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Chapter: 2

**SOUTHERN CALIFORNIA GAS COMPANY'S TESTIMONY IN SUPPORT OF ITS
APPLICATION FOR APPROVAL OF ITS DEMAND RESPONSE PILOT PROGRAMS
(CHAPTER 2: PROPOSED PILOT PROGRAMS)**

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

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CHAPTER 2
PREPARED DIRECT TESTIMONY OF DARREN HANWAY
(PROPOSED PILOT PROGRAMS)

I. PURPOSE

The purpose of this chapter is to discuss the implementation of Southern California Gas Company's (SoCalGas or Company) proposed 2023-2025 Gas Demand Response Pilots (DR Pilots or Pilots). This chapter describes the design of the four Pilots, the incentives, the proposed budget, and the evaluation, measurement, and verification (EM&V).

II. DEMAND RESPONSE PILOTS OVERVIEW

SoCalGas proposes to implement four DR Pilots to test the effectiveness of reducing commercial, industrial and low-income residential customers gas usage during system peak demand periods; as well as a research initiative (Technology Evaluation Program) to identify gas DR equipment for commercial, industrial and low-income residential customers to further support their participation in future DR programs. The DR Pilots will look to further identify the most effective program designs, incentive structures, event durations, measurement and evaluation techniques, and locational targeting approaches for different customer segments, and how each of these segments participate in and respond to a gas DR program. Most importantly, the Pilots plan to identify the customer groups with the greatest participation rates and most likely to produce consistent demand reductions. This information will assist in determining the appropriate mix of future DR programs. Another of the Pilots' objective is to learn about any snapback effects happening post DR events across the different customer segments and how to mitigate them in future programs.

A. Pilot Summaries

Gas DR programs are not currently offered by SoCalGas or any other California gas investor-owned utilities. Across the country, there are very few examples of gas DR programs being offered to customers. To advance gas DR as an option to address system reliability concerns, SoCalGas proposes to test various DR Pilots across a spectrum of customer groups with various design strategies informed by previous SoCalGas DR programs, CPUC proceedings, and other emerging program strategies and design in the country.

The Pilots will help SoCalGas better understand the customer's propensity to participate in scheduled DR events by customer group. Through these Pilots, SoCalGas will examine the

1 DR event's frequency, duration, and energy reduction levels effects on customers. Table II.1
2 presents an overview of the Pilots' targeted customer groups, customer recruitment approach,
3 DR event triggers, measurement and verification approach, and participant incentives.

4 SoCalGas curtails service in accordance with Tariff Rule 23. Should the System Operator
5 deem it necessary to curtail service, SoCalGas currently initiates an eight-step process. The need
6 for the System Operator to issue curtailments will depend on the daily winter gas demand, supply
7 receipts, the availability of pipeline capacity, storage inventory and availability to maintain peak
8 day capacity, and how effectively consumers reduce gas demand.

9 The situations requiring curtailment vary but generally fall into these categories:

- 10 • System Curtailment
- 11 • Localized Curtailment
- 12 • Emergency Curtailment
- 13 • Planned Maintenance Curtailment

14 The DR Pilots could potentially help reduce system demand during Emergency Flow
15 Order, voluntary curtailment, and non-voluntary curtailment events. The following will be the
16 triggers for calling a DR event:

- 17 • A curtailment watch is announced in anticipation of a curtailment event;
- 18 • Extreme weather conditions are forecasted; or
- 19 • SoCalGas calls for a DR test event for preparation and testing purposes. Such test
20 events will be decided based on severe weather forecast and through consultation
21 with SoCalGas's implementation partners.

22 It is anticipated that there will be up to four DR events in each winter heating season,
23 although if the situation warrants and the program budget is still available more DR events may
24 be called as necessary. The DR Pilots attempt to address the need to reduce the possibility of gas
25 curtailments large enough to cause electricity service interruptions. Gas DR programs can be
26 implemented in an effort to reduce the number of required curtailments, as well as, to reduce the
27 amount of dispatchable electric generation load that would otherwise have to be curtailed to
28 maintain system integrity.

29 Pursuant to Rule 23, SoCalGas curtailment rules prioritize residential and small
30 commercial customers (core load) ahead of dispatchable electric generators, large commercial
31 and industrial loads, large cogenerators, and refinery loads (noncore load).

