BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of San Diego Gas & Electric Company (U 902 E) for Approval of Real Time Pricing Pilot Rate	Application No. 21-12-___ (Filed December 13, 2021)

PREPARED DIRECT TESTIMONY OF

JEFF DeTURI (CHAPTER 1)

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
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I. OVERVIEW AND PURPOSE

The purpose of this testimony is to provide an overview of the background and policy drivers behind San Diego Gas & Electric Company's (SDG&E) application, including the regulatory background, involvement of stakeholders in workshops prior to filing this application (Application) and the policy objectives achieved by SDG&E's proposed rate design.

My testimony is organized as follows:

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II. REGULATORY BACKGROUND

On July 15, 2021, the California Public Utilities Commission (CPUC or Commission) issued Decision (D.) 21-07-010 (Decision) in SDG&E's 2019 General Rate Case Phase 2 (GRC

Phase 2) and related matter Application (A.)10-07-009 (Dynamic Pricing Proposal).[1] The Decision directs SDG&E to file a separate application to develop and implement a two-stage, real-time pricing pilot (RTP Pilot or Pilot). Pilot Stage 1 will have limited enrollment and a target implementation date no later than the end of 2022.[2] Pilot Stage 2 would begin after Pilot Stage 1 and is expected to have a larger enrollment size. The California Public Utilities Commission (CPUC or Commission), as outlined in the Decision for these Applications, requires a proposal for tracking and recovery of costs, including tracking and mitigating under and overcollections, a proposal to address the feasibility and barriers of an application programming interface, a proposed evaluation plan, and a proposed process for working groups.[3] The purpose of the Pilot is to gather the data and experience necessary for the design of potential future RTP rates, and to identify any barriers and implementation challenges to any such rates.[4] This testimony describes an RTP pilot in compliance with the Decision and that meets customer needs.

California and the Commission are leaders in evaluating and implementing programs to help fight against climate change. Senate Bill (SB) 100 set a goal to reach 100% zero-carbon energy by 2045. Further, the Commission's Building Decarbonization Proceeding, Rulemaking (R.) 19-01-011, is working to meet the State's building decarbonization goals pursuant to Assembly Bill 3232. One of the ways to meet these goals is to introduce demand side tools, such

[1] *See* A.19-03-002, *Administrative Law Judge's Ruling Consolidating Proceedings, and Confirming Preliminary Categorization and Assignment of Consolidated Proceeding* (June, 24, 2019) at 2, ("this ruling consolidates A.10-07-009 with A.19-03-002 for purposes of considering related questions of law or fact.").

[2] D.21-07-010 at 52.

[3] *See generally, id.* at 52-58.

[4] *Id.* at 52-53.

as RTP rates, to provide customers with incentives to manage their loads to reduce their electricity bills while also encouraging the reduction of greenhouse gases (GHG) and ensuring the reliability and cost-effectiveness of SDG&E's electricity grid. SDG&E fully supports the Commission's goal of introducing dynamic pricing rates like RTP rates that can provide customers with the tools to meet these goals.

Because it is important to properly evaluate the cost-effectiveness and customer acceptance of RTP rates, SDG&E is proposing a small enrollment in Pilot Stage 1 with a larger enrollment in Pilot Stage 2, once the data and experience from Pilot Stage 1 can be fully evaluated. The Pilot Stage 1 will be limited to medium and large Commercial and Industrial (M/L C&I) customers and will utilize hourly day ahead California Independent System Operator (CAISO) pricing.[5] The Pilot Stage 2 will be adjusted based on the results and feedback from Pilot Stage 1, but SDG&E anticipates utilizing the same rate design with expanded eligibility to include residential, small commercial, and agricultural customer classes.

Pursuant to the Decision at Section 5.5, SDG&E will address the following sixteen items in this Application:

1) What market price or other indicators should the RTP be based on? Is a 15-minute real-time price or day-ahead hourly price recommended? What information and data supports the recommendation?[6]

SDG&E response: This is addressed further below in Section VI.

2) How should a capacity adder to recover stranded costs be structured? Consider the following methods: (1) three to four different peak TOU prices, (2) an hourly capacity adder, (3) a different option (specify). Examples of both (1) and (2) are presented in JARP's proposal. For example, a four-hour peak TOU price capacity adder could have different adders for different weather conditions: base, slightly hot, moderate hot, or extremely hot. The capacity adder design should be offset by

[5] Prepared Direct Testimony of Ray Utama (Chapter 3) on Behalf of SDG&E (December 13, 2021) at RU-3 and RU-4.

[6] D.21-07-010 at 54-55.

a credit on volumetric rates (for residential customers) or reduction in demand charges (for commercial/industrial customers) to ensure revenue neutrality. Response can include a proposal for an iterative capacity adder design with a simple design for the Pilot Stage 1 that will help to inform the design of the capacity adder in the Pilot Stage 2.[7]

SDG&E response: This is addressed in the prepared direct testimony of Sam Shannon at Chapter 2, Rate Design, Section II.A.2.

3) Participation target and cap for Pilot Stage 1 will likely be significantly smaller than 35,000. The Pilot Stage 2 is expected to be similar in size to the PD Pilot. The application should propose a minimum target number of participants for each class and a cap, for both stages of the pilot.[8]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section II.C. and Attachment B.

4) Eligibility for both stages should avoid double-counting. This issue was addressed in the proposed decision. For both stages of the pilot, the presumption is that double-counting will be prevented by prohibiting customers enrolled in the RTP-based dynamic rate from dual-participating in another market-integrated, supply-side demand response program.[9]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section II.B.

5) Estimated implementation costs for both pilot stages should be included in the application. These costs include meter reprogramming (to allow for 15-minute or day-ahead hourly prices and usage to be recorded), billing and IT system upgrades, ME&O, and price portal and push notifications. The application should be detailed and supported as to the estimated Pilot Stage 1 costs. The estimated Pilot Stage 2 costs may be further refined during the proceeding. The application should include a proposal for tracking and recovery of Pilot Stage 2 costs through a memorandum or balancing account.[10]

[7] *Id.* at 55.

[8] *Id.* (sample table excluded).

[9] *Id.* at 56.

[10] *Id.*

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section III.

6) The application should include a proposal for allocation of costs to ratepayers. The application should include a proposal for determining any undercollection or overcollection resulting from the Pilot Stage 2 as well as mechanisms for mitigating the risk of undercollection and overcollection. For Pilot Stage 1, SDG&E should propose a treatment that appropriate to size and implementation deadline for the Pilot Stage 1.[11]

SDG&E response: The allocation of costs to ratepayers is addressed in the prepared direct testimony of SDG&E witness Eric Dalton at Chapter 6, Cost Recovery, Section II. The Pilot Stage 2 determination of undercollection and overcollection is addressed in the prepared direct testimony of SDG&E witness Leslie Willoughby at Chapter 5, Measurement and Evaluation, Sections II.C.2 and III.

7) SDG&E may hire a consultant to assist in obtaining stakeholder input prior to filing of the application, and to facilitate working group meetings and evaluation of Pilot Stage 1. Up to $150,000 may be recovered for consultant and facilitation costs that are incremental, documented, reasonable, and related to this work. The costs may be tracked and recovered through SDG&E's existing Residential Rate Reform Memorandum Account. The application should include a proposal for structure and funding of any additional consulting or other work necessary to complete both stages of the pilot.[12]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Cost Recovery, Section I and Chapter 2, Implementation, Section III.

8) The application should address the feasibility of and the barriers for an application programming interface (API) to transmit price signals to dynamic rate customers participating in Pilot Stage 2.[13]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section III.C.

[11] *Id.*

[12] *Id.*

[13] *Id.* at 57.

9) Third party access to customer meter data is important, but must comply with privacy laws. The application should contain a proposal for access that complies with the law and is consistent with other Commission decisions.[14]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness April Bernhardt at Chapter 4, Marketing, Education and Outreach, Section II.

10) The application should include other proposed outreach and price notification methods, including text alerts that notify customers of anticipated high (or low) prices, direct load control by way of authorized connected devices based on specific user preferences, push notifications, a website, customized views comparing customers' historic energy usage to the prevailing price of electricity, and education materials outlining personalized load shift options.[15]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section III.C.

11) The application should include a proposal for third parties to be the primary source of ME&O for customers. The application should also include a proposal for continued coordination between SDG&E and third parties.[16]

SDG&E response: This is addressed in prepared direct testimony of SDG&E witness April Bernhardt at Chapter 4, Marketing, Education and Outreach, Section II.

12) The application should include a detailed evaluation plan for Stage 1, and a proposed evaluation plan for Stage 2. Areas of interest that should be considered in the evaluation plans include the items set forth in Section 5.6 below.[17]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Leslie Willoughby at Chapter 5, Measurement and Evaluation, Section II for Pilot Stage 1 and Section III for Pilot Stage 2.

[14] *Id.*

[15] *Id.,* (citation omitted).

[16] *Id.*

[17] *Id.*

13) The application should include a proposed process for a working group to facilitate development of the Pilot Stage 2, including final design elements and evaluation criteria.[18]

SDG&E response: This is addressed in the prepared testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section II.A.

14) The application should include a proposed timeline and scheduling worksheet (such as a Gantt chart) for both stages of the pilot. The timeline should include a proposed pilot duration.[19]

SDG&E response: This is addressed in the prepared testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section II.A. and Attachment A.

15) The application should include information, data, and modeling to show the potential impact of transmission rate time differentiation on the RTP pilot rates. This should include a comparison of the proposed pilot rate design with current transmission rate structure and with time-differentiated transmission rates. This will allow the Commission and other stakeholders to better understand the potential impact of transmission rates.[20]

SDG&E response: This is addressed in the prepared direct testimony of Sam Shannon at Chapter 2, Rate Design, Section II.A.4.

16) The application should include a proposed duration for each stage of the pilot. For Pilot Stage 1, the application may also include a proposal for a summertime only RTP pilot.[21]

SDG&E response: This is addressed in the prepared direct testimony of SDG&E witness Ray Utama at Chapter 3, Implementation, Section II.A. and Attachment A.

[18] *Id.*

[19] *Id.*

[20] *Id.* at 57-58.

[21] *Id.* at 58.

III. RTP IN OTHER JURISDICTIONS

In developing its RTP pilot design, SDG&E first looked to other utilities, including utilities in other jurisdictions, that have implemented RTP rates. For example, Pacific Gas and Electric Company's (PG&E) proposed Commercial and Industrial Real Time Pricing Pilot is currently pending before the Commission in its bifurcated 2020 General Rate Case Phase II proceeding.[22] PG&E's proposal, as described in supplemental testimony in its 2020 GRC Phase II proceeding, is similar to SDG&E's proposal in many respects, including:

- Limited to commercial and industrial customers;
- Reliance on day-ahead hourly generation prices from the CAISO day-ahead market (DAM) to set the RTP rate;
- Prohibition on dual participation in the RTP rate pilot and other load management approaches such as demand response programs and peak day pricing; and
- Maintaining the existing transmission rate design for customers enrolled in the RTP rate pilot.[23]

Additionally, PG&E's Commercial Electric Vehicle (CEV) customers is a Day-Ahead Hourly Real-Time Pricing (DAHRTP-CEV) pilot rate.[24] This was chosen to be cost-based and provide customers with a more accurate price signal than a traditional Time of Use (TOU) rate.[25] Each day, PG&E determines the generation prices for each of the 24 hours in the following day based on Day Ahead market prices and forecasted load and generation for each hour.[26] The price

[22] A.19-11-019, *Application of PG&E to Revise Its Electric Marginal Costs, Revenue Allocation, and Rate Design* (November 22, 2019).

[23] *See* A.19-11-019, PG&E Supplemental Testimony, 2020 General Rate Case Phase II, Commercial & Industrial Real Time Pricing Pilot and Research for Other Customer Classes (March 29, 2021) (A.19-11-019, Exhibit No. PG&E-RTP-1).

[24] D.21-11-017 at 8.

[25] *Id.* at 9-10.

[26] *Id.* at 8.

paid by the customer is composed of three parts: 1) Marginal energy cost derived from the CAISO Day Ahead Market energy price; 2) a flat volumetric adder; and 3) a capacity adder based on hourly generation peak capacity allocation factor method.[27]

Southern California Edison Company's (SCE) RTP program is open to all non-residential customers receiving bundled service (delivery and generation of electricity) from SCE.[28] This program was designed for customer operations with the flexibility to shift or reduce electrical usage during the higher priced hours.[29] SCE's RTP varies 24 hours a day, seven days a week with hourly rates based on the time of day, season, and temperature.[30] All with seven different pricing schedules: three during the summer season, two during the winter season, and two which apply on all weekends throughout the year.[31]

There are several utilities in other jurisdictions that currently offer RTP rates. For example, Oklahoma Gas & Electric (OG&E) offers an optional rate called SmartHours-Variable Peak Pricing (VPP) that combines elements of TOU and dynamic rates.[32] On SmartHours-VPP, OG&E residential customers in Arkansas and Oklahoma are charged one off-peak rate during the

[27] *Id.* at 8.

[28] SCE, Real-Time Pricing Fact Sheet at 3, available at https://www.sce.com/sites/default/files/inline-files/RTP%20Fact%20Sheet%200918_WCAG_2.pdf.

[29] *Id.*at 3.

[30] *Id.*at 2.

[31] *Id.*at 2.

[32] Oklahoma Gas & Electric Company, Standard Pricing Schedule: R-VPP, available at https://www.oge.com/wps/wcm/connect/e1be3a66-7394-47ec-a6ac-455d35428ac4/3.50+-+R-VPP+Stamped+Approved.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-e1be3a66-7394-47ec-a6ac-455d35428ac4-nPAYBP3.

summer, but one of four different weekday peak period prices.[33] Similar to SCE's RTP rate, the price schedules are called on a day-ahead basis.[34]

Ameren Illinois Company (Ameren) and Commonwealth Edison Company (ComEd) in Illinois also offer RTP to residential customers. Ameren's program uses day-ahead hourly prices as the basis of the energy component of its RTP rate,[35] while ComEd uses the real-time five-minute residual market prices averaged into an hourly rate.[36] Since the residential meters are programmed to record hourly usage only, the actual prices levied are based on the real-time prices averaged across each hour.[37]

The state of Wisconsin also has experience with real time pricing for medium and large C&I customers. The major investor-owned utilities (Madison Gas & Electric,[38] Wisconsin Electric Energies (We Energies),[39] Alliant Energy,[40] and Xcel Energy[41]) and some municipal

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[33] *Id.*

[34] *Id.*

[35] Ameren Illinois Company, Rider RTP – Real-Time Pricing, available at https://www.ameren.com/-/media/rates/files/illinois/aiel27rdrtp.pdf.

[36] Commonwealth Edison Company, Rate BESH – Basic Electric Service Hourly Pricing, available at https://www.comed.com/SiteCollectionDocuments/MyAccount/MyBillUsage/CurrentRates/05_RateBESH.pdf.

[37] *Id.*

[38] See Madison Gas and Electric Company, Electric Rates and Rules, Electric - Volume 4, available at https://www.mge.com/MGE/media/Library/pdfs-documents/rates-electric/electric-rates.pdf

[39] We Energies offers programs through its two operating companies: Wisconsin Electric Power Company, available at https://www.we-energies.com/pdfs/etariffs/wisconsin/elecrateswi.pdf and Wisconsin Public Service Corporation, available at http://www.wisconsinpublicservice.com/company/wi_tariffs.aspx.

[40] Alliant Energy, Day Ahead Market Pricing Rider, available at https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=327314.

[41] Xcel Energy, available at https://www.xcelenergy.com/stateselector?stateSelected=true&goto=%2F404%2520Page.

utilities[42] in the state offer some form of hourly pricing to commercial customers. Of the nine hourly pricing programs offered in Wisconsin, only one uses the hourly price from the Midcontinent Independent System Operator (MISO) real-time market; the others use the day-ahead energy price.[43]

Georgia Power also has a program for commercial customers.[44] While it offers hourly pricing, Georgia Power is not a participant in a wholesale energy market so its rate is based on the marginal fuel cost of its generation fleet for a given hour.[45]

Further, SDG&E reviewed the recent benchmarking study conducted by the Electric Power Research Institute (EPRI) to inform PG&E's proposed RTP program.[46] This study provides a useful benchmark for SDG&E's program design by identifying best practices and lessons learned from RTP programs offered by U.S. regulated utilities. SDG&E's proposed program design generally aligns with how most of the benchmarked RTP programs have been designed, including the following key design elements:

- Most RTP programs provide hourly pricing based on regional wholesale energy market postings, with day-ahead notification and no intra-territory spatial differentiation.
- All but two of the active RFP rate schedules are based on day-ahead hourly prices.

[42] The municipal utilities' RTP programs are administered via the umbrella generation utility, WPPI Energy. An example tariff can be found here: https://apps.psc.wi.gov/RATES/tariffs/viewfile.aspx?type=electric&id=2800.

