Company: San Diego Gas & Electric Company (U 902 E)
Proceeding: Real Time Pricing Pilot Rate
Application: A.21-12-006/A.21-12-008
Exhibit: SDG&E-XX

PREPARED SUPPLEMENTAL DIRECT TESTIMONY OF

LESLIE WILLOUGHBY (CHAPTER 6)

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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PREPARED SUPPLEMENTAL DIRECT TESTIMONY OF LESLIE WILLOUGHBY (CHAPTER 6)

I. OVERVIEW AND PURPOSE

The purpose of this testimony is to describe SDG&E's proposed Measurement and Evaluation (M&E) activities for San Diego Gas & Electric Company's (SDG&E) export compensation pilot rate (Export Compensation Pilot) and Real Time Pricing Pilot (RTP Pilot) (collectively, Dynamic Pricing Pilots). SDG&E is submitting this prepared supplemental direct testimony to address revisions to SDG&E's consolidated Time Pricing Pilot Application and the consolidated Commercial Electric Vehicle Dynamic Rate Application (A.21-12-006 et al.), including the July 12, 2022 recommendations by Energy Division ("ED Staff Recommendations"). Because the revisions are extensive and include both adding new testimony and removing previously served testimony, SDG&E is withdrawing previously served testimony and will rely solely on this prepared supplemental direct testimony as its direct testimony in this proceeding.

Decision (D.)21-07-010 (GRC Phase 2 Decision) directs SDG&E to evaluate its RTP Pilot in two stages.[1] SDG&E originally planned to offer its RTP rate to commercial and industrial customers in the first stage and then include residential customers in the second stage. However, after further consideration as discussed in Chapter 1, Jeff Deturi's testimony, SDG&E will now offer both the RTP Pilots to all customer classes except street lighting. By including most customer classes in the first stage of RTP SDG&E expects that more customers will be able to participate, and that the resulting evaluation will be more robust than originally planned.

[1] D.21-07-010 at 57, Section 5.5 ("The application should include a detailed evaluation plan for Stage 1, and a proposed evaluation plan for Stage 2.")

SDG&E's Export Compensation Pilot is planned to also have two stages like the RTP Pilot, where the first stage will be open to customers on SDG&E relatively new EV-HP rate. SDG&E's EV-HP rate became available to commercial customers with a separately metered service that supports the charging of electric vehicles. Additionally, customers on the EV-HP rate have monthly demands greater than 20 kW. The second stage of the Export Compensation Pilot will utilize information gained from the first stage and is expected to be made available to a broader group of customers.

SDG&E is proposing to conduct the Export Compensation Pilot Stage 1 at the same time as the RTP Pilot Stage 1, but will develop separate M&E plans for the two pilots. It is anticipated that the Dynamic Pricing Pilots will be able to leverage certain evaluation activities and gain efficiencies like reducing survey costs, since the two pilots timelines will be similar over the same 2-year period.

SDG&E will use surveys to gain insights into participants' understanding of the Dynamic Pricing Pilots and ease of ability for shifting or reducing loads. In addition to participant surveys, eligible non-participants will also be surveyed. This will help SDG&E gain an understanding about why potential participants who qualify for the RTP Pilot chose not to participate. The feedback may help SDG&E in designing future similar rates.

Process surveys are also being proposed to be conducted during Stage 1 of the Dynamic Pricing Pilots. Process surveys typically help identify areas for improving on how the Dynamic Pricing Pilots are implemented. SDG&E RTP staff as well as customers that were marketed to and those that opted into the rate are surveyed on their experience of going onto the rate. In some cases, if certain technologies are involved, the survey can include how difficult or easy it was to utilize or implement the technology. It is anticipated that feedback from Stage 1 of the Dynamic

Pricing Pilots will help make the customer experience better and will ultimately be used to inform Stage 2 of the pilots.

Additionally, SDG&E is recommending to conduct post-event surveys relatively soon after CPP events. Post-event surveys can help SDG&E understand how well its website conveys critical peak pricing events. Post-event surveys can also determine if the Dynamic Pricing Pilot participants were engaged and aware of those higher cost CPP hours and whether they were able to take action to shift or reduce load or export energy during the critical peak event.