1 Rule 23 places dispatchable electric generation customers at the lowest priority for gas
2 service among noncore customers. Curtailment procedures first prevent the dispatch of electric
3 generation not forecasted to be operating at the time the curtailment order is in effect followed
4 next by the curtailment of up to 60% of the dispatched electric generation gas load during the
5 winter season (November through March) and 40% of the dispatched electric generation gas load
6 during the summer season (April through October).

7 Dispatchable electric generation customers are ideally suited to quickly comply with
8 curtailment orders when natural gas system integrity is threatened due to their relatively large
9 loads and dispatchability. Higher priority noncore loads are inherently less suited to respond to
10 curtailment orders since, typically, most are not subject to dispatch as part of their normal
11 business operation nor do they maintain alternate fuel capability to allow their operation to
12 continue while subject to a curtailment order. Development of the DR Pilots will help determine
13 if it is possible and economically practicable to create a new class of dispatchable natural gas
14 load on the SoCalGas system based on shifting or reducing demand on the gas system during
15 times of system stress.

16 **1. Industrial Load Reduction (ILR) Pilot**

17 The ILR Pilot will target large (>250,000 therms/yr. usage) industrial customers who can
18 significantly reduce gas usage during a DR event. The ILR Pilot will examine these customers'
19 willingness to participate in DR events, the financial incentives required to motivate the
20 participation of large industrial customers, the potential reduced gas usage levels, and the
21 impacts to SoCalGas's distribution system.

22 **2. FLEXmarket Pilot**

23 The FLEXmarket Pilot will target medium-sized (<250,000 therms/year usage)
24 commercial and industrial (C&I) customers to deliver demand flexibility benefits with incentives
25 based on measured impacts at the meter. This Pilot will examine DR third-party aggregators
26 under a pay-for-performance mechanism. Specifically, SoCalGas will test price points for
27 demand reductions delivered by participating medium-sized C&I customers through third-party
28 aggregators. These aggregators will be paid according to the actual performance yield of
29 projects, as measured and quantified using population net-metered energy consumption (NMEC)
30 meter data analysis.

3. Direct Load Control (DLC) Pilot

The DLC Pilot will target smaller (<50,000 therms/yr. usage) C&I customers and focus on automated demand response (Auto-DR) tied to direct load control-enabled space and water heating technologies. The DLC Pilot will test the effectiveness of direct load control-enabled equipment reducing consumption during a DR event.

4. Residential Smart Control (RSC) Pilot

The RSC Pilot will target low-income residential customers residing in disadvantaged communities with DR-enabled equipment (i.e., smart thermostats) in order to reduce residential gas heating usage when there is anticipated stress on the gas grid. The RSC Pilot will leverage SoCalGas’s previous residential DR programs to examine the effectiveness of new program strategies to address previous implementation issues, such as the customer snapback effect.

Table II.1 below is a summary of the four DR Pilots that will be discussed in more detail later in the chapter.

Table II.1. SoCalGas Demand Response Pilots				
Pilot	ILR	FLEXmarket	DLC	RSC
Targeted Customer Group	Large Industrial	Medium C&I	Smaller C&I	Low-Income Households in Disadvantaged Communities
Annual Therm Usage	(>250,000)	(<250,000)	(<50,000)	(<2,000)
Customer Recruiter	IOU	Aggregator	3rd Party Provider	3rd Party Provider
DR Event Trigger	IOU Curtailment Watch Extreme Weather, ¹ or Test Events			
M&V	ReCurve’s CalTRACK 2.0 Engine			
Participant Incentive	Customer	Aggregator	Customer	Customer
Incentive Rate	Average Performance Incentive of Up to \$8/therm	Average Performance Incentive of Up to \$8/therm	Average Performance Incentive of Up to \$10/therm	\$50 at Enrollment + \$25 Participation Incentive per Heating Season

¹ The peak day weather design for SoCalGas is as follows: 1-in-10 Peak Day Temperature is 42.2° and 1-in-35 Peak Day Temperature is 40.5°.

1 **5. Technology Evaluation Program**

2 The Technology Evaluation activities will support the DR Pilots by understanding new
3 technologies’ role in reducing demand among all the different customer classes participating in
4 the DR Pilots. This program will allow SoCalGas to identify potential technological gaps and
5 market barriers different customers face in adopting DR-enabled equipment.