[43] Wisconsin Public Service Corporation, Real Time Market Pricing, available at https://www.wisconsinpublicservice.com/company/wi_tariffs/rtmp.pdf.

[44] Georgia Power, Real Time Pricing – Day Ahead Schedule: RTP-DA-5, available at https://www.georgiapower.com/content/dam/georgia-power/pdfs/business-pdfs/rates-schedules/RTP-DA-5.pdf.

[45] *Id.*

[46] *See* A.19-11-019, Exhibit PG&E-RTP-1, citing to EPRI, Benchmarking Study of US Regulated RTP Programs, Architecture, and Design Final Report (March 2021).

- Most RTP programs have been limited to large non-residential customers.
- Most active RTP programs have been optional (i.e., opt-in) with the exception of provider of last resort offerings in certain jurisdictions.
- Only 2 of the 55 active RTP rate schedules identified include residential customers, both occurring in states with full retail choice.

A summary of RTP rates from other California utilities and other jurisdictions are included in Table 1 below.

Table 1. Overview of RTP in Other Jurisdictions

Company or Jurisdiction	Day-Ahead Price	Real-Time Price	Time of Use	Hourly	Sub-hourly
PG&E's Commercial and Industrial Real Time Pricing Pilot	X			X	
PG&E's DHRTP-CEV pilot	X			X	
SCE			X	X	
OG&E	X		X		
Ameren	X			X	
ComEd		X		X	
Wisconsin (8 DA rates)	X			X	
Wisconsin (1 RT MISO price)		X		X	
Georgia Power		X		X	

Day-ahead prices are the most commonly used pricing rate, and it is important to acknowledge that no other rate is done at less than an hourly granularity. Based on reviewing the information from the other California utilities and non-California jurisdictions, SDG&E concludes that it is reasonable and in the best interest of rate payers to use day-ahead hourly prices. As discussed further in Section VI below SDG&E's RTP pilot rate for Stage 1 and Stage 2 will utilize the hourly CAISO Day-Ahead market price.

IV. STAKEHOLDER ENGAGEMENT

Prior to filing the application, the Decision directs SDG&E to "use its best efforts to consult with key stakeholders including (i) community choice aggregators (CCA) serving SDG&E customers and (ii) parties such as California Energy Storage Alliance, California Solar & Storage Association, Enel X North America, Inc., and Ohm Connect, Inc., that have indicated an interest in RTP rate implementation."[47] The Decision further encourages stakeholders to be involved early and provide input to SDG&E prior to the filing of the application for purposes of expediting approval and implementation, to the extent possible, of both stages of the Pilot.[48]

Pursuant to this direction, SDG&E hired Guidehouse Consulting Services (Guidehouse) to facilitate stakeholder workshops and align parties around common goals and objectives. SDG&E hosted two workshops—one on September 28, 2021 and one on October 13, 2021.[49] The following stakeholders attended both of the scheduled workshops: Public Advocates Office at the California Public Utilities Commission (Cal Advocates), The Utility Reform Network (TURN), Joint Advanced Rate Parties (JARP), Enel X North America, Inc., Calpine, PG&E, and San Diego Community Power. The first workshop focused on the goals, objectives, and desired outcomes for the RTP pilot to help identify common ground among stakeholders. This workshop included engaging stakeholders through the use of "Poll Everywhere"—software that allows real-time, anonymous polling from participants cell phones. The polls were used to

[47] Decision, Ordering Paragraph 6 at 89-90.

[48] *Id.* at 53-54.

[49] *See* Attachment A hereto, *Real Time Pricing Pilot Stakeholder Workshop #1* PowerPoint (dated September 28, 2021) and Attachment B hereto, *Real Time Pricing Pilot Stakeholder Workshop #2* PowerPoint (dated October 13, 2021).

identify areas of alignment and common ground amongst stakeholders. The outcomes of this workshop are discussed in the next section.

The second workshop focused on gathering input and feedback on the Pilot Stage 1 design. A draft term sheet for Stage 1 of the RTP Pilot was shared with the stakeholders in advance of the workshop, and then each component of the term sheet was discussed in the workshop. Key components discussed in the workshop included eligibility, enrollment and unenrollment, rate design, proposed timeline, measurement, and evaluation (M&E), and marketing, education, and outreach (ME&O).

Additionally, in preparing its Application, SDG&E considered stakeholder feedback and proposed RTP designs that were filed in SDG&E's GRC Phase 2 proceeding and dynamic pricing proceedings (A.19-03-002 and A.10-07-009) were reviewed and considered. Also considered were the records in A.20-10-011 and A.19-11-019, including the EPRI benchmarking report, regarding existing RTP rates in other jurisdictions and the merits of different markets.

V. OBJECTIVES AND DESIRED OUTCOMES

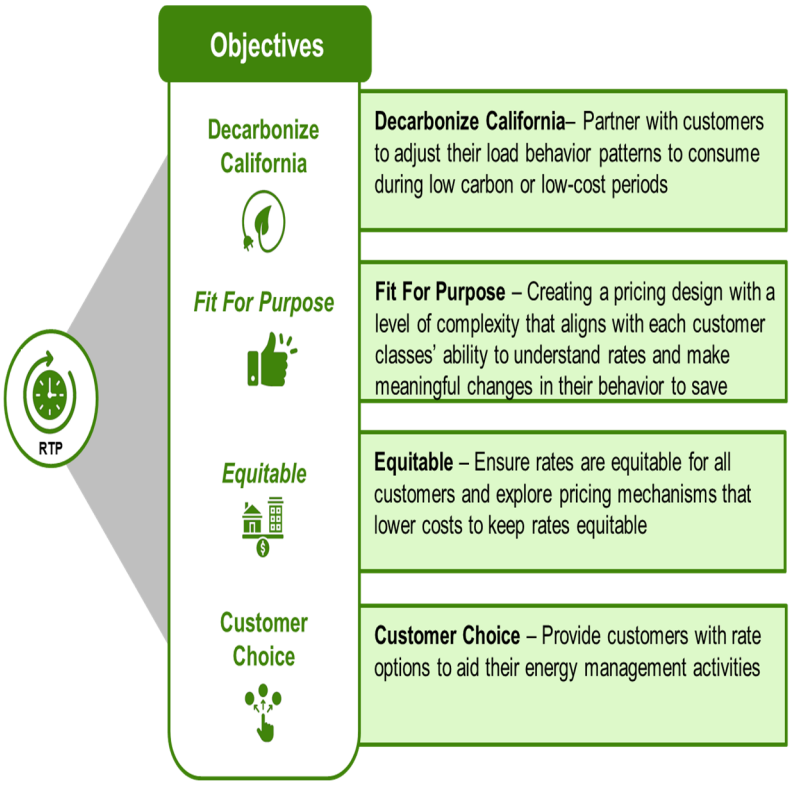
Objectives, outcomes, and guiding principles for the RTP Pilot design should reflect and support relevant policy drivers and balance customer and utility needs for a RTP rate. By clearly setting goals, objectives, and outcomes, a specific RTP Pilot option can be designed to achieve them. To assist with this, Guidehouse facilitated external workshops with SDG&E and the interested parties to define objectives, desired outcomes, and evaluation principles in a holistic manner. The results of these workshops are shown in the figures below. Figure 1 shows the objectives for the RTP Pilot, which summarizes the considerations behind the RTP Pilot design and directly reflects input received at the stakeholder workshops.

The first objective in Figure 1 – "Decarbonize California" – is an important objective that the RTP Pilot will test as it aims to adjust participant usage to those periods in the day with less carbon generation and therefore reduce greenhouse gases.

The second and fourth objectives in Figure 1 reflect the desire for an RTP rate that customers will be able to understand and respond to in a meaningful way and that customers can choose to better control their bills and their energy use. As the effectiveness of any RTP program is predicated on customers' ability to respond to the price signals, it is important to match the rate's complexity to the customers' energy sophistication. Unlike other situations where rate and billing simplicity are goals, such as residential rate design, an RTP program must eschew simplicity, to some extent, to provide the requisite price signals needed for true load flexibility.

The third objective in Figure 1 represents the commitment by SDG&E and the stakeholder parties to pursue and advocate for equitable programs. Equitable rates are those that have minimal cross-subsidization between participants and non-participants in the program. The equitable-rates objective aligns with the goals in the CPUC's Environmental and Social Justice Action Plan (ESJ Plan).

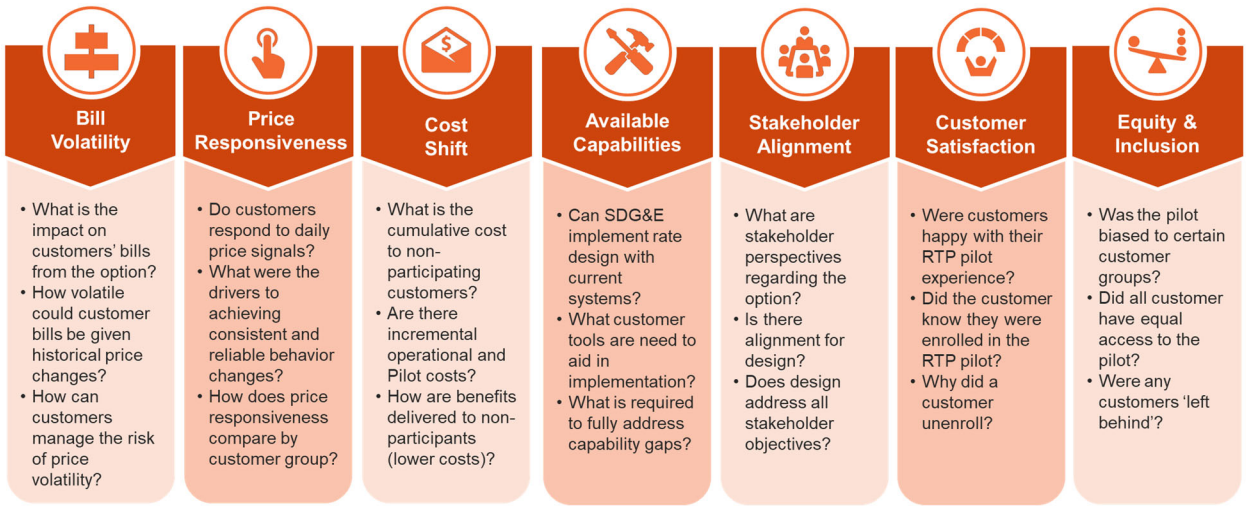
Figure 1. RTP Pilot Objectives



To determine if the RTP Pilot is meeting the objectives outlined in Figure 1, seven guiding principles were developed. These guiding principles are summarized in Figure 2. In general, these principles align closely with the suggested M&E metrics and potential benefits of RTP pricing outlined in the Decision, including (1) reducing grid costs and greenhouse gases (2) enabling greater integration of renewables, (3) reducing the likelihood of blackouts, and (4) increasing the use of electricity at times when surplus renewable energy is on the grid. [50]

[50] D.21-07-010 at 58-59.

Figure 2. RTP Guiding Principles



VI. CAISO DAY-AHEAD ENERGY PRICE

While there are other real-time pricing markets used in CAISO, such as the 15-minute real time market, the hourly day-ahead price gives the most actionable, accurate, and economic price signal to customers. First, SDG&E believes the hourly, day-ahead price is the most actionable RTP market. The day-ahead price signal will give commercial customers time to plan their energy usage and act in the manner most beneficial for them. SDG&E has considered the 15-minute price signal suggested by JARP in SDG&E's GRC Phase 2, but, as SDG&E highlighted in that proceeding, SDG&E does not believe customers can respond meaningfully to market changes signaled every 15 minutes.[51] CAISO releases 15-minute prices less than an hour before the effective interval, meaning that customers would have to constantly monitor energy prices to effectively respond. Even with round-the-clock monitoring, commercial customers

[51] *See, e.g.,* A.10-07-009/A..19-03-002, Prepared Supplemental Rebuttal Testimony of Jennifer Montanez on Behalf of SDG&E (September 15, 2020) at JM-8 and JM-9.

may not be able to adjust their operations in the given time. Providing such a price signal to customers with little ability to respond could be punitive rather than beneficial.

Further, SDG&E believes day-ahead price signals are more accurate.[52] Day ahead market prices are settled and available one day prior and therefore less likely to be revised than CAISO real-time market prices from the 15-minute and real-time markets, which are more likely to be subject to price corrections.[53] More accurate price signals support the RTP Pilot objective of being fit-for-purpose (i.e., customer understanding of the rate and ability to make meaningful changes in energy use), in that after-the-fact price changes could lead to customer confusion and customer dissatisfaction in instances where customers took efforts to adjust their usage based on a cited, but later-changed rate. Use of the real-time markets would also require SDG&E to implement an ex-post settlement procedure into the tariff, which would be administratively burdensome due to having to create a process to monitor price changes and then make the necessary price corrections.

Finally, the day-ahead price is designed to send an economic price signal. The day-ahead market is used to plan electric generation to match the forecasted load, as opposed to the 15-minute and real-time markets, which are used to match the actual load. In other words, the day-ahead market is designed to influence load, while the 15-minute and real-time markets are responding to the short term needs of the grid by using pricing to control generator and storage options. Accordingly, SDG&E believes that hourly, day-ahead pricing better serves the RTP Pilot objectives.

[52] CAISO, Business Practice Manual for Market Operations Version 78 (Revised November 17, 2021) at 398, "Thus, CAISO expects that invalid Day-Ahead Market result publication to OASIS and CMRI would be unlikely."

[53] *Id.*, "Although the CAISO will make every effort to validate market clearing processes and results prior to publication of results, this will not always be the case, particularly for Real-Time markets."

VII. ALIGNMENT TO OBJECTIVES AND DESIRED OUTCOMES

The proposed Stage 1 RTP Pilot rate represents an initial step towards achieving the four stated goals of the program. First, the hourly, day-ahead price signal is highly correlated to greenhouse gas (GHG) output for the electric sector.[54] To the extent that customers respond to higher hourly prices, they will reduce consumption during times of higher GHG emissions. Second, the use of day ahead hourly pricing means that more customers are likely to understand the price signal and that customers can better plan their energy usage for the next day. The hourly, day ahead price signal also ensures that commercial customers can respond, rather than presenting them with price information that they may not be able to do anything about. Third, the RTP Pilot presents an equitable solution to providing more discrete price signals by directly linking the price signal to the individual cost causation of each customer. Finally, the introduction of RTP rates to the C&I customers in Stage 1 gives those customers another option to better control their energy bills and manage their loads. In this new rate, the incentives are aligned between customer and utility in ways that benefit all parties, including non-participating customers.

SDG&E designed Stage 1 of its RTP Pilot for M/L C&I customers. SDG&E believes M/L C&I customers are more likely than other customer classes to contract or employ energy managers to make decisions based on commodity prices and therefore SDG&E believes these customers are the right class of customers, with the requisite sophistication, to incorporate hourly pricing signals into their decision-making during this initial rollout of a RTP rate. M/L C&I

[54] *See* A.19-03-002, Prepared Testimony of California Solar & Storage Association, Ohm Connect, Inc., and California Energy Storage Alliance ("Joint Advanced Rate Parties") (April 6, 2020), Chapter 2 at 2-1 – 2-8.

customers can also better appreciate that by adjusting their energy usage they can get the most out of the RTP rate which may make it a superior rate option.

VIII. ENVIRONMENTAL AND SOCIAL JUSTICE ACTION PLAN

The CPUC's ESJ Plan, identifies rates that reduce pollutants, like RTP rates, as one of the action items (2.7).[55] SDG&E's RTP Pilot is expected to further the goals of the ESJ Plan. For one, the ESJ Plan includes a goal to "increase investment in clean energy resources to benefit ESJ communities."[56] SDG&E's RTP Pilot is an investment in clean energy that is expected to reduce GHG emissions and may shave the top of evening peaks, improve renewables integration due to flexible load, and increase electricity usage when there is a surplus of renewables.[57] These benefits of the RTP Pilot will benefit ESJ communities.

Another ESJ Plan goal that will be furthered by the RTP Pilot is to "Enhance outreach and public participation opportunities for ESJ communities to meaningfully participate in the CPUC's decision-making process and benefit from CPUC programs."[58] As stated in the Marketing, Education and Outreach Testimony (Chapter 4) SDG&E's strategy will consider "in-language communication needs for residential customers and outreach to low-income customers"[59] during Stage 2 of the RTP Pilot. Such outreach into potential ESJ communities will encourage meaningful participation in the RTP Pilot.

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[55] CPUC, Environmental and Social Justice Action Plan, Version 1.0 (February 21, 2019) (ESJ Plan) at 24, Appendix A, available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/environmental-and-social-justice.pdf.

[56] *Id.* at 6.

[57] D.21-07-010 at 47-48.

[58] ESJ Plan at 7.

[59] Prepared Direct Testimony of April Bernhardt (Chapter 4) on Behalf of SDG&E (December 13, 2021) at AB-3 and AB-4.

