Demand Side Analytics
DATA DRIVEN RESEARCH AND INSIGHTS

EVALUATION PLAN

DRAFT

Prepared for San Diego Gas & Electric

By Demand Side Analytics, LLC

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ACKNOWLEDGEMENTS

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1 INTRODUCTION

This evaluation plan lays out the analysis approach and requirements for evaluating impacts for SDG&E's small commercial CPP-TOU rates, including the technology deployments (TD) for non-residential customers (CPP-TD and AC Saver DA) and for residential customers (AC Saver DA). Throughout this document these will be referred to as four distinct groups of residential and non-residential programs:

- Non-residential: CPP-TOU, CPP-TD, ACSDA
- Residential: ACSDA

There are two main objectives for this evaluation plan. The primary objective is to engage in science and avoid after-the-fact analysis and decisions where there is a temptation to modify models to find the desired results. This requires documenting the hypothesis, specifying the intervention, establishing the sample size and the ability to detect a meaningful effect, identifying the data that will be collected and analyzed, identifying the outcomes that will be analyzed and segments of interest, and documenting in advance the statistical techniques and models that will be used to estimate energy savings and demand reductions. The goal is to leave little to no ambiguity regarding what data will be collected or how the data will be analyzed. The secondary objective is to comply with the California Load Impact Evaluation Planning Protocols (Protocol #2). As a result, the evaluation plan is customized the explicitly address the 12 questions in the planning protocol.

Table 1 and Table 2 summarize the history, populations, and evaluation objectives for each program.

Table 1: Program History

Program Element	CPP-TOU	CPP-TD	AC Saver DA
Year introduced	▪ January 2014	▪ Thermostats: 2012	▪ Thermostats: 2012 ▪ AC Saver Day Ahead: 2018
Year Defaulted	▪ 2016 for small commercial	▪ NA	▪ NA
# of Participants (PY 2021)	▪ ~51k Small Comm participants ▪ ~161 Ag participants	▪ ~2k devices (383 sites) on commercial dispatchable rates	▪ Commercial: ~6k devices (676 sites) on non-dispatchable rates ▪ Residential: ~16k devices (~15k sites) including Nest (BYOT only) and ecobee (BYOT and free)
Historical events (last 3 years)	▪ 2019 – 0 ▪ 2020 – 9 ▪ 2021 – 0	▪ 2019 – 0 ▪ 2020 – 9 ▪ 2021 – 0	▪ 2019 – 19 non-res, 20 res ▪ 2020 – 20 non-res, 20 res ▪ 2021 – 0 non-res, 5 res
Historical Evaluation Dispatchable Ex-post (last 3 years)	PY2019 (2-6pm): ▪ No Events PY2020 (2-6pm): ▪ 5.23 MW PY2021 (2-6pm): ▪ No Events	PY2019 (2-6pm): ▪ No Events PY2020 (2-6pm): ▪ 1.54 MW PY2021 (2-6pm): ▪ No Events	PY2019 (6-8pm): ▪ Non & quasi-res: 0.52 MW ▪ Res: 3.76 MW PY2020 (6-8pm): ▪ Non & quasi-res: 0.44 MW ▪ Res: 4.55 MW PY2021 (6-8pm): ▪ Non & quasi-res: no events ▪ Res: 6.02 MW
Historical Evaluation Dispatchable Ex-ante (last 3 years)	PY2019 (4-9pm): ▪ 1.97 MW PY2020 (4-9pm): ▪ 0.24 MW PY2021 (4-9pm): ▪ 0.18 MW	PY2019 (4-9pm): ▪ 0.30 MW PY2020 (4-9pm): ▪ 0.26 MW PY2021 (4-9pm): ▪ 0.36 MW	PY2019 (6-8pm): ▪ Non & quasi-res: 0.74 MW ▪ Res: 5.92 MW PY2020 (6-8pm): ▪ Non & quasi-res: 0.77 MW ▪ Res: 4.38 MW PY 2021 (6-8pm): ▪ Non & quasi-res: 0.63 MW ▪ Res: 2.81 MW
Dual participation	▪ Overlaps with AC Saver Day Of and CBP (~2k accounts)	▪ Limited	▪ NA: ACSDA devices are not dispatched on CPP event days and participants cannot be dual enrolled in Summer Saver (Res) or AC Saver DO (Non-Res)
Enabling tech	▪ AC Saver switches	▪ Ecobee thermostats	▪ Ecobee & Nest thermostats