6 **B. Incentive Design Guidelines**

7 To encourage customers to participate and provide demand reductions during a DR event,
8 SoCalGas proposes to offer financial incentives based on a set of guidelines that promotes
9 participation and minimizes ratepayer investments. The guidelines are informed by prior
10 SoCalGas DR programs, stakeholder input, and CPUC direction and various proposals presented
11 in previous proceedings.² The guidelines include setting incentives that are:

- 12 • Adequate to attract and retain active customers in the program;
- 13 • Based on measured demand reduction realized during a DR event;
- 14 • In proportion to the customer’s load reduction;
- 15 • Varied in recognition of demand reductions achieved, event duration, location,
16 frequency, and customer group;
- 17 • Structured to provide higher premium on performance incentives than any
18 enrollment (or pledge) incentives;
- 19 • Constructed to assess penalties if the participants do not provide sufficient
20 demand reductions or participate in multiple DR events; and
- 21 • Refined based on key findings after the winter seasons’ implementation.

22 **III. INDUSTRIAL LOAD REDUCTION PILOT**

23 The Industrial Load Reduction (ILR) Pilot will target large industrial customers
24 (>250,000 therms/yr. usage) who can voluntarily reduce their gas consumption during a planned
25 DR event. Large industrial customers use gas for many different needs, such as water heating,
26 space heating, cooking, and manufacturing. With adequate economic incentives, large industrial
27 customers may modify their gas load by shifting usage to off-peak periods or by partially

² D.20-02-043 at 39-40.

1 reducing usage during peak periods. SoCalGas will concentrate outreach efforts on the most
2 extensive gas users to reduce the largest load during a DR Event.

3 **A. Enrollment**

4 All SoCalGas large industrial (>250,000 therms/yr. usage) customers will be eligible for
5 the ILR Pilot. To increase potential load reductions, SoCalGas will target large industrial
6 customers in system-constrained areas for participation, although interested customers in other
7 areas may also be eligible to participate in the ILR Pilot. The participating customer must
8 commit to reducing energy usage during a DR event and provide SoCalGas with a specific plan
9 for reducing usage during a DR event. SoCalGas will evaluate the reasonableness of the
10 customer's plan during the enrollment process and may revisit it during the Pilot to improve
11 participation performance.

12 SoCalGas will promote the ILR Pilot primarily through its customer account managers,
13 who directly engage with the customer. SoCalGas believes that leveraging the existing customer
14 account representative relationship will be the most effective way to recruit large industrial
15 customers into the Pilot. The customer account managers will work closely with interested
16 customers to identify loads that may be shed or shifted during future DR events and assist in
17 creating a plan and calculating the potential impact and benefits that may result from
18 participating in the ILR Pilot. After the customers decide to participate, the account manager
19 will assist in enrolling them into the ILR Pilot.

20 **B. Participation**

21 The DR event durations for the ILR Pilot will seek to alleviate load and maintain
22 adequate storage margins for system reliability. For the ILR Pilot, SoCalGas anticipates calling
23 events during system stress, typically in the morning and evening. SoCalGas will require
24 customers who enroll to provide plans detailing how they will reduce load, including setting an
25 energy reduction target for each DR event. The customers will also assist SoCalGas in
26 establishing the baseline for their participating facilities as documented in the participation plan
27 and this baseline will be verified during the Measurement & Verification (M&V) process. The
28 information provided by participating customers will be reviewed by SoCalGas and its
29 acceptance confirmed once the technical reasonableness of the project can be established.
30 Customers who consistently fail to meet their committed energy reduction target will receive a
31 financial penalty based on the estimated shortfall that may be deducted from present or future

1 DR incentive payments. The financial penalty will be agreed to in advance with the customers
2 and documented in the participation plan. Consistent underperformance or failure to pay the
3 financial penalty may trigger suspension or disqualification from future DR programs.

4 SoCalGas's Curtailment Watch process will be one of the triggers for a DR event.
5 Specifically, the Curtailment Watch monitors the expected temperature or anticipated supply
6 shortages. SoCalGas may also call one or more test events per season, depending on the
7 frequency of anticipated events. Based on the Curtailment Watch's historical data, SoCalGas
8 projects an average of 2-4 DR events per season during the 2023-2024 and 2024-2025 winter
9 seasons (November 1 through March 31). SoCalGas will contractually obligate the customers to
10 participate in a DR event lasting up to 24 hours (10:00 am to 10:00 am the following day) 7 days
11 a week (weekdays, weekends, and holidays). SoCalGas will strive to notify participants at least
12 24 hours before the DR event, with an activation/cancellation notification sent at least two hours
13 before the DR event.