Further, the ESJ Plan goal to "monitor the CPUC's environmental and social justice efforts to evaluate how they are achieving their objectives,"[60] will be furthered by the evaluation and measurement steps in this Pilot. For instance, because Pilot Stage 2 will apply to residential customers, it will be possible to monitor whether the RTP Pilot is really achieving benefits for customers located in ESJ communities.

Finally, during the proposed working groups in the interim period between Stage 1 and Stage 2, SDG&E will encourage the continued participation of organizations who can champion the interests of ESJ communities.

IX. RATE DESIGN PRINCIPLES

As a matter of state policy, the RTP Pilot conforms with the Commission's Rate Design Principles, as addressed in R.12-06-013, and included in D.15-07-003.[61] Significantly, SDG&E's proposed RTP Pilot rate aligns with all relevant principles—it is based on marginal cost, based on cost causation principles, it encourages conservation and energy efficiency, it provides customer choice and has been designed to be as understandable as possible, the minimal cross-subsidy included supports state climate policy, its incentives are explicit and transparent, it encourages economically efficient decision making, and there is an emphasis on marketing, education and outreach to enhance customer understanding and acceptance where appropriate.[62] The RTP Pilot is the first step towards implementing dynamic electricity rates which can shift electricity usage to when the grid is least polluting. This is noted in the 2021 SB 100 Joint

[60] ESJ Plan at 8.

[61] *See* D.15-07-001, *Decision on Residential Rate Reform for Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company and Transition to Time-of-Use Rates* (July 3, 2015) at 27-28.

[62] *See id.*

Agency Report: "Load flexibility can also reduce GHG emissions by maximizing electricity use when grid power is least polluting."[63] The report goes on state that the CPUC and CEC are "taking steps to implement time-dependent electricity rates."[64] The RTP Pilot supports these California clean energy goals.

The RTP Pilot rate is based on SDG&E's marginal cost—as reflected by the CAISO pricing included in the rate—and directly reflects the cost to the utility of procuring energy on a daily basis. Further, as discussed above, the day-ahead price will encourage conservation and demand reduction by sending higher price signals for times when the projected load on the system is highest. By linking the retail rate to the day-ahead market energy price, the RTP rate provides the most transparency to customers regarding the actual cost of energy, giving them the information needed to make efficient decisions about their energy use. Additionally, although there is some cross subsidization costs, which SDG&E minimizes by leveraging existing functionality from the Grid Integrated Rate (Schedule PUBLIC GIR), the RTP Pilot supports the state's climate goals to shift electricity usage to the time of day when the grid is polluting less. During the interim period between Stage 1 and Stage 2 of the RTP Pilot, SDG&E will work with the interested parties to ensure that any expansion into residential tariffs will include sufficient ME&O for purposes of residential uptake and will not adversely affect vulnerable populations.

X. TIMING CONSIDERATIONS

Because SDG&E is proposing workshops after implementation of Stage 1 such that available data and evidence can be considered in the design of Stage 2, SDG&E proposes to

[63] California Energy Commission, 2021 SB 100 Joint Agency Report, Achieving 100 Percent Clean Electricity in California: An Initial Assessment (March 2021) at 35, available at https://www.energy.ca.gov/publications/2021/2021-sb-100-joint-agency-report-achieving-100-percent-clean-electricity.

[64] *Id.*

finalize its Stage 2 Pilot design through an Advice Letter (AL) filing in the second quarter of 2024 for approval in the third quarter of 2024 and implementation in the fourth quarter of 2024. This would allow SDG&E to incorporate any relevant lessons learned in Stage 1 into the Stage 2's design and expansion of the pilot to other customer classes and programs.

XI. SUMMARY AND CONCLUSION

This concludes my prepared direct testimony.

XII. STATEMENT OF QUALIFICATIONS

My name is Jeff DeTuri. My business address is 8315 Century Park Court, San Diego, CA 92123. I am employed by SDG&E and my current title is Real Time Pricing Manager in the Customer Pricing Department. My responsibilities include oversight of development of real-time pricing strategies and analysis needed for the development of electric rates. I joined SDG&E in August 2003 and have held various positions with increasing levels of responsibility within San Diego Gas & Electric. Prior to joining SDG&E, I worked as an accounting professional for various companies throughout San Diego County. I received a Bachelor of Accountancy degree and a Master of Business Administration from the University of San Diego.

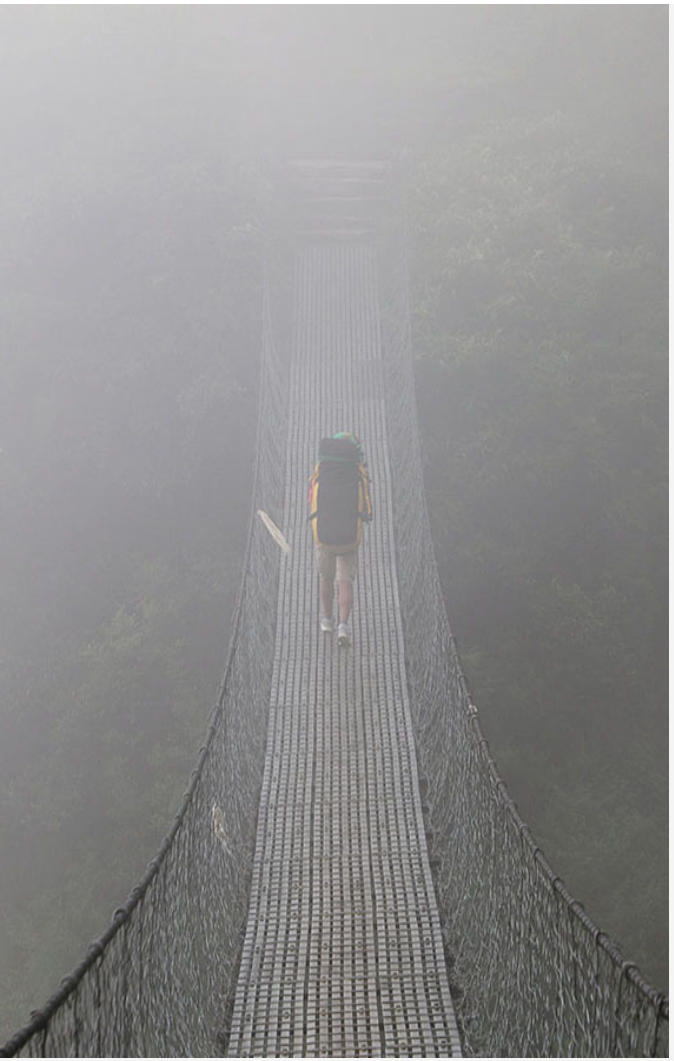
I have previously testified before the California Public Utilities Commission.

ATTACHMENT A

Real Time Pricing Pilot
Stakeholder Workshop #1

San Diego Gas & Electric

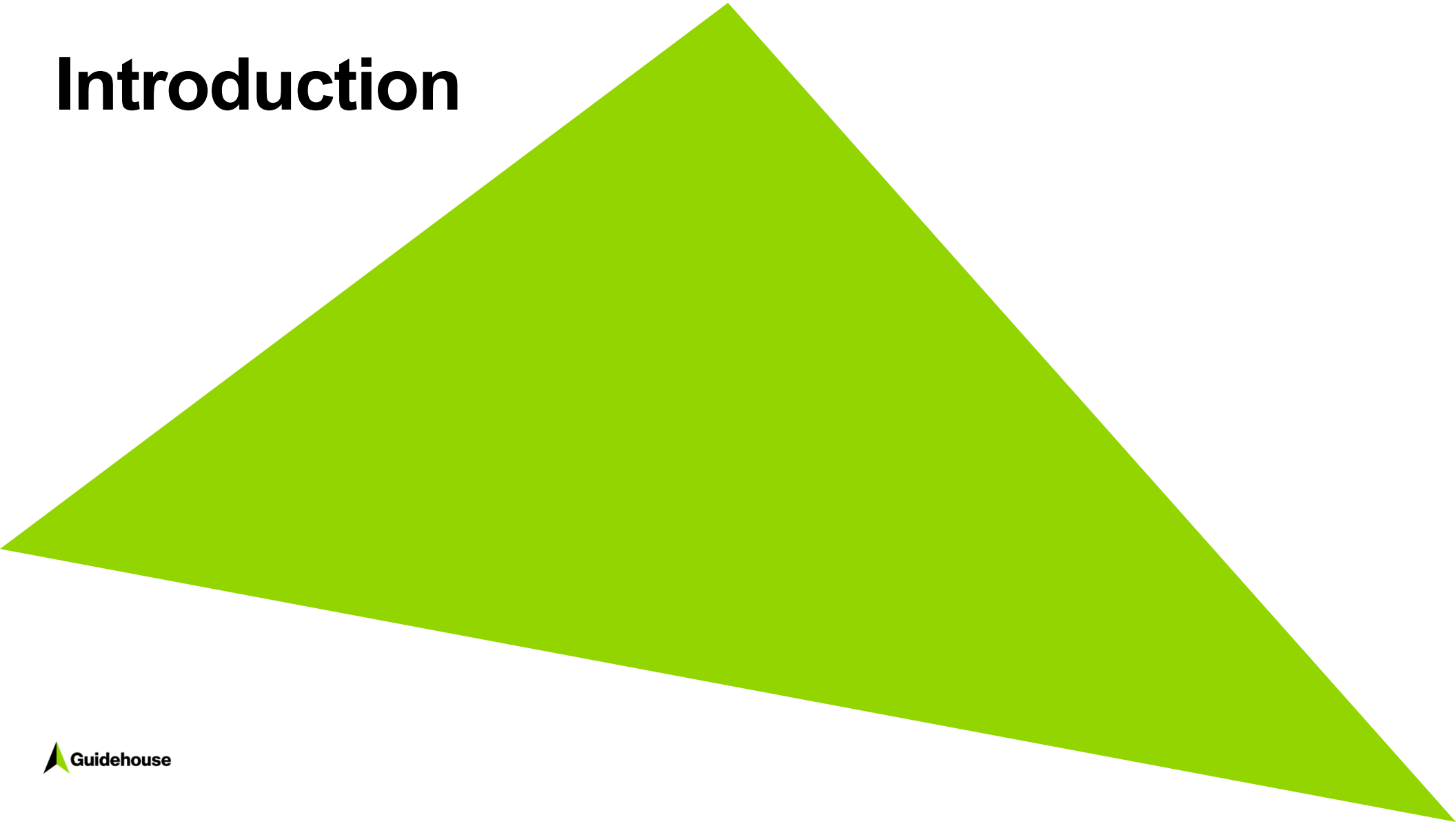
September 28, 2021



Agenda

Introduction – Safety Tip, Roll Call, Workshop Objectives, Structure, and Framework	10 Min
RTP Pilot Program Requirements	5 Min
Defining Objectives - Starting with the End in Mind	15 Min
Prioritization Framework	5 Min
Exercise	15 Min
Defining Desired Outcomes – What Do You Want to Achieve?	15 Min
Developing Evaluation Principles	15 Min
Closing Comments & Next Steps	5 Min

Introduction

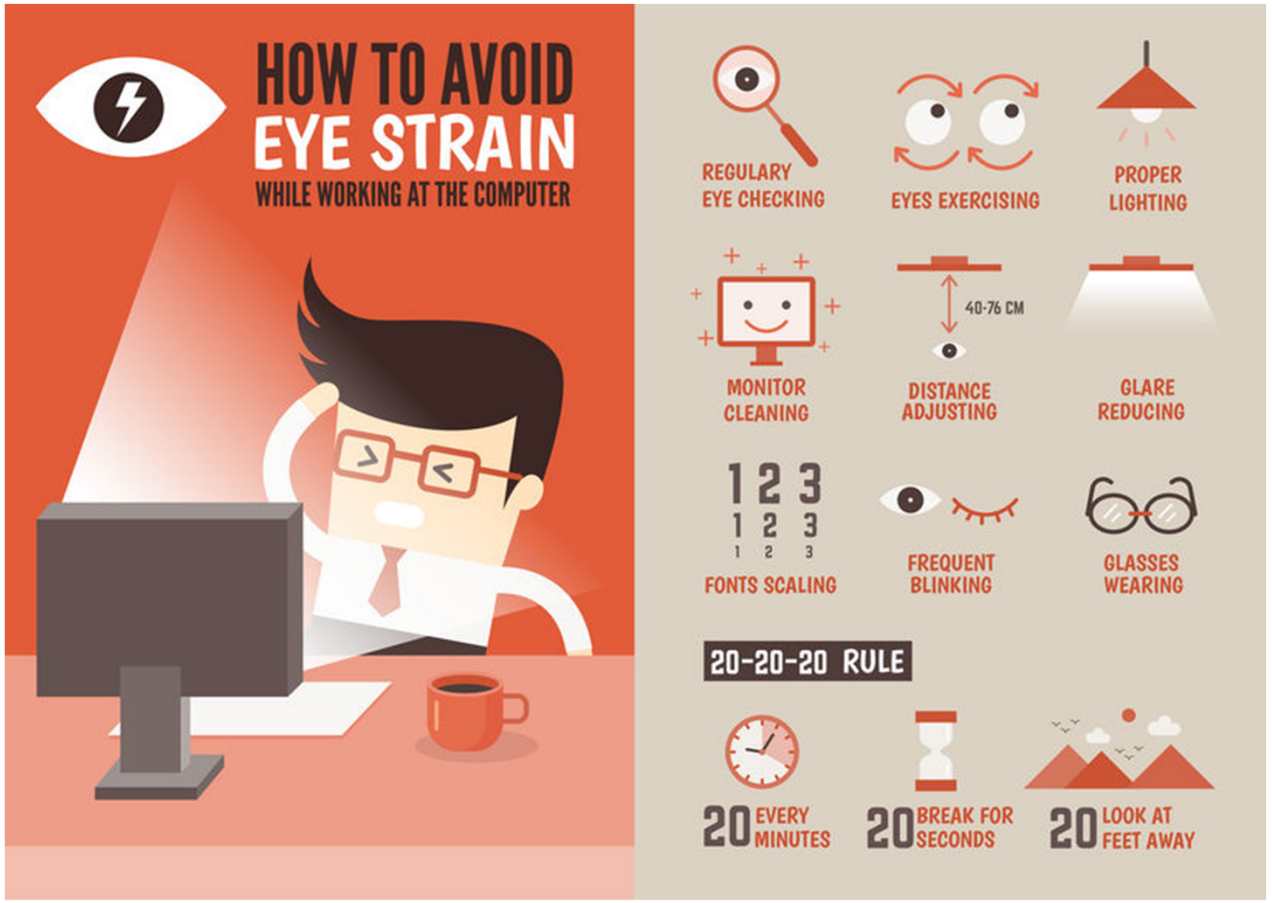


Guidehouse

Safety Tip

Workplace Eye Health & Safety

- Wear proper eye protection equipment when in the field and around the house
- As office workers, be aware of eye strain

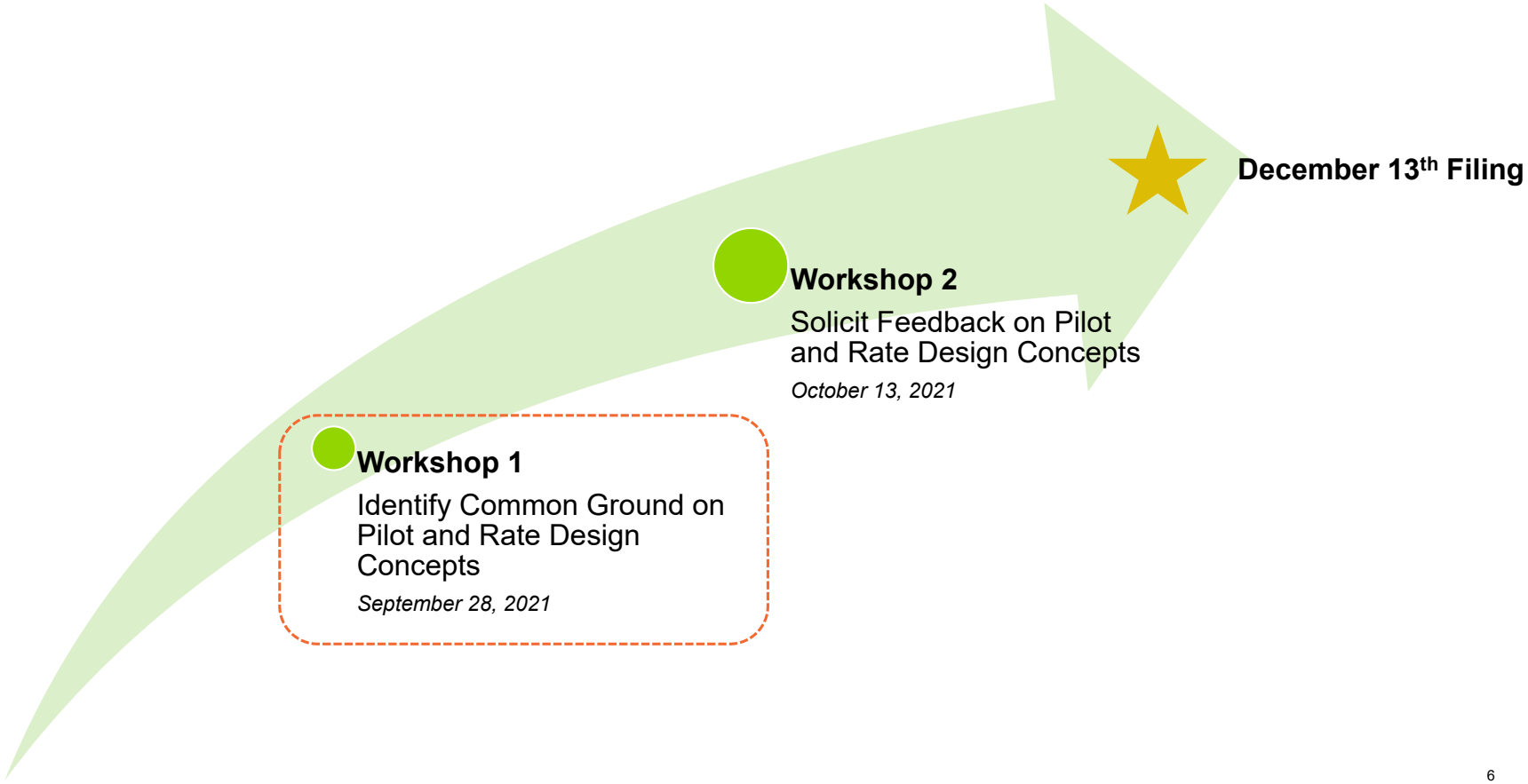


Our goal is to have a very interactive working session

- Please speak up!
- Be candid and honest.
- Minimize distractions as best as possible.
- Poll Everywhere and other tools & techniques will be used to ensure that the meeting is productive. Please engage in the use of these tools!
- We are not starting with a blank slate. Based on our review of the GRC Phase 2 filing and decision, we have created potential objectives and desired outcomes to react to. These can and should be refined and tailored. Step in to redirect us if needed!
- The outcome of this workshops will be critical to designing the RTP pilot program. **Your engagement and feedback today are essential.**
- Anyone can declare ELMO – Enough Let's Move On.