Table 2: Deliverables Specifications

Program Element	CPP-TOU	CPP-TD	ACSDA
Ex-post	▪ 2022	▪ 2022	▪ NA (no events) for Commercial ACSDA ▪ 2022 for Residential ACSDA
Ex-ante	▪ 12-year, 4-9pm RA window ▪ 12-year, 5-10 pm updated RA window (March and April) ▪ Time-Temperature matrix	▪ 12-year, 4-9pm RA window only ▪ 12-year, 5-10 pm updated RA window (March and April) ▪ Time-Temperature matrix	▪ 12-year, 4-9pm RA window only ▪ 12-year, 5-10 pm updated RA window for March and April, 4-9pm window for other months ▪ Time-Temperature matrix
Comments	▪ Small commercial only ▪ Excludes all TD accounts	▪ To emulate discontinuation of auto-enroll, only count first account as enrolled (assume disenrollment thereafter). Previous analyses assumed continuous enrollment, in alignment with auto-enroll. ▪ Report impacts per customer, per thermostat, as % of cooling load ▪ Ex-ante impacts estimated on per connected thermostat basis ▪ Update connectivity decay analysis to inform ex-ante forecasts. Address discontinuation of auto-enroll, as described above and include devices purged pre 2020 to ensure complete device enrollment picture.	

Analysis segments	▪ Notification
	▪ Notification channel
	▪ Climate zone (coastal vs inland)
	▪ Dual enrollment (AC Saver DO, CBP)
	▪ Solar
		▪ Notification channel
		▪ Rate (PSW vs CPP-D)
		▪ Rate size (Small, Med, Large)
		▪ Climate zone (coastal vs inland)
			▪ Notification channel
			▪ Both: Climate zone (coastal vs inland)
			▪ Non-residential:
			  ○ Rate (Non-res, Quasi-res)
			  ○ Rate size (Small, Med, Large)
			▪ Residential:
			  ○ Rate (TOU vs flat)
			  ○ Tech (Free ecobee vs BYOT ecobee vs BYOT Nest)

Recent changes to consider	▪ City of San Diego CCA rollout in 2021 (affects about 40% of customers) ▪ PY 2022: window change to 4-9pm	▪ City of San Diego CCA rollout in 2021 (affects about 40% of customers) ▪ Continued rollout of BYOT ▪ PY 2022: window change to 4-8pm ▪ 2022: Program management now dropping inactive accounts after one year	▪ 2020: Purge of disconnected devices ▪ 2020: Discontinuation of auto-enrollment of subsequent accounts at an existing site ▪ 2022: Program management now dropping inactive accounts after one year

SDG&E defaulted over 120,000 small non-residential customers onto CPP-TOU rates between November 2015 and April 2016. Roughly 5% of these customers opted-out and were placed on TOU rates without a critical peak component. For all small commercial rates, the TOU peak period and the CPP event period (if applicable) historically ran from 11am to 6pm. However, these periods were narrowed to 2pm to 6pm in PY2018. Beginning in PY 2022, the CPP peak period was shifted to 4pm to 9pm to align with the Resource Adequacy window.

The commercial TD program historically provided ecobee connected thermostats free of charge to commercial customers. The program has been in operation since 2014. Beginning in 2017, customers were required to be on a CPP-TOU rate (either CPP-D (large commercial), TOU-A-P (small commercial) or CPP-D-Ag (agricultural). Because the requirement to be on a CPP-TOU rate was not in place before, a significant number of participants are not enrolled in a CPP-TOU rate. In 2018, the program changed from the free thermostat to a rebate model and was broadened to include additional thermostat models. The devices on dispatchable rates (PSW and CPP-D) are curtailed on the CPP event days or and devices on non-dispatchable rates are curtailed on AC Saver DA days. The AC Saver DA events can be dispatched at any time between 12 pm to 9 pm (on-peak hours) for a maximum of 4 consecutive hours and nearly all events in recent years were called from 6-8pm. In previous years, devices now on AC Saver DA had been dispatched from 2-6 pm during SCTD events. Devices on CPP rates (collectively CPP-TD) were dispatched from 2pm to 6pm. Beginning in PY 2022, the CPP peak was shifted to 4pm to 9pm to align with the Resource Adequacy window and the CPP-TD event window was shifted to 4pm to 8pm, since due to the four hour device dispatch limit.