14 The ILR Pilot may target customers in specific geographic areas of SoCalGas's service
15 territory where reducing gas usage would mitigate pipeline needs and/or reduce the Company's
16 use of pipeline-delivered services. The Pilot may also test system-wide events to gauge its
17 effectiveness on the system.

18 Figure II-1 represents a map of curtailment zones (which includes portions of San Diego
19 Gas & Electric Company's service territory that are not eligible for participation).

1 informed testing and iteration of price signals, event duration, etc., through a consistent M&V
2 pathway. This approach requires SoCalGas to provide metered data for the participant and non-
3 participant-eligible customers to the provider (Recurve) via data transfers throughout the DR
4 event season.

5 In compliance with CPUC direction, SoCalGas will examine whether an interruptible rate
6 program (either alone or in combination with a future ILR Program) would be beneficial to the
7 system by avoiding the curtailment of one peaking turbine, or approximately 1 MMcf per hour.
8 The results of this information will help the Commission to better analyze whether a future ILR
9 program is likely to achieve its objectives and improve reliability.³

10 **IV. FLEXMARKET PILOT**

11 The FLEXmarket Pilot, which will leverage third-party aggregators under a pay-for-
12 performance compensation approach, is designed to deliver demand flexibility benefits with
13 incentives based on measured impacts at the meter. In alignment with the incentive guidelines,⁴
14 SoCalGas will set a price point for demand flexibility outcomes delivered by demand flexibility
15 service providers (aggregators) representing eligible SoCalGas C&I customers. The Pilot will
16 pay the aggregators according to the actual usage reduction, measured and quantified using
17 population net-metered energy consumption (NMEC) meter data analysis.

18 A FLEXmarket Pilot will provide further benefit for future gas DR programs as it
19 establishes a network of aggregators and customers that are ready to deploy in gas DR events.
20 Since DR networks like FLEXmarket have been successfully deployed in the electric DR events
21 in California and elsewhere, the network of DR-ready customers already exists here in Southern
22 California and this FLEXmarket Pilot is intended to extend the same capabilities in the electric
23 DR market to the emerging gas DR market. The FLEXmarket Pilot will also provide the
24 network of aggregators and customers with the much-needed experience and comfort level with
25 participating in gas DR programs.

26 The turnkey, pay-for-performance nature of the FLEXmarket is attractive because it helps
27 SoCalGas avoid the cost of developing and growing ready-to-deploy DR markets. Instead,

³ D.20-02-043 at 36, fn. 125.

⁴ *Id.* at 35, 39.

1 SoCalGas will be able to leverage existing networks of aggregators and customers that are
2 already familiar with DR.

3 **A. Enrollment**

4 SoCalGas’s medium (<250,000 therms/yr. usage) C&I customers will be eligible for the
5 FLEXmarket Pilot. Third-party aggregators will perform outreach and enroll eligible SoCalGas
6 customers into the FLEXmarket Pilot. SoCalGas may provide additional marketing and outreach
7 strategies to increase customer awareness of the FLEXmarket Pilot. Because FLEXmarket is
8 technology-agnostic, it welcomes participation from aggregators offering all types of projects
9 and business models which may otherwise not be eligible to participate in utility programs at
10 such a broad level. For this reason, the FLEXmarket organically builds loyalty from
11 aggregators, unlocks broader participation than in DR programs, and welcomes further
12 investment in FLEXmarket-enabled outcomes.

13 **B. Participation**

14 SoCalGas’s FLEXmarket Pilot will offer performance incentives for gas usage reductions
15 provided by SoCalGas’s C&I customers via participating aggregators during a DR event. This
16 structure incentivizes aggregators to deliver savings at the meter, which directly correlate to
17 benefits realized by the customer, such as utility bill savings. The Pilot will provide performance
18 incentives to aggregators who can deliver demand reductions targeted by SoCalGas, as measured
19 and verified with SoCalGas’s hourly meter data.

20 In this FLEXmarket Pilot, SoCalGas does not directly interact with or manage any of the
21 customers participating through the aggregators. The Pilot structure incentivizes SoCalGas’s
22 third-party FLEXmarket provider (ReCurve) to recruit Virtual Power Plan (VPP) aggregators to
23 dispatch load modification resources in the FLEXmarket when a DR event is called. SoCalGas
24 will call a planned event or test event with at least 21 hours advance notice. SoCalGas will
25 contact the provider about the timing and incentive pricing of the upcoming gas DR event, and
26 the provider will solicit participation from its network of aggregators. Interested aggregators will
27 opt in and commit to the amount of reduction during the specified event. To avoid discouraging
28 aggregators from participating in this Pilot, no financial penalties will be assessed for failure to
29 deliver the committed reduction although consistent under- or non-performance may warrant
30 suspension or disqualification of the aggregator from future events.