SDG&E is also suggesting end of pilot surveys to be conducted after customers have participated for two years. These surveys can provide information on how the customer feels about the pilot experience, if customers felt successful, and had a good understanding of how the dynamic component of the pilot worked. It is anticipated that the first 1,000 residential customers in Stage 1 RTP Pilot will be offered a $300 total incentive to participate in the pilot. The incentive will be provided in phases. Some of the incentive money will be provided when the customer signs up for the RTP Pilot, and then incentives for completing surveys during the pilot. This testimony will also contain proposed budget estimates for these surveys as well as bill impacts and load impacts, including labor support needed to conduct the overall evaluation.

II. MEASUREMENT AND EVALUATION OBJECTIVES

The primary evaluation objectives of the M&E for Stage 1 of the Export Compensation Pilot rate and both stages of the RTP Pilot rate are to assess customer price responsiveness by calculating load impacts, bill savings, and utility cost savings. Participant interval data will be collected on a pre-pilot basis as well as post-pilot. As previously discussed, SDG&E proposes to administer surveys that will provide insights into customer experience, understanding, and general satisfaction with the Dynamic Pricing Pilots. Demographic and customer characteristics will be collected from pilot participants and non-participants to assess what type of customers are

willing and able to use a day ahead hourly rate option. Information collected on participant acceptance, and perception about their ability to save money or earn credits from Stage 1, will help inform the second stages and support the final design and implementation for both Dynamic Pricing Pilots.

As laid out in the GRC Phase 2 Decision in Section 5.6 and ED Staff Recommendations, the proposed evaluation structure for the RTP Pilot will strive to address the following topics identified in Table LW-1.

Table LW-1

Recommendations of Measurement and Evaluation Objectives

Proposed Measurement and Evaluation Objectives	**D21-07-010 Section 5.6**	**ED Staff Recommendations**
Solicit M&E Evaluation Plan Feedback via Workshop	X	X
Create Working Group, define M&E criteria prior to pilots		X
Load Impacts and bill savings	X	X
Utility cost savings and cost shift	X	X
Alignment with 9 goals in the Commissions Environmental and Social Justice Action Plan	X	
Assess customer understanding and satisfaction at a reasonable cost	X	
Customer Participation and Challenges		X
Participant use of technology and the impact of technology on load shift	X	X
How to assess whether low and medium income customers are participating in the pilot and same rate as higher income customers	X	

Design and evaluation criteria should include the anticipated benefits of a dynamic rate: reduced grid costs GHG levels increased use of renewable energy, and improvements to grid reliability, reduce likelihood of rolling blackouts[2]	X	
Timeline for the evaluation plan, publishing results and discussing results in WG		X
Framework on how findings from the M&E should be implemented back to the rate.		X

To the extent feasible, SDG&E will work to incorporate the elements and metrics identified in section 5.6 of the GRC Phase 2 Decision into its evaluation plan. SDG&E notes that ED's recommended measurement and evaluation objectives are similar to those established in D.21-07-010.[3]

SDG&E plans to present a comprehensive M&E plan at a CPUC workshop that will solicit feedback from interested parties. If there is sufficient interest and support, SDG&E is open to a working group process that can provide presentations on milestones, results from surveys, load impacts, load shifting, and other analysis. The 9 ESJ goals that the CPUC identified as a primary objective can be discussed at the workshop, and SDG&E will solicit feedback on how to measure (or whether we can measure) or assess if the 9 goals of the ESJ Action Plan are being met.

[2] D.21-07-010 at 58-59; *see also* CPUC, Environmental and Social Justice Action Plan (ESJ Action Plan) (February 21, 2019), 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..

[3] ED Staff Recommendations at 6-7.

SDG&E expects to develop and submit a request for proposal (RFP) in Q3 of 2023 for the full measurement and evaluation of its Dynamic Pricing Pilots. SDG&E will hire an M&E consultant several months prior to the beginning of the Dynamic Pricing Pilots so that work can begin on developing an evaluation plan. The consultant will be instrumental in presenting the evaluation plan to workshop participants and incorporating parties' feedback as feasible.