We will continue the implement the modifications made in PY 2020 to reflect the discontinuation of auto-enrollment and we will use monthly enrollment files to track enrolled sites throughout the event season. We will also update the enrollment forecast model originally developed for TD programs for PY 2020. We will also incorporate this year's program decision to unenroll inactive thermostats after one year instead of two.

There are also considerations specific to evaluating each program. These considerations stem from a variety of factors including historical weather patterns and the availability and quality of treatment and control populations for analysis. The considerations for each program are described below.

1.1 EVALUATION CONSIDERATIONS: TOU

The small commercial TOU program will no longer be evaluated. The intervention began in 2014 and small commercial and small agricultural customers were defaulted onto TOU in 2016. We recommend against evaluating the persistence of customer response to the small commercial TOU structural changes. Due to the lack of RCT design, the small effect size, the time elapsed since the initial intervention, and the ongoing default transition of residential customers to TOU rate (leading to a lack of a control group), we cannot confidently attribute changes in energy use to SMB TOU rates. For these reasons, the TOU evaluation was omitted starting in PY2019 and similarly will no longer be evaluated in PY2022.

1.2 EVALUATION CONSIDERATIONS: CPP-TOU

For the small commercial CPP-TOU population (whose rates also include a TOU component), there are multiple considerations relevant to the evaluation, including

- A time-temperature matrix will be provided in addition to the standard weather year ex-post impact tables. A time-temperature matrix shows the expected change in hourly use as a function of the temperature conditions and the event start and the end hour.
- Reference loads will be prepared for six different segments to be able to fully leverage the segmented ex-post impacts from PY 2022. The PY 2022 impacts for each segment will be applied to the PY 2022 reference loads developed for each segment before aggregating loads and impacts to the system level ex-ante impacts. The main segment categories are building blocks. They are designed to ensure segment level results add up to the total and to enable production of ex-ante impacts, including busbar level results. Note that this analysis will exclude small commercial thermostat participants as they will be evaluated as part of the TD analysis. The six main small commercial CPP analysis segments will be:
    - ✓ Commercial
        - Notified & Coastal
        - Notified & Inland
        - Not notified & Coastal
        - Not notified & Inland
    - ✓ Dual enrolled (mostly in Summer Saver)
    - ✓ Agricultural
- Five CPP events were called in a row. DSA will attempt to assess the effect of several consecutive days of event notification on load impacts by comparing notified groups to non-notified groups and mining messaging information.
- Both treatment and control pool were exposed to statewide Flex Alerts, so all measured load impacts will be incremental to the effect of Flex Alerts.
- DSA will conduct CPP analysis net of ELRP impacts since all load reduction during ELRP events is counted toward ELRP performance. We will check for and remove any ELRP A1-A5 participants from the analysis on ELRP event days.

1.3 EVALUATION CONSIDERATIONS: CPP-TD

- Ex-ante impacts will be reported for the average customer and for the average thermostat.
- CPP-TD sites now served by the San Diego CCA will be excluded from the CPP-TD forecast (because they are no longer eligible) and will not be transitioned to ACSDA as originally

planned (due to the higher magnitude of events). They will be retained as an emergency resource only.