1 Aggregators will be compensated based on the load modification value achieved by their
2 respective aggregated customers (VPP portfolios). In addition, the quarterly payment model
3 under the FLEXmarket program structure requires value from energy reductions to accrue
4 beyond the initial FLEXmarket management fees before incentives are paid to aggregators. This
5 accrual method helps SoCalGas avoid paying for marginal projects that are expensive to process,
6 validate and pay out but do not provide significant demand reduction. Compared to the average
7 non-incentive spend of ~50% across ratepayer-funded programs in California, the FLEXmarket
8 design maximizes dollar flow down to end customers while providing savings on their bills.

9 **C. Incentives**

10 SoCalGas's FLEXmarket Pilot will compensate aggregators by offering compensation
11 for load reductions during DR events. This compensation is not tied to the avoided energy costs
12 and is intended to provide a financial incentive to reduce load during SoCalGas peak periods.
13 The FLEXmarket Pilot will vary customer incentive amounts to identify the optimal cost-benefit
14 outcome. The varying incentive amount will be tied to several factors, including the forecasted
15 spot prices of gas, availability of gas, and participation level in previous called events.

16 The FLEXmarket Pilot's pay-for-performance model will deliver performance incentives
17 in a fashion that will limit ratepayer financial risk of trying to develop a new ready-to-deploy
18 market for gas DR that could be very resource- and cost-intensive. SoCalGas only pays for
19 benefits delivered after meter-based measurement and verification using CalTrack 2.0 as
20 described previously. The approach emphasizes the relationship between the DR investments
21 and gas system impacts that may help bolster system reliability.

22 **V. DIRECT LOAD CONTROL PILOT**

23 The Direct Load Control (DLC) Pilot will target smaller (<50,000 therms/yr. usage) C&I
24 customers with load control devices on space heating and water heating equipment, such as
25 furnaces, boilers, thermostats, and energy management systems. SoCalGas anticipates calling
26 events during periods of system stress, typically in the morning and evening. Participating small
27 C&I customers will receive notification of pending DR events and a remote signal will lower
28 temperature setpoints during the DR event. The Pilot's objective is to examine smaller C&I
29 customers' willingness to participate in DR events, estimate demand reduction realized, study
30 any snapback effects that may occur immediately following an event, and propose mitigation
31 strategies for these snapback effects for future iterations of the program. For safety, the Pilot

1 may also include controls that shut down the electric components of the equipment rather than
2 shutting off the pilot light on furnaces, boilers, or other gas-fired equipment.

3 **A. Enrollment**

4 SoCalGas will target small (<50,000 therms/yr usage) C&I as these customers are more
5 likely to have DR-enabled equipment or those capable of being retrofitted with DR-enabled
6 controls. SoCalGas will select a third-party provider to identify and enroll small C&I customers.
7 The third-party provider will target customers with DR-enabled gas space heating and domestic
8 hot water equipment or equipment that can be retrofitted with DR-enabled control equipment.
9 The third-party provider may install DR-enabled controls on gas heating equipment belonging to
10 participants. The DLC Pilot may enroll up to 250 participants, with customers participating in
11 DR events in two consecutive winter heating seasons.

12 **B. Participation**

13 The DLC Pilot will run during the 2023 to 2025 winter heating seasons. Participating
14 customers are automatically enrolled in all the DR events unless the customer opts out of a DR
15 event. Program participants will receive notifications of an event via direct customer messaging
16 through a mobile application, email, or text message. The notice will inform customers of the
17 pending DR event and provide the time window to opt out of the DR event.

18 **C. Incentives**

19 Customers participating in the DLC Pilot will receive performance incentives of up to
20 \$10 per therm reduced during a DR event. The exact allocation of incentives for each event will
21 be decided in concert with the third-party provider while taking feedback from participants into
22 consideration. Participant will not receive any incentive for an event if they opt out of the DR
23 event. However, to encourage participation, this Pilot will not penalize customers who opt out of
24 a DR event. The gas reduction and associated incentive will be calculated using the CalTrack
25 2.0 method using actual metered gas data. Financial incentives of up to \$500 to install DR-
26 enabled controls may be offered on a case-by-case basis to interested customers and will be
27 decided in consultation with the selected implementation contractor.