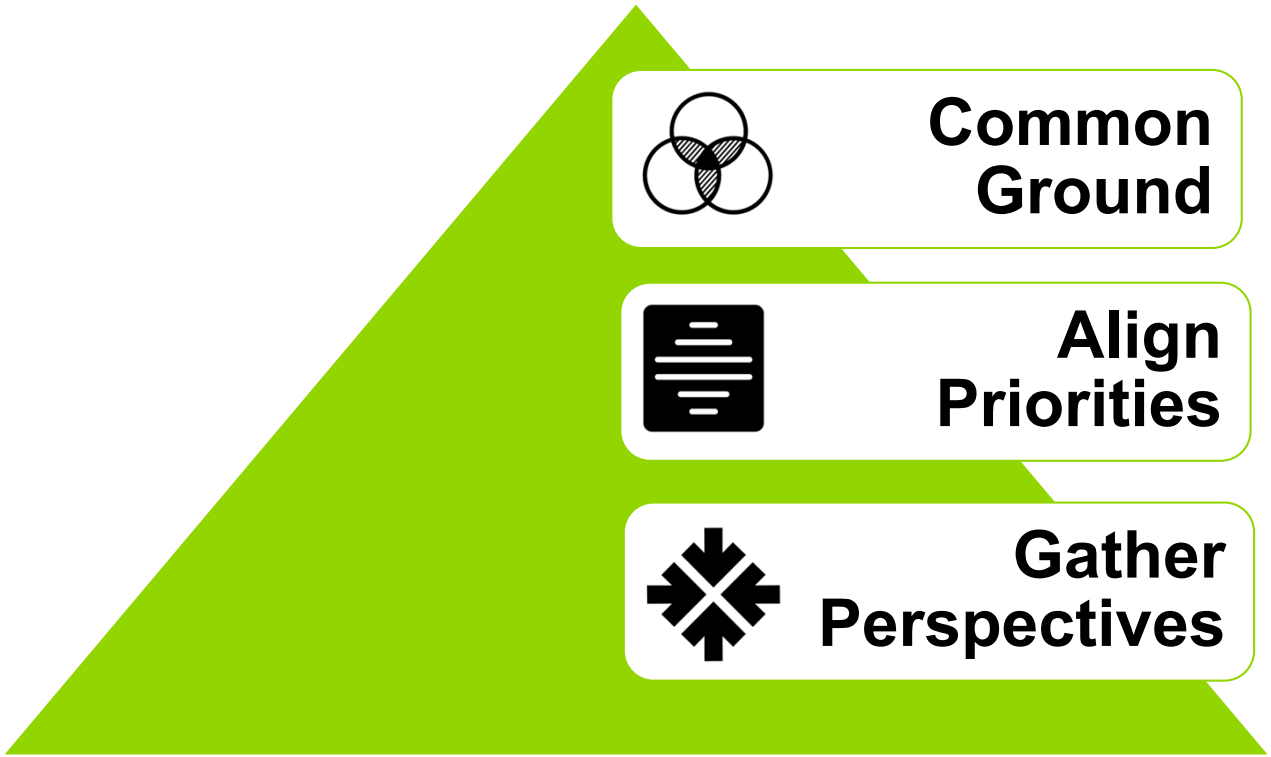
RTP Stakeholder Workshop Timeline

The objective of these workshops is to drive alignment on goals and objectives for real-time pricing (RTP), and to preview pilot program and rate design concepts for feedback.



Defining Success for Today's Workshop

What will we accomplish?



Workshop Structure & Expected Outcomes

Today's workshop is designed to address SDG&E's Real Time Pricing Pilot Program Objectives & Outcomes

- Differentiate between Objectives, Outcomes & Principles
- Guidehouse presents potential objectives to start conversation
- Team discusses objectives to create a common understanding
- Guidehouse presents potential outcome statements and Team discusses potential modifications or enhancements
- Guidehouse presents potential principles for discussion

Objectives are expectations of achievements or accomplishments.

Outcomes are specific targets designed to help reach the objectives.

Principles are guides for evaluation of proposals to meet objectives.

NEXT WORKSHOP: Development of options to compare against Principles

We hope to achieve a common understanding of objectives, clarity on desired outcomes, and alignment on principles for evaluating options through discussion and creating a common language

RTP Pilot Program Requirements Overview

Guidehouse

Requirements for Pilot Design

Pilot Design must address the following:

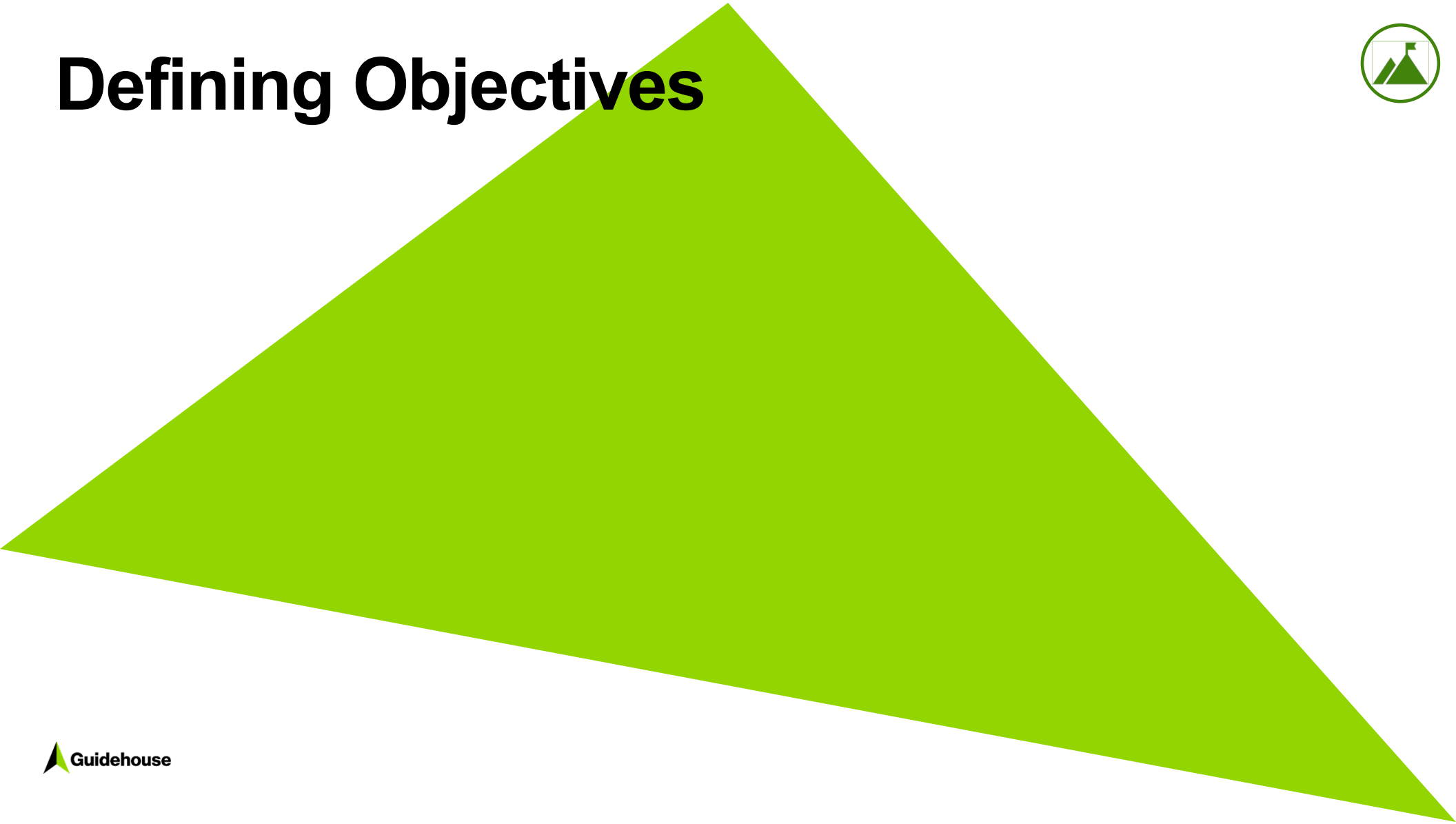
RTP Pricing Design

Element	Description
1	Recommendation for rate design based on either 15-minute real-time price or day-ahead hourly price recommended with supporting information and data supporting the recommendation
2	Mechanisms, such as a capacity adder, to recover stranded costs be structured. Should consider three to four different peak TOU prices and an hourly capacity adder.
3	Recommendation on whether an iterative capacity adder design versus a simple design is needed and address how Pilot Stage 1 design will inform the design of the capacity adder in the Pilot Stage 2.
4	The application should include information, data, and modeling to show the potential impact of transmission rate time differentiation on the RTP pilot rates, to include a comparison of the proposed pilot rate design with current transmission rate structure and with time-differentiated transmission rates.

RTP Pilot Program Design

Element	Description
5	Participation targets by class and any Pilot Stage 1 caps
6	Eligibility for both Stage 1 and 2 to include addressing how to avoid double-counting, such as preventing enrollment from customers enrolled in the RTP-based dynamic rate from dual-participating in another market-integrated, supply-side demand response pilot program.
7	Address the feasibility of and the barriers for an application programming interface (API) to transmit price signals
8	Detailed evaluation plan for Stage 1, and a proposed evaluation plan for Stage 2, to include items set forth in Section 5.6 of decision.
9	The application should include a proposed process for a working group to facilitate development of the Pilot Stage 2, including final design elements and evaluation criteria.
10	The application should include a proposed timeline and scheduling worksheet (such as a Gantt chart) for both stages of the pilot, including proposed pilot duration.
11	The application should include a proposed duration for each stage of the pilot. For Pilot Stage 1, the application may also include a proposal for a summertime only RTP pilot.

Defining Objectives



Starting with the End in Mind

What does success look like?

RTP

Objectives

Decarbonize California

Fit For Purpose

Equitable

Customer Choice

Decarbonize California– Partner with customers to adjust their load behavior patterns to consume during low carbon or low-cost periods

Fit For Purpose – creating a pricing design with a level of complexity that aligns with each customer classes' ability to understand rates and make meaningful changes in their behavior to save

Equitable – Ensure rates are equitable for all customers and explore pricing mechanisms that lower costs to keep rates equitable

Customer Choice – Provide customers with rate options to aid their energy management activities

What other objectives should be considered?

Others?

"Indifference"

Innovation

Optimize and Align

Cost Reflective Rates

Guidehouse

Prioritization Framework

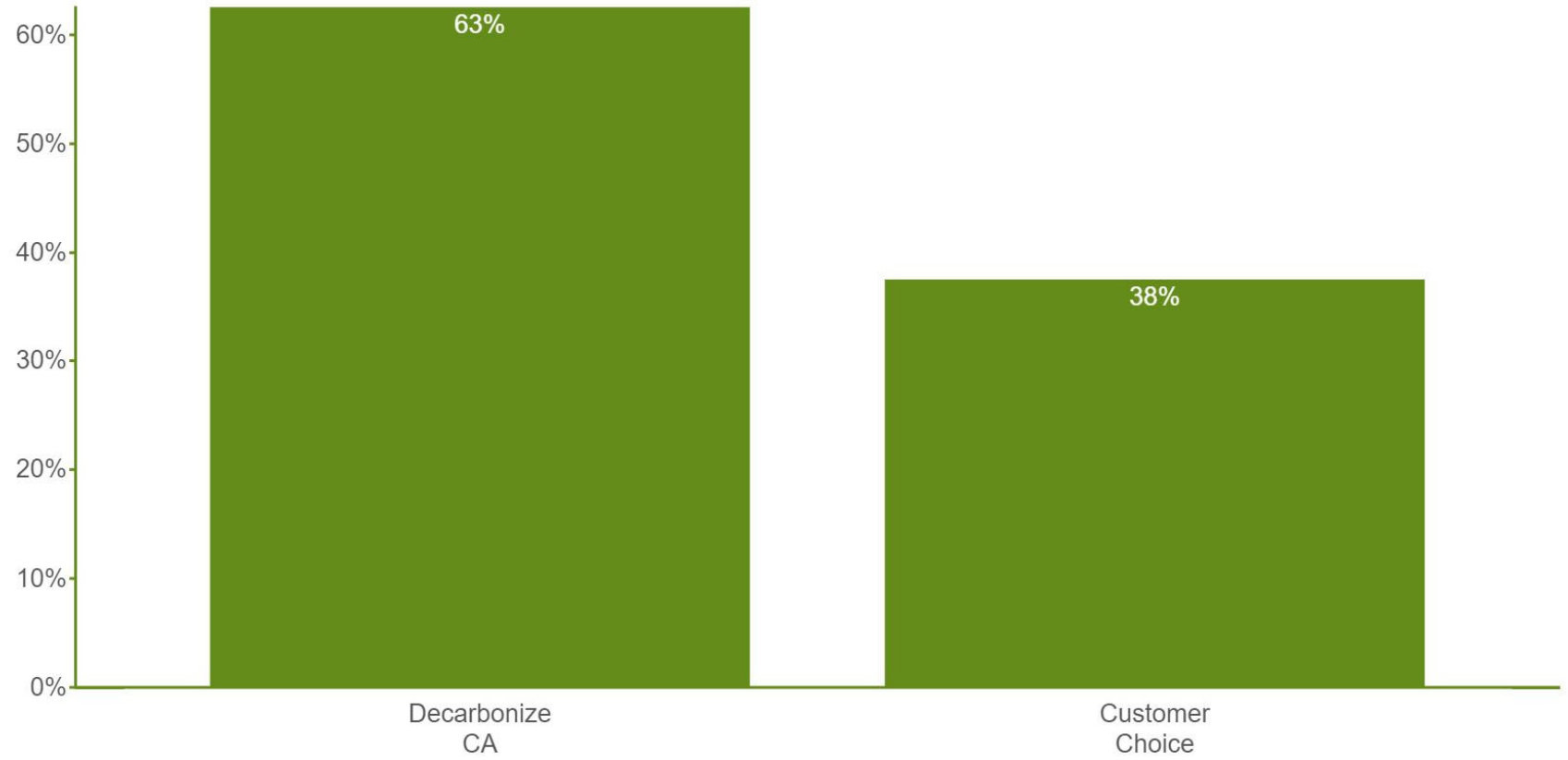
	Decarbonize California	Fit for Purpose	Equitable	Customer Choice
Decarbonize California		✓	✓	✓
Fit for Purpose			✓	✓
Equitable				✓
Customer Choice				

We will use a pairwise approach to developing the 'weights' above:

"Prefer Decarbonize California to Simple"

Poll locked. Responses not accepted.

Decarbonize CA or Customer Choice?