- For future ex-post analysis, DSA will continue to use the monthly enrollment lists as the "source of truth" for enrollments, including tracking of movement from one program to another. It will be key to cross-check the enrollment lists with CCA status to make sure CCA customers aren't included in CPP-TD enrollments.
- DSA will need to provide the enrollment forecast again this year (can leverage the model built for PY2021). As in PY 2021, the enrollment forecast will incorporate assumptions for site attrition and thermostat connectivity trends.
- Enrollment and thermostat list management is expected to continue as before with the unenrollment period now being one year (e.g. removing thermostats inactive for one year, cross-checking the thermostat list with the monthly enrollment lists).
- A time-temperature matrix will also be provided in addition to the standard weather year ex-post impact tables. A time-temperature matrix shows the expected change in hourly use as a function of the temperature conditions and the event start and the end hour.
- Results need to be segmented by different dimensions. The main segment categories are building blocks. They are designed to ensure segment level results add up to the total and to enable production of ex-ante impacts, including busbar level results The three main analysis dimensions for the updated Ex-Ante impacts will be:
    - ✓ Class (Small, Medium, Large)
    - ✓ Rate (PSW, CPP-D)
    - ✓ Climate zone (coastal vs inland)
- Five CPP events were called in a row. DSA will attempt to assess the effect of several consecutive days of event notification on load impacts by comparing notified groups to non-notified groups and mining messaging information.
- Both treatment and control pool were exposed to statewide Flex Alerts, so all measured load impacts will be incremental to the effect of Flex Alerts.

1.4 EVALUATION CONSIDERATIONS: NON-RESIDENTIAL AC SAVER DA

- There will be no ex-post analysis because no events were called in 2022. For ex-ante analysis, DSA will use the percent impacts from PY2020 and apply those to reference loads developed for PY2022.
- Ex-ante impacts will be reported for the average customer and for the average thermostat.
- Non-dispatch is likely due to issues with reading the customer list from the new SAP system.

- DSA will need to provide the enrollment forecast again this year (can leverage the model built for PY2021). As in PY 2021, the enrollment forecast will incorporate assumptions for site attrition and thermostat connectivity trends.
- Enrollment and thermostat list management is expected to continue as before with the unenrollment period now being one year (e.g. removing thermostats inactive for one year, cross-checking the thermostat list with the monthly enrollment lists)
- A time-temperature matrix will also be provided in addition to the standard weather year ex-post impact tables. A time-temperature matrix shows the expected change in hourly use as a function of the temperature conditions and the event start and the end hour.
- Results need to be segmented by two different dimensions. The main segment categories are building blocks. They are designed to ensure segment level results add up to the total and to enable production of ex-ante impacts, including busbar level results. We also plan to produce results for additional categories, such as industry type. The main analysis dimensions will be:
    - ✓ Class (Small, Medium, Large, Quasi-residential[1])
    - ✓ Climate zone (coastal vs inland)
- The data regarding thermostat opt-out rates should be analyzed. Opt-outs tend to occur gradually over time and SDG&E has been undertaking an effort to lower event opt out by TD customers. We have ample experience with Nest and ecobee data. We will update the connectivity analysis for use in the enrollment forecast.

1.5 EVALUATION CONSIDERATIONS: RESIDENTIAL AC SAVER DA

- Use of matched control group. Because a control group was not withheld from the enrolled population during events, we will rely on a matched control group. Matches will be pulled from a sample of residential customers which was created in PY2019. We will use the same pool for the PY2022 matching. These customers have never been enrolled in demand response programs (ACSDA, CBP, Summer Saver, etc.).
- Match within ELRP eligibility group: Participants will be matched to control pool candidates within Residential ELRP eligibility group and NEM status, as summarized in Table 3. If needed for smaller segments, we can leverage the control pool pulled for the Residential ELRP evaluation.

[1] Post-purge enrollment analysis conducted over the summer indicated there are only about a dozen quasi-residential sites which remain enrolled after removal of about a thousand long disconnected sites.