The ED Staff Recommendations state that "Pilot sizes should be large enough to provide sufficient evaluation data and statistically significant findings for the parties and the Commission to review and incorporate into tariff offerings."[4] It should be noted that customers participating in the Dynamic Pricing Pilots may not be reflective of SDG&E's general population, rate group, or eligibility pool.[5] However, the lack of external validity does not mean that the results won't be significant or important learnings. SDG&E believes that the results can be applied to similar customers as those that participated.

Further, the target population after eligibility criteria is applied for Stage 1 of the Dynamic Pricing Pilots is not representative of the total population. The target minimums and maximums based on the eligible population shown in Attachment B of Ray Utama's Testimony are less than 1% of SDG&E's eligible customers. Additionally, SDG&E's service territory expects an additional 300,000 bundled customers to migrate to CCAs in 2023. Therefore, SDG&E's predicted enrollment is below the ED Staff Recommendations target enrollments.[6] Because of this fact, the eligible population for Dynamic Pricing Pilots is greatly reduced,

[4] ED Staff Recommendations at 4.

[5] SDG&E's Stage 1 Export Compensation Pilot rate will be available to customers on the EV-HP rate. In this case, the findings should be representative of all customers on the rate apart from self-selection bias.

[6] SDG&E does not know if CCAs will be participating in either of the Dynamic Pricing Pilots.

making comparisons of pilot participants to the general rate class inappropriate (with the exception of the Stage 1 Export Compensation Pilot).

Moreover, customers that opt into the Dynamic Pricing Pilots introduce bias. There can be differences in the type of customer who may possess a certain type of technology, be tech savvy, or use energy in a way that enables or promotes their participation. It may be that a subset of customers can be successful on these Dynamic Pricing Pilots and by conducting a pre-analysis of customers use of energy and load shapes, SDG&E may be able to identify those potential customers that can benefit from these dynamic rates. There can be a statistically significant load impact or shift, but to whom the shift applies will likely be a subgroup of the population and therefore in those cases the impacts should not be directly compared to population or even all eligible customers that did not participate. In the event that the Dynamic Pricing Pilot caps are reached, applying conclusions from the pilot participants regarding resulting load impacts, bill savings, utility costs, and cost shifts to the entire customer class is inappropriate as the pilot customers that opted into Dynamic Pricing Pilots will be different than the general population.

The proposed evaluation objectives for the Stage 1 Dynamic Pricing Pilots are organized as follows: The primary objectives are identified and the accompanying metric and analysis questions along with the approach that will be used to answer those questions. The overall description of how the objective will be met is described in the paragraphs after the last metric / analysis in the objective is described.

SDG&E intends to issue RFPs for the load impact evaluation work, including administering and evaluating the surveys and any focus groups.[7] The evaluation plans outlined

[7] Focus groups can be insightful when trying to launch new products and services. Focus groups are not currently in the budget plan.

below are intended to provide high-level descriptions of the goals and objectives of the Dynamic Pricing Pilots. A detailed evaluation plan once the consultant has been selected will be presented in a workshop as ED recommended.[8]

A. EXPORT COMPENSATION PILOT – Stage 1 Evaluation

SDG&E proposes to address the following objectives for its Export Compensation Pilot Stage 1:

- **Objective 1:** Verify that load is successfully exported during SDG&E critical peak times, and charging occurs during SDG&E's off-peak and super off-peak periods. Do customers change how they normally discharge in response to export adders?
    - Approach: Using smart meter data, compare pre and post loads, during SDG&E CPP periods, by analyzing imported and exported energy leading up to and during CPP events.
- **Objective 2:** Measure and quantify the amount of exported load for the pilot participants.
    - Approach: Utilize smart meter export and import data during CPP events and non-CPP events. Customers participating will have exported load on a separate channel of their smart meter.
- **Objective 3:** Are customers aware of CPP periods, and customer experience?
    - Approach: Using surveys assess if customers can react to day-ahead export adders. Document customer experiences with respect to having the technologies to enable exporting loads. Survey participants about ease of notifications, ability to change schedules to meet export goals, and ease of participation.

