (RFP) for new
18 smart meters with the view to have new meters to be available possibly in late 2023 and
19 beyond in the event older meters start to fail. In its own research, SDG&E has learned that
20 none of the major smart meter vendors today utilize ZigBee technology as the basis for
21 sending meter data to a management system as they once did, including SDG&E's current
22 meter vendor, Itron.³⁰ Wireless, or wi-fi, has become the preferred technology.

23 Given that both the markets for meters and devices such as smart thermostats have
24 moved away from relying on ZigBee, starting in 2023 SDG&E will no longer support new
25 ZigBee device pairing. There has not been demand for new device pairing, and devices that
26 are connected via ZigBee will still remain connected until the customers' future new meters

customers take action. The displayed energy costs are intended for guidance and estimation purposes only. The manufacturers use various methods to calculate the numbers and the estimated cost will be different than actual billing information.

³⁰ SDG&E's current meter vendor, Itron, was originally used also by SCE. Itron has merged with Silver Spring which was PG&E's provider, which also does not offer ZigBee in its new meters.

1 are replaced with a new meter not carrying ZigBee. When new smart meters begin to be
2 installed, sometime after 2023, SDG&E will begin communicating with customers who have
3 ZigBee devices paired with SDG&E's meters that that functionality will no longer work in
4 the new meters. SDG&E will convey educational information about how to obtain energy
5 information through MyAccount, how customers can manage their energy usage through
6 current technology such as through wi-fi digital "assistants," wi-fi smart thermostats or other
7 wi-fi appliance controls. SDG&E will also utilize the opportunity to market its DR
8 programs and incentives.

9 SDG&E's proposal to discontinue support for ZigBee devices is driven mostly by
10 the meter market. SDG&E's decision to not support ZigBee is not an indication that
11 SDG&E does not support energy usage data being shared, or customers having access to that
12 data. It is an indication that the technology landscape has merely changed since smart
13 meters were first deployed and paired with devices. Technology has moved away from
14 ZigBee.

15 SDG&E's decision to end ZigBee support is included in its DR application herewith
16 since the costs for the vendor' pairing portal has been funded, in part, by a very nominal
17 amount in the DR budget, of approximately \$30,000 per year. SDG&E therefore requests
18 \$30,000 for the portal for 2023 and no additional funding for subsequent years when
19 SDG&E requests to no longer support pairing of Zigbee devices.

20 **XI. CONCLUSION**

21 SDG&E is pleased to make these 2023 Demand Response program proposals at this
22 time, which support both the goals of California as well as SDG&E to create a cleaner
23 environment and more reliable grid. SDG&E looks forward to the Commission's review
24 and collaboration in moving DR forward in the future; to reduce GHG, to meet grid needs in
25 the most cost-effective manner, and to give customers choice.

26 This concludes my prepared direct testimony.

1 **XII. WITNESS QUALIFICATIONS**

2 My name is E Bradford Mantz. My business address is 8335 Century Park Court,
3 San Diego, California 92123. I am employed by SDG&E as the Demand Response and
4 Segmentation Manager for Customer Programs. My responsibilities include the design,
5 implementation and management of demand response programs for SDG&E. I have been
6 employed by SDG&E since 2010.

7 I graduated from the University of Texas, Austin with a Bachelor of Arts in Business
8 Administration with emphasis in Marketing and Petroleum Land Management and a minor
9 in Geology.

10 I have testified previously before the California Public Utilities Commission.

APPENDIX A

SDG&E Program Implementation Plans Demand Response 2023

Pilot Implementation Plan (PIP)

Program Name

Capacity Bidding Program (CBP) Residential Pilot

Program Budget

The budget dollars listed below reflect the administrative, capacity and energy incentive costs.

Pilot Name	2023 Budget
Capacity Bidding Residential Pilot	\$708,000.00

Program Descriptors:

Market Sector:

- Residential

Program Classification:

- Pilot

Pilot Design:

The Capacity Bidding Residential Pilot offers residential customers the opportunity to earn incentives when signed up through an aggregator and have the availability and capability to meet requested load reductions during an emergency or abnormally high demands for power.

For multiple program participation, see Electric Rule 41.

Pilot Objectives:

- To determine if residential customers are a viable source of incremental load for demand response.
- To determine how residential customers respond to Day-Of and Day-Ahead DR events.
- To determine if 5x10 baseline is the best way to measure residential load or a new methodology is needed.

Target Customers:

This program is available to residential customers receiving bundled service, Direct Access service or Community Choice Aggregation (CCA) service and being billed on a residential rate schedule. Participation in this program must be taken in combination with the customer's otherwise applicable rate schedule. This program is only available to residential customers signed up through a Demand Response Provider also known as an "Aggregator" that combines the loads of one or more customers for the purpose of participating in a demand response program or pilot.