28 As part of the DLC Pilot's EM&V strategy, the snapback effects with C&I equipment
29 will also be studied and appropriate mitigation strategies applied as needed during the course of
30 the Pilot based on learnings from this effort and the past and proposed residential DR pilots.

1 **VI. RESIDENTIAL SMART CONTROL PILOT**

2 The Residential Smart Control (RSC) Pilot leverages auto-DR enabled devices to reduce
3 gas heating load during periods of system constraint, similar to the statewide California
4 Independent System Operator (CAISO) “Flex 3 Alert” campaign. On event days, public
5 notifications encouraging consumers to reduce gas usage were deployed through mass media
6 channels, such as radio, digital radio, and digital displays. During DR events, program
7 participants will have their smart thermostats adjusted to a lower temperature from one to four
8 degrees to reduce gas consumption during the peak event. SoCalGas will utilize metered and
9 smart thermostat data to determine the load reduction impact of participating customers during a
10 DR event. The Pilot will test new strategies to increase energy reduction and mitigate any
11 snapback effect from a called event, for instance, by staggering participation from different
12 groups or by setting the thermostats to a more gradual return to regular settings post event.

13 **A. Enrollment**

14 Currently, there are approximately 80,000 low-income residential customers who own
15 qualifying smart thermostats that meet the necessary technical specifications throughout
16 SoCalGas’s service territory. These customers would be eligible to participate in the RSC Pilot.
17 The RSC Pilot will target and plan to enroll up to 20,000 smart thermostats in low-income
18 households located in CPUC-defined Disadvantaged Communities.⁵

19 Through its direct-install energy efficiency programs, SoCalGas has installed smart
20 thermostats at low-income households in disadvantaged communities. SoCalGas will perform
21 outreach to invite these customers to enroll in the RSC Pilot. SoCalGas has also received energy
22 efficiency or DR rebate applications for previously purchased smart thermostats, and the low-
23 income rebate recipients located in desired disadvantaged areas may also be contacted to
24 participate. Only low-income households in disadvantaged areas are eligible to receive
25 incentives from the RSC Pilot. These targeted households will receive an email inviting them to
26 join the Pilot. Instructions and links to the application page will be provided, along with a
27 program overview and the customer’s eligibility requirements. Once a customer has applied, the

⁵ California Office of Health Hazard Assessment, *CalEnviroScreen 4.0*, available at:
<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

1 customer's information will be sent to SoCalGas via a utility portal to verify that the customer is
2 currently a low-income customer. Upon verification, the customer will be enrolled into the RSC
3 Pilot and receive an enrollment notification.

4 SoCalGas plans to promote the RSC Pilot through one or more marketing channels:
5 email, paid social media, bill inserts, My Account banner ads, radio ads, and SoCalGas's online
6 marketplace. SoCalGas will access its customer prioritization tools developed using data from
7 its energy efficiency programs to identify low-income customers with the highest potential for
8 savings based on energy consumption profiles derived from SoCalGas meter data. SoCalGas
9 will compute a suite of customer usage characteristics or "features" based exclusively on pre-
10 program consumption data. These features are to be calculated for every participating low-
11 income customer and range from simple summations (e.g., total annual MWh usage) to
12 normalized metrics (e.g., the percentage of usage from heating) to more complex load
13 characteristics (e.g., baseload, evening ramp).

14 **B. Participation**

15 RSC Pilot participants will receive notifications of an event via messaging on their smart
16 thermostat, mobile applications, email, and/or text messages. The notice will inform customers
17 of the pending adjustment to their smart thermostat in advance of a DR event. An hour before
18 the DR event, the customer's thermostat will pre-heat the home, automatically reducing the
19 temperature setting during the DR event. The Pilot will restore the customer temperature
20 settings to their initial setpoints at the event's conclusion in such a way as to minimize any
21 snapback effects, for example by establishing a more gradual return to set temperatures post
22 event. To minimize snapback, customers may also be placed on a rolling schedule based on
23 waves of 2 to 4 hours, rather than putting all participants on the same schedule.

24 The RSC Pilot will test its effectiveness in reducing system load, maintaining adequate
25 storage margins for system reliability, and reducing system carbon intensity using a rigorous
26 M&V approach based on the CalTRACK 2.0 engine that will be described further in the
27 Evaluation, Measurement and Verification section.