SDG&E plans to utilize the Export Compensation Pilot Stage 1 results to inform the Export Compensation Pilot Stage 2. SDG&E expects to solicit feedback for the Stage 2 evaluation plan prior to enrollment for Stage 2. Therefore, the evaluation plans for Stage 2 will

[8] ED Staff Recommendations at 4.

be developed after Stage 1 is complete. Additionally, SDG&E will seek feedback for both stages in the Working Group.

B. RTP PILOT - Stage 1 evaluation plan

SDG&E proposes to address the following objectives in Stage 1 of the RTP Pilot:

- **Objective 1:** Calculate load impacts, load shifts, and bill impacts savings or cost increases.

  Recommended Metrics and Analyses for Objective 1

  a. What is the load response (reduction, shift or increase) to the RTP rate?

     i. Approach: Regression based analysis. SDG&E plans to estimate load impacts using a difference in differences approach where the load impacts are calculated using the customer's pre-treatment data (usage prior to going onto RTP) and post-treatment data (usage after going onto RTP).[9] The previous discussion regarding the results being representative of the total population apply here.

  b. Does the customer currently respond to TOU? Are there incremental load drops moving to RTP? Is there an incremental load drop when the Commodity Critical Peak Pricing (C-CPP) event is called?

     i. Approach: Regression based analysis.

  c. What are the bill impacts for all eligible participants?

     i. Approach: Calculate the customer's bill on the otherwise applicable tariff (OAT) during the same timeframe the customer is on the RTP rate and calculate the difference. The bill impact plan is to perform an OAT and RTP billing impact analysis on pre-treatment data for all eligible customers that have at least 6 months of interval data. Ideally, this will provide a list of potential customers that could save by switching to the RTP Pilot rate.

  d. Are there technology-based reductions? Identify relative frequency of participant battery settings pre-intervention (e.g.,

[9] Because the number of participants for each customer class are unknown, the exact methodology for calculating load impacts may change.

operation mode, amount of energy reserved for backup by battery provider), presence of EV, climate zone, average peak demand by premise.

i. Approach: Utilize SDG&E's customer characteristics information to establish what climate zone the customer resides and whether storage is present.

e. Does the customer have technology load profiles?

i. Approach: Utilize customer interval data to develop technology profiles to the extent possible.

f. How often does the RTP participant change its energy source or usage based on RTP rates or following a C-CPP event? (A C-CPP event is when SDG&E calls a CPP Event during high-cost pricing periods, as stated in the prepared supplemental direct testimony of SDG&E witness William G. Saxe).

i. Approach: Identify all C-CPP event notifications for each customer and evaluate load data prior to and after each event.

g. What is the load impact by event type, event duration, month, weather conditions, and weekday and weekend events?

i. Approach: Using regression output, provide an excel table that can show each event day along with a reference load shape, including hourly weather conditions.

h. What is the average observed load profile for RTP participants including RA window, by month, weekday and weekend and technology if possible?

i. Approach: Identify resource adequacy assessment hours in excel table and show average reduction over those hours.

i. Do customers that show benefits from the bill impacts enroll in RTP?

i. Approach: Provide statistics on how many customers are structural benefiters versus how many customers enroll onto RTP.

j. Do eligible customers that have projected bill savings sign up for RTP?

i. Approach: Report on how many customers are projected to save money on the RTP Pilot and how many of those customers actually saved.

Evaluation Methodology for Objective 1

In order to evaluate the RTP Pilot in terms of Objective #1, SDG&E will conduct a load impact evaluation to estimate load impacts and load shifts due to the RTP Pilot rate. If customers have storage technology available, analysis will include the customer's ability to reduce loads based on different factors, such as CAISO's day-ahead hourly pricing, and for C-CPP events. SDG&E will utilize hourly interval data, weather data, customer characteristics and other survey information that may aid in this evaluation.