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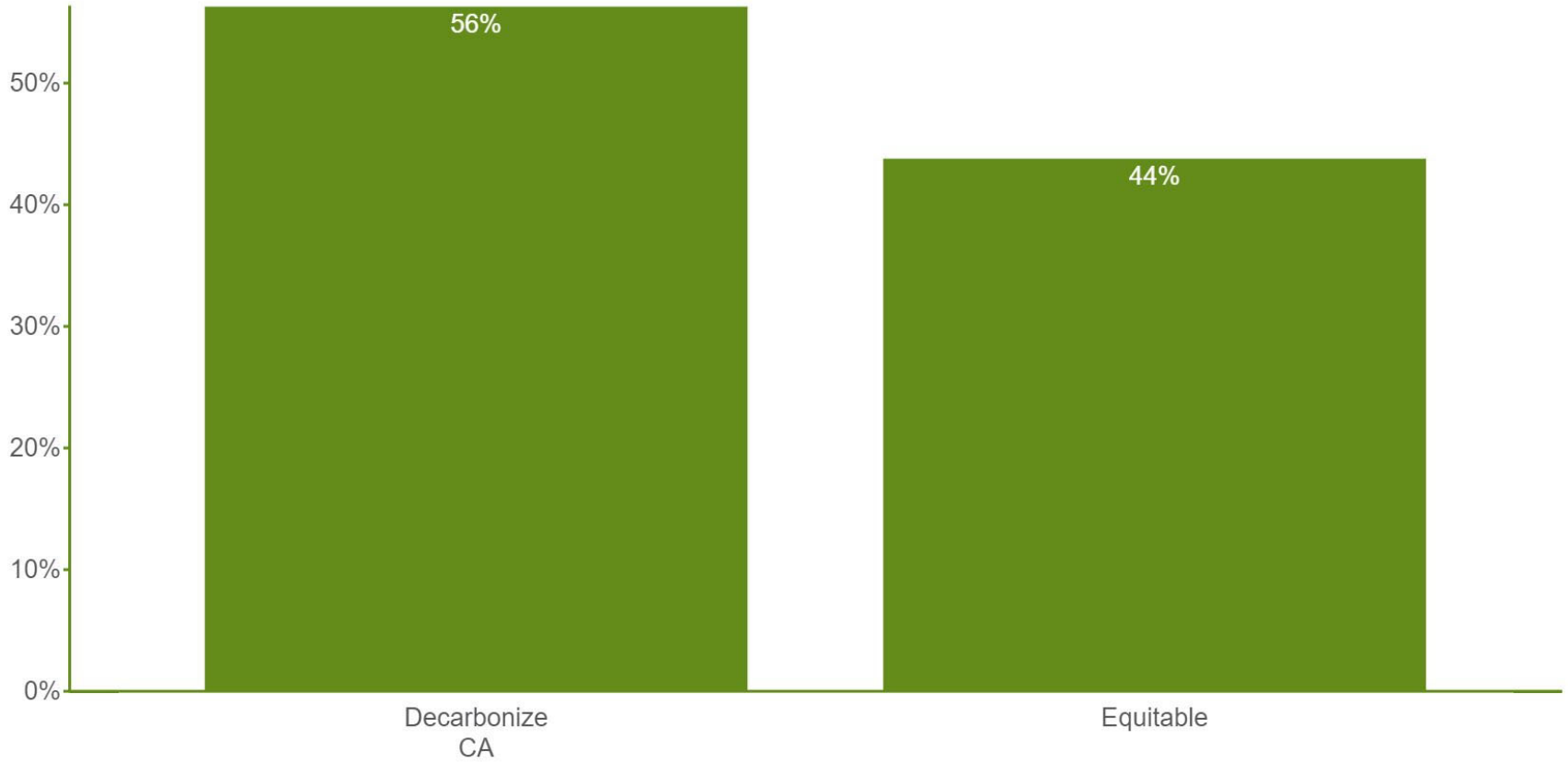
Decarbonize CA or Equitable?



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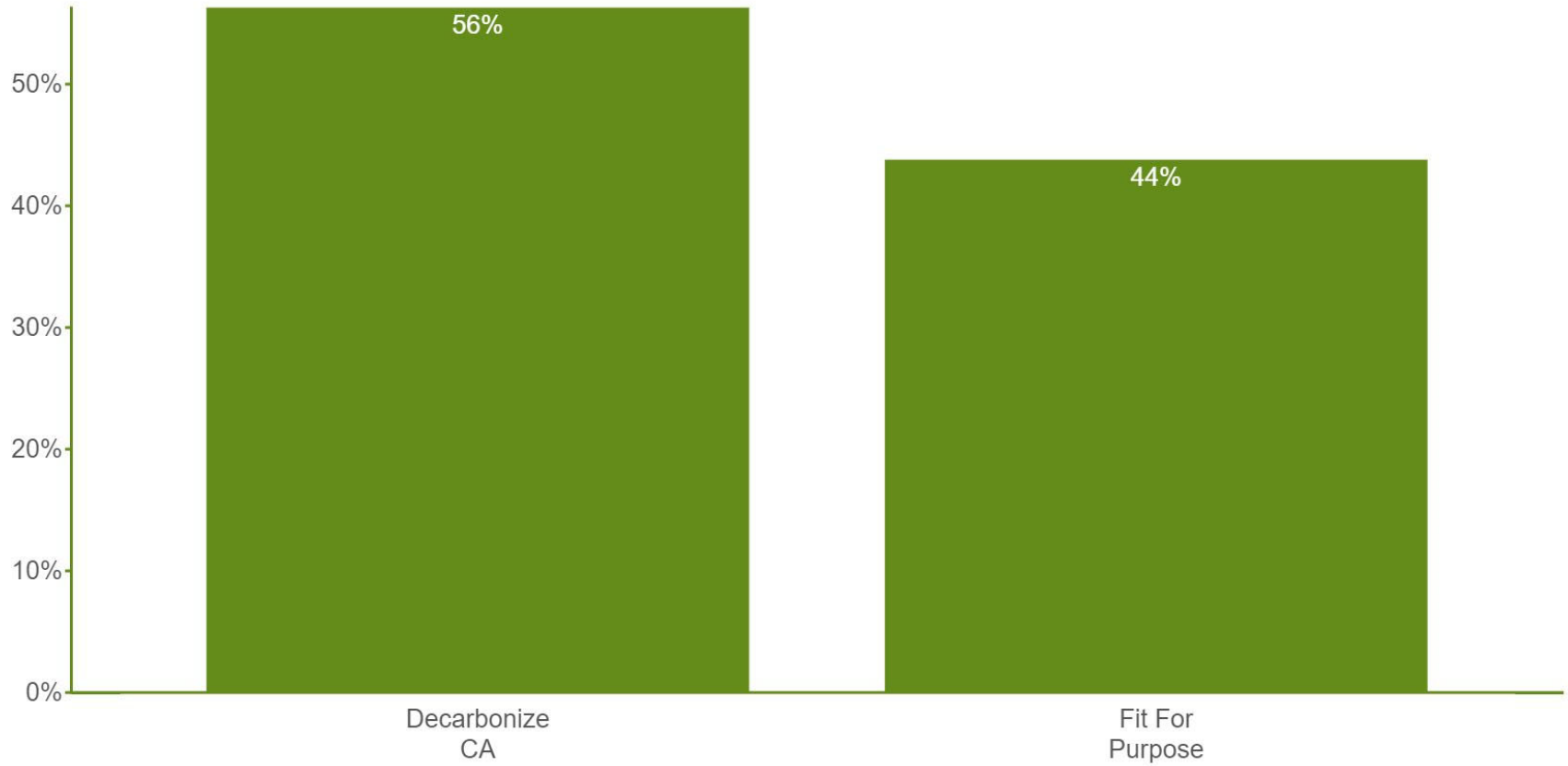
Decarbonize CA or Fit For Purpose?



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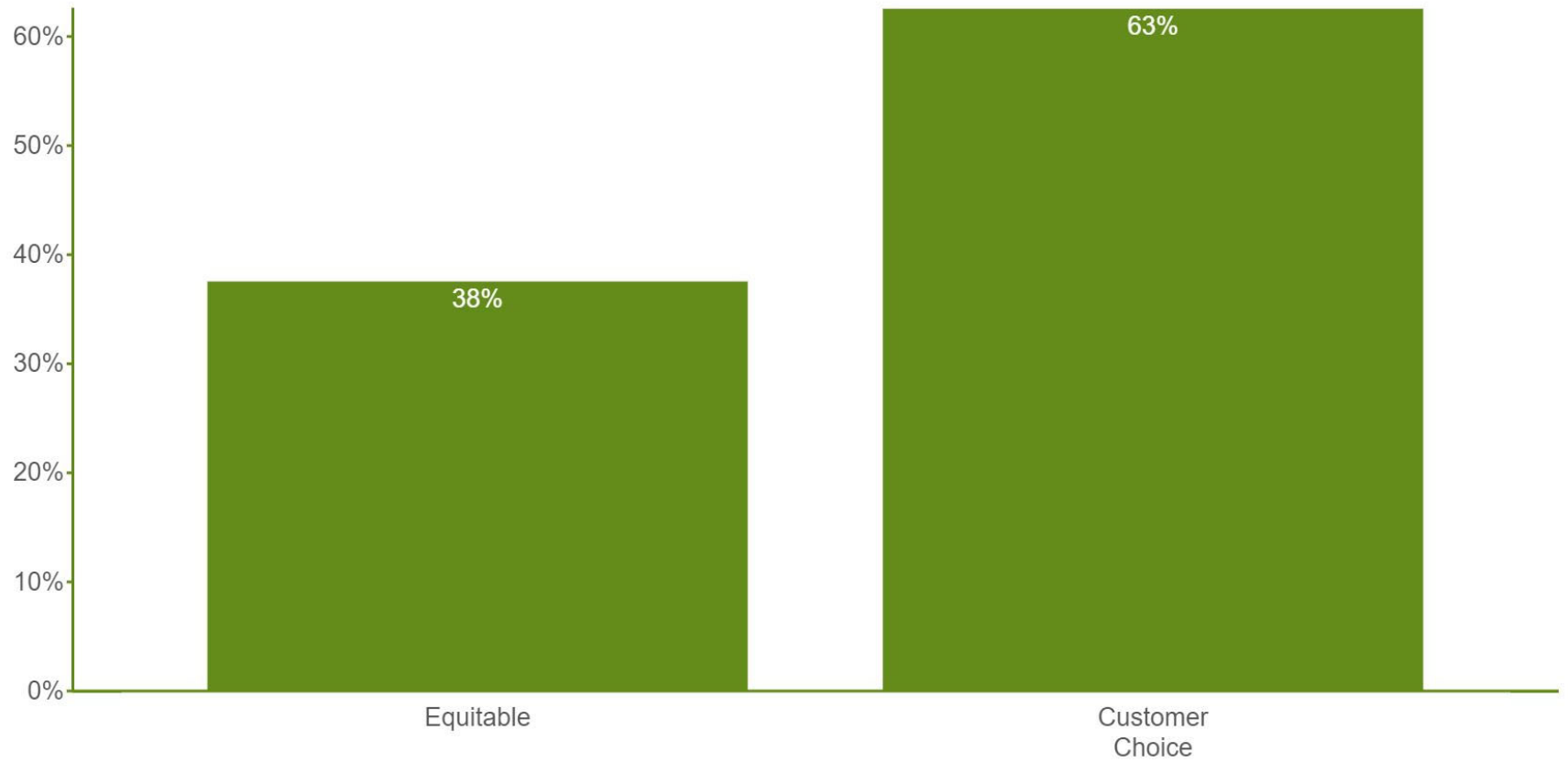
Equitable or Customer Choice?



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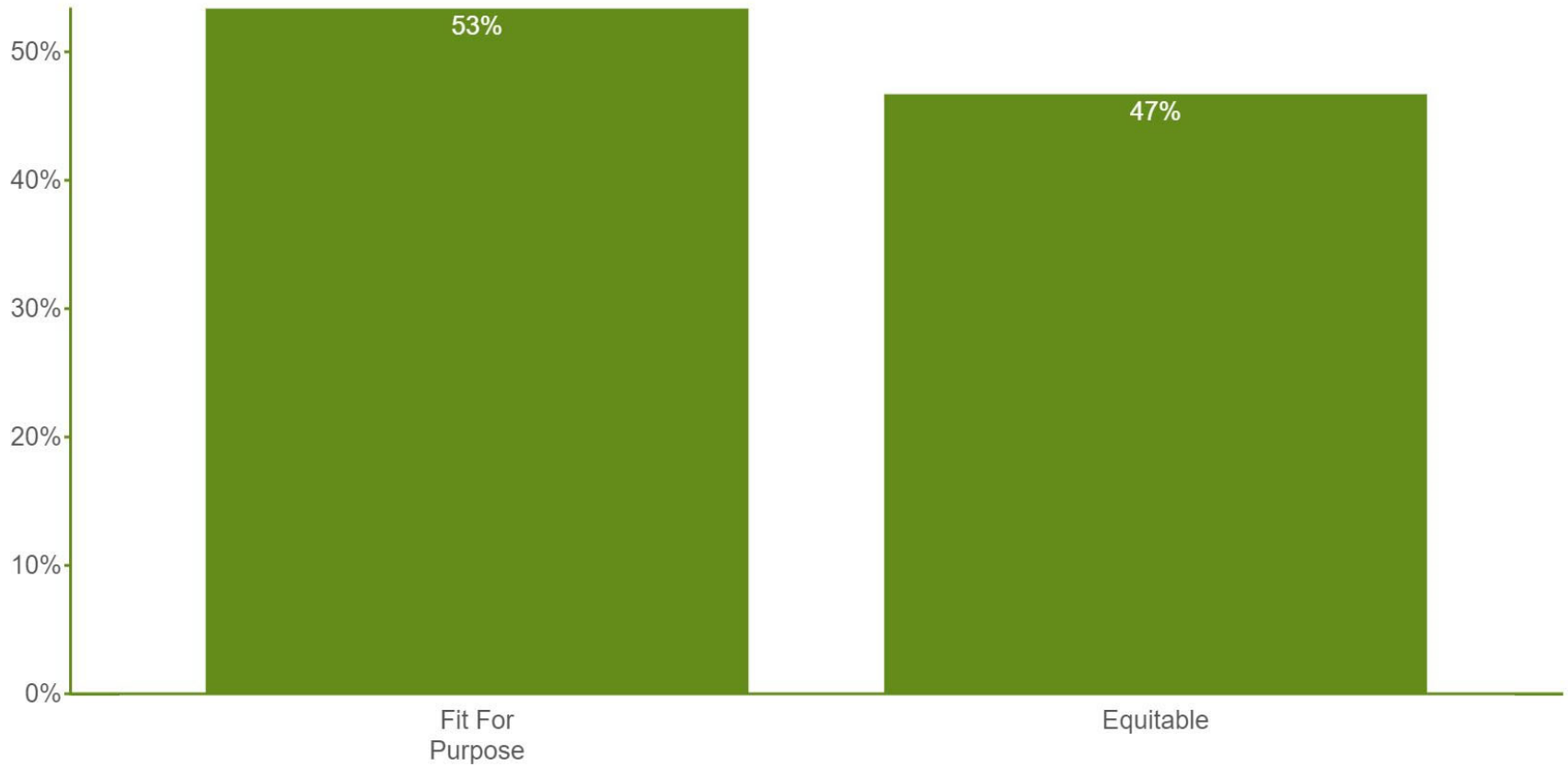
Fit For Purpose or Equitable?