28 **C. Incentives**

29 Participants will receive an enrollment incentive and a participation incentive paid at the
30 end of each winter season (November 1 through April 30). SoCalGas is leveraging its initial
31 residential DR offerings to inform the RTC Pilot design. The previous DR program provided an

1 incentive of \$75 for customers who purchased an auto-DR-enabled smart thermostat and enrolled
2 in the DR program. Participation was robust, suggesting that the incentive level was appropriate.
3 The RSC Pilot will set the participation incentives at similar levels. Specifically, eligible
4 customers will be offered a one-time \$50 incentive for enrolling in the Pilot and an additional
5 \$25 for participating in DR events per winter season. Only verified low-income customers in
6 disadvantaged communities will be enrolled and they will receive up to \$100 in financial
7 incentive for participating in RSC that could be used to lower their monthly heating bills if they
8 participate in both winter seasons. Customers who opt out of all events in a heating season will
9 not receive any participation incentives.

10 **VII. TECHNOLOGY EVALUATION PROGRAM**

11 SoCalGas proposes to establish a Technology Evaluation Program with the purpose of
12 testing new gas equipment that could complement future gas DR program efforts. Technology
13 introduction projects are designed to simultaneously seed and gauge market interest in a new
14 product while gathering more data on energy savings. This can be achieved through joint pilots
15 in targeted locations, as well as projects to determine which energy efficiency technologies are
16 applicable based on load shapes, customer segments, and operational processes.

17 Technology evaluation programs have worked closely with the residential communities
18 and retrofit commercial and public sector buildings that demonstrate value to both the owners
19 and occupants and the capabilities to reduce electricity and natural gas usage in real-time to
20 address grid constraints and needs. One of many examples of such a technology is Energy
21 Management Systems (EMS), water and space heating equipment. Technology Evaluation
22 Program will test new DR equipment and add-on controls that have the potential to receive
23 remote signals during DR events. These signals will then automatically cycle off or reduce gas
24 usage via shutting down the electronic ignition, adjust temperature settings to a lower setpoint, or
25 turn equipment to vacation mode. Testing will be conducted at SoCalGas's Engineering
26 Analysis Center (EAC) located in Pico Rivera. SoCalGas will seek to incorporate equipment
27 and controls that are successfully tested into the DR Pilots proposed in this Application for the
28 following winter season. SoCalGas plans to engage original equipment manufacturers (OEMs)
29 to develop integrated, interconnected equipment.

30 SoCalGas will collaborate with manufacturers and DR vendors to test load control DR
31 capabilities on appliances such as clothes dryers, clothes washers, dishwashers, furnaces, and

1 domestic water heating appliances. SoCalGas will utilize a test and control methodology to
2 incorporate successful equipment and controls into the ongoing DR Pilots. The process will
3 include integrating appliances with existing technology (smart thermostats) or being signaled
4 directly via the manufacturer or aggregator. The efforts could evaluate the potential for
5 underutilized technologies that may be incorporated into future DR programs. The evaluation
6 will also identify DR-enabled technologies' market barriers and potential program strategies to
7 overcome perceived barriers to help future DR program design. Collaborating technology with
8 DR Pilot to discover and validate technologies that provide value in terms of reduced energy
9 consumption during peak hours. The program will explore the increasing role of integrated
10 distributed energy resources (IDER) and how gas DR equipment may play a bigger role in the
11 future to address system needs.

12 **VIII. EVALUATION, MEASUREMENT & VERIFICATION**

13 To evaluate, measure, and verify (EM&V) the DR Pilots' overall performance and
14 effectiveness, SoCalGas will hire an EM&V consultant to conduct a final assessment of the
15 Pilots. The Pilots' assessment will address key pilot design elements, such as snapback effects,
16 customer willingness to participate, DR notifications and durations, and realized system benefits
17 and costs. SoCalGas will also leverage the DOE grant to help the EM&V efforts.

18 To support ongoing M&V during the Pilots' delivery period, SoCalGas will use
19 Recurve's CalTRACK 2.0 Engine to calculate the metered therm savings achieved during a DR
20 event and the associated incentive amounts. Recurve will quantify the results of demand events
21 from the DR Pilots by gathering the pre- and post-event metered data, leveraging a common
22 M&V platform to calculate gas usage reduction, enabling informed testing and iteration of price
23 signals and event duration, and finally improving performance of future events, through a
24 consistent M&V pathway. The results from the ongoing M&V process to calculate the gas
25 reduction from DR events will also be used to advise the final EM&V study discussed above.
26 This approach will use metered data for the participant and non-participant-eligible customers
27 via data transfers throughout the DR event season.