Typically, demand response load impact studies are performed in accordance with the load impact protocols.[10] However, pilots are not required to have the rigor of load impact protocols applied to their load impact evaluations.[11] Here, despite the fact that it is not a requirement, if enough customers participate in SDG&E's Stage 1 RTP Pilot, the evaluation may be able to assign the participants to randomized treatment and control groups (A/B groups) which would qualify for being compliant with the load impact protocols. If participation is less than the maximum target of 3,340 an alternating treatment design could be implemented, where all participants are dispatched according to a schedule of control days and event days.

As part of the Stage 1 RTP Pilot, SDG&E will explicitly analyze load impacts under different weather conditions, and timing of advance notice. SDG&E plans to use statistical methods such as regression analysis or regression-based difference-in-differences methods to calculate load impacts and load shifts in response to the day-ahead hourly pricing. In addition to

[10] *See* D.08-04-050, Decision Adopting Protocols for Estimating Demand Response Load Impacts at Attachment A.

[11] *See id.*, Attachment A at 93.

weather data and customer interval data, the load impact analysis will likely include additional variables such as time of day, day of the week, month or season, as appropriate.

SDG&E plans to submit a request for proposal (RFP) for the load impact evaluation study. Once the RTP Pilot has begun, and there are participants on the RTP Pilot rate, SDG&E will provide its formal evaluation plan which will include the appropriate load impact methodology. If it is not cost prohibitive, SDG&E will utilize the load impact protocols for its load impact reductions and shifts.

SDG&E proposes to use preliminary bill impacts to model the short-term and long-term effects of the RTP Pilot rate on customer bills based on rate with and without consumption changes in order to capture the full effect of energy savings between the customer's otherwise applicable tariff and the RTP Pilot rate. SDG&E proposes to conduct bill impact analyses on all eligible customers and to track the differences going forward.

- **Objective 2**: Analyze participant enrollment process and characteristics. This will include types of businesses and hours of operation and how they relate to RTP. This will ensure that RTP Stage 2 design and implementation benefits from Stage 1 participant research regarding, for instance, ease of signing up for the rate, readily available access to day-ahead pricing data, how well participants understand the RTP Pilot rate and whether they are able to take action when prices are high.

  Recommended Metrics for Objective 2

  a. How many participants enrolled by year and month and classification of business type, such as North American Industrial Code (NAICs)?

     i. Approach: Utilize customer characteristic data to and report out on participants.

  b. What types of customers enrolled in the RTP Pilot from a qualitative perspective? Is there something unique about their load shape that incentivizes them to participate on the RTP Pilot rate.

     i. Approach: Ask questions via participant and non-participant surveys, and/or utilize focus group information.

c. How easily can participants react to hourly day ahead pricing? How does it differ when the event component is included?

i. Approach: Questions via participant post event surveys following event days.

d. What is customer awareness of the event component of the RTP Pilot rate?

i. Approach: Responses from participant surveys and possibly post event surveys.

e. How easily can participants react to hourly day ahead pricing? Does it make a difference whether there contains the event component?

i. Approach: Questions via post event survey accompanied with statistics extracted from customer specific energy reductions during events.

f. Does customer uptake of energy efficiency (storage, electric vehicles, or energy management systems (EMS)) technology effect whether they utilize the RTP Pilot rate?

i. Approach: Compare known customer characteristics alongside the utilization of the RTP rate to view increases from technology.

Evaluation Methodology for Objective 2

To evaluate customer characteristics, SDG&E will gather relevant information from its customer information systems. Additional information may be obtained from customer account executives that can also provide insights into customer preferences and operating behaviors. Additional information regarding preferences, attitudes, understanding of the rate, ability to reduce loads and notification lead times related to event adders will be collected through surveys. SDG&E plans to survey both participants and non-participants. If focus groups are to be conducted the evaluation team will work with SDG&E's Customer Research group to ensure best practices. It is expected that the results of these surveys will provide qualitative information that can help shape future RTP designs. SDG&E will compare differences and similarities so that

it can determine and characterize what types of customers may be able to participate in the future. If there are barriers to entry those should be identified through survey data. Post event surveys may be administered to participants withing a few days of a system event adder to assess awareness and customer engagement in load reduction efforts.