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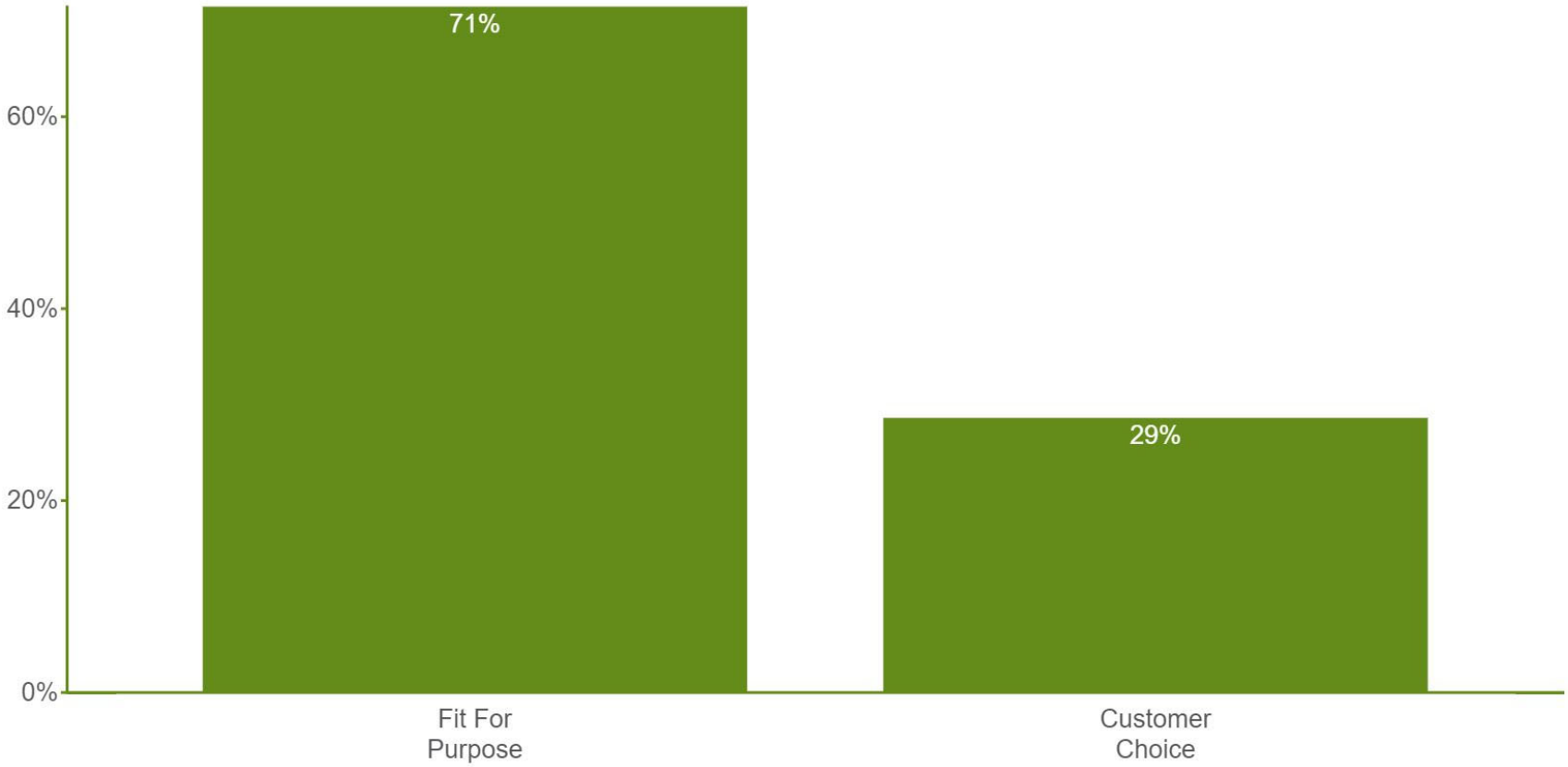
Fit For Purpose or Customer Choice?



Results of Weighting




		Decarbonize California	Fit for Purpose	Equitable	Customer Choice	Total	Percent
A	Decarbonize California		A	A	A	3	50%
B	Fit for Purpose			B	B	2	33%
C	Equitable				D	0	0%
D	Customer Choice					1	17%

Defining Desired Outcomes

Guidehouse

Outcomes - What do you want to achieve?

- *Create market-based price signals directly to customers to encourage changes in behavior consistent with market and grid needs*
- *Develop pricing option that encourages adoption of technologies that help customers manage energy use on a daily basis*
- *Design innovative and simple Pilots to align customer and company interests and maximize the benefits of dynamic pricing for all stakeholders*
- *Understand risks and rewards from dynamic pricing options for different customer classes*
- *Understand customers' perspectives and levers to drive consumption behaviors*
- *Develop customer education tools to help them adopt dynamic pricing and leverage new Distributed Energy Resource options*
- *Demonstrate sustained customer response to price signals to leverage dynamic pricing to reduce carbon and meet CA Clean Energy goals*
- *Enable RTP for both SDG&E and CCA customer with goal of reducing carbon content for supply*
- *Ensure equity among and within customer groups and ensure all customers are provided equal access to the benefits of the pilot*

Consolidating Outcomes

Develop clear outcomes from objectives

Engaged Customers	Encouraged Grid Edge Technologies	Improve Affordability	Decrease Carbon Intensity
Understanding customers' perspectives and levers to drive consumption behaviors	*Develop pricing option that encourages adoption of technologies that help customer's manage energy use on a daily basis*	*Create market-based price signals directly to customers to encourage changes in behavior consistent with market and grid needs*	*Demonstrate sustained customer response to price signals to leverage dynamic pricing to reduce carbon and meet CA Clean Energy goals*
Understand risks and rewards from dynamic pricing options for different customer classes	*Be a clean energy provider for our customers and provide options that meet their needs and are financially viable*	*Develop simple pricing to align customer and company interests and maximize the benefits of dynamic pricing for all stakeholders*	*Enable RTP for both SDG&E and CCA customer with goal of reducing carbon content for supply*
		Ensure equity among and within customer groups and ensure all customers are provided equal access to the benefits of the pilot	
SDG&E offers a Real Time Pricing Pilot Program that allows customers to actively engage in managing their energy bills through behavior changes	***SDG&E offers a pilot that encourages customers to adopt new technologies to enhance behavior changes and create advanced opportunities for monetizing DERs***	***SDG&E designs cost-reflective rates that ensure no cost-shifting and results in increased grid utilization and avoidance of expensive capacity additions***	***SDG&E offers all customers access to information regarding pricing and carbon levels to enable them to better manage their energy use relative to RTP or TOU pricing schemes***

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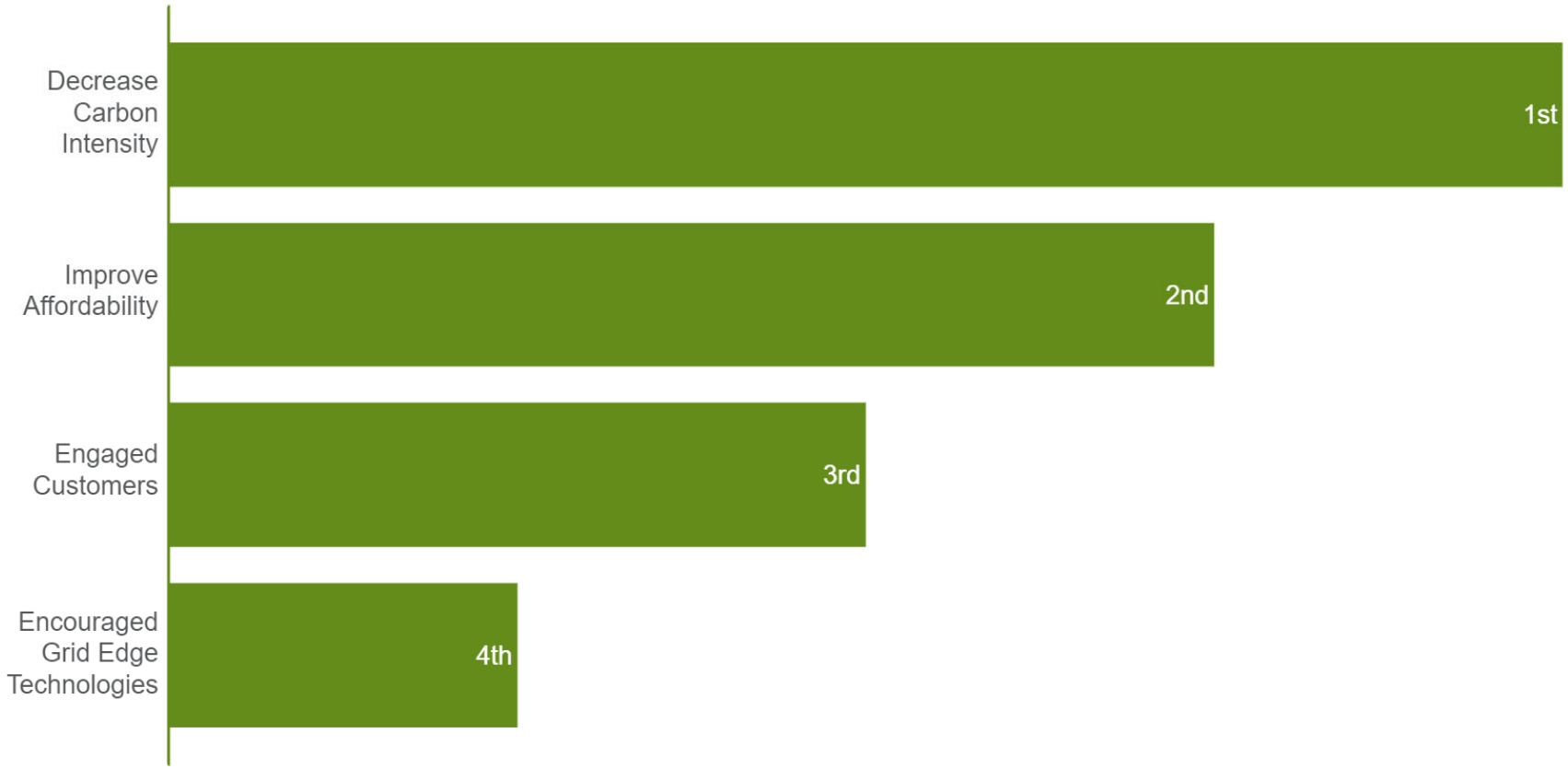
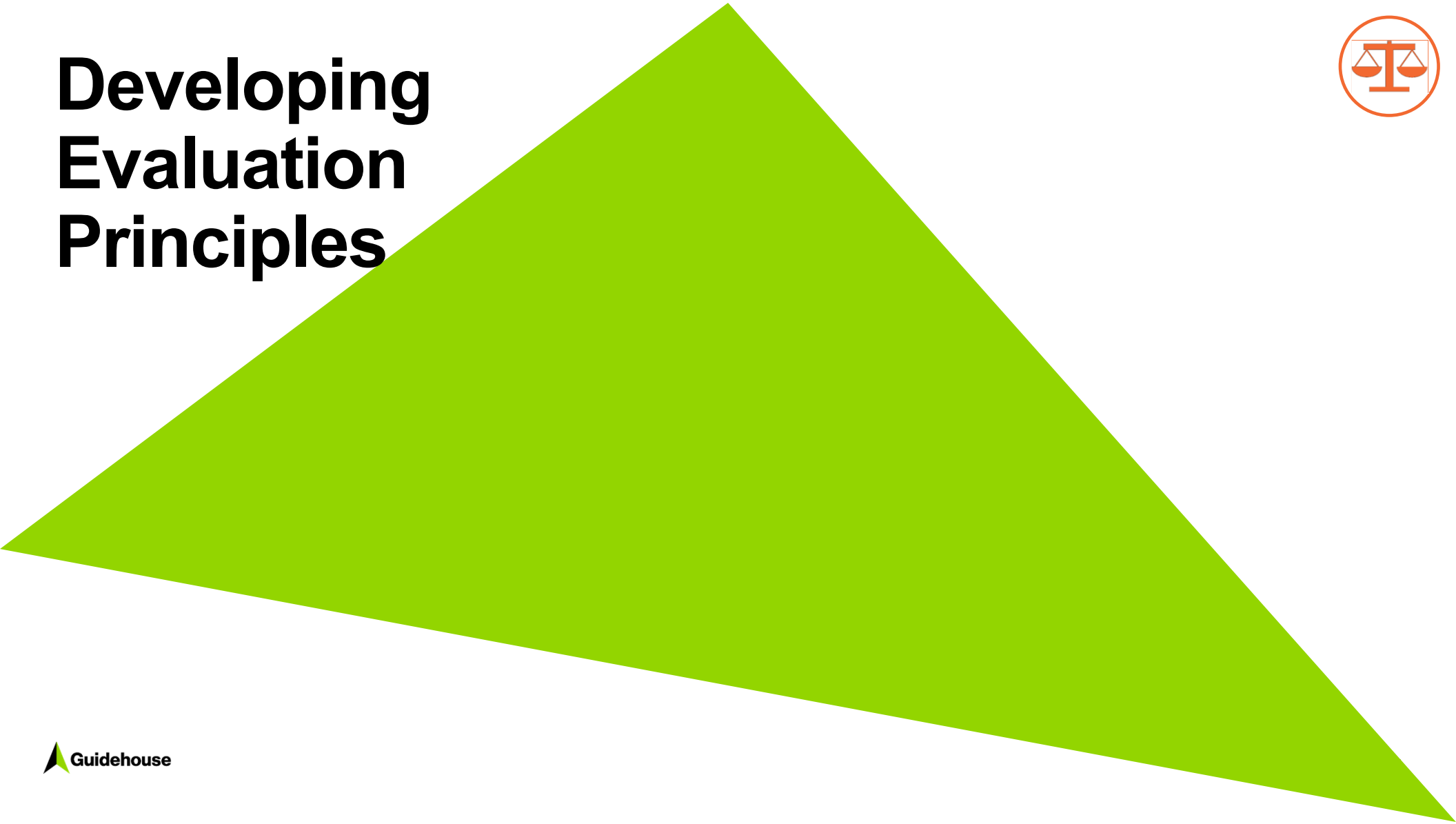
Ranking Outcomes



Developing Evaluation Principles



Guidehouse

Potential Evaluation Principles

Pre and Post Pilot Assessment

Bill Volatility

- What is the impact on customers' bills from the option?
- How volatile could customer bills be given historical price changes?
- How can customers manage the risk of price volatility?

Price Responsiveness

- Do customers respond to daily price signals?
- What were the drivers to achieving consistent and reliable behavior changes?
- How does price responsiveness compare by customer group?

Cost Shift

- What is the cumulative cost to non-participating customers?
- Are there incremental operational and Pilot costs?
- How are benefits delivered to non-participants (lower costs)?

Available Capabilities

- Can SDG&E implement rate design with current systems?
- What customer tools are need to aid in implementation?
- What is required to fully address capability gaps?

Stakeholder Alignment

- What are stakeholder perspectives regarding the option?
- Is there alignment for design?
- Does design address all stakeholder objectives?

Customer Satisfaction

- Were customers happy with their RTP pilot experience?
- Did the customer know they were enrolled in the RTP pilot?
- Why did a customer unenroll?

Equity & Inclusion

- Was the pilot biased to certain customer groups?
- Did all customer have equal access to the pilot?
- Were any customers 'left behind'?

Next Steps

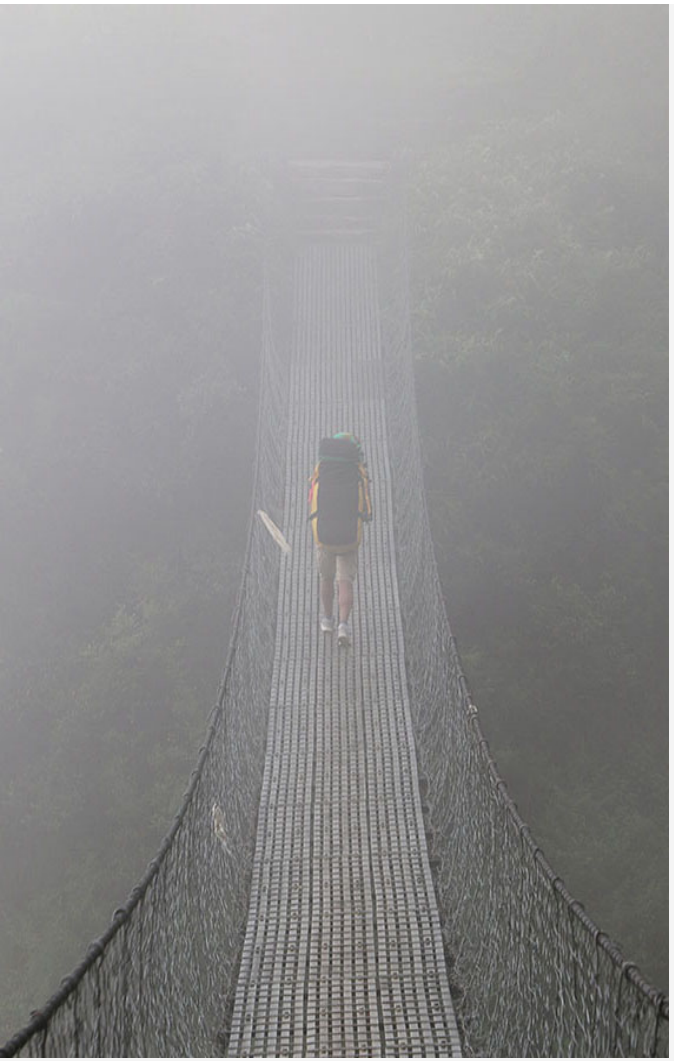
- SDG&E will work with Guidehouse to consolidate results from today's outcomes.
- Program design pre-read materials will be shared in advance of our next meeting, please be ready to discuss