Table 3: Residential ELRP Eligibility Groups

Eligibility Group	NEM
HER (not on CARE)	Yes
HER (not on CARE)	No
CARE (linked to BDR, includes control)	Yes
CARE (linked to BDR, includes control)	No
CARE (not linked to BDR)	Yes
CARE (not linked to BDR)	No
Self-enroll (Opt-in eligible)	Yes
Self-enroll (Opt-in eligible)	No

- Consideration of TOU default rate rollout in matching models. Beginning in 2019, SDG&E began defaulting residential customers onto TOU rates, at a pace of about 75k per month. Because the switch to TOU rates can potentially affect underlying loads, TOU transition date was historically included in the matching model as a predictor so that participants will be paired with a match that was transitioned to a TOU rate in the same time frame. However, the rollout is now essentially complete so we will simply match within rate type (TOU or non-TOU) as was done beginning in PY 2021.
- Results need to be segmented by five different dimensions. The main segment categories are building blocks. They are designed to ensure segment level results add up to the total and to enable production of ex-ante impacts, including busbar level results. We also plan to produce results for additional categories, such as industry type. The main analysis dimensions will be:
  - ✓ Climate zone (coastal vs inland)
  - ✓ Technology[2] / Program (Free ecobee, BYOT ecobee, BYOT Nest)
  - ✓ Rate (TOU or not TOU, TBD based on the transition timing of the participants)
  - ✓ Solar/NEM status[3]
- The data regarding thermostat connectivity rates should be analyzed. Disconnections tend to occur gradually over time and SDG&E has been undertaking an effort to improve device

[2] Splits by Nest / Non-nest will only be shared internally. External reporting will only separate by program (BYOT vs Free)

[3] Given SDG&E's requests in PY2019 we will attempt to incorporate NEM status in the bottom up segmentation, as feasible given counts in individual research cells.

connectivity. We have ample experience with Nest and Ecobee data to support this. We will update the connectivity analysis for use in the enrollment forecast.

- Device connectivity and trends will be incorporated. As in PY2020 and PY2021, we will determine device connectivity and trends using thermostat first / last online and program enrollment dates (for ecobee devices), taking into account the classification rule changes we'll implement to incorporate the auto-enroll discontinuation carried over from PY 2021[4]. Importantly, some sites previously classified as disconnected will now no longer be counted as enrolled.
- DSA will need to provide the enrollment forecast again this year (can leverage the model built for PY2021). As in PY 2021, the enrollment forecast will incorporate assumptions for site attrition and thermostat connectivity trends. Because connectivity data in unavailable for Nest thermostats, thermostat connectivity trends derived for ecobee thermostats will be applied to Nest thermostats for the enrollment forecast and ex-ante impact estimates.
- Enrollment and thermostat list management is expected to continue as before with the unenrollment period now being one year (e.g. removing thermostats inactive for one year, cross-checking the thermostat list with the monthly enrollment lists)
- A time-temperature matrix will also be provided in addition to the standard weather year ex-post impact tables. A time-temperature matrix shows the expected change in hourly use as a function of the temperature conditions and the event start and the end hour.
- Ex-post and ex-ante impacts will be reported for the average customer and for the average thermostat.
- Both treatment and control pool were exposed to statewide Flex Alerts, so all measured load impacts will be incremental to the effect of Flex Alerts.
- The residential ACSDA analysis will also be conducted using the CAISO baseline protocols. These baseline results should be compared with the evaluation results and include Day matching and Weather matching. The baselines used for each will align with the recommendations in the California ISO Baseline Accuracy Assessment Report, summarized in Table 4 below.

[4] Nest thermostats are missing last online date.

Table 4: Residential Baseline Definitions

Customer Segment	Weekday	Baselines Recommended[5]	Adjustment Caps
Residential[6]	Weekday	4 day weather matching using maximum temperature	+1.4 / -1/1.4
		Highest 5 of 10 day matching	+1.4 / -1/1.4
	Weekend	4 day weather matching using maximum temperature	+1.4 / -1/1.4
		Highest 3 of 5 weighted day matching	+2 / -1/2

[5] All baselines will include a 2 hour pre and post period buffer and a 45-day look back limit. Ineligible days will include ISO holidays (excludes President's, Columbus, and Veterans Days), weekends and ACSDA event and award days. Participants in other DR programs will be excluded.

[6] Also includes quasi-residential sites

2 METHODS

Different evaluation methods will be applied to each program, given the research questions and considerations unique to each. Table 5 summarizes the key research questions pertinent to the evaluation of each program. Note that all research questions apply to TD programs because it includes both an assessment of energy savings and of load impacts. The non-dispatchable load impacts for customers on CPP-TOU rates will not be evaluated as they were previously incorporated in the TOU evaluation.