- **Objective 3:** What is the optimal hourly structure and price? Are there utility cost savings, and/or cost shifts?

  Recommended Metrics for Objective 3

  a. What are the bill impacts for all eligible participants?[12]

     i. Approach: Calculate the customer's bill on the otherwise applicable tariff (OAT) during the same timeframe the customer is on the RTP rate and calculate the difference.

  b. Is there cost shifting potential between customer classes?

     i. Approach: Track cost differences from the bill impacts to be assessed later in the pilot. Track magnitude and direction of cost shifts.

  c. What are the Marginal benefits and costs of each customer that enrolled in RTP program**?**

     i. Approach: Calculating marginal benefits and costs analysis may be premature in Stage 1, SDG&E plans to track participant costs.

Evaluation Methodology for Objective 3

The marginal benefit design for this study will be done by comparing billing data with a control group (or by comparing the participants previous billing data). Cost shifting within the study will be focused on comparing billing data for customers that elected to join the RTP Pilot and those that did not join the RTP Pilot but were marketed to join RTP. Any differences in

[12] SDG&E's proposal is to determine bill impacts for all eligible customers, but only to the extent possible. For instance, it may not be possible for new customers as they will not have a full year of interval data available.

commodity revenues collected under RTP will be evaluated in the RTP Pilot to see if RTP rate design changes are necessary.

- **Objective 4:** Can SDG&E use battery storage to respond to RTP Day-Ahead market prices? Once NEM is able to participate will there overlap between solar customers?

  Recommended Metrics for Objective 4

  a. Do customers with storage ability receive and adjust consumption in response to price signals?

     i. Approach: If possible, meter battery storage to identify if changes in load correspond with the charging and discharging of the battery.

  b. What load increases and load reductions can be achieved per kW of installed capacity?

     i. Approach: Based on data from metric "a" SDG&E can model estimate what the ideal battery size may be for the customer.

  c. Is storage capability alone enough to respond to price signals that enable bill savings?

     i. Approach: Using the data from the above metrics, analyze the customer's total load with optimizing battery discharge and charging behavior. Calculate savings attributed to battery.

  d. Would the addition of NEM benefits contribute to better performance on the RTP Pilot?

     i. Approach: Using customer load data simulate what NEM size would be optimal for the customer, Calculate additional cost savings due to NEM addition.

Evaluation Methodology of Objective 4

The ability of batteries to dynamically respond to pricing signals can provide substantial benefits in the form of reliability. The evaluation of this objective will rely on a qualitative summary of the technological hurdles required to dispatch batteries in this fashion. Load impact estimates of the price response may also be calculated in the same fashion as the load impacts

from Objective 1. SDG&E will attempt to simulate the effects of adding storage or NEM to customer loads in Stage 1 to determine if those technologies will benefit the customer.

- **Objective 5:** What are greenhouse gas (GHG) savings as a result of implementing RTP?

  Recommended Metrics for Objective 5

  a. What are estimated GHG savings over the pilot period?

     i. Approach: Develop 8760 hourly impacts for Stage 1 RTP Pilot participants from Objective 1, and apply those to GHG emissions data to derive savings and compared to the OAT TOU rate that the customer was on before.

  b. Are there any conclusions that can be drawn regarding potential for RTP savings from Stage 2 participation?

     i. Approach: Using the information gathered in metric "a" extrapolate to expected participation in Stage 2.

Evaluation Methodology for Objective 5

The GHG benefits can be estimated by applying the hourly load impact estimates from the 1st and 2nd year of the RTP Pilot to the GHG emission data to derive GHG savings. The GHG can be calculated multiplying the activity data by the emission factor (GHG emissions = Activity Data x Emission Factor). In this case the activity data is the load impact or reduction in load attributed to the RTP Pilot rate. By applying the hourly load impact estimates from the 1st and 2nd year of the RTP Pilot to the GHG emission data GHG savings estimates can be derived. The results will need to be qualified as to whether it is appropriate to extend the savings to the entire customer class. It may be that most customers in the class are unable to participate on SDG&E's RTP Pilot rate.