28 **IX. PILOT BUDGETS**

29 SoCalGas is seeking approval for a \$12.5 million budget from 2023 through 2025 to test
30 four DR pilots, enhance research efforts to identify new gas DR-enabled technologies, and
31 perform EM&V. SoCalGas's proposed budget includes costs for meter data collection, customer

1 incentives, and pilot administration. The following presents the budget by program activities
 2 across all the proposed DR Pilots, Technology Evaluation Program, and EM&V.

Table IX. DR Pilot Budgets			
Activities	CPUC DR Pilots (Ratepayer-funded)	DOE Grant	Total
Administration	\$ 768,000	\$ 0	\$ 768,000
Marketing & Outreach	650,000	0	650,000
Pilot Incentives	7,695,000	1,250,000	8,945,000
Operations	2,637,000	0	2,637,000
EM&V	500,000	0	500,000
Technology Evaluation	250,000	0	250,000
Research	0	1,250,000	1,250,000
Total	\$ 12,500,000	\$ 2,500,000	\$ 15,000,000

3 As reflected in the above budget, SoCalGas, GTI Energy, and Lumina were conditionally
 4 awarded a \$2.5 million grant from U.S. DOE to help subsidize the DR Pilots. The DOE grant
 5 will subsidize \$1.25 million in customer incentives creating a total customer incentives budget of
 6 \$8,945,000. The balance of the grant, \$1.25 million, will fund grant research objectives. For its
 7 work supporting the FLEXmarket and CalTrack 2.0, Recurve will be assigned a budget of
 8 approximately \$1.4 million.

9 SoCalGas will track and record the \$2.5 million DOE grant award budget and
 10 expenditures separately from SoCalGas’s regulatory accounts. Regulatory accounts are meant to
 11 track ratepayer costs and not special billable funding. Establishing an internal order tracking
 12 mechanism for the DOE grant expenditures appropriately separates the DOE reporting
 13 obligations.

A. Pilot Programs Budget

14 The overall budget for the DR Pilots requested in this Application is presented in Table
 15 IX-2 below. The budget includes program operations and administrative support to deliver the
 16 four Pilots and incentives. The Pilot operations and administrative budget include marketing,
 17 customer targeting, technology development and deployment, data collection, measurement and
 18 evaluation, and administrative activities (e.g., payment processing, program management, etc.).
 19

Table IX-2. Budget by DR Pilot			
Activities	Administrative & Operations Costs	Customer Incentives	Total
Industrial Load Reduction	\$1,200,000	\$3,871,000	\$5,071,000
FLEXmarket	\$540,000	\$1,721,000	\$2,261,000
Direct Load Control	\$515,000	\$382,000	\$897,000
Residential Smart Control	\$2,300,000	\$1,721,000	\$4,021,000
Total	\$4,555,000	\$7,695,000	\$12,250,000

B. Technology Evaluation Program Budget

The Technology Evaluation Program activities funded by ratepayers are presented in Table IX.3. The budget includes program operations and administrative support to research and field-testing new technologies that can support future DR program offerings. The Technology Evaluation Program includes research, testing, evaluation, technology integration, data collection, and administrative activities (e.g., program management).

Table IX-3. Technology Evaluation Program Budget	
Activities	Total
Administration	\$ 25,000
Research & Evaluation	137,500
Testing	50,000
Technology Integration	37,500
Total	\$ 250,000

This concludes my prepared direct testimony.

1 **X. QUALIFICATIONS**

2 My name is Darren M. Hanway. My business address is 555 West Fifth Street, Los
3 Angeles, California 90013-1011. SoCalGas currently employs me as the Energy Efficiency
4 Program Operations Manager in the Customer Programs and Assistance Department.

5 I joined SoCalGas in October 2012 to lead the energy efficiency policy support team. In
6 December 2015, I assumed my current position. My current responsibilities include the
7 management of the Company's energy efficiency programs, including residential, commercial,
8 industrial, agricultural, workforce education and training, and codes and standards offerings. I
9 also oversee the Company's demand response and solar thermal programs.

10 Before joining SoCalGas, I held increasing responsibility at Southern California Edison,
11 working on their demand-side program offerings. I received a Bachelor of Science degree in
12 Business Administration and a Bachelor of Arts degree in International Relations from the
13 University of Southern California in 2003.