This program is available to SDGE and Community Choice Aggregation (CCA) customers. Participation in this program must be taken in combination with the customer's otherwise applicable rate schedule.

Implementation:

1. Eligibility

The Capacity Bidding Residential Pilot allows individual residential customers to enroll with a third-party Demand Response Provider otherwise known as “Aggregator” and nominate a specified load amount they could reduce should SDG&E call a reduce energy event.

The CBP Residential Pilot is open to any residential customer who is enrolled through an approved aggregator and is required to have installed a compliant fifteen-minute interval data recording meter with related telecommunications capability, compatible with the Utility’s meter reading, time-of-use billing, and telecommunications systems.

2. Operating Months

The program will operate May through October (6 months). Weekends and holidays are excluded except for the emergency-only declared events which may be called on weekends and holidays.

3. Events:

Participants will be evaluated as follows:

For the months of May through October all participants will be limited to a maximum of six events per month or of 24 hours per month. Customer participation is limited to no more than one event per day and 24 hours each month May through October.

In addition to the six events per month, in the event of an emergency SDG&E may call up to three additional emergency-only events in a given month, only after the six regular events are exhausted. There is a limit of three consecutive events per week. Emergency events are defined as CAISO declared emergencies or for a utility system emergency.

Curtailed hours are between 1:00 p.m. to 9:00 p.m. Monday through Friday, and exclude weekends and holidays, except for emergency-only events which may be called on weekends and/or holidays, however, do not have a penalty for non-performance.

The 5 in 10 Day-Matching Aggregate baseline will be used for settlement purposes per the methodology found in appendix A and the CBP Tariff.¹

4. Event Triggers:

¹ https://tariff.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_CBP.pdf

The Utility may call an event whenever the day ahead market price is equal to or greater than the trigger prices or the forecasted real time price is equal to or greater than the trigger prices listed below for each product.

- The Day-Ahead Price trigger is \$200, \$400 or \$600 per MWh.
- The Day-Of Price trigger is \$200, \$400 or \$600 per MWh.

However, the pilot reserves the right to execute the maximum number of events per month for testing and evaluation purposes.

5. Notification Times:

- a) Day-Ahead Event: Customers will be notified of an event no later than 5:00 p.m. the day before.
- b) Day-Of Event: Customers will be notified 40mins prior to dispatching the event.

6. Pilot Term:

Enrolled participants are expected to remain in the program for a minimum of 12 calendar months and must have the required metering and operable communication equipment while participating in the pilot. Participants may opt out of the program any time after their 12-month term.

7. Incentives

Aggregators will receive compensation for administering the pilot. Aggregators will be responsible for compensating customers for their participation in the pilot.

Customer must participate for the duration of the pilot in order to be eligible to receive compensation for the pilot.

8. Marketing, Education & Outreach

SDG&E's Program Advisor will work with the 3rd party implementer to determine best strategies to recruit customers for this pilot.

At the conclusion of the pilot, participants will be surveyed about their pilot experience to better determine best practices and lessons learned for future pilots and program implementation.

9. EM&V and Load Analysis

A post pilot analysis and a load impact evaluation will be performed per approved protocols at the conclusion of the pilot.

To evaluate the success of the pilot a separate load impact analysis will be conducted at the end of the pilot as described in the Load Impact Evaluation Plan that can be found in the Prepared Direct Testimony of Lizzette Garcia-Rodriguez (Chapter 4A – Appendix A).

10. Final Report

A post pilot report will be provided by the Aggregator implementing the pilot to SDG&E.

Appendix A

Residential Customers: All residential customer loads are aggregated before the baseline calculation. The baseline days are identified based on aggregated loads from eligible days, and the baseline adjustment is applied to the aggregated baseline.

- Select the 5 of 10 weekdays (excluding ineligible days) with the highest average load during the event window. Ineligible days include:
 - CAISO Holidays
 - Weekends for Weekday baseline analysis
 - DR Events & Award Days
- Look back limit: 45 days
- Adjustments are made based on the ratio between event-day loads and the baseline unadjusted loads.
- Adjustment:
 - The adjustment factor is calculated by creating a 2-hour buffer in both directions before and after the event window. Then dividing the average load 2 hours prior to the buffer period and 2 hours after the buffer period by the average load for the same hours of the unadjusted baseline.
 - The cap for weekdays is $1+0.4$ for the upward adjustment and for the downward adjustment $=1/1.4$ (weekday cap= 1.4 and 0.71).