Table 5: Key Research Questions

	Research Question	CPP-TOU	CPP-TD, ACSDA Res, ACSDA Non-Res
1	What were the demand reductions due to program operations and interventions in 2021 – for each event day and hour?	✓	✓
2	How do load impacts differ for customers who have enabling technology and/or are dually enrolled in other programs?		✓
3	How does weather influence the magnitude of demand response?	✓	✓
4	How do load impacts vary for different customer sizes, locations, and customer segments?	✓	✓
5	What is the ex-ante load reduction capability for 1-in-2 and 1-in-10 weather conditions? And how well does it align with ex-post results and prior ex-ante forecasts?	✓	✓
6	What concrete steps or experimental tests can be undertaken to improve program performance?	✓	✓

Table 6summarizes the data sources, segmentation and estimation methods to be used for each program. The segmentation is of particular importance because the evaluation will use a bottom up approach to estimate impacts for each segment and ensure that aggregate impacts across segments add up to the sum of the parts. This will be done to address discrepancies between segment and aggregate impacts in past evaluations which took a top down approach for aggregate impacts. Because impacts for each segment will be added together it is important that segmentation be structured to be mutually exclusive and completely exhaustive. In other words, every customer needs to be assigned to exactly one segment. The segmentation approaches for each program are detailed below. By design, the segmentation differentiates customers who are expected deliver demand reductions and energy

savings – such as customers who sign up for event notification or technology to automate response – from customers who are expected to deliver little or no demand reductions and energy savings.

Table 6: Evaluation Methods

	CPP-TOU	TD Programs
Data sources / samples	▪ All event season data for up to the past three program years (2020-2022) for: ✓ ~51k Small Commercial participants ✓ ~22k CPP-TOU opt outs (to be used for match control group) ✓ ~61k Previous Small Commercial participants defaulted to City of San Diego CCA (to be used for match control group) ✓ ~216 Ag participants ✓ ~3,816 Ag participants (to be used for match control group)	▪ All event season data[7] for up to the past three program years (2020-2022) for: ✓ ~3.3k CPP-TD and Non-residential ACSDA participants ✓ ~17,000 residential ACSDA participants ✓ ~10,800 residential customers – to serve as a control group which was pre-defined in 2019 analysis
Data sources / samples	▪ Notification ▪ Climate zone (coastal vs inland) ▪ Dual enrollment (AC Saver DO, CBP) ▪ Solar	▪ Rate ▪ Size (Small, Med, Large) ▪ Climate zone (coastal vs inland) ▪ Tech / channel (Residential only) ▪ Solar (Residential only)
Estimation method: Ex-post	NA	▪ CPP-TD: NA ▪ ACSDA: o Matched control groups analyzed using fixed effects diff-in-diff regression for each segment. o CAISO baselines will also be calculated.
Estimation method: Ex-ante	▪ Weather normalized customer regressions by segment for reference loads ▪ Price elasticities interacted with weather	▪ Weather normalized customer regressions by segment for reference loads ▪ Regression of historical event percent impacts versus weather for percent reductions

[7] Given that ACSDA events are called under a variety of weather conditions we will use all relevant data to identify a set of proxy days similar to each event. This approach worked well for the PY 2019 evaluation.

3 EVALUATION PLANNING PROTOCOL

Table 7 lists the study design question in the California Load Impact Protocols and details how the evaluation plan addresses each study design issue for each program.