C. RTP PILOT - Stage 2 Evaluation Plan

Stage 2 evaluation plans are expected to be similar to that of Stage 1. There could be significant differences in the types of customers that can participate that may warrant making

changes to the Stage 2 evaluation plan. SDG&E believes that early Stage 1 analysis will help shape what will be needed to study in Stage 2. However, SDG&E anticipates using similar methodologies for the load impact studies to measure the load reductions and/or shifts. SDG&E plans to meet with stakeholders and determine what the study scope should include and if there are other areas that should be studied. SDG&E recommends conducting focus groups, participant and non-participant surveys, as well as post-event surveys after hourly event adders occur, and an end of Stage 2 RTP Pilot surveys. It is not assumed that another process survey needs to be conducted assuming that SDG&E is able to address the results from the Stage 1 RTP Pilot's process evaluation.

III. BUDGET

This section explains the proposed budget for evaluation of the Dynamic Pricing Pilots detailed by year and as a total over the life span of the Dynamic Pricing Pilots. Below in Table LW-2 the budget estimates should not be considered final as costs will depend on participation (to be determined later) and Dynamic Pricing Pilots workshop scope.

Table LW-2 SDG&E Dynamic Pricing Pilots Measurement and Evaluation Budget					
	Q4 2024-Q1 2027 *	**Q4 2024-Q1-2027 ***	**Q4 2026-Q1 2029 ***	**Q4 2026-Q1 2029 ***	
SDG&E M&E Activities	**Export Compensation Stage 1**	**RTP Stage 1**	**Export Compensation Stage 2**	**RTP Stage 2**	**Total Dynamic Pricing Pilots**
Two years of Load Impact Evaluation (includes load and bill impacts, bill savings, and utility savings	$100,000	$300,000	Evaluation Plans and Budget development will be based on the results of Export Compensation Pilot Stage 1	$300,000	$700,000
Customer Research (includes surveys on customer acceptance, customer understanding of the RTP, barriers to entry, difficulties in implementation, etc.	$150,000	$300,000		$300,000	$750,000
Miscellaneous research, analytical support, and Labor support	$261,259	$447,898		$482,832	$1,191,989
Incentives for first 1,000 residential		$300,000**		$0	$300,000
Total M&E related costs	**$511,259**	**$1,347,898**		**$1,082,832**	**$2,941,989**

* The Dynamic Pricing Pilots end approximately 6 months prior to the end of the final evaluations

** If there are incentive funds not spent on RTP Stage 1, funds may be used for RTP Stage 2

IV. SUMMARY AND CONCLUSION

SDG&E's evaluation of the Dynamic Pricing Pilots will utilize SDG&E's Advanced Metering Infrastructure/Smart Meter data, hourly interval, consumption, and customer characteristic data from enrolled customers to conduct the load impact evaluation. SDG&E plans to conduct surveys from participants and non-participants to assess understanding of the hourly rate, ease of participation, barriers to participating, and ease of access to pricing data. Process evaluations and post event surveys are also planned as well as an end of pilot surveys. SDG&E believes the information obtained in Stage 1 of the Dynamic Pricing Pilots will help identify areas that can be improved for the implementation of Stage 2 of the Pilots. SDG&E plans to conduct workshops prior to the final development of the Dynamic Pricing Pilots Stage 1 and Stage 2 evaluation plans so feedback can be incorporated into the evaluation, if feasible.

The load impact studies in conjunction with the post event and end of pilot surveys information will help facilitate SDG&E's understanding of the drivers for participation and non-participation on Dynamic Pricing Pilot rates. Knowing whether customers are aware and can react to the event components in the Dynamic Pricing Pilots will provide insights into load export/reduction potential when rolling out to a larger population. Responses to questions regarding how easily participants can export or reduce, or shift loads in response to hourly day ahead market prices with event adders or whether only certain customer types be able to participate on SDG&E's Export Compensation Pilot rate or RTP Pilot rate. Answers to these types of questions will help SDG&E to develop rate strategies that will lead to a more reliable grid. These are just some of the objectives / questions that SDG&E will strive to answer during its evaluation of the Dynamic Pricing Pilots.