ATTACHMENT B

Real Time Pricing Pilot
Stakeholder Workshop #2

San Diego Gas & Electric

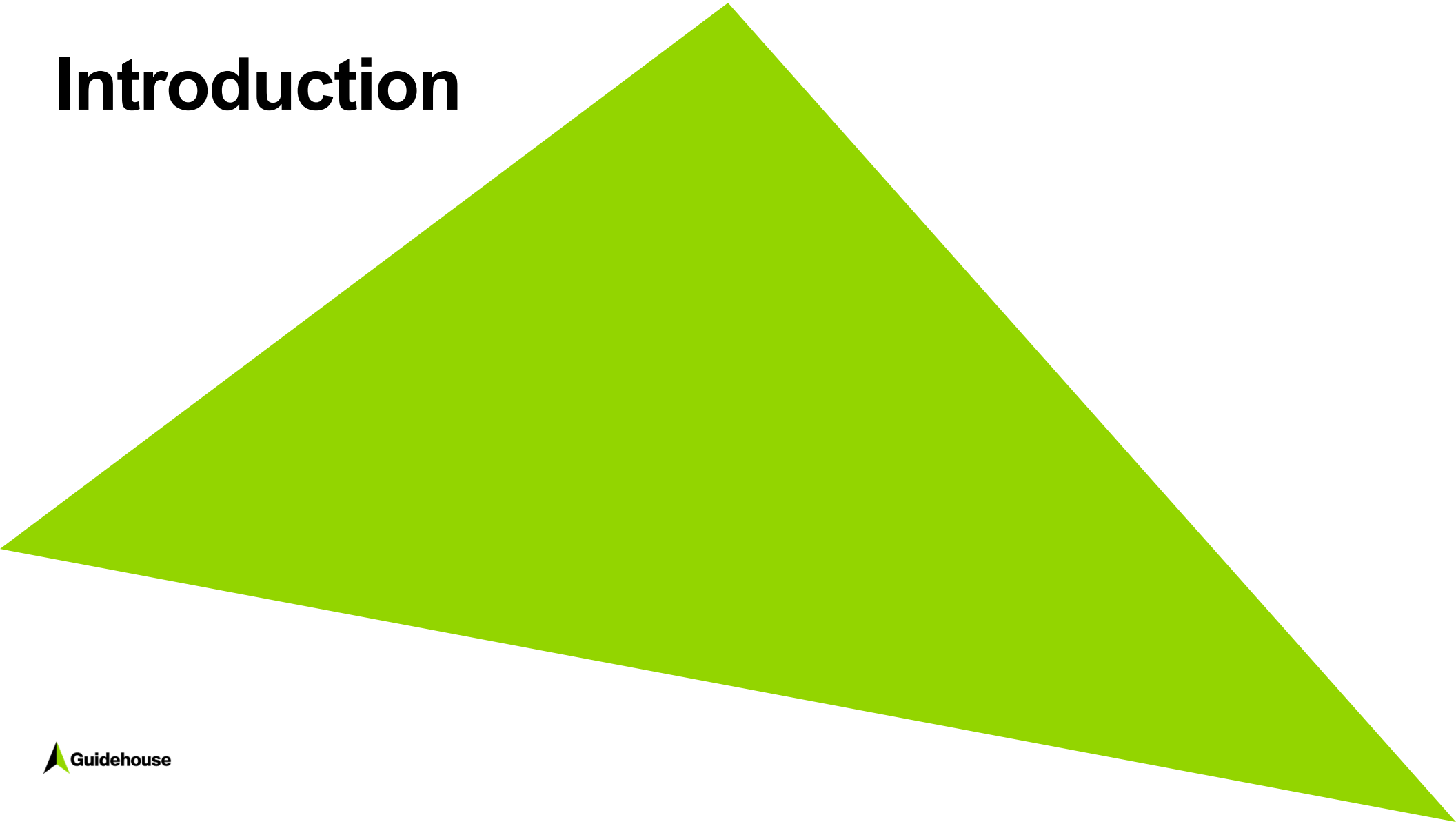
October 13, 2021



Agenda

Introduction – Safety Tip, Roll Call, Workshop Objectives	10 Min
Recapping Workshop #1 – Objectives & Desired Outcomes	10 Min
RTP Stage 1 Term Sheet Review	45 Min
Closing Comments & Next Steps	5 Min

Introduction



Guidehouse

Safety Tip

Heat Safety

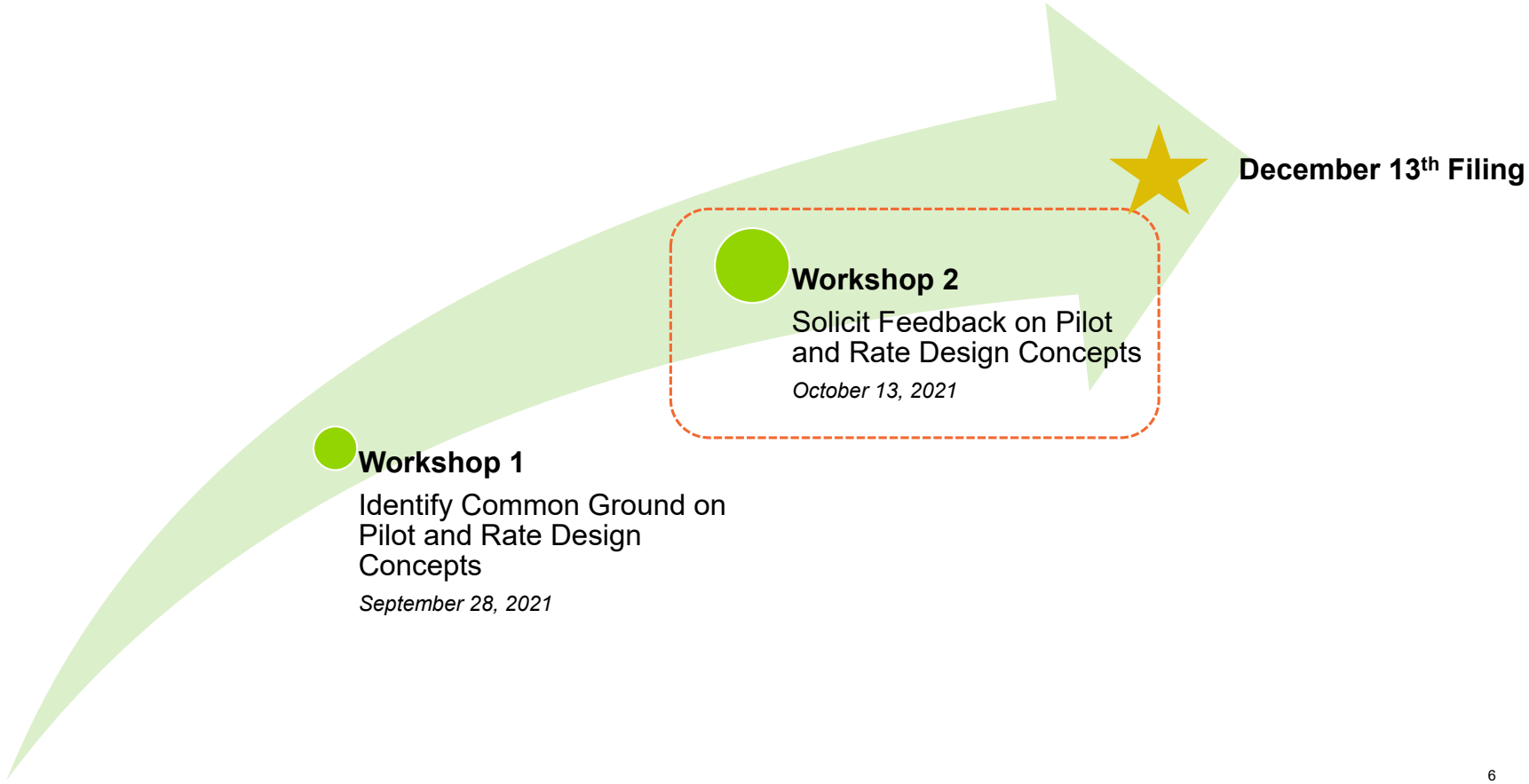
1. Stay hydrated, drink plenty of fluids. Avoid drinks with caffeine or alcohol.
2. Wear loose-fitting, lightweight, light-colored clothing. Avoid dark colors - they absorb the sun's rays.
3. Slow down, stay indoors. Avoid strenuous exercise during the hottest part of the day.
4. Use a buddy system when working in excessive heat. Take frequent breaks if working outdoors.
5. Check on family, friends and neighbors who do not have air conditioning, who spend much of their time alone or who are more likely to be affected by the heat.

Our goal is to have a very interactive working session

- Please speak up!
- Be candid and honest.
- Minimize distractions as best as possible.
- The term sheet is a **DRAFT** and we are still working on finalizing the pricing and pilot design elements.
- The outcome of this workshop will be critical to designing the RTP pilot program. **Your engagement and feedback today are essential.**
- Anyone can declare ELMO – Enough Let's Move On.

RTP Stakeholder Workshop Timeline

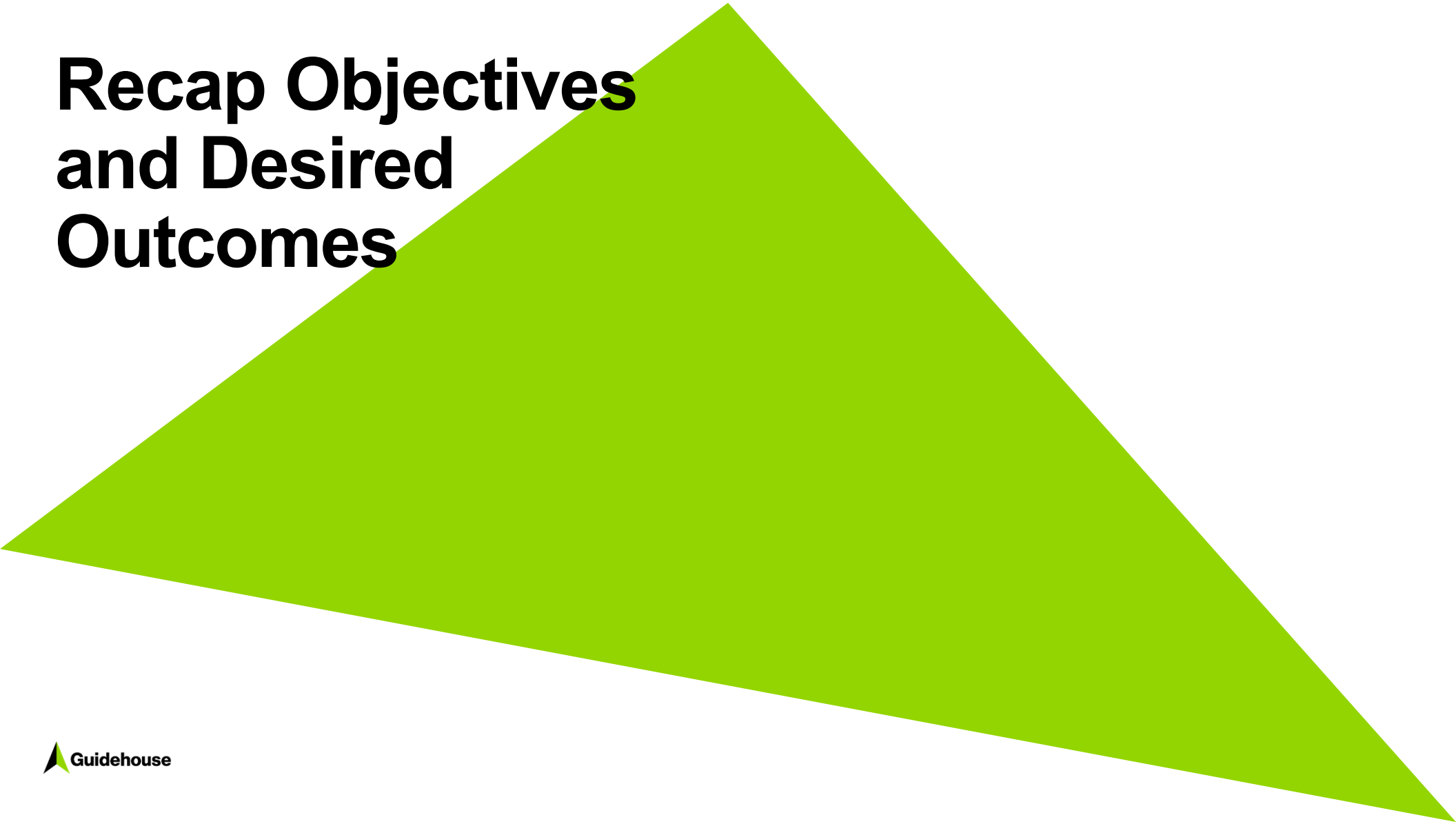
The objective of these workshops is to drive alignment on goals and objectives for real-time pricing (RTP), and to preview pilot program and rate design concepts for feedback.



Today's Workshop Structure

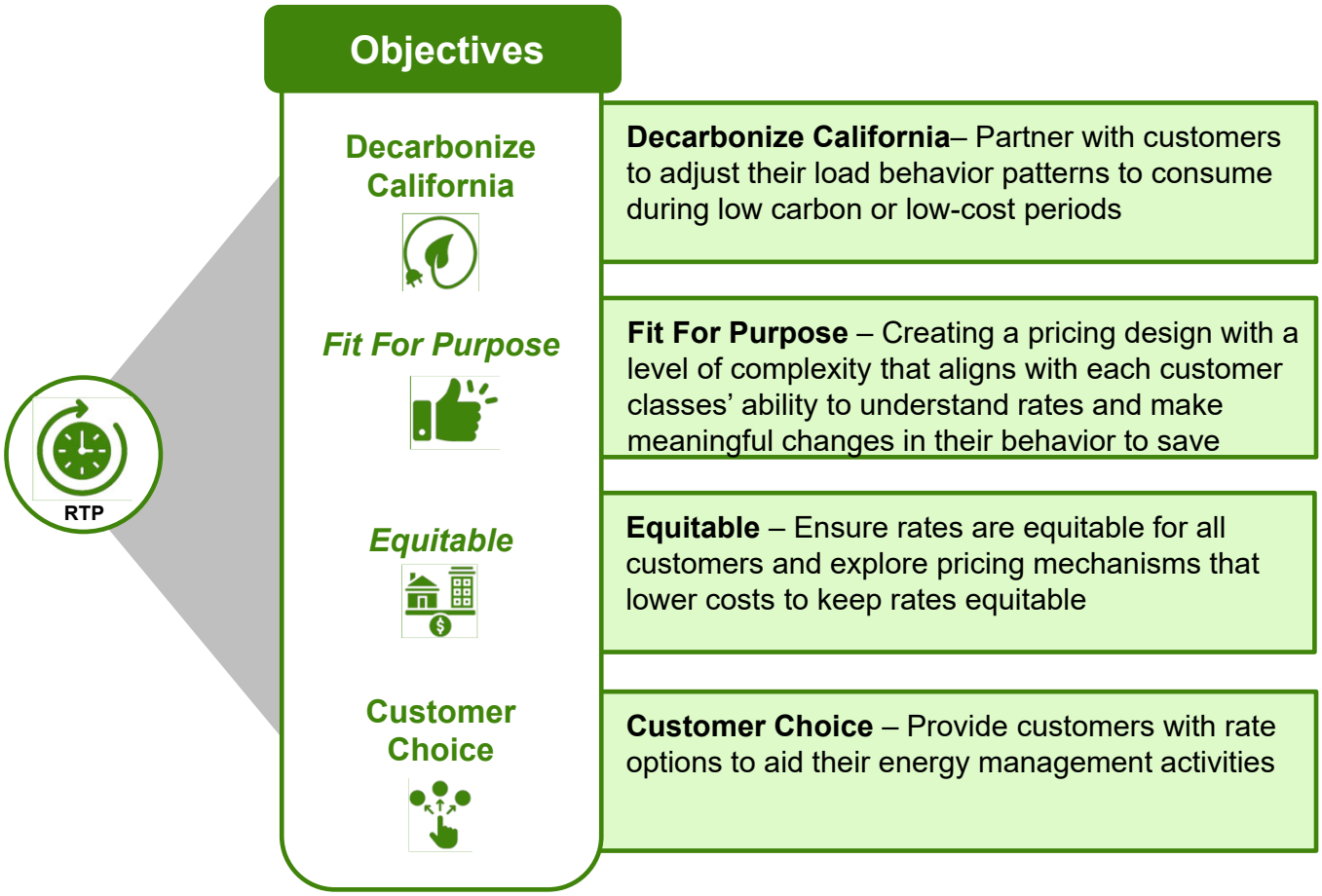
- The primary focus of this workshop is to walk through the draft term sheet for Stage 1 of the RTP pilot and gather feedback on key pricing and pilot design components, including:
  - Eligibility
  - Enrollment / Unenrollment
  - Rate Design
  - Proposed Timeline
  - EM&V
  - ME&O