Table 7: Study Questionnaire

#	Study design issue	CPP-TOU	TD
1	Will the evaluation rely on a control group? If so, how will it be developed and what comparisons between the treatment and control group will be made?	A matched control group will be developed for each segment from customers who opted out of CPP-TOU and recent participants that were defaulted to the City of San Diego CCA in 2021. The matching will be done with replacement.	A matched control group will be developed for each segment from non-TD customers
2	Will the evaluation rely on pre-intervention data to establish a baseline?	Yes	
3	Will the study rely on a sample or include the full population receiving the intervention? If a sample is used, does it meet 90/10 precision requirements?	To manage data volume, it may be necessary to select a 10% sample, stratified by segment	Full population
4	Is the study designed to detect a specific effect size? And, if so, how was statistical power assessed?	NA	
5	What is the study's threshold for statistical significance?	90% confidence using a two-tailed test	
6	What is the size of the control and treatment groups, if applicable?	Treatment: ~51k Control: ~6,639 Small Comm opt-outs[8] and ~3,310 Ag opt-outs, plus City of San Diego CCA customers (not eligible for CPP)	Non Res: ~3k treatment and ~3k control group customers Residential: ~17k treat, ~11k control pool
7	How will the evaluation address outliers?	Customers for whom a matched control group cannot be identified (due to score distance) will not be included. We expect it to be less than 1% of participants.	
8	How will the evaluation address attrition?	Analysis will be implemented using an intent to treat framework at the premise level. The treat-effect on the treated will adjust the changes in enrollment	
9	How will standard errors be calculated?	FE diff-in-diff regression using clustered (at premise level), robust standard errors	
10	Will estimates be developed for subcategories? If so, please define them.	Yes, please refer to segmentation in Table 3	

[8] Estimate of small commercial sites never on CPP-TOU. Another roughly 7k sites opted out of CPP-TOU.

11	Will energy savings be estimated?	No. For customer in TOU, we will analyze whether customer changed when they use energy in response to the change in the TOU rate structure.	
12	Will overlap with energy efficiency programs be estimated?	No	No

4 DATA NEEDED

Demand Side Analytics delivered a data request in advance of the kickoff meeting, which is included as Attachment A. At a high level, the data request includes eight items:

1. A customer characteristic file for all SDG&E non-residential customers
2. Hourly interval data for all non-residential customers from October 1, 2021 to October 8, 2022
3. Technology deployment thermostat information
4. Weather data for relevant stations from October 1, 2021 to October 8, 2022
5. Ex-ante weather dataset for SDG&E and CAISO
6. Event data for October 1, 2014 to through October 8, 2022 for all programs (full PY2022)
7. Event notification data from October 1, 2021 through October 8, 2022
8. SDG&E and CAISO system load data from October 2021 to October 2022
9. Enrollment forecasts: AC Saver Day Ahead Res and Non-res, CPP forecasts
10. Outage data
11. Customer characteristic file for all residential customers ever enrolled in ACSDA and the sample of 10,800 residential premises from November 1, 2021 to October 8, 2022
12. Hourly interval data October 1, 2021 to October 8, 2022 for all residential customers ever enrolled in ACSDA and the sample of 10,800 residential premises

5 TIMELINE

The evaluation work has been scoped into seven tasks. All but Task 6 (Project Management) have corresponding deliverables, laid out in Table 8.

Table 8: Evaluation Timeline and Deliverables

Task	Deliverable PY 2021	Due Date	Completed
Task 1 Conduct Project Initiation Meeting	PI Meeting:	September 2021	9/19/2022
	PI Meeting Memorandum:	Five business days after the PI Meeting	9/30/2022
Task 2 Develop Measurement and Evaluation Plan	Draft EM&V Plan:	October 2021	10/19/2022
	Final EM&V Plan:		
Task 3.1 Data Collection and Validation	Draft Data Request	Within 5 days of kickoff meeting	9/30/2022
	Final Data Request	Within 10 days of kickoff meeting	
Tasks 3 & 4 Impact Analysis & Reports	Draft Ex-Post LI Estimates (table generators/report)	Due late December, 2022	
	Final Ex-Post LI Estimates (table generators/report)	Due early January, 2023	
	Draft Ex-Ante LI Estimates (table generators/report)	Due February 15th, 2023	
	Final Ex-Ante LI Estimates (table generators/report)	Due March 1st, 2023	
	Final hourly and monthly Ex-Post and Ex-Ante datasets	Due March 1st, 2023	
	Executive Summary write-up for April 1st reports	Due March 15th, 2023	
	Non-technical abstract for CALMAC website	Due April 10th, 2023	
Task 5 Presentation of Results	Presentation	Date to be determined	
Task 7 Database documentation	2017 Integrated project database	March 1st, 2023	
	2017 Database specifications and documentation	March 1st, 2023	