V. STATEMENT OF QUALIFICATIONS

My name is Leslie Willoughby. I am employed by SDG&E as Electric Load Analysis Manager in the Customer Pricing Department. My business address is 8326 Century Park Court, San Diego, California 92123. In my current position, I am responsible for managing and conducting load and energy research analysis.

I attended San Diego State University in San Diego, CA, where I graduated with a Bachelor of Science in Business Administration in 1983. I continued to attend San Diego State University where I graduated with an MA in Economics in 1989. In 1990, I was employed by SDG&E to work in the Load Research Sec-tion of the Marketing Department as an Associate Economic Analyst. Over the past 30 years I have held positions of increasing responsibility within the company that have included Load and Energy Research.

I have previously testified before the Commission.

This concludes my prepared supplemental direct testimony.

ATTACHMENT A

Proposed Measurement and Evaluation Timelines

Proposed Dynamic Pricing Pilots Timeline for Measurement and Evaluation Activities

Quarters	Q3 2023	Q4 2023	Q1 2024	Q2 2024		Q3 2024		Q4 2024	Q1 2025	Q2 2025	Q3 2025	Q4 2025
Export Rate Stage 1	Develop RFP	Select Winning Bidder		Enrollment starts	Work shop	Finalize Eval plans	Enrollment continues	Export Sage 1 pilot starts	Participant /Non Participant surveys	Post Event Surveys		Begin M&E Studies
								Process Evaluations begin				
RTP Stage 1	Develop RFP	Select Winning Bidder	Bill Impacts	Enrollment starts	Work shop	Finalize Eval plans	Enrollment continues	RTP Stage 1 begins		Post Event Surveys		Begin M&E Studies
								Process Evaluations begin	Participant /Non Participant surveys			
Quarters	**Q3 2023**	**Q4 2023**	**Q1 2024**	**Q2 2024**		**Q3 2024**		**Q4 2024**	**Q1 2025**	**Q2 2025**	**Q3 2025**	**Q4 2025**
Export Rate Stage 2										Place holder for Export Rate Stage 2 M&E		
RTP Stage 2											Develop RFP	Select Winning Bidder

Proposed Dynamic Pricing Pilots Timeline for Measurement and Evaluation Activities - Continued

Quarters	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027
Export Rate Stage 1	M&E Studies	Interim LI Report / Workshop	Post Event Surveys / End of pilot surveys	Begin M&E Studies yr 2	Final Export Compensation Report Stage 1
RTP Stage 1	M&E Studies	Interim LI Report / Workshop	Post Event Surveys / End of pilot surveys	Begin M&E Studies yr 2	Final Report RTP Stage 1

	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027
Export Rate Stage 2		Potential enrollment	Enrollment Continues	Stage 2 Export Compensatio	Process/part/non part surveys
RTP Stage 2	Bill Impacts RTP Stage 2	Enrollment starts	Enrollment Continues	Stage 2 RTP begins	Process/part/non part surveys

Proposed Dynamic Pricing Pilots Timeline for Measurement and Evaluation Activities - Continued

Quarters	Q2 2027	Q3 2027	Q4 2027	Q1 2028	Q2 2028	Q3 2028	Q4 2028	Q1 2029	Q2 2029
Export Rate Stage 1									
RTP Stage 1									
	Q2 2027	Q3 2027	Q4 2027	Q1 2028	Q2 2028	Q3 2028	Q4 2028	Q1 2029	Q2 2029
Export Rate Stage 2	Conduct Post Event Surveys / end of pilot surveys		Load Impact Studies	First year Load Impact Study		Conduct Post Event	Load Impact Studies	Final Load Impact	
RTP Stage 2	Conduct Post Event Surveys / end of pilot surveys		Load Impact Studies	First year Load Impact Study		Conduct Post Event	Load Impact Studies	Final Load Impact	