Recap Objectives and Desired Outcomes



Guidehouse

Recapping Pilot Objectives

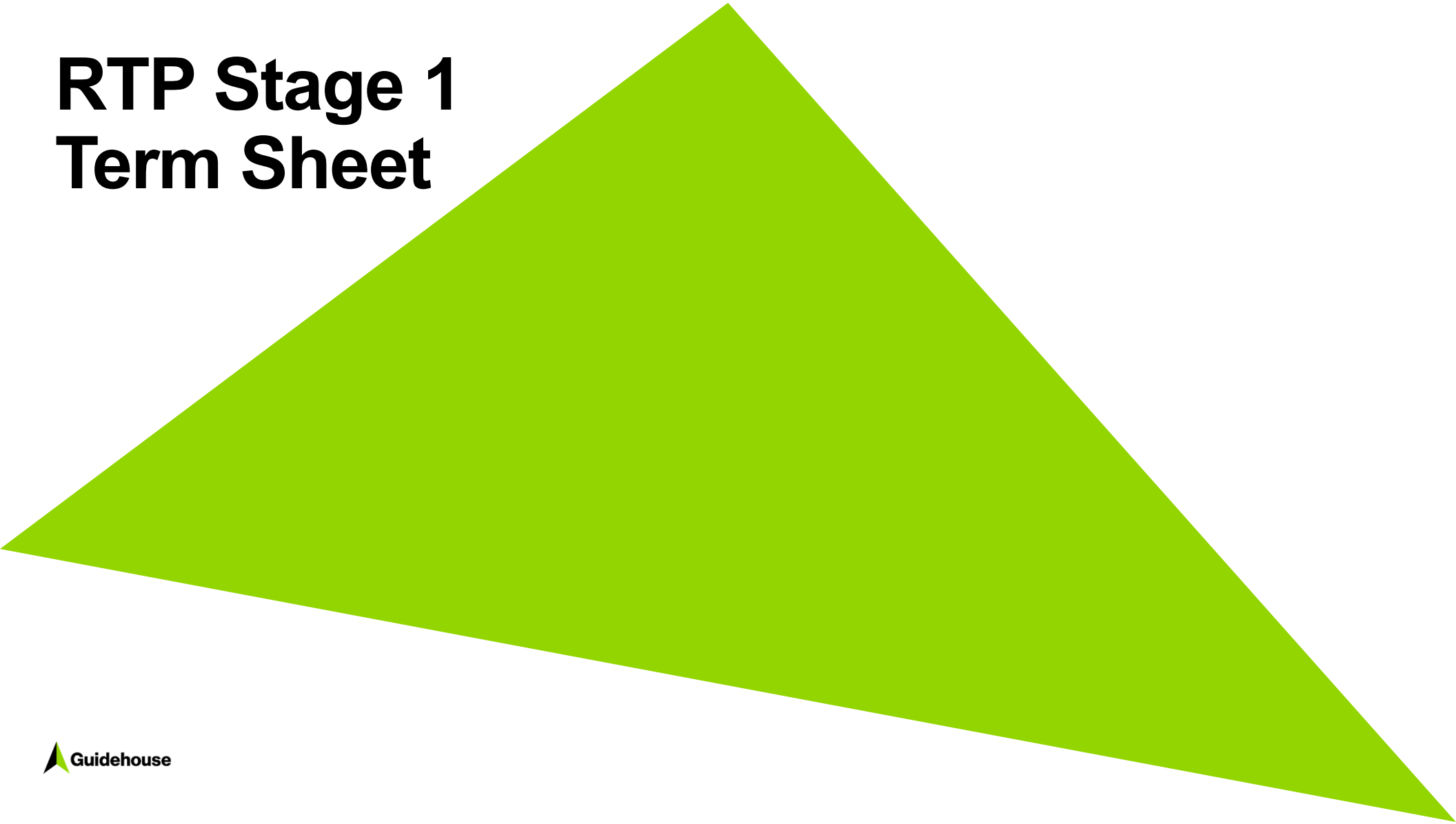


Real Time Pricing Pilot Program

Recapping Desired Outcomes

Engaged Customers	Encouraged Grid Edge Technologies	Improve Affordability	Decrease Carbon Intensity
Understanding customers' perspectives and levers to drive consumption behaviors	*Develop pricing option that encourages adoption of technologies that help customer's manage energy use on a daily basis*	*Create market-based price signals directly to customers to encourage changes in behavior consistent with market and grid needs*	*Demonstrate sustained customer response to price signals to leverage dynamic pricing to reduce carbon and meet CA Clean Energy goals*
Understand risks and rewards from dynamic pricing options for different customer classes	*Be a clean energy provider for our customers and provide options that meet their needs and are financially viable*	*Develop simple pricing to align customer and company interests and maximize the benefits of dynamic pricing for all stakeholders*	*Enable RTP for both SDG&E and CCA customer with goal of reducing carbon content for supply*
		Ensure equity among and within customer groups and ensure all customers are provided equal access to the benefits of the pilot	
SDG&E offers a Real Time Pricing Pilot Program that allows customers to actively engage in managing their energy bills through behavior changes	***SDG&E offers a pilot that encourages customers to adopt new technologies to enhance behavior changes and create advanced opportunities for monetizing DERs***	***SDG&E designs cost-reflective rates that ensure no cost-shifting and results in increased grid utilization and avoidance of expensive capacity additions***	***SDG&E offers all customers access to information regarding pricing and carbon levels to enable them to better manage their energy use relative to RTP or TOU pricing schemes***

RTP Stage 1
Term Sheet



Guidehouse

Eligibility

- Limited to SDG&E M/L C&I customers currently taking Utility Distribution Company (UDC) electric service on Schedules AL-TOU, AL-TOU2, A6-TOU, or DG-R.
- Pilot size limited to 100 customers; the first 100 customers to enroll are eligible
- Customers enrolled on the following current programs are not eligible unless they unenroll:
  - Net-Energy-Metering (NEM)
  - Community Choice Aggregation (CCA) / Direct Access (DA)
  - Customers on grandfathered rates will forfeit their grandfathered rate by enrolling in RTP (if they unenroll in the RTP Pilot, the customer reverts to existing rate structures and not their previous grandfathered rate)
  - Any SDG&E-offered Demand Response (DR) program, including the default Critical Peak Pricing program (customers may unenroll in favor of RTP pilot tariff)
- Stage 2 will include additional customer classes once SDG&E has completed customer research to determine interest in the program; the size of the Stage 2 pilot will also be dependent on CCA participation

Enrollment

- Optional program:
  - Customer chooses to enroll in the pilot (Opt-In)
  - Customer may unenroll from pilot at any time subject to unenrollment requirements
  - Customer must have interval meter and at least one year of pre-enrollment hourly use data
- 2-year pilot program period as follows:
  - Pre-enrollment begins 10/1/2022
  - Pilot begins 11/1/2022, with customers enrolled in “pre-enrollment” period placed on RTP pilot rate for the first billing period after 11/1/2022
  - For enrollment after 11/1/2022, pricing starts at the beginning of the customer’s next billing period after day of enrollment
  - No additional enrollment after 10/31/2023
  - Pilot terminated 10/31/2024; customers will either be automatically put on the standard rate for the customer’s class or a rate option chosen by customer (e.g., if RTP Stage 2 tariff option is available, customer may “Opt In” to the new rate option)

Unenrollment

- Customer choosing to unenroll in program must request switching no later than five-business days prior to the end of the customer's billing period.
- If the customer is not able to meet the five-business day deadline, the customer will be unenrolled at the beginning of their next billing period.
- If the customer meets the five-business day deadline, the customer will be unenrolled on the day or future date, and not retroactively to the beginning of the current billing period.
- Upon unenrollment, customer reverts to existing default rate structures or a current rate option available to that customer's class.
- If a customer switches to a CCA or DA, they will no longer be able to participate in the SDG&E Stage 1 pilot.

Rate Design

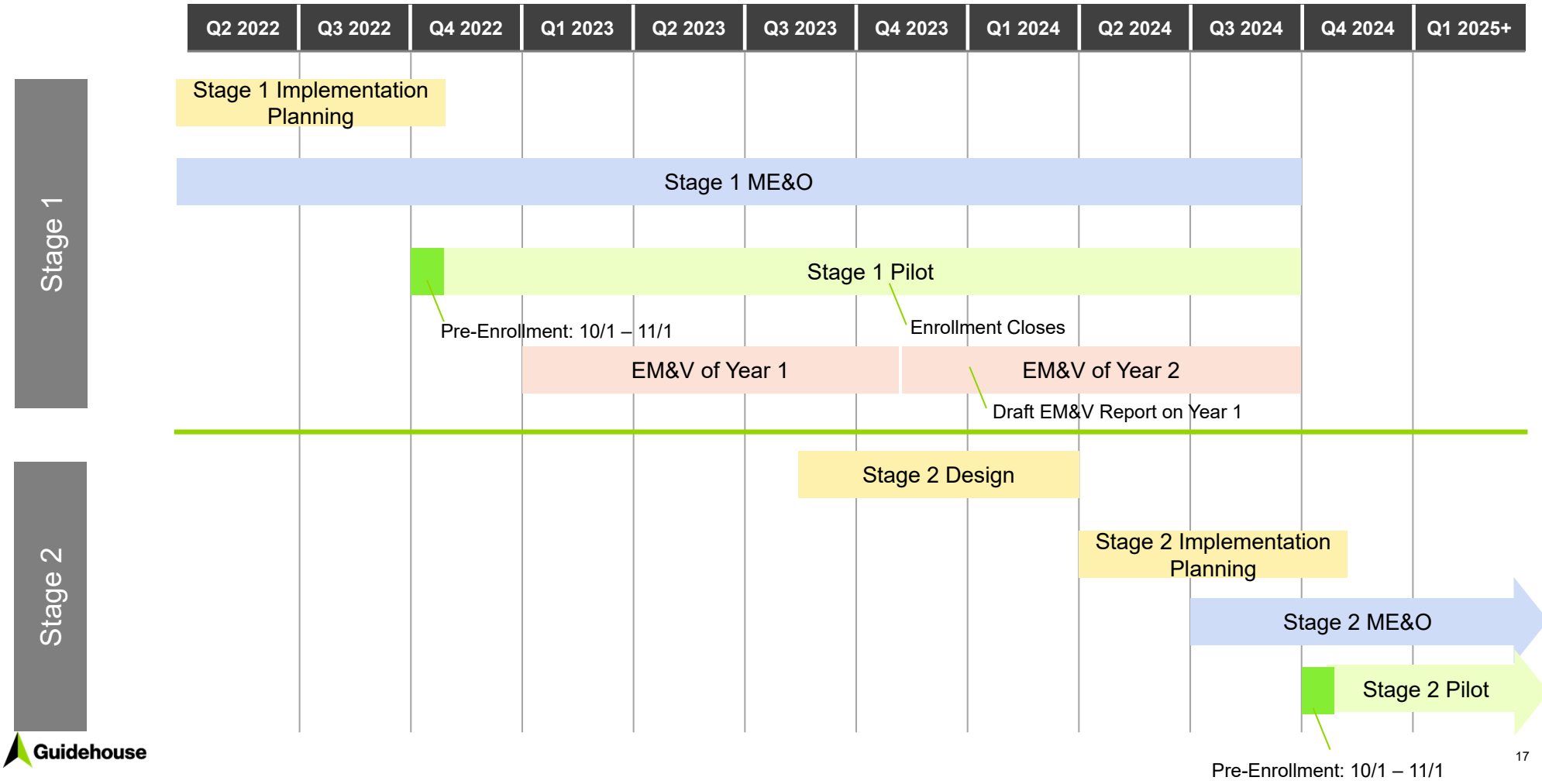
- The proposed rate design for Stage 1 includes a new “Commodity Rate” in SDG&E’s commodity tariff as well as the applicable UDC rate based on customer class

Commodity Rate Component	Benefits
Volumetric energy rate based on Day Ahead CAISO hourly price	• Most energy costs are cleared in the DA market; greatest share of SDG&E costs are from the DA market • DA posting provides customers with time to respond • Simpler for customers to understand
Additional volumetric capacity rate will be the Schedule VGI day-ahead CPP hourly adder	• Adder based on top 150 system peak hours • Methodology and implementation is already in place
Volumetric rate equal to the Commodity Base Rate in Schedule VGI	• Methodology and implementation is already in place

Key Program Parameters

- SDG&E will leverage the pricing “Portal” web-based tool used in VGI rate
- SDG&E will post the day ahead RTP prices for each hour by 6 p.m.
- Customers will self-serve and pull pricing from SDG&E’s “Portal”.
- If Day Ahead prices are not available by 6 p.m. on the day before rates are in effect, the previous day’s pricing will be applied.

Proposed Timeline



EM&V

SDG&E will perform an ex-post impact and process evaluation of the Stage 1 pilot and conduct a regression analysis for load impacts. The process evaluation results will be used for modifications of program design and feed into Stage 2. The evaluation will include:

- Load change quantification and impact of technology on load shift
  - Compare pre to post load consumption, adjusted for weather if applicable.
  - SDG&E may conduct customer interviews to determine how the customer may have changed their behavior or invested in technology to change load patterns and usage levels.
- Bill savings quantification
  - SDG&E will compare customer bills on the RTP pilot to their bills on their previous rate
- Avoided Costs quantification
  - The costs avoided by SDG&E due to change in customer energy and demand use after enrollment will be estimated using the Impact Estimation Approaches in the Avoided Cost Calculator
  - Avoided costs used will be based on SDG&E's latest approved avoided costs

EM&V (Continued)

- Process review (customer understanding and satisfaction)
  - SDG&E may conduct customer interviews to gain insights on the customer's pilot experience and reasons for enrolling
  - SDG&E will interview any customer who unenrolls to gain insights on reasons for unenrollment
- Cost shift quantification and carbon reduction quantification
  - SDG&E will calculate the cost shift by participating customer and into total for the pilot as part of the EM&V
  - Cost shift will be quantified as the difference in revenue collected from the customer under the RTP tariff versus the customer's previous tariff less the benefits of cost and carbon reduction from the 'impact estimation'

ME&O

- SDG&E will provide third parties with resources and collateral to facilitate their promotion of the RTP pilot rate within their programs.
- SDG&E will also provide low-cost outreach to promote awareness (email, bill onserts, website, etc.).
- In the event the Commission determines there is need for a sole source ME&O provider, SDG&E will conduct an RFP to determine the appropriate provider.
- The costs and schedule of this process are unknown.
- SDG&E will also develop a website for the RTP pilot and coordinate with key account leads to educate eligible C&I customers on the pilot option.

Next Steps

- SDG&E will work to refine the RTP pilot term sheet based on the feedback received today
- Feedback received today will also be used to guide high-level design considerations of Stage 2 design

Requirements for Pilot Design

Pilot Design must address the following:

RTP Pricing Design

Element	Description
1	Recommendation for rate design based on either 15-minute real-time price or day-ahead hourly price recommended with supporting information and data supporting the recommendation
2	Mechanisms, such as a capacity adder, to recover stranded costs be structured. Should consider three to four different peak TOU prices and an hourly capacity adder.
3	Recommendation on whether an iterative capacity adder design versus a simple design is needed and address how Pilot Stage 1 design will inform the design of the capacity adder in the Pilot Stage 2.
4	The application should include information, data, and modeling to show the potential impact of transmission rate time differentiation on the RTP pilot rates, to include a comparison of the proposed pilot rate design with current transmission rate structure and with time-differentiated transmission rates.

RTP Pilot Program Design

Element	Description
5	Participation targets by class and any Pilot Stage 1 caps
6	Eligibility for both Stage 1 and 2 to include addressing how to avoid double-counting, such as preventing enrollment from customers enrolled in the RTP-based dynamic rate from dual-participating in another market-integrated, supply-side demand response pilot program.
7	Address the feasibility of and the barriers for an application programming interface (API) to transmit price signals
8	Detailed evaluation plan for Stage 1, and a proposed evaluation plan for Stage 2, to include items set forth in Section 5.6 of decision.
9	The application should include a proposed process for a working group to facilitate development of the Pilot Stage 2, including final design elements and evaluation criteria.
10	The application should include a proposed timeline and scheduling worksheet (such as a Gantt chart) for both stages of the pilot, including proposed pilot duration.
11	The application should include a proposed duration for each stage of the pilot. For Pilot Stage 1, the application may also include a proposal for a summertime only RTP pilot.

Potential Evaluation Principles

Pre and Post Pilot Assessment

Bill Volatility

- What is the impact on customers' bills from the option?
- How volatile could customer bills be given historical price changes?
- How can customers manage the risk of price volatility?

Price Responsiveness

- Do customers respond to daily price signals?
- What were the drivers to achieving consistent and reliable behavior changes?
- How does price responsiveness compare by customer group?

Cost Shift

- What is the cumulative cost to non-participating customers?
- Are there incremental operational and Pilot costs?
- How are benefits delivered to non-participants (lower costs)?

Available Capabilities

- Can SDG&E implement rate design with current systems?
- What customer tools are need to aid in implementation?
- What is required to fully address capability gaps?

Stakeholder Alignment

- What are stakeholder perspectives regarding the option?
- Is there alignment for design?
- Does design address all stakeholder objectives?

Customer Satisfaction

- Were customers happy with their RTP pilot experience?
- Did the customer know they were enrolled in the RTP pilot?
- Why did a customer unenroll?

Equity & Inclusion

- Was the pilot biased to certain customer groups?
- Did all customer have equal access to the pilot?
- Were any customers 'left